



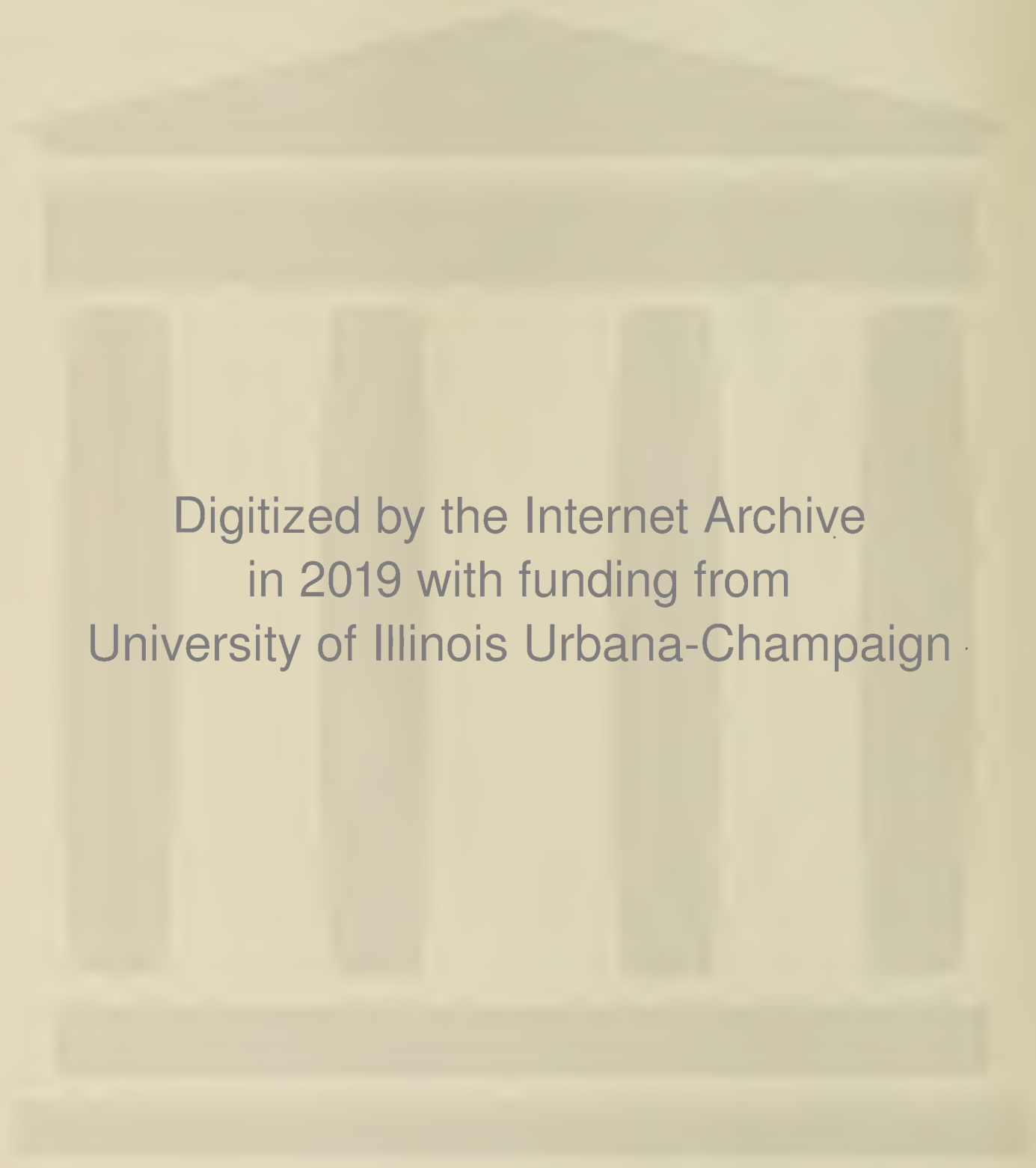
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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, \$6.00

PUBLISHED WEEKLY

Single Copies, 20 Cents

VOLUME 77, No. 14

535 North Dearborn Street, CHICAGO, ILL.

OCTOBER 1, 1921

CONTENTS AND DIGEST

The Rôle and Development of Drug Therapy. L. G. Rowntree, M.D., Rochester, Minn.1061

Progress of medical treatment. Future development through broadening the scope of pharmacology, guidance in the use of drugs, and adoption of sound therapeutic principles in teaching and practice.

The Treatment of Carbon Monoxid Poisoning Howard W. Haggard, M.D., and Yandell Henderson, Ph.D., New Haven, Conn.1065

Standard of exposure. Toxicity resulting from union of carbon monoxid with hemoglobin. Treatment by oxygen containing 8 per cent. of carbon dioxid. Illuminating gas poisoning. Discussed by Drs. Sayers and Henderson.

The Prevention of Simple Goiter in Man. David Marine, M.D., New York, and O. P. Kimball, M.D., Cleveland1068

Physiologic and chemical foundation underlying goiter prevention. Simple method of control. A public health measure. What the prevention of goiter means.

Vesical Calculus. John L. Crenshaw, M.D., Rochester, Minn.1071

Age, sex, operative procedure, diagnostic methods, etiology, associated operations and recurrences in various case groups.

Discussed by Dr. Barney.

Hypertension with Minimal Renal Lesions. Eli Moschcowitz, M.D., New York1075

Reasons for and value of hypothesis that lesions are sequential to hypertension. Case reports. Review of literature.

Discussed by Drs. Pepper, Le Count and Moschcowitz.

Diagnosis and Treatment in Pathologic Conditions of Urinary Tract in Children: Modern Methods. William E. Stevens, M.D., San Francisco....1081

Presentation of a few selected cases illustrating the necessity of employing modern urologic methods. Incidence of pathologic conditions in children. Advantages of lavage with silver nitrate solution.

Discussed by Drs. Kretschmer, Lewis, Caulk, A. R. Stevens, Hyman, Gengenbach, Harpster, Hinman, Livermore and W. E. Stevens.

Köhler's Disease. George I. Bauman, M.D., Cleveland1086

Report of two cases, illustrative of this rather rare condition.

Discussed by Drs. Frauenthal, Ryerson, Campbell and Bauman.

Lavage of the Renal Pelvis: An Experimental Study. Vincent J. O'Connor, M.D., Chicago1088

Comparative effects of boric acid solution, flavine, brilliant green, gentian violet, aluminum acetate solution, silver nitrate solution and mercurchrome.

Discussed by Drs. Quinby, Goldstein, Lepinasse, Caulk, Geraghty, Crowell, Ballenger, O'Neil, Kretschmer, Hume, Hagner and O'Connor.

Hepatoduodenostomy, with Observations on the Lyon-Meltzer Method of Biliary Drainage. Arthur D. Dunn, M.D., and Karl Connell, M.D., Omaha1093

New Method of Preventing Postoperative Intra-Ocular Infections. George Huston Bell, M.D., New York...1096

(Continued on next page)

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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NEXT ANNUAL SESSION, ST. LOUIS, MO., MAY 22-26, 1922

Bulletin

BUSINESS BREAKS ALL RECORDS

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SAUNDERS, Publishers

See Page 3

CONTENTS AND DIGEST—Concluded

Discussed by Drs. Lambert, Donovan, Verhoeff and Bell.

The Repair of Scleral Wounds (Including Rupture) Near the Limbus. Lee Masten Francis, M.D., Buffalo...1099

Discussed by Dr. Wescott.

Complete Discission of the Lens by the V-Shaped Method. S. Lewis Ziegler, M.D., Philadelphia.....1100

Discussed by Drs. Bell and Ziegler.

The Treatment of Otitis Externa with Acriflavine. J. Coleman Scal, M.D., New York.....1102

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Use of Hollow Tube Following Submucous Resection of the Nasal Septum. Henry M. Goodyear, M.D., Cincinnati.....1103

NEW AND NONOFFICIAL REMEDIES

Description of Articles Accepted by the Council on Pharmacy and Chemistry1103

Mixed Bacterial Vaccines.

EDITORIALS

Modern Problems in Two Medical Specialties.....1104

dermatologic

Vital Capacity and Physical Fitness1105

measurements.

Is Chronic Nephritis a Progressive Disease?.....1106

View that it is a succession of acute diseases.

Influence of "Patent Medicine" Interests in British Parliament.....1107

Pigeonholing of the Proprietary Medicines Bill.

CURRENT COMMENT

The Trend of Mortality in Controllable and Uncontrolled Diseases.....1108

Unnoticed factors that make for well-being.

Injection of Gas to Outline the Kidney1108

Roentgenograms of kidney, ureter and suprarenal gland after induced emphysema in perirenal adipose tissues.

Nitrobenzene Poisoning, Methemoglobinemia and Winckel's Disease..1108

Importance of considering anilin poisoning when methemoglobinemia is the predominant symptom.

"Eat-More" Campaigns.....1109

An advertising slogan that contravenes the aphorism of moderation.

The von Helmholtz Centenary....1109

Work of a man who came to his career through the applied science of medicine.

MEDICAL NEWS 1109

GOVERNMENT SERVICES 1114

FOREIGN LETTERS 1114

DEATHS 1118

MARRIAGES 1118

PROPAGANDA FOR REFORM 1119

More Misbranded Nostrums.

CORRESPONDENCE 1120

QUERIES AND MINOR NOTES 1121

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE 1122

MISCELLANY 1123

BOOK NOTICES 1124

MEDICOLEGAL 1126

SOCIETY PROCEEDINGS 1127

CURRENT MEDICAL LITERATURE

American Medical Journals

Recklinghausen's Disease—Multiple Benign Sarcoid—Colon Bacillus Onychia—Treatment of Larva Migrans—Intracranial Telangiectasis—Psychosis of Epidemic Encephalitis—Hypertension Reduced by "Salt-Free" Diet—Blastomycosis of Lung.....1129

Fracture of Neck of Scapula—Rate of Fixation of Complement—Pneumococcus Immunity—Effect of Thyroidectomy on Immune Body Production—Influence of Fatigue on Health—Syphilis and Industry—Trinitrotoluene Poisoning1130

Experimental Streptococcus Pneumonia and Empyema—Desiccated Virus for Antirabic Vaccination—Response of Excised Bronchi to Drugs—Volume of Liver Decreased by Vasomotor Depressants—Carbon Dioxid Excretion After Destruction of Optic Thalamus—Early Reactions in Spinal Cats—Vagus Control of Esophagus1131

Ocular Findings and Basal Metabolic Rate—Diphtheria Carriers Sterilized by Ultraviolet Rays—Cancer of Appendix—Coccol in Acute Ileocolitis in Infants.....1132

Operative Obstetric Complications—Value of Knowing Metabolic Rate—Internal Secretion of Skin1133

Foreign Medical Journals

Rudimentary Ribs and Brachial Plexus Lesions—Pathogenesis of Disseminated Sclerosis—Cause of Disseminated Sclerosis—Myoclonic Encephalomyelitis of Malarial Origin....1133

Bacteriology of Influenza—Weight at Birth of Infants in India—Reproductive Life of Women in India—After Effects of Epidemic Encephalitis in Children—Culture Medium and Agglutination of Meningococcus—Proctitis and Disease—Value of Complement Fixation Test in Tuberculosis.....1134

Prenatal Crying—Pathogenesis of Demodex—Voluntary Arrest of Pulse and Heart—Blood Test in Diabetes Mellitus—Traumatic Rupture of Diaphragm—Chronic Intestinal Stasis—Puncture of the Elbow—Diagnosis of Syphilis—Acute Encephalitis in Children....1135

Relapse and Recurrence of Scarlet Fever—Hirschsprung's Disease—Training in More Effectual Breathing—Recent Progress—Multiple Cysts in the Vagina—Hypertrophy of the Placenta—Indications for Treatment of Hydatidiform Mole—Metritis of Uterine Cervix—The Egersimeter—Notation in Radium Treatment—Etiology of Dysentery—

Motor Disturbance in Wrist After Fracture of Radius—Spasm of the Stomach....1136

Care of Stump After Resection of Intestine—The Heart During Physical Exercise—Gastrectomy for Cancer—Dilatation of the Esophagus—Exophthalmic Goiter and the Suprarenals—Diphtheria Antitoxin in Treatment of Mumps—Uremic Retinitis—Rupture of Large Intestine from Compressed Air—Resection of the Knee—Prescurvy—General Paresis..1137

Colon Bacillus Prostatitis—Topographic Distribution of the Elasticity and of the Air Currents in the Lungs—Amusia and Inability to Do Calculations—Artificial Pneumothorax in Treatment of Pleurisy with Effusion—Medical School Inspection—Epidemic Hiccups—So-Called Essential Hematuria—Plastic Operations with Mesentery—Hemorrhagic Pylonephritis—Reabsorption of Extravasated Blood—Progress in Internal Medicine.....1138

Alleged Botryomycosis in Man—Pararenal Lipoma—Caustic Destruction of Cancer—Manifestations in the Skin of Hemoblastosis—The So-Called Biologic Theory of the Brownian Movement—Serotherapy of Typhus—What Is the Best Treatment of Syphilis?—Fish as Factor in Extermination of Yellow Fever—The Pan-American Sanitary Conference1139

Biochemical Research on Vitamins—Clinical Research on Vitamins—Action of Emetin on the Heart—Hypophysectomy in Frogs—Biochemical and Clinical Research on Vitamins—Nonulcerative Hemorrhagic Rectitis—Wilson's Disease—Pneumoradiography of Kidney Pelvis—Induced Emphysema for Exploring the Kidney—Hydatid Cysts in Bones—Radium Treatment of Otitis—Centennial of Argentine Medical Statesman and Hygienist—Training of Specialists—Buttermilk Plus Fat in Infant Feeding—Painful Radiculitis1140

Evolution of Speech—Involvement of Meninges with Tuberculous Choroiditis—Pneumonic Paratyphoid—Conduction of Impulse Bilirubin Colorimeter—Medicinal Influencing of Conduction of Impulse—Latent Edema—Bilirubin in Cadaver Bile and in Duodenal Juice—Velocity of Pulse Wave—Clinical Electrocardiography—Diagnostic Significance of Leukocyte Blood Count for Carcinoma and Achylia Gastrica1141

Sensitization in Roentgen-Ray Treatment—The Ameba in Relation to Gastric and Duodenal Ulcer—Results of Herniotomies—Postoperative Complications in the Lungs—Flail Knee Joint—Genesis of Tuberculosis of Male Genital Organs—Influenza Encephalitis—Improved Darkfield Microscopy—Sensitiveness of the Stomach to Temperature—Arsphenamin Fatality—Tuberculous Hilus Glands in Adults—Pituitary Extracts as Test for Kidney Functioning1142

Treatment of Trigeminal Neuralgia—Examination of Standing Patient—Pessary in Prophylaxis of Gonorrhea in the Male—Predisposition to Epidemic Encephalitis—Demonstration of Integrity of the Placenta—Treatment of Eclampsia with a High-Percentage Sugar Solution—Rapidity of Development in Relation to the Constitution—The Skin and Sweat Glands in the Fetus and New-Born—Development of Striated Muscle—State of Nourishment and Physical Measurements—Acute Suprarenal Insufficiency in Infants—Experimental Research on Digestion of Milk..1143

Elimination of Water by Infants—Injection of Blood in Treatment of Infants—Convalescents' Serum in Prophylaxis of Measles—Associated Diseases—Serodiagnosis of Cancer—Pathology of the Blood—The Public Health Service in Netherlands East Indies—Gastrointestinal Fibromas—The Puberty Gland—Medical Impressions of Brazil—Treatment of Diphtheria—Glycosuria of Mixed Origin.1144

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 14

CHICAGO, ILLINOIS

OCTOBER 1, 1921

THE RÔLE AND DEVELOPMENT OF DRUG THERAPY*

L. G. ROWNTREE, M.D.

ROCHESTER, MINN.

In this symposium we are attempting to determine the value of drugs in treatment. The degree of success which will be attained obviously depends on the wisdom shown in the selection of men to represent various fields of practice. Needless to say, only those considered most eminently fitted to pass on these matters have been chosen.

Before entering on more detailed considerations, a few moments might be spent to advantage in a general survey of treatment as it exists today and in a consideration of the more important factors which have in the past, or may in the future, exercise a retarding or accelerating influence on the progress of treatment.

In considering the rôle of drugs in medicine, perspective is essential. Medical interests have become specialized to such an extent that the broad point of view is the exception. At times the sick succumb to a conflict of special interests as well as to disease. Practice is complex and each field so intricate that the specialist, seeing through his own glasses, centers only on part of the picture and loses sight of the patient as a whole. For true perspective we must return to Hippocrates. The father of medicine practiced prevention and cure. He was a general man. His therapeutic platform comprised several planks, among them surgery, drugs, dietary regimen, physical and psychic therapy. Recognizing the limitations of his day, he sought to assist Nature, the *vis medicatrix naturae*, and through the control of the vital functions of the body to promote the natural processes of repair, thereby compelling the patient himself to participate in the cure. He kept two objects in mind, to do good or at least to do no harm. Since his day, medicine has progressed, but his point of view has not been superseded.

PREVENTIVE MEDICINE

The achievements of preventive medicine have stirred the admiration of physicians and surgeons alike. From the laying down of the laws by Moses sanitation has made great progress, but since the days of Pasteur this has been unprecedented. Within the last three centuries, the average working life of English speaking men has been doubled. By the public health service, we are protected both from within and from without.

Vigilance exercised at our ports protects us from foreign born infections, and sanitation throughout the land is decimating many of our endemic diseases. So far as America and western Europe are concerned, preventive medicine is responsible for the greatest medical triumphs of all time.

CURATIVE MEDICINE

In the field of treatment come medicine, surgery, and the various specialties. This division is logical and counts for efficiency, provided the specialism does not result in loss of vision. Surgery has made almost unbelievable progress during the last century, particularly in the latter half. Many conditions, formerly considered medical, admittedly fare better now under surgical treatment. Although surgical technic has improved enormously, the greatest success of surgery rests on the use of drugs. Anesthesia, antisepsis and asepsis have made possible the achievements of surgery.

With regard to surgery, it is important to recall that it is but one form of therapy and that medical treatment applied simultaneously is often of the greatest consequence. Many conditions are still looked on as purely medical or purely surgical in which combined surgical and medical treatment is essential to the best results.

Medicine has somewhat neglected certain phases of physical and psychic therapy, and since these constitute important planks in treatment, the opportunity has been seized from without, for the establishment of certain cults. The most important so-called therapeutic cults have their foundation in one or the other of the well known, but unfortunately somewhat neglected, therapeutic principles. For their existence we as a profession are responsible. Treatment must be comprehensive and include in its armamentarium all measures capable of affording relief.

Drugs find their most extensive application in the field of medical treatment; but, to the thinking physician, treatment no longer consists merely in giving drugs or applying other measures of relief. The essence of treatment consists in recognizing the pathologic process; in understanding its causes, the mechanism involved in its production and in the development of its clinical manifestations; in knowing the character, extent, and probable outcome of the resulting functional and morphologic changes; in valuing correctly the significance of clinical and laboratory findings; in ascertaining the indications for, in knowing the mode of action of, and in applying the most effective measures for its prevention, abortion, amelioration, or cure. As medicine becomes more rational it becomes more effective, and drugs play a relatively smaller but better defined rôle. The essentials of good treatment are: correct and early diagnosis;

* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

a true conception of the cause and nature of the derangement; familiarity with the manner in which the derangement can be corrected, and the knowledge of, and ability to apply the most effective measure of relief.

Factors Responsible for Retardation in Medicine.—Since time and space preclude anything approaching an historical review, let us consider briefly on the one hand the most important factors responsible for retarding progress, and on the other, the channels through which progress in treatment has come. Medicine marches with science. Since science is a matter of evolution, progress has come but slowly, and ignorance, always the chief barrier to progress, still prevails in proportions inverse to the advancement of science. While ignorance is negative in character, it gives free rein to many human frailties and prejudices, to credulity and superstition which admit free dissemination of falsehood, the combination standing for inertia, if not for stubborn opposition.

Belief in the supernatural origin of disease and superstition saddled the world with demons, witchcraft, spells, astral influences, magic art, and occult sciences, and resulted in treatment in the use of seals, charms, talismans, incantations and invocations. Absurdity reached its climax in the administration of drugs according to the signs of the zodiac. An inordinately credulous public and charlatanism within our ranks made possible the perpetration in the name of medicine of such hoaxes as signatures, similars, sympathetic ointments and Perkins' tractors. That this credulity still persists is evidenced by the fact that similar cults still flourish. In the development of Christian science, there is nothing surprising except that it has developed in an enlightened age, rather than in the dark ages. From this we learn that scientific enlightenment has not penetrated deeply into the masses and that further instruction of the public is sorely needed in matters pertaining to medicine and sciences.

Failure to appreciate duly the self limited character of the majority of diseases, that is, to appreciate the *vis medicatrix nature* of Hippocrates, has constituted a fundamental oversight and has made possible the many systems within and the many cults without, which have obstructed the road of medicine. Therapeutic investigation, unless adequately controlled, leads usually to false doctrines.

In the final analysis it is seen that the fundamental factors responsible for the tardiness of medical progress have been: (1) the inadequacy of science during its early period of development, to cope with the complex problems of the human organism and with the processes of life and of disease; (2) the incorrect approach to the subject, that is, the employment solely of speculation uncontrolled by observation and experimentation. Our forefathers erred in accepting supernatural influences as the cause of disease, in adopting a speculative philosophy instead of investigation and in the employment of measures of relief, about which they knew little, for diseases about which they knew less.

THE CHANNELS THROUGH WHICH PROGRESS IN TREATMENT HAS COME

Progress comes through investigation, but to the public generally, medical investigation makes no great appeal. The research worker is commonly regarded as unpractical, yet the routine practice of today is based on the investigation of yesterday. Was-

sermann tests, spinal fluid studies, renal functional tests and the use of antitoxins, of glandular extracts and of arsphenamin constitute substantial phases of medical practice today, yet we did not employ any of them a generation ago. The public and many physicians fail to recognize that progress comes through investigation, that practice is based on investigation, and that medical investigation means better care of the sick, greater public health, and happier communities.

1. *The Evolution of Science and the Adoption in Medicine of Scientific Methods.*—With Harvey commences experimental medicine. Demonstration and proof were subsequently demanded, theories and authorities failing longer to satisfy the profession. The "Anatomical Exercise on the Motion of the Heart and Blood in Animals," 1628, ushers in a new physiology and the science of medicine. The profession was loath to accept it; but Harvey defended his thesis despite bitter opposition, and in so doing demonstrated for all time the advantages of the experimental method.

But in the seventeenth century, medicine probably profited as much from without as from within. Not alone were experiment and demonstration needed but also training in methods of thought. This was supplied by Bacon¹ and Descartes, the former formulating "The Principles of Inductive Science," and the latter clearly distinguishing the materialistic from the vitalistic. Galileo was creating the sciences of physics and mathematics while Sanatorius, through his assistance, was applying the thermometer and the scales to physiology. Borelli was utilizing mechanics and physics in investigations of the mechanics of motion. In other words, science was in the making and the instruments and methods of science were coming into general use in medicine. Alchemy was giving way to chemistry. Iatro chemistry, mathematics, and physics were laying the foundation of a new science and this in turn was permeating medicine. Medicine passed beyond the "conjectural art" of Celsus into the realm of science.

2. *Development of Clinical Medicine.*—Through following in the steps of Hippocrates, Sydenham became the father of clinical medicine. Observation and careful clinical records resulted in the recognition of new diseases and in the clear differentiation of known diseases. His teachings pervaded the whole realm of clinical medicine and constituted a great impetus, while the contributions of Auenbrugger, Corvisart, and Laënnec placed physical diagnosis on a firm basis. Diagnosis improved as the result of better histories and clinical records, more thorough physical examinations, and appropriate laboratory studies. The fundamental sciences developed and shed much light on the nature of pathologic processes. As a result, disease was recognized earlier, was understood better, and was treated on more rational lines.

3. *The Development of Pharmacology.*—Although the use of drugs comes down from antiquity, the science of pharmacology is of recent development. Magendie, a pupil of Bichat, fired by his spirit, accomplished for treatment what Bichat had accomplished for pathology, namely, laid the cornerstone of an underlying science. In his epoch making investigations, his object was to ascertain the seat of action of the drug,

1. Macaulay has discussed the nature of the services rendered society by Bacon. He says: "It was not by furnishing philosophers with rules for performing the inductive process well, but by furnishing them with a motive for performing it well, that he conferred so vast a benefit on society."

and in his experiments he located the seat of action of upas (strychnin) in the spinal cord. The next step was taken by a pupil of Magendie, Claude Bernard, who, in 1844, localized the action of curare in the neuromuscular endings. Schneideberg next entered the field and studied the action of drugs on the frog's heart. He and his pupils exercised a great influence on pharmacology and have been largely responsible for its present state of development.

Pharmacology is the science of the action of drugs. It utilizes the tools of science, observation, investigation, experimentation, standards and measurement. It ascertains facts concerning changes in function wrought through the action of drugs, determines the seat of action and the mechanism whereby changes are effected and not infrequently sheds light on the nature of both physiologic and pathologic processes. It has resulted in more rational drug therapy and in the deletion of many drugs and much empiricism. More than any other factor it has established dosage and channels of administration.

4. *The Relation of Chemical Constitution to Pharmacologic Action.*—To permit action of drugs, the living cell and the chemical molecule must come in contact. The cell may be looked on as the participating seat of the microchemical reactions. In it are chemicals undergoing reactions which result in the development of forces, and to it are constantly added new chemicals resulting in modification of reactions and in gross modifications of physiologic functions and properties.

In 1859, Stahlschmidt demonstrated that strychnin loses its tetanizing action when a methyl group is introduced and that the new compound assumes a curare-like action. Crum, Brown and Fraser, in 1868, in view of the ammonium base formed in this reaction, investigated other similar bases derived from alkaloids, brucin, morphin and thebain and discovered that all quaternary ammonia bases paralyze motor nerve endings, thus exerting a curare form action. This epoch making discovery called attention to the relation of pharmacologic action to chemical constitution and constituted the beginning of rational synthetic pharmacology.

Ehrlich, in 1898, enumerated five important instances selected from the whole of therapy in which a relationship was established between chemical constitution and pharmacologic action. Since that time, this number has been multiplied many fold and innumerable chemical compounds have been synthesized in the effort to obtain drugs with specific properties. Many drugs have been analyzed, that is, dissected into their component parts and the specific action of the drug as a whole determined as a property of one of its radicals. Thus Ehrlich was able to synthesize arsphenamin, and thus Macht recognized the importance of the benzyl group in opium. Such discoveries have resulted in the introduction into clinical practice of many drugs, among them, arsphenamin, neo-arsphenamin, benzyl alcohol, and benzyl benzoate.

Many isolated instances of the effects of chemical constitution and of chemical configuration on pharmacologic action are known. However, in a broad sense, progress has not been great as yet. We have, as it were, but a vision of the promised land.

5. *The Discovery of Micro-Organisms and of Their Relation to Disease.*—The discoveries of Pasteur revolutionized medical conceptions and doctrines and resulted directly in the development of bacteriology and

immunology. They are responsible also for many effective public health measures, and underlie the principles of aseptic and antiseptic surgery.

Immunotherapy, at present, is sharply differentiated from pharmacology. It deals largely with the nature of infecting agents, with the mechanism of infection and with specific immunity reactions. Immunity processes are undoubtedly chemical or physiochemical in character, but are as yet but little understood. As more light is shed on these subjects, immunology and pharmacology will probably become more closely allied.

6. *Aseptic and Antiseptic Surgery.*—Following the work of Pasteur and the adoption of the germ theory, Lister applied antiseptic principles to surgery. Aseptic surgery, in reality a form of preventive medicine, proved so effective that antiseptics did not receive the attention it actually merited. With the advent of war came the need for antiseptic surgery. For obvious reasons, sepsis was unattainable and Lister's doctrines and methods were tried but with disappointing results. Failure at first was ascribed to technical inadequacies, but later to incorrectness of principles. Indeed, one eminent authority insisted that "the treatment of suppurating wounds by means of antiseptics is illusory, and that belief in its efficacy is founded upon false reasoning." Lister's clinical observations and experiences were forgotten, and were replaced by theories and by experiments in vitro, which failed to approach the actual conditions confronting the surgeon.

However, the problems were attacked by Carrel and Dakin on simple grounds, by utilization of a substance, nonirritating to the tissues and with sufficient bactericidal power to kill all varieties of microbes present in wounds. Dakin set about finding such a substance and Carrel to elaborating the most effective manner of applying it. The problem was chemotherapeutic in nature. Methods such as were employed by Ehrlich were adopted, and various antiseptics were tried. The most desirable was selected, and so modified as to meet most effectively the conditions confronting the surgeon. As a result, the Carrel-Dakin method of antiseptic treatment was evolved, and the chloramins assumed a position of considerable importance in surgical practice.

7. *Specific Chemotherapy.*—The surest, and usually the shortest, approach to the specific treatment of any disease lies through the application of experimental therapy to the experimentally induced disease in animals. Thomas, of the Liverpool school of tropical medicine, used atoxyl with good results in experimental trypanosomiasis, but sought other arsenical compounds less toxic for the host and more toxic for the parasite. Ehrlich, recognizing the true constitution of atoxyl, undertook its modification, and in the course of some years produced several arsenicals less organotropic and more parasitotropic than atoxyl. His researches resulted in the discovery of arsphenamin and in its universal acceptance in medical practice. In his work, many principles were evolved which will prove of the greatest significance to further progress in the field of specific chemotherapy.

8. *Nutrition, Metabolism.*—Where there is life there is chemical reaction, the sum total of which we term metabolism. Derangements of metabolism result often in the appearance of disease. The nature of the derangement has been ascertained in some instances. Through the development of knowledge relating to metabolic diseases and to the nature and the caloric value of foodstuffs, regulation of diet has developed

along rational lines and has resulted in definite control of the course of disease in many instances. Recent investigation has revealed the fact that normal control of various phases of metabolism is exercised by internal secretions or specific substances produced by the glands of internal secretion. Perversion of these secretions leads to disease. Thus, through the employment of thyroxin, myxedema readily yields to treatment and through the use of extract of the posterior lobe of the hypophysis, diabetes insipidus is readily controlled temporarily. Little is known concerning the action of drugs on metabolism, but since the synthesis of thyroxin and epinephrin has already been effected, it would appear that the day of drug control of metabolism is close at hand.

For normal metabolism the so-called vitamins are essential. Neither their character nor the mechanism of their action is known. Their withdrawal from the diet results in the appearance of one or the other of the so-called deficiency diseases, while their reintroduction into the diet, after their prolonged absence, frequently results in cure. Here again it is but a question of time before definite chemical compounds will replace the substances now classed as vitamins.

9. *Functional Conception of Disease.*—Recognition of the functional factors in disease is rapidly obtaining a strong foothold in medicine and is replacing the structural conception which by virtue of its very nature is entirely unsympathetic to drug therapy. While a knowledge of morphologic pathology is essential to medicine, it tends more to surgical treatment or to no treatment at all. However, the recent developments of pharmacology and the ascendancy of physiologic and chemical trends in medicine (including pathology) have resulted in a more wholesome attitude toward drug treatment. In its beginning, at least, disease is derangement of function. Drugs cope more satisfactorily with derangements of function than with those of structure. The maintenance of function compatible with life, in spite of the existence of definite or even advanced structural changes, constitutes true therapeutic achievement.

LINES OF FUTURE DEVELOPMENT

The Broadening of the Scope of Pharmacology.—In the use of drugs, the general practitioner is the final court of appeal.² As a rule, however, drugs should never come into general use unless they are of unquestionable merit. The welfare of the public demands preliminary experimentation and adequate controls. The results in ten well controlled cases are of more value than the haphazard impressions from a thousand cases. The possibilities relative to the true value of drugs can be ascertained best by those trained in the field of experimental therapy. The channels through which drugs are introduced into general use are of considerable consequence. For instance, Ehrlich not only made brilliant discoveries but showed great insight in the selection of channels through which arsphenamin was safely and quickly introduced into practice.

Fundamentally, disease rests on functional and structural changes secondary to physicochemical reactions. Pharmacology deals with the influence of chemical, or if you please, physicochemical, agents, on the organism. In the past, pharmacologists have limited their activities, as a rule, to ascertaining the effect of these

agents on healthy animals. It is now recognized that this was a great mistake. The transferring of results from mice to man and from arterial rings to the intact animal is not always justifiable or possible. For this the pharmacologists are not to blame, since the opportunity for studying the action of drugs in naturally induced diseases is afforded them but rarely.

By training, pharmacologists are better equipped than are any other class of medical men, for ascertaining the effect of drugs on disease. But access to clinical material is usually lacking, and in consequence their training is lost to medicine so far as experimental therapy is concerned. Obviously, in this connection, the initiative must come from the clinic itself. The broadening of the scope of pharmacology, involving inclusion of experimental therapy and access to wards, would accomplish much for the advancement of medical treatment and result in an influence such as that exercised by Cushny and McKenzie in England, and Hatcher and Eggleston in this country.

Guidance in the Use of New Drugs.—Drugs enter practice through two channels, through science and through commerce. In their entrance through scientific channels exaggerated therapeutic claims are made at times, as the result of a lack of critical judgment and of adequate controls. But in their introduction through commercial channels, financial considerations and lack of true appreciation of the fundamental problems preclude unbiased evaluations. Today many proprietary drug interests are not content to supply the demand, as in olden days, but they deliberately attempt to create demand. As a result, the general practitioner is placed in a peculiar dilemma. Besieged daily by advertising matter, reeking with scientific patter, he falters between the teachings of medicine and the alluring claims of advertising agencies.

The confidence to be placed in any information depends largely on its source. Too frequently, commercial advertising is utterly misleading. It would be unfair, however, to assume that all drug advertising falls into this category, for many drug houses have secured the services of medical men of excellent training and of high ideals to assist in the preparation and marketing of their products.

In many instances, it is difficult to determine whether new medicinal articles are, or are not, of merit. To assist in this undertaking, the American Medical Association has created the Council on Pharmacy and Chemistry. It consists of a body of men selected because of their special knowledge of one or more fields of drug therapy. Originally, their functions were somewhat analogous to those of a vigilance committee. The objects of the Council are: to protect the profession and public against fraud, undesirable secrecy, and objectionable advertising in connection with proprietary medicinal articles.

The Council stands for simplicity in drug therapy and for the use of useful drugs only. To this end, it has published a small volume called "Useful Drugs" in which are presented the drugs which in the opinion of the Council merit a place in this category. The preparations listed therein should receive major consideration in all courses in pharmacology and therapeutics and also in the actual treatment of the sick as it is carried out by practitioners. In addition, the Council brings together annually, in a second volume "New and Nonofficial Remedies," such new remedies as comply with the requirements of the Council and can establish

2. As a matter of fact, highly trained clinicians exercise a profound influence on therapy, and it would be better if they constituted the last court of appeal.

their eligibility. Admission of medicinal articles to "N. N. R." does not carry with it a recommendation on the part of the Council, but indicates only the ethical standing of the preparation.

These two small and inexpensive volumes, "Useful Drugs" and "New and Nonofficial Remedies," should form a part of every physician's library, and should serve as a guide in the use of remedies, old and new. Their widespread adoption will do much for the wiser use of drugs.

The Adoption of Sound Therapeutic Principles in Teaching and Practice.—Sound teaching regarding the nature of disease and the influence of drugs will take care of many of our present difficulties. This involves leadership in the realms of therapeutics as well as in the fields of physiology and pathology. Therapeutic nihilism breeds poor treatment. The failure of clinical teachers to utilize useful remedies engenders haphazard therapy in the physicians of the future. Proper teaching will prove the most effective weapon in combating the evils in advertising.

The physician must be brought to feel the responsibility for treatment as well as for diagnosis, and to accord treatment the same time and effort accorded diagnosis.

Strict attention to indications is of importance. The intelligent selection and administration of therapeutic agents, with due appreciation of the work to be accomplished and of the results to be expected, will result in greater progress. In this connection, Dr. Barker's classification of drugs into: first, those that destroy the cause; second, those that restore disturbed function; third, those that help to regulate the vital processes, and fourth, those that relieve symptoms, should prove of definite value. Treatment should be conducted as a matter of scientific investigation. Drugs should be used to accomplish certain results and the results should be checked.

The therapist must deal at times with intangible qualities such as strength and reserve force, and at times proof of improvement is subjective only. It cannot be emphasized too strongly, however, that therapeutic success should be measured objectively whenever this is possible. In many instances, new methods must be devised for this purpose. Graphic records, whenever possible, are of great value, especially for purposes of comparison.

Dosage and channels of administration must receive more consideration. The C/T of Ehrlich, the dose curative as related to the dose tolerated, must play an increasing rôle and will greatly modify dosage. Its application has already resulted in fundamental changes in the dosage of digitalis and in the relatively tremendous doses of sodium iodid now in use in the treatment of syphilis.

In the use of complex medicinal compounds, standardization is essential in order to furnish units of measurement for dosage, and its widespread adoption is only a matter of time.

The Need of a National Institute of Drug Therapy.—The complexity of the human organism, of life's processes and, to a less extent, of drugs, demands a breadth and depth in investigation, the details of which are beyond the grasp of one individual. Group investigation is as greatly needed as group practice. In chemotherapy, chemistry and experimental medicine are represented. Chemical detail is best handled by chemists, and therapeutic details by physicians and

pharmacologists. Each deserves the best individual effort of specialists, but the results need correlation. A National Institute of Pharmacology and Experimental Therapeutics would prove of inestimable value to American medicine.

CONCLUSION

In drug therapy, recent progress has been both rapid and great. Much has been accomplished. Much remains to be done before medicine attains its good and converts the healing art into the healing science.

THE TREATMENT OF CARBON MONOXID POISONING *

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AND

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Carbon monoxid poisoning is so common in modern communities that the death rate on its account is comparable to that from diseases which, if not the commonest, rank close after the commonest. The chances for any one of us dying by carbon monoxid asphyxia are greater than by nearly any other, except one, perhaps, of what used to be considered unnatural modes of death. The therapeutics of carbon monoxid asphyxia are therefore important.

An earnest protest is, however, needed just now against the almost hysterical attitude which certain elements of the lay public, and even some medical writers, also, are taking on this subject. After all, not so many people are asphyxiated by carbon monoxid as by water. But the fear of drowning does not close the bathing beaches or stop the ferries and excursion steamers. Automobilists are usually healthy, but they all inhale more or less carbon monoxid, if not from their own car, at least from the car ahead.

Common sense and common experience, as well as thoroughly grounded scientific evidence, indicate that the idea that carbon monoxid is toxic and cumulative in amounts below one part of the gas in 10,000 parts of air is without foundation. With carbon monoxid asphyxia, as with water asphyxia, the amount of the asphyxiant and the duration of its action are of critical importance. Resuscitation from drowning and resuscitation from carbon monoxid differ markedly in certain features. But in each the ends aimed at are fundamentally the same, namely, elimination of the asphyxiant, supply of oxygen to the blood and tissues, and restoration of breathing.

A STANDARD OF EXPOSURE

We and our associates¹ have recently worked out a standard for exposure to carbon monoxid which may be expressed by the rule: Multiply the time of exposure in hours by the concentration of the gas in parts per 10,000 of air. If the product equals 3 or less there is no appreciable physiologic effect. If it equals 6, there is sometimes slight malaise. If it equals 9, a headache with some nausea is produced in most people. If it

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, R. M.: Report of Tunnel Gas Investigation, to be published by the U. S. Bureau of Mines and, in brief, J. Indust. Hyg. 3: 79 (July), 137 (Aug.) 1921.

equals 15, the conditions are dangerous for anything beyond brief exposure. If it is more than 15, they are extremely dangerous even for brief exposure.

Our investigations along this line were carried out under the U. S. Bureau of Mines, for the New York and New Jersey Tunnel Commissions. The results show that if the proposed tunnel for automobiles under the Hudson river is ventilated as fully as is proposed (the carbon monoxid is not to rise above 4 or 5 parts in 10,000 of air, and the time for passage will be about a quarter hour, or a half hour for trucks), its use will cause no injury whatever to the health of passengers using it daily.

On the other hand, owing to the defects of carbureters, or rather to the way they are usually adjusted, as the investigations of Mr. A. C. Fieldner and his associates in the bureau of mines have recently shown,² an automobile engine may produce 1 or even 2 cubic feet or more of carbon monoxid per minute. Thus, a car warming up in a small garage (10 by 10 by 15 or 20 feet, that is 1,500 to 2,000 cubic feet), with doors closed on a cold morning, makes an atmosphere dangerous to life within five minutes or less time. The frequency of fatalities under such conditions in the winter months nowadays affords a gruesomely satisfactory and practical confirmation of our theoretical deductions. Adjustment of carbureters to give a thin mixture decreases, and a rich mixture increases, carbon monoxid production. Gasoline vapor itself, except in high concentration, has little pharmacologic effect.³ In high concentration it acts like a very bad grade of ether, inducing anesthesia and convulsions.

We have mentioned these facts regarding the problem of vehicular tunnel ventilation and regarding the small closed garage, because the contrast is instructive. The safety assured in the tunnel and the danger occurring in the garage illustrate the point that carbon monoxid is not, like lead, for instance, an accumulating poison. It is rather an asphyxiant like water; taken occasionally and in small amounts it is almost as harmless. Its use is not, however, as yet encouraged by a constitutional amendment.

UNION OF CARBON MONOXID WITH HEMOGLOBIN

Carbon monoxid is not in any degree whatever a tissue poison. The nervous disorders and lesions following asphyxia are due to the anoxemia and not to a direct action of carbon monoxid on the cells in the brain and heart. On this point the evidence now available is, in our opinion, absolutely conclusive. We shall mention here only one fact to illustrate it. One of us⁴ has recently tested the question by the method of tissue culture. Pieces of living and developing brain of a chick are suspended in a hanging drop of chicken plasma at body temperature. Some of these hanging drops are placed in an atmosphere 79 per cent. carbon monoxid and 21 per cent. oxygen, while the controls are in air, which is 79 per cent. nitrogen and 21 per cent. oxygen. The former grow and develop quite as actively as the latter, although the carbon monoxid is 100 to 200 times as strong as would kill a chick by combining with its hemoglobin and thus asphyxiating it. In other words, the whole toxicity of carbon monoxid depends on its union with hemoglobin.

TOXIC ELEMENTS IN ILLUMINATING GAS

It should be added, however, that illuminating gas and even exhaust gas of automobiles using some adulterated gasolines, contain other substances, for example, benzene (benzol), which are tissue poisons. Accordingly, by the same method it was found that illuminating gas, even in comparatively low concentration, kills the fragments of chick brain. It also kills flies and other insects which, having no hemoglobin, are absolutely immune to carbon monoxid. Investigations in this laboratory indicate that it is the benzene and related substances in illuminating gas, and not carbon monoxid, which is responsible for the anemia sometimes occurring in persons constantly around leaking gas fittings. These substances are powerful respiratory stimulants, thus augmenting the rapidity of absorption of carbon monoxid in acute and rapid poisoning. It seems to us quite possible, and even probable, that our city gas companies could supply us with cheaper gas, with more profit to themselves, and with fewer deaths from misuse of their product, if the laws and regulations allowed them to supply a gas free from such illuminants as benzene.

THERAPEUTIC DATA

Confining our attention to carbon monoxid, since it is still decidedly the chief toxic substance in illuminating gas, in exhaust gas, and in all ordinary forms of smoke, we may take as our starting point for therapeutics these data:⁵ (1) The whole effect of carbon monoxid is due to its combining with hemoglobin and excluding oxygen. (2) Its combination with hemoglobin is entirely and readily reversible. Red cells which have taken up a considerable percentage of their capacity for carbon monoxid and have given it off again are as good as before. At the end of our tunnel investigations, all of us had many red cells circulating in our blood, and rendering efficient service, which had been through this process repeatedly. We probably have some of them yet, for the experience does not shorten their lives; it rather encourages a polycythemia. Evidently the treatment designed to stimulate the formation of new red cells by bleeding and the infusion of saline solution lacks logical foundation.

TREATMENT IN CARBON MONOXID ASPHYXIA

It would seem from these facts, at first sight, that inhalation of oxygen would be indicated as the proper treatment for carbon monoxid asphyxia. A close fitting mask and valves would be needed for the administration, for when oxygen is passed through an inverted funnel held over the face, the patient gets practically none of it.

But even with a good inhaler, and a well-fitting mask and valves, the therapeutic results are, in fact, not much better than with fresh air. The patient recovers or dies, according as the injury wrought during the asphyxia, and the remedial forces of nature may decide. Doubtless it helps somewhat to keep the patient warm; occasionally also after brief and very acute asphyxia, life may be restored by artificial respiration, most readily by the prone position or Schäfer method.⁶ But in most cases the physician might as well telephone, as one did, "Open the windows, and I will be up after breakfast."

There is urgent need of some specific means of treatment, something to have at hand at all city fires

2. Fieldner, A. C.; Straub, A. A., and Jones, G. W.: J. Soc. Automotive Engineers, April, 1921, and Bureau of Mines Reports of Investigations, March, 1921, Serial No. 2225.

3. Haggard, H. W.: J. Pharmacol. & Exper. Therap. **16**: 401 (Dec.) 1920.

4. Haggard, H. W.: Am. J. Physiol., to be published.

5. Henderson, Yandell: Carbon Monoxid Poisoning, J. A. M. A. **67**: 580 (Aug. 19) 1916.

6. Henderson, Yandell: Resuscitation Apparatus, J. A. M. A. **67**: 1 (July 1) 1916.

for immediate application to firemen overcome by smoke; something for use at coal mine explosions, and as part of every ambulance. But until quite recently the key to unlock this problem was lacking. Now we have it. It lies in the application of an idea which one of us (Y. H.)⁷ brought forward many years ago in another connection, but which most physiologists then rejected. Indeed, it is only quite recently that its application to the problem before us has become clear.⁸

COURSE OF EVENTS

When a man is slowly asphyxiated by illuminating gas, or a dog is asphyxiated in the laboratory, the course of events is as follows: As the blood gradually takes up more and more carbon monoxid, the increasing oxygen deficiency induces an augmentation in the volume of air breathed per minute. This, of course, augments the absorption of the gas. But it has also another effect. It washes carbon dioxid out of the body.⁹ Now the normal stimulus for breathing is the carbon dioxid, which the blood carries to the respiratory center. A time comes, sooner or later, when the lack of carbon dioxid has progressed to a point at which respiration stops, for lack of this stimulus. This is the way in which death has occurred invariably in our experiments.¹⁰

If, however, before death, but in profound coma, the subject is removed from the gassing chamber to fresh air, but is not further treated, the condition seen during the next half or three quarters of an hour is one of extremely feeble breathing. If small samples of blood are drawn and analyzed for carbon monoxid, it will be found that very little of the gas is eliminated during this time. The condition of acute asphyxia continues and is exacerbated by the poor respiration.

Meanwhile the carbon dioxid in the blood, starting from the low figure to which it has been brought by the earlier hyperpnea, gradually reaccumulates to some extent. It is only as this reaccumulation of carbon dioxid develops that respiration gradually returns toward the normal. It may then become again excessive, as is frequently seen in patients; for the loss of carbon dioxid has caused also a loss of alkali from the blood. This alkali must be restored by the body itself, rather than from without. But until it is restored, and until the normal balance of carbonic acid and sodium bicarbonate is recovered, the subject breathes as if he were at a great altitude. Indeed, in this respect his condition approximates that of a man who has been taken to a great altitude in an aeroplane,¹¹ with forced acclimatization and coma as incidents of the trip. The blood alkali is abnormally low, but this condition is not, as we once thought, an acidosis. Alkali therapy is not indicated. The belief, common just now, that any condition in which the blood alkali is low is necessarily acidosis is, as we have shown, incorrect.¹² It may be exactly the opposite condition.

With these facts before us, we can see what has not heretofore been realized, that the most acute period of tissue asphyxia, the time when the greatest injury is

wrought to the nerve centers by the lack of oxygen, is the period of subnormal breathing after removal from the gas contained atmosphere. The conditions in the body are at first not appreciably better than before removal from the gassing chamber.

CARBON DIOXID AS A FACTOR IN TREATMENT

When, however, we added 8 to 10 per cent. carbon dioxid to the oxygen, an altogether different result was obtained.⁸ Under inhalation of this mixture, the breathing is quickly restored to normal, or more than a normal amount. With the aid of this full ventilation of the lungs, the mass action of oxygen in the alveoli quickly displaces carbon monoxid from the blood. Certain other changes also occur in the blood, dependent on the restoration of its carbon dioxid, and the recall of alkali from the tissues. Thus, in ten or fifteen minutes the subjects (dogs) are on their feet, virtually restored.

In this treatment, we believe that we have the long sought and ideal therapy for carbon monoxid poisoning. But its application will require a rather specialized apparatus. Such apparatus was devised by us for oxygen inhalation for gassed soldiers during the war, but it did not then come into extensive use. Oxygen containing 8 per cent. carbon dioxid is not yet on the market. Developments in these matters are under way. Throughout we have had the encouragement and assistance of the United States Bureau of Mines, without which we should not have reached the result described above. Few agencies in America do more for science and humanity than this great bureau.

For miners gassed after dust explosions, and for men overcome during rescue and salvage operations in mine fires, this treatment will, we are confident, considerably diminish suffering, and, let us hope, the number of fatalities also. It has an equally direct applicability to the treatment of city firemen overcome by smoke. Heretofore there has been little that medicine could do even to alleviate the headache and nausea of the gassed firemen. For these two classes of cases, the waiting ambulance and physician can provide immediate oxygen-carbon dioxid inhalations. Under such conditions, unless our experiments are much less significant than they now appear, this therapy should be effective.

ILLUMINATING GAS POISONING

It is not so probable that the ordinary overnight case of illuminating gas poisoning will be as easily helped. These are usually cases of prolonged asphyxia; and with the delays of discovery, calling police, telephoning for the ambulance, and getting to the hospital, time is lost which may be vital. The crucial feature of the proposed inhalational therapy is the termination of the tissue asphyxia at the earliest possible moment. After the harm is wrought, mere removal of carbon monoxid from the blood will not restore degenerated nerve cells. We can only hope that even in such cases the oxygen-carbon dioxid inhalation, by restoring carbon dioxid to the blood, recalling alkali from the tissues, and supplying oxygen, may arrest the degenerative processes.

However, on this aspect of the problem, experience alone can give a decisive answer and, until it is available, we must suspend judgment.

ABSTRACT OF DISCUSSION

DR. ROYD R. SAYERS, Washington, D. C.: The U. S. Bureau of Mines is especially interested in carbon monoxid poisoning and its treatment, owing to its frequent occurrence in the industries with which we are associated. In mines it

7. Henderson, Yandell: *Am. J. Physiol.* **24**: 66-85 (April) 1909.

8. Henderson, Yandell and Haggard, H. W.: *J. Pharmacol. & Exper. Therap.* **16**: 11 (Aug.) 1920.

9. Haggard, H. W., and Henderson, Yandell: *J. Biol. Chem.*, July, 1921.

10. Haggard, H. W.: *Am. J. Physiol.*, August, 1921.

11. Henderson, Yandell: *Science*, 1919, pp. 431-441. Henderson, Yandell; Seibert, E. G.; Schneider, E. C.; Whitney, J. L.; Dunlap, Knight; Wilmer, W. H.; Berens, Conrad, Jr.; Lewis, E. R., and Paton, Stewart: *Aviation*, *J. A. M. A.* **71**: 1382-1400 (Oct. 26) 1918.

12. Haggard, H. W., and Henderson, Yandell: *J. Biol. Chem.* **39**: 163 (Aug.) 1919; **43**: 3 (Aug.) 1920.

occurs after fires, after explosions due to coal dust or gases, and after the use of explosives; and in smelters about the preroasters, roasters, blast furnaces, flues and bag houses. We also find it about petroleum refineries. While I do not minimize the great danger of this gas, I do want to emphasize what seems to me an unwarranted amount of fear or hysteria regarding it. Dr. Henderson has called your attention to this. Both men and animals develop a partial tolerance to this gas after having been exposed to increasing amounts over a considerable period. Dogs have developed sufficient tolerance to have no bad effects after exposure for several hours to 0.8 per cent. Recently I have seen a partial tolerance in a canary bird which we were using in some experiments. This canary can stand fully twice the concentration of a bird not previously exposed. After exposure of two hours to 0.16 per cent., it was active and able to hop from its perch to the bottom of the cage and back again, while an analysis of my own blood, I having remained with the bird the entire time, showed the blood to be 47 per cent. saturated with the gas. Continuing these experiments on myself, I remained on other days in the gas sufficiently long to produce a saturation of from 36 to 40 per cent., after which, for the elimination of the carbon monoxid, breathing pure oxygen was compared with the breathing of a mixture of about 9 per cent. carbon dioxid, 89 per cent. oxygen, and 2 per cent. nitrogen. The oxygen-carbon dioxid mixture increased the lung ventilation from 300 to 400 per cent. over the normal. Oxygen (98 per cent.) produced no increased lung ventilation. The carbon monoxid was eliminated from the blood rather rapidly during the first ten or fifteen minutes with the use of either; but some carbon monoxid could be found in the blood for five or more hours later, but could not be detected after twenty-four hours. The mixture or the pure oxygen was breathed for forty-five minutes on each test. We are trying the two methods on dogs after sufficient exposure to cause profound unconsciousness, but this work is not completed. At the present stage of our experiments for the conscious man poisoned by carbon monoxid, the breathing of pure oxygen seems to give better results as to relief of symptoms and almost as rapid elimination of carbon monoxid from the blood as does the carbon dioxid-oxygen mixture.

DR. YANDELL HENDERSON, New Haven, Conn.: I can guarantee, from my own experience, that although we talk a little lightly about carbon monoxid, to get one's blood 47 per cent. saturated, as Dr. Sayers did, is an experience which one does not want to undertake lightly. It is heroic. It takes a man of great equilibrium and sweet temper to do it and still be tolerant toward the paper he is to discuss. With regard to the oxygen-carbon dioxid apparatus, it is virtually an oxygen inhaler somewhat like that used in the Bureau of Mines for gassed miners. It is important to be economical of oxygen, because you cannot carry a great many cubic feet. Once you stimulate respiration it uses up oxygen pretty fast. The apparatus is now being tested out at the Bureau of Mines Experiment Station in Pittsburgh. It was developed originally for the treatment of soldiers gassed with the irritant war gases in France, but the war came to an end before it came into use. A question has been asked me with regard to the lung motor, the pulmotor and other mechanical apparatus. The standpoint which seems to me to be justified now by eight years of experience, since the first commission investigated the matter, is that even if we had an ideally perfect apparatus for giving artificial respiration, it would still be better to discourage, and even to forbid the manufacture, sale, use and introduction of such apparatus, because it leads to delay, and thus to more deaths—deaths which could and should be restorations. If a man is drowned to the point at which he has stopped breathing, and his heart is beating only feebly, or if a man has gotten hold of a live wire and his respiration has stopped, you have often only two or three minutes within which life can be restored. Now, it is impossible for us all to go around with a lung motor or any other apparatus strapped to our backs all the time: hence an often fatal delay. Laboratory experience shows also that for most cases the manual method is actually better. Dr. Meltzer was strongly of the opinion, and I think he was justified, that mechanical apparatus very often injures the lungs seriously. On the other hand, the manual, or Schäfer method has a large number of clear cut recoveries to its credit. The supremely important point, as experience proves, is that you cannot have people prepared to give the manual method,

and you cannot introduce routine training, if they know that when they telephone for a lung motor or pulmotor, it will come. I am more and more strongly of the opinion that the introduction of apparatus actually increases fatalities.

THE PREVENTION OF SIMPLE GOITER IN MAN *

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Simple or endemic goiter is one of the most benign and insidious diseases of man and animals. The sum total of its ravages throughout all ages and in all lands is still unrealized by the public generally, notwithstanding the numerous reports of commissions appointed for its study. Those who live on the sea coasts fortunately have had no need to be concerned; and those who lived in goiter districts—before the days of extensive travel—grew accustomed to look on goiter as natural and normal. Indeed, in many districts of the world, it is still looked on as a mark of beauty.

Simple goiter includes all those thyroid enlargements in man and animals formerly grouped as endemic, epidemic, sporadic and physiologic. It must be sharply distinguished from exophthalmic goiter, with which it has no necessary association or etiologic relationship. Exophthalmic goiter, so far as is yet definitely known, occurs spontaneously only in man, while simple goiter occurs in all animals having the ductless thyroid. Exophthalmic goiter is not notably associated with districts, while with simple goiter this is most characteristic. Exophthalmic goiter occurs more frequently in the highly developed and civilized races, while in simple goiter race is not a factor. Simple goiter may develop sporadically in any place (even at sea, as reported on one of Captain Cook's voyages), but it is preeminently associated with certain regions or districts. The distribution of these districts of endemic goiter throughout the world was fully described by Hirsch, in 1860. The actual incidence of goiter within a given district is still quite unknown. With the information at present available, however, one can distinguish between mildly and severely goitrous districts. As compared with certain other districts, for example, the Alps and the Himalaya regions, our most important districts, namely, the Great Lakes Basin and the Cascade Mountain regions of Oregon, Washington and British Columbia, would be classified as mildly goitrous. The mildness or severity of a district may be determined by the incidence of myxedema or cretinism—a fact known to Morel and expressed in his famous dictum, "Goiter is the first halting place on the road to cretinism" (*Le goître est la première étape sur le chemin qui conduit au cretinisme*).

ETIOLOGY

The ultimate cause of simple goiter is totally unknown, notwithstanding a relatively large amount of study. The immediate cause is a lack of iodine. The

* From the Laboratories of Western Reserve University, Cleveland, and Montefiore Hospital, New York.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* This investigation has been made with the assistance of a grant from the Committee on Therapeutic Research, Council on Pharmacy and Chemistry, American Medical Association.

enlargement, therefore, is a symptom and may result from any factor which increases the iodine needs of the organism, as in certain types of infection, or which interferes with the normal utilization of iodine; or it may result from actual experimental deprivation of iodine. The conception that it is due to a contagium vivum in the sense that this term is ordinarily used may be abandoned. Water has been associated as an etiologic factor by all peoples as far back as history goes. The American Indians (Barton) and the natives of Central Africa (Livingston) seem to have been as strongly convinced of the relation of water to the disease as was Hippocrates. If water is a factor, it would seem that it is the absence rather than the presence of some substance, which is to be considered, since goiter is associated with the purest of waters, chemically and bacteriologically as, for example, in Portland, Ore., and in Seattle and Tacoma, Wash., where there has been a rapid increase in goiter since these cities began to take their water supplies from the Cascade Mountains. After consideration of all the various substances, agents and theories that have been put forward as having a rôle in the etiology of goiter, we at present must fall back on the view that thyroid hyperplasia (goiter) is a compensatory reaction arising in the course of a metabolic disturbance and immediately depending on a relative or an absolute deficiency of iodine.

PATHOLOGIC ANATOMY

Anatomically, a wide range of changes may be present, depending on the species of animal and on the stage (duration) of the disease. It always begins with a decrease in the colloid material and a hypertrophy of the epithelial cells, at first cuboidal, later columnar, with infoldings and plications. In man and fowls, the stage most commonly observed is characterized by an abundance of colloid material—the so-called cystic or colloid goiter of the older writers—while in dogs, sheep, cattle, pigs, fish, etc., the accumulation of colloid is seen only in the late regressive or quiescent stages. In man, the adenomatous form (struma nodosa) is very common, but it is exceedingly rare in all the lower animals. These adenomas, in all probability, arise from fetal cell rests. The stimulus which initiates the growth of the cell rests (adenomas) and that which initiates the growth of the more differentiated thyroid tissue are probably identical. These growths have many of the attributes of tumor, in that their growth may not be arrested by iodine administration or by the natural physiologic compensation.

EXPERIMENTAL PHYSIOLOGY

No accomplishment in preventive medicine has a firmer physiologic and chemical foundation than that underlying goiter prevention, and, as the work of prevention is based on certain of these facts, the more important may be reviewed:

1. The active principle of the thyroid is a very stable organic compound of iodine, first recognized by Baumann, in 1895, and recently (1916) isolated in crystalline form, by Kendall.

2. The developmental stage of all goiters is characterized by an increased blood flow, an increase in the size and number of epithelial cells, a decrease in the stainable colloid, and a marked absolute decrease in the iodine store. The decrease in the iodine store precedes the cellular hypertrophy and hyperplasia.

3. Similar changes (compensatory hyperplasia) invariably occur in the remaining portion of the gland, when a sufficient portion of the entire gland is removed. The amount of gland it is necessary to remove in order to cause compensatory hyperplasia varies somewhat with the species of animal, definitely, with the age, diet, and the presence or absence of iodine.

4. The administration of exceedingly small amounts of any salt of iodine in any manner completely protects the remaining thyroid against compensatory hyperplasia, even after the removal of three fourths of the normal gland in cats, dogs, rabbits, rats and fowls. Halsted and Hunnicutt reported a series of partial removals in dogs in which they failed to obtain compensatory hyperplasia, while Loeb has recently reported a series of partial removals in guinea-pigs in which iodine failed to prevent the compensatory hyperplasia, although desiccated thyroid still protected. He concluded that regeneration was physiologically different from spontaneous hyperplasia or simple goiter. The explanation for Halsted's results was probably that the animals were in contact with a source of iodine, while the most probable explanation for Loeb's results is that he removed too much thyroid, since, as shown by Marine and Lenhart, in 1909, iodine will not protect even in dogs if more than three fourths of the gland is removed, while desiccated thyroid will protect the animal against thyroid regeneration even after the removal of as much as nine tenths.

5. If most of the thyroid gland is removed before or in the early stages of pregnancy, and rigid precautions are taken to exclude iodine, the young at birth will have enlarged thyroids, as first shown by Halsted in dogs; while, if iodine is available, the young at birth will have normal thyroids.

6. A milligram of iodine, given at weekly intervals, has been found sufficient to prevent thyroid hyperplasia in pups.

7. Thyroid tissue has an extraordinary affinity for iodine, as has been demonstrated in *in vitro* perfusions of surviving thyroids, and also by injecting intravenously small amounts of some soluble salt of iodine into the intact animal.

8. If the iodine store in the thyroid is maintained above 0.1 per cent., no hyperplastic changes, and therefore no goiter, can develop.

The foregoing experimental data seem to us sufficiently complete to demonstrate the underlying principles of goiter prevention, and the ease with which they may be applied. The first instance in which these facts were utilized in the prevention of goiter on a large scale occurred in 1909 and 1910. Working with endemic goiter in brook trout, Marine and Lenhart were able to demonstrate that iodine added to the water in a concentration not exceeding 1:1,000,000 arrested or prevented the development of thyroid hyperplasia (goiter). Since then, the method has been successfully applied on a large scale by several observers in the prevention of goiter in cattle, sheep, pigs and poultry.

To our knowledge, the prevention of human goiter was not attempted on any large or practical scale until 1917, when we began work with the school population of the city of Akron, although in Cleveland it had been strongly urged and had been used by some physicians for several years. Briefly, the method as applied to man consisted in the administration of 2 gm. of sodium iodide in 0.2 gm. doses, distributed over a period of two weeks,

and repeated each autumn and spring. This amount of iodine is excessive, and far beyond the needs of the individual or of the ability of the thyroid to utilize and store it. One gram distributed over a longer period would be better. The form or mode of administration of iodine is of little consequence. The important thing is that iodine for thyroid effects should be given in exceedingly small amounts, and it is believed that most of the untoward effects recorded are due to the excessive doses employed, or, more concretely, to the abuse of iodine.

The results of our two and one-half years' observations on schoolgirls in Akron are as follows: Of 2,190 pupils taking 2 gm. of sodium iodide twice yearly, only five have developed enlargement of the thyroid; while of 2,305 pupils not taking the prophylactic, 495 have developed thyroid enlargement. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids have decreased in size; while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids have decreased in size. These figures demonstrate in a striking manner both the preventive and the curative effects. Klinger has recently (1921) reported even more striking curative results in the schoolchildren of the Zürich district. He worked with school populations in which the incidence of goiter varied from 82 to 95 per cent., while our maximum incidence in Akron was 56 per cent. With such a high natural incidence of goiter, his observations necessarily deal more with the curative effects. Thus of 760 children, 90 per cent. were goitrous at the first examination. After fifteen months' treatment with from 10 to 15 mg. of iodine weekly, only 28.3 per cent. were goitrous, of a total of 643 children reexamined.

The foregoing results were obtained in adolescents. There are two other periods in life when simple goiter frequently develops, namely, (1) in fetal life and (2) during pregnancy. While the thyroid enlargements developing around the age of puberty are more common, they are not more important than those developing during pregnancy and fetal life. The higher birth mortality of infants with congenital goiter is well known. The thyroid enlargement of both mother and fetus may be prevented by giving 2 gm. of sodium iodide, or its equivalent in iodine in any other form, during the first half of pregnancy.

UNTOWARD EFFECTS

The dangers of giving iodine, in the amounts indicated, to children and adolescents are negligible. Exophthalmic goiter and iodism are the two important conditions to be looked for. No case of exophthalmic goiter developed in the series reported by Klinger or by us, although in both instances such cases were carefully looked for. Much has been written of iodine-exophthalmic goiters, but a study of the case reports reveals the fact that they resulted from the use of excessive (according to physiologic standards) amounts of iodine, or of desiccated thyroid. In adults, the possibility of aggravating a mild exophthalmic goiter or even the production of the syndrome in susceptible individuals must be considered. Again, the risk is slight. Iodine should not be given in any frank case of exophthalmic goiter unless the patient can be daily observed, and then it should be administered only in milligram doses. Iodism was observed in eleven cases among the schoolchildren

of Akron during the two and one-half years of observation. Most of these cases were very mild, and the girls did not stop the treatment. Klinger did not observe a single instance in sixteen months' observation on more than 1,000 children, although iodism was carefully looked for.

SUMMARY

Simple or endemic goiter in man may be prevented as cheaply and as simply as in the lower animals, by the administration of 3 to 5 mg. of iodine twice weekly, over a period of a month, and repeated twice yearly. Klinger in Switzerland has reported as striking, and nearly as extensive, results as those obtained by us in Akron. In young individuals, with goiter of recent development, the curative effects of exceedingly small amounts of iodine are as marked as one sees in the goiter of animals.

There are no dangers worthy of consideration associated with the administration of the quantities of iodine used by Klinger or by us. Simple or endemic goiter most commonly develops during (1) fetal life, (2) around the age of puberty, and (3) during pregnancy, and we believe that any plan which provides for its control during these three periods of life will practically eliminate endemic goiter. Goiter in the mother and fetus can be prevented as simply as that of adolescence, but, practically, it would seem that it is a responsibility of individual physicians, supplemented by public education. The prevention of goiter of childhood and adolescence should be a public health measure, best administered through the schools in order to combine the important additional factor of education. Beginning with the period of puberty, goiter occurs approximately six times as frequently in females as in males. The question, therefore, whether general prophylaxis should include both males and females would depend to some extent on whether the particular district was mildly or severely goitrous; hence the need for accurate surveys. The age of beginning and stopping the use of iodine would depend to some extent on race and climate. In the United States, probably the maximum of prevention coupled with the minimum of effort would be obtained by giving iodine between the ages of 11 and 17 years.

The prevention of goiter means vastly more than eliminating cervical deformities. It means, in addition, the prevention of those forms of physical and mental degeneration, such as cretinism, mutism and idiocy, which are dependent on thyroid insufficiency. Further, it would prevent the development of thyroid adenomas, which are an integral and essential part of endemic goiter in man, and due to the same stimulus. These multiple, circumscribed benign growths have many of the attributes of tumor, one of which is that their growth once initiated is frequently not controlled by iodine, as are all simple hyperplasias. The terminal metamorphoses are far more serious than those of simple hyperplasia, since, in addition to hemorrhage, necroses, cyst formation, etc., probably 90 per cent. of the malignant tumors of the thyroid arise from these adenomas.

If the prevention of goiter is good preventive medicine, it is better preventive surgery. With so simple, so rational and so cheap a means of prevention at our command, this human scourge, which has taken its toll in misery, suffering and death throughout all ages, can and should be controlled, if not eliminated.

VESICAL CALCULUS*

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Recent literature on vesical calculi contains many reports of large or peculiar stones, complications, and choice of operation. There are, however, only three articles in which a large number of cases are reported, namely, Barney¹ reporting 455 cases from the Massachusetts General Hospital; Thomson² reporting 2,962 from Canton, China, and Assendelft³ reporting a collection of 630 cases from several Russian hospitals.

The data of this article are based on a study of the records of 621 patients with vesical calculus examined at the Mayo Clinic between June 1, 1907, and April 1, 1921, approximately fourteen years.

GENERAL CONSIDERATIONS

The cases have been divided into two groups, (1) patients with ureteral-bladder stones, or those who had histories of kidney colic and who on our examination had a stone of ureteral origin without accretion in the bladder, removed from the bladder, and (2) true bladder stones, or those which had formed entirely or partially in the bladder.

Fifteen patients had ureteral-bladder stones; thirteen were men and two were women; the oldest was 71, the youngest 22; the average age was 45.1.

Litholapaxy was performed in five; the stone was removed with a specimen taken through the cystoscope in six; it was passed following cystoscopy in three, and in one it was not removed.

There was no mortality in this group, and no further data concerning it are considered in this paper, all percentages being based on 606 cases, or constituent groups of the true bladder stone.

Of the 606 patients with stone in the bladder, 577 (95.21 per cent.) were males, and twenty-nine (4.78 per cent.) were females. The oldest was 86, the youngest 4; the average age was 55.59 years.

TABLE 1.—AGES BY DECADES

	Number	Per Cent.
From 1 to 10.....	4	0.66
From 11 to 20.....	13	2.14
From 21 to 30.....	34	5.61
From 31 to 40.....	59	9.73
From 41 to 50.....	71	11.71
From 51 to 60.....	164	27.06
From 61 to 70.....	183	30.19
From 71 to 80.....	69	11.38
From 81 to 90.....	9	1.48

It is of interest that the decade of highest incidence (30.19 per cent.) was between 61 and 70, while between 51 and 71 incidence was 57.25 per cent. Seventy and eleven hundredths per cent. of the patients were more than 50. Thomson reports that 43 per cent. occurred under the age of 20, and 84 per cent. were under 51. Assendelft reports 92 per cent. of 630 patients under 30; Barney reports 67 per cent. between 50 and 80 years, practically the same incidence as in

our series. Only four (0.66 per cent.) were under 10, which is in striking contrast to 25 per cent. of Thomson's series, and the 77 per cent. under 10 in Assendelft's series. Suñer⁴ reports forty cases of bladder stone in children. Cahill⁵ states that in the children's surgical service in Bellevue Hospital no bladder calculi were reported until 1920, when there were three cases in patients of 2, 9 and 3 years. Cahill also states that the reports of the Post-Graduate Hospital, New York, show less than 2 per cent. of bladder stone in children. In our four cases, three of the stones were removed by suprapubic cystostomy, and one with forceps through the urethra.

TABLE 2.—SEX, AGE,* AND METHOD OF REMOVAL

Method of Removal	Cases	Male		Female		Old-est	Young-est	Average Age, Years
		No.	%	No.	%			
Lithotripsy.....	153	138	90.19	15	9.8	79	16	49.05
Suprapubic.....	395	385	97.46	10	2.53	86	4	58.1
Through the cysto- scope.....	14	11	78.57	3	21.42	74	28	48.5
Perineal.....	14	14	100	..	.....	81	43	67.0
Through the urethra with forceps.....	1	..	.....	1	100	7	7	7.0
Not removed.....	29	29	100	..	...	79	22	52.79

* The average duration of symptoms was 5.86 years. The age of the patients at the onset of symptoms was: the oldest, 81; the youngest, 1; the average was 49.52 years.

The diagnosis of bladder stone by means of a "feeler" has been discarded by most urologists in favor of the roentgen ray and the cystoscope. The accuracy of these methods is shown in Table 3.

TABLE 3.—ACCURACY OF ROENTGEN RAY AND CYSTOSCOPE

	Patients Examined		Positive		Negative		Indeterminate	
	No.	%	No.	%	No.	%	No.	%
Roentgen ray.....	449	74.09	345	76.83	91	20.26	13	2.89
Cystoscope.....	459	75.74	445	96.94	10	2.17	4	0.87

The high percentage of positive diagnoses with the cystoscope (96.94 per cent.) must be explained by the fact that the cystoscopist usually had the benefit of seeing the plates before cystoscopy; also in some instances when poor plates were reported "negative" and a request made for a rerey, the stone was discovered by cystoscopy and the rerey was not made.

Of 606 cases, there were nineteen (3.13 per cent.) undiagnosed and discovered at operation. The diagnostic analysis of these nineteen cases is given in Table 4.

TABLE 4.—DIAGNOSTIC ANALYSIS OF NINETEEN CASES

	Cases
Negative roentgen-ray report.....	6
No roentgen-ray report.....	13
Negative cystoscopy report.....	3
No cystoscopy report.....	16
Operated on for prostatic hypertrophy.....	17
Operated on for stricture.....	2

The three patients in whom cystoscopic examination for stone was negative had large hypertrophied prostates and one had a cicatricial posterior urethra also. All had trabeculated bladders and many cellules. Two had two small stones each, and one had one small stone. We may, therefore, estimate the efficiency of a combined roentgen-ray and cystoscopic examination

* From the Section on Urology, Mayo Clinic.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Barney, J. D.: Observations on the Treatment of Vesical Calculi: An Analysis of 455 Cases from the Massachusetts General Hospital, Boston M. & S. J. **131**: 462-464, 1919.

2. Thomson, J. O.: Urinary Calculus at the Canton Hospital, Canton, China, Surg., Gynec. & Obst. **32**: 44-55 (Jan.) 1921.

3. Assendelft, E.: Bericht über 630 stationär behandelte Steinkranke, Arch. f. klin. Chir. **60**: 669-686, 1900.

4. Suñer, E.: Bladder Stones in Children, Arch. Españoles de Pediat. **3**: 449 (Aug.) 1919; abstr. J. A. M. A. **73**: 1562 (Nov. 15) 1919.

5. Cahill, G. F.: Stone in the Bladder in Children, Internat. J. Surg. **33**: 389, 1920.

for bladder stone at 96.87 per cent. Additional lesions discovered by cystoscopy are given in Table 5.

TABLE 5.—ADDITIONAL LESIONS DISCOVERED BY CYSTOSCOPY

	No.	Per Cent.
Patients cystoscoped.....	459	75.74 of 606
Patients not cystoscoped.....	147	24.25 of 606
Patients with cystitis.....	400	87.14
Patients with prostatic enlargement.....	277	60.34
		45.7 of 606
Patients with trabeculation.....	118	25.7
Patients with stricture of the urethra.....	45	9.8
Patients with deformity of the bladder.....	24	5.22
Patients with diverticulum.....	21	4.57
Patients with tumor of the bladder.....	15	3.26
Patients with atony of the bladder.....	11	2.39
Patients with tuberculosis of the kidney.....	1	1.96

Items of interest in these findings are:

1. Stone occurred in a tuberculous bladder in only one patient. Stone in the bladder and tuberculosis of the bladder certainly rarely coexist, owing probably to the fact that urinary tuberculosis usually occurs before prostatic age, and that the severity of the cystitis prevents retention. There was a stricture of the urethra in this case, which probably explains the stone formation.

2. Prostatic obstruction was present in 277 cases and urethral stricture in forty-five, or a total of 322 cases (70.14 per cent.) with urethral obstruction.

3. In twenty-one patients a diverticulum of the bladder was found on cystoscopy; in twelve others it was found at operation, making a total of thirty-three (5.44 per cent.) who had diverticula which seemed to be a causative factor in the formation of stone. In seventeen of these there was stone in the bladder alone; in six stone in the diverticulum alone, and in ten stones in both diverticulum and bladder. During this period there were 226 patients with diverticula of the bladder, or an incidence of 14.6 per cent. of stone in the cases of diverticula.

Fifteen patients had stone and tumor in the bladder; two of these also had diverticula, the growth being in the diverticulum in one and just outside it in another.

Two hundred and twenty-eight patients had an average of 4.3 ounces of residual urine, and in twenty-six the residue was questionable. Some of the patients who had prostatic hypertrophy and stone in the bladder emptied the bladder completely so long as the stone remained in the bladder, but required prostatectomy for retention after its removal. On the other hand, there was sometimes an inflammatory enlargement of the prostate causing retention which subsided entirely after the removal of the stone. In many cases in which a diverticulum was present and no retained urine was obtainable by catheter from the bladder, a cystogram made after voiding the medium showed the bladder to be empty, but retention in the diverticulum.

The literature, both ancient and recent, is crowded with reports of large or unusual bladder stones. Apparently the largest authentic stone on record is that reported recently by Randall,⁶ which weighed 64 ounces when removed, and 54 ounces after drying. Thirty-eight and one-half ounces seems to be the largest stone removed with recovery of the patient (Smith⁷). Osgood⁸ reports from the literature fifty

cases of large stone, twenty from necropsy and thirty in which operation was performed; the mortality in the latter was 50 per cent. Necropsy reports show several stones weighing as much as 51 ounces.

The largest stone in our series was 6.5 by 5 cm.⁹ This seems relatively small in view of the fact that the average duration of symptoms was 5.86 years. However, there is undoubtedly a great variation in the growth of stones, and time is only a minor factor. Hijmans¹⁰ reports eleven large stones weighing 110 gm. found in the bladder six years after cystostomy. Hunner¹¹ found a stone that had formed in two or three weeks around a piece of rubber drain. In one of our patients a well defined stone had formed around a catheter head in four weeks.

Of the 606 patients, 386 (67.01 per cent.) had a single stone. The diameters were 1 cm. or less in sixty-seven; 2 cm. in 122; 3 cm. in 114; 4 cm. in forty-eight, and 5 cm. or more in ten. The size was not mentioned in twenty-five. One hundred and ninety (32.98 per cent.) had multiple stones; seventy-two had two stones; twenty-six had three stones; eight had four stones, and eighty-four had five or more.

Stone in other portions of the urinary tract coexistent with the stones in the bladder occurred as indicated in Table 6.

TABLE 6.—OCCURRENCE OF STONE IN OTHER PORTIONS OF THE URINARY TRACT COEXISTENT WITH STONE IN THE BLADDER

	Positive		Questionable	
	No.	Per Cent.	No.	Per Cent.
Renal lithiasis.....	14	2.31	12	1.98
Ureteral stones.....	6	0.99	8	1.32
Prostatic stones.....	8	1.32	2	0.33
Urethral stones.....	1	0.16		

A severe renal colic, even several times repeated, is often forgotten by the patient with bladder stone as soon as the kidney stone passes into the bladder, particularly if several years have elapsed between the cessation of the colics and the onset of bladder symptoms, since the average patient sees no connection between the two and does not mention the kidney symptoms unless he is questioned. It is necessary, therefore, on finding a bladder stone, to question each patient in detail with regard to previous pain in the region of the kidney. Such data have been carefully elicited in the majority of our histories.

TABLE 7.—PREVIOUS RENAL LITHIASIS

	Cases	Per Cent.
Renal colic, positive.....	101	16.66
Renal colic, questionable.....	9	1.48
Stones passed.....	40	39.6 of 101
Stones not passed.....	60	59.4 of 101
Operations on the kidney.....	6	0.99

It is of interest that, in spite of severe cystitis in most cases, histories of chills, fever and sweats were recorded in only forty-one (6.76 per cent.), and in at least sixteen of these there was coexisting pyelonephritis, leaving twenty-five (4.12 per cent.) in which the bladder or urethra might be the focus. This low

6. Randall, A.: Giant Vesical Calculus, *J. Urol.* **5**: 119-125 (Feb.) 1921.

7. Smith, E. C.: Large Vesical Calculi, *Surg., Gynec. & Obst.* **29**: 481-484, 1919.

8. Osgood, A. T.: A Large Vesical Calculus, *Tr. Am. A. Gen. Urin. Surg.* **8**: 125-137, 1913.

9. Martin, S. P.: Dumb-Bell Stone in Diverticulum of Urinary Bladder, *Ann. Surg.* **67**: 94-95 (Jan.) 1918.

10. Hijmans, F.: Growth of Urinary Calculi, *Nederlandsch Tijdschr. v. Genesck.* **2**: 1159 (Oct. 18) 1919; abstr. *J. A. M. A.* **74**: 498 (Feb. 14) 1920.

11. Hunner, G. L.: Diseases of the Bladder. in: Kelly, H. A., and Noble, C. P.: *Gynecology and Abdominal Surgery*, Philadelphia, W. B. Saunders Company **1**, 1919.

percentage and the low percentage of metastasis in cases of tumor of the bladder seem to corroborate the fact that the bladder has a relatively poor lymphatic supply. The presence of chills, fever and sweats in a given case should, therefore, suggest an extension of the infection to other organs than the bladder.

An effort was made from all the data recorded in each case in the series to establish the probable source of the stone, whether bladder, kidney or urethra, and, if vesical, to establish the principal cause. The results of these analyses are shown in Table 8.

TABLE 8.—PROBABLE SOURCE OR CAUSE OF STONES IN THE BLADDER

	Retention from												
	Prostate	Stricture	Atony	Deformity of the Bladder	Cystitis	Cystitis	Foreign Body	Diverticulum of the bladder	Kidney	Urethra (Prostatic)	Congenital Stones	Pseudostones	Indeterminate
Lithotripsy...	36	12	3	2	..	42	4	5	45	2	..	1	1
Through cystoscope.	..	2	..	..	..	3	2	1	6	..	..	..	..
Through urethra.....	..	..	..	..	..	..	1	..	..	..	..	..	..
Suprapubic cystostomy	204	20	6	1	3	58	14	24	43	4	1	..	17
Perineal cyst- ostomy....	11	2	..	..	..	1	..	..	..	..	..	..	..
Stones not removed....	15	2	..	..	..	2	..	3	5	..	..	..	2
Total.....	266	38	10	3	3	105	21	33	99	6	1	1	20
Per Cent...	43.89	6.27	1.65	0.49	0.49	17.32	3.46	5.44	16.33	0.99	0.16	0.16	3.3

Cystitis was given as the cause rather than the result of stone only when there was apparently no other reason for the formation. Numerous cases have been reported in which foreign bodies of various types were the nucleus of bladder stones, and instances of their remaining in the bladder for as long as seventeen years without symptoms have been noted.¹² For-

12. Bashinski, B.: An Unusual Type of Vesical Calculus, Arch. Pediat. 35: 615-616, 1918. Cook, P. H.: An Unusual Case of Vesical Calculus, Interstate M. J. 25: 419-420 (May) 1918. Maxwell, Alice F.: A Gauze Sponge Forming the Nucleus of a Vesical Calculus, J. A. M. A. 75: 1253 (Nov. 6) 1920. Packard, F. R.: An Analysis of Two Hundred and Twenty-One Cases of Foreign Body Introduced into the Male Bladder per Urethram, with Report of a Recent Case, Ann. Surg. 25: 568-599, 1897. Park, C. E.: Peculiar Case of Vesical Calculus, Internat. J. Surg. 31: 123, 1918.

eign bodies were demonstrated to be the nucleus in twenty-one (3.46 per cent.) of our series.

TABLE 9.—CAUSE OF TWENTY-ONE CASES* (3.46 PER CENT.) OF FOREIGN BODY IN THE BLADDER OF MALES

	Cases	Per Cent.
Lithotripsy:		
Rubber tissue.....	3	14.28
Silk sutures.....	2	9.52
Catheter head.....	1	4.76
Surgical:		
Hairpin.....	4	19.1
Suture.....	3	14.28
Gauze.....	3	14.28
Suture and curved needle.....	1	4.76
Catheter head.....	1	4.76
Knife-blade.....	1	4.76
Part of LaForte guide.....	1	4.76
Piece of bone from fracture of pubis.....	1	4.76

* Seven of these cases have been reported by Judd (Journal-Lancet 36: 474-477 [Aug. 15] 1916).

Stone in the bladder in the female is a comparatively rare occurrence; hence the causes are of interest.

I have tabulated under the name "pseudostone" a stone 2 by 1 cm. which I attempted to crush with a lithotrite; as I was unable to break the stone, it was removed whole through the urethra. Examination showed it to be a piece of flint which the patient later confessed having passed into the bladder.

TABLE 10.—CAUSE OF TWENTY-NINE CASES (4.78 PER CENT.) OF STONE IN THE BLADDER OF FEMALES

Probable Source of Stone:	Cases	Per Cent.
Cystitis.....	9	31.03
Foreign body.....	8	27.58
Kidney.....	8	27.58
Diverticulum.....	2	6.89
Atony.....	1	3.44
Pseudostone, flint.....	1	3.44
Foreign Body:		
Hairpin.....	4	
Catheter head.....	2	
Silk suture.....	1	
Rubber tissue.....	1	

Twenty-nine of 606 patients had positive diagnoses of stone and were not operated on, and 577 had single or multiple stones removed (Table 11).

That the mortality was approximately the same with or without an associated operation is partially explained by the fact that such operations were performed only in the better surgical risks. Only the stones were

TABLE 11.—METHODS OF REMOVAL OF STONES IN THE BLADDER: RESULTS

	Ether		Gas		Local		Sacral		Anesthetic Not Stated		Total	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Lithotripsy:												
Patients.....	38	24.83	..	..	115	75.16	..	..	..	..	153	25.24
Average days in hospital.....	4.41	.....	..	..	1	.....	..	..	..	..	4.2	.....
Mortality.....	1	.....	..	..	1	.....	..	..	..	..	2	1.3
Average number of days of life after operation.....	16	.....	..	..	3	.....	..	..	..	..	9.5	.....
Recurrences (first).....	4	33.3	..	..	8	66.6	..	..	..	..	12	7.84
Through Cystoscope:												
Patients.....	2	14.28	..	..	12	87.71	..	..	..	..	14	2.31
Average days in hospital.....	4	.....	..	..	..	.....	..	..	..	..	4	.....
Mortality.....	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first).....	..	.....	..	..	1	.....	..	..	..	..	1	7.14
Through Urethra:												
Patients.....	1	.....	..	..	..	.....	..	..	..	..	1	0.16
Average days in hospital.....	2	.....	..	..	..	.....	..	..	..	..	2	.....
Mortality.....	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first).....	..	.....	..	..	..	.....	..	..	..	..	..	.....
Suprapubic Cystostomy:												
Patients.....	372	94.17	1	0.25	6	1.51	3	0.75	13	3.29	295	65.18
Average days in hospital.....	14.02	.....	37	..	27.83	.....	10.3	..	14	..	11.27	.....
Mortality.....	31	.....	..	..	3	.....	..	..	..	..	34	8.6
Average number of days of life after operation.....	15.5	.....	..	..	12.3	.....	..	..	..	..	14.7	.....
Recurrences (first).....	15	.....	..	..	..	.....	..	..	..	..	18	4.55
Perineal Cystostomy:												
Patients.....	11	78.57	..	..	..	.....	..	..	3	21.42	14	2.31
Average days in hospital.....	11.54	.....	..	..	..	.....	..	..	45	..	14.33	.....
Mortality.....	..	.....	..	..	..	.....	..	..	..	..	..	.....
Recurrences (first).....	1	.....	..	..	..	.....	..	..	..	..	1	7.14

removed in the bad risks, and other operations were deferred until conditions were more favorable.

RECURRING STONE

Stones do not occur in the bladder without cause, and it should be the surgeon's duty, if possible, to remove this cause as well as the stone itself. Recurrences may be due to failure to remove the original cause or to fragments or small stones left behind, or

TABLE 12.—ONE HUNDRED AND FIFTY ASSOCIATED OPERATIONS IN 147 CASES (35.85 PER CENT. OF 409 CASES) IN WHICH THE OPERATION PERFORMED WAS SUPRAPUBIC OR PERINEAL CYSTOSTOMY

Associated Operations at the Time the Stone Was Removed	Operations	Per Cent.
Suprapubic prostatectomy	104	25.42
Perineal prostatectomy	14	3.42
Excision of diverticulum.....	5	1.22
Dilatation of stricture.....	7	1.17
Cautery excision of carcinoma of the bladder.....	4	0.97
Resection of carcinoma of the bladder.....	2	0.48
Removal of specimen from the bladder for diagnosis..	2	0.48
Removal of specimen from the prostate for diagnosis..	1	0.24
Herniotomy	3	0.73
Closure of perineal fistula.....	3	0.73
Excision of suprapubic sinus.....	2	0.48
Excision of lipoma of groin.....	1	0.24
Closure of vesico-intestinal and abdominal-intestinal fistula	1	0.24
Cholecystostomy	1	0.24

TABLE 13.—MORTALITY *

		Per Cent.
Patients without associated operations.....	430	74.52
Mortality	26	6.04
Patients with associated operations.....	147	35.85
Mortality	10	6.8
Patients with associated suprapubic prostatectomy...	104	25.36
Mortality	7	6.7

* Five hundred and twenty-seven patients were operated on. Thirty-six, or 6.23 per cent., died (5.79 per cent. of the 621 patients).

the cause may have developed subsequently to the removal of the original stone. If recurrences are to be avoided, precautions as follows must be taken:

1. Roentgen-ray and cystoscopic examinations must be made after the stone is removed, to make sure that no fragments of stone remain.
2. Infected kidneys should be cleared up with pelvic lavage and the removal of foci of infection.
3. Renal lithiasis, if present, should be removed.
4. Cystitis should be cleared up by lavage of the bladder and drainage, if necessary.

TABLE 14.—TOTAL RECURRENCES (THIRTY-TWO CASES)

Source of Original Stone	Cases	Source of First Recurrence	Source of Second Recurrence
Prostate.....	16	12	0
Kidney.....	5	3	1
Cord bladder.....	4	3	1
Stricture.....	3	3	1
Cystitis.....	2	6	2
Tumor of bladder.....	1	1	0
Diverticulum.....	1	2	1
Not given.....	0	1	0
Left at former operation.....	0	1	0

5. Causes of retention, such as enlarged prostate or stricture, should be removed; or, if the cause cannot be removed, as in cases of atonic bladder, the residual urine should be withdrawn regularly.
6. Diverticula, if they retain urine or cause cystitis, should be removed.
7. Hygienic and dietetic measures that benefit the general health should be adopted.

Twelve (7.84 per cent.) of the recurrences followed litholapaxy; eighteen (4.55 per cent.) followed supra-

pubic cystostomy; one (7.14 per cent.) followed perineal cystostomy, and one (7.14 per cent.) followed removal of the stone through the cystoscope: a total of thirty-two (5.54 per cent.) in the 577 cases.

The causes of the original bladder stone and subsequent recurrences are shown in Table 14.

An analysis of the causes of recurrence in these thirty-two cases is shown in Table 15. There were not more than two recurrences in any case.

TABLE 15.—CAUSES OF RECURRENCE

	First Recurrence	Second Recurrence
Failure to remove cause of original stone (22)		
Prostate.....	9	0
Kidney.....	3	1
Atonic bladder.....	3	1
Cystitis.....	3	0
Diverticulum.....	1	1
Stricture.....	1	0
Tumor.....	1	0
Questionable.....	1	0
Stone or fragments left at previous removal (perineal prostatectomy).....	1	0
Cause of recurrence developed subsequently to removal of original stone.....	9	3
Total.....	32	6

CONCLUSIONS

1. The incidence in the United States of patients with stone in the bladder is greatly increased after the age of 50, in contrast to some other countries where it is largely a disease of childhood and early adult life.
2. Combined roentgen-ray and cystoscopic diagnosis is accurate in approximately 96.87 per cent. of the cases.
3. The incidence of diverticulum of the bladder is much greater than is usually believed, and stone in the bladder occurs in about 14 per cent. of these cases.
4. The low mortality of litholapaxy and the ease with which it can be performed under caudal anesthesia should tend to increase the instances of stones being removed by this method. The advantages more than compensate for the very slight increase in recurrence.
5. Operations associated with that of removal of stone, in selected cases, do not materially increase the mortality.
6. The majority of recurrences could be avoided if precautions were taken to remove the cause of the original stone.

ABSTRACT OF DISCUSSION

DR. JAMES D. BARNEY, Boston: Bladder stones in women are very rare. In a series of 455 cases of stone there were only thirteen cases in women. The average mortality was 9.5 per cent. The difference between suprapubic mortality and that of litholapaxy is striking; in the former it averaged 26 per cent.; in the latter 7.25 per cent. In sixty-seven cases during the last ten years, the mortality has been only 2 per cent. in litholapaxy. The recurrence is a different matter. The total recurrence is 20.5 per cent.; 42 per cent. after litholapaxy and only 10 per cent. after cystotomy. But the figures have shown the recurrence in the last ten years to be much less after litholapaxy, because the cystoscope has been used after operation and has discovered further stones. We found also that the stay of the patient in the hospital after litholapaxy was an average of eleven days and much longer after cystotomy. On the other hand, there are certain dangers in litholapaxy in the hands of those not well accustomed to the instrument. It is a powerful lever and can tear the urethra badly in introducing it and perhaps in pulling it out. If it is depressed too much it may tear off the urethra from the

suprapubic bone, or it may tear the bladder mucosa badly and produce severe hemorrhage. There are contraindications to its use. There may be many cases in which it is difficult or impossible to use this method. Of course, a stone in a diverticulum of the bladder may produce difficulties. It may be in the bladder today and in the diverticulum tomorrow. Stricture of the urethra may be a contraindication, and one may find a stone in the bladder which is giving no symptoms. Under these circumstances it may be that the crushing of the stone will be far more difficult. The large size of the stone may prevent the use of the instrument, for unless the bladder can be well distended so that there is plenty of space around the stone, the instrument cannot be used. Then, too, there are cases of tumors encrusted with lime salts, and attempts to crush these have met with failure.

HYPERTENSION WITH MINIMAL RENAL LESIONS *

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In two papers,¹ the thesis was submitted that in the largest majority of cases of hypertensive chronic nephritis the hypertension is the primary phenomenon and the nephritis a consequence. In other words, anatomy and function should not be interpreted in this disorder in the relation of cause and effect, as had hitherto been done, but reversely. There is no need to discuss at any length the reasonings that led to this conception. Briefly summarized, they are these:

1. No mechanistic interpretation can explain how hypertension can result from any variety of destructive lesion of the kidney, experimental and otherwise. Indeed, all hitherto submitted theories have proved futile.

2. Every clinical and experimental evidence seems to prove that arterial disease, when associated with hypertension, is the result rather than the cause of hypertension. Such authorities as Allbutt² and Faber³ accept this relationship as wholly demonstrated.

3. There is abundant evidence to show, largely as the result of the work of Jores and his school, that "chronic nephritis" with hypertension is a primary vascular disease, and that, in many instances, lesions of the terminal branches of the arterial system are demonstrable, even before the gross lesions of the kidneys are manifest.

4. The lesions in chronic nephritis can also be interpreted as the results of primary vascular lesions. The only premise, additional to the foregoing, necessary to render this conception valid is the acknowledgement of the possibility of a sclerosis occurring in the capillaries as well as in the terminal arteries. This conception is not new, but it has not been sufficiently emphasized. This is necessary in order to explain the glomerular lesions always present in nephritides associated with hypertension. In a previous paper,⁴ anatomic evidence

is submitted to show that the lesions in the glomeruli can be interpreted as an arteriosclerosis in miniature. Nephritis, therefore, may be conceived as an arteriosclerosis affecting both capillaries and arteries in a parenchymatous organ. For this reason, the term "arteriocapillary fibrosis," employed by Sutton and Gull in a different connotation, was adopted as best, and as most briefly expressing the lesion of that variety of nephritis usually associated with hypertension.

5. Every evidence seems to show that so-called "albuminuric retinitis" is in a large measure purely the result of vascular lesions, and that such a retinitis, as far as available data seem to indicate, follows a preexisting hypertension. Since albuminuric retinitis and chronic nephritis are morphologically analogous lesions, it seems reasonable to conclude that the nephritis as well as the retinitis is sequential to the hypertension.

It is interesting to observe that since the publication of the last observation, Volhard,⁵ in his latest monograph on "Bright's Disease," arrives at the same conclusion, namely, that retinitis is sequential to the hypertension and not to the nephritis.

VALUE OF HYPOTHESIS

The foregoing hypothesis, if accepted, will obviously modify many of our current concepts concerning the genesis and the nosology of arteriosclerosis and chronic nephritis. Whatever defects this hypothesis may have, this much can be said for it: it helps, more than any other hypothesis that has been submitted, to explain many of the obscure relationships between hypertension on the one hand and anatomic vascular and renal disease on the other. Especially will it help to explain one of the most puzzling problems in connection with the renal or arterial origin of hypertension, namely, why it is that the degree of hypertension is often out of all proportion to the extent of the destructive lesion in the arteries or the kidney. It will also assist us in explaining some of the baffling relationships between atherosclerosis and chronic nephritis, since it places both these lesions on the same footing.⁶

This hypothesis to be valid also subsumes the proposition that the conventional varieties of arteriocapillary fibrosis are not end-products as had hitherto been regarded, but stages, according to all accepted criteria of morphology, of a well-defined pathogenesis. The argument, the result of general impressions based on extensive experiences in morbid anatomy, that led us to this apparently iconoclastic but by no means novel conclusion has already been submitted.⁷ Studies are now in progress in which an attempt will be made to demonstrate both by gross and by microscopic evidences this morphologic identity. It will be necessary to trace genetically the lesion of the earliest glomerulonephritis through the entire series down to the terminal phase connoted by the term "contracted kidney."

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¹ Read before the Section on Pathology and Physiology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

² Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Moschcowitz, Eli: Am. J. M. Sc. **158**: 668 (Nov.) 1919; Clinical and Anatomic Relations in Chronic Nephritis, Arch. Int. Med. **26**: 259 (Sept.) 1920.

2. Allbutt: Diseases of the Arteries, Including Angina Pectoris, London, 1915.

3. Faber: Die Arteriosklerose, Jena, 1920.

4. Moschowitz, Eli (Footnote 1, second references).

5. Volhard: Die Doppelseitigen hämatogenen Nierenerkrankungen, Berlin, 1918.

6. It is satisfactory to note that, in some recent publications by students of this problem, O'Hare (Am. J. M. Sc. **160**: 366 [Sept.] 1920), Barker (Ohio State M. J. **16**: 709 [Oct.] 1920), Blumgarten (Med. Rec. **98**: 856 [Nov. 20] 1920), Munk (Pathologie der Nephrosen, Nephritiden und Schrumpfnieren, Berlin, 1919), and Löhlein (Med. Klin. **14**: 136, 1918), similar lines of reasoning are set forth.

7. This conception was introduced by Weigert (Volkmann's Sammlung, Klin. Vortr., Nos. 162 and 163, 1879) many years ago. He erred only in that his conception was applied too broadly to many varieties of chronic nephritis. More recently Saundby (quoted by Allbutt) introduced it again. Compare also Footnote 1.

Furthermore, if this hypothesis be correct we should expect, on *a priori* grounds, to find hypertension associated with every stage of arteriocalillary fibrosis, from the earliest, in which the kidney approaches the normal, to the terminal, in which the organ is profoundly disorganized. Employing conventional terms we should find such kidneys in the stages of "glomerulonephritis," the "large granular" kidney, the "small granular" or "red" kidney and the "contracted" kidney. As has been insisted on before, it is not so much the renal insufficiency (uremia) that causes death, but decompensation of the cardiovascular system (apoplexy, cardiac insufficiency, coronary disease). consequent to the continuous hypertension that is responsible for the majority of fatalities. Obviously, the most common lesions to be found at necropsy associated with hypertension will be the terminal phases of the lesion. As patients in the earlier phases of their hypertensive process, that is, patients who are supposed to have "essential" hypertension, do not often die, the earlier lesions are infrequent. The very beginnings of an arteriocalillary fibrosis, in which the lesions in the glomerular tufts are early and not widespread, are rarest of all. My interest in this problem has stimulated a hunt for such lesions, and I have succeeded in obtaining five, a description of which furnishes the theme of this paper. Theoretically, it ought to be possible to obtain absolutely normal kidneys in patients who have hypertension of a very short duration; but, as such patients never die, except when cut down by some intercurrent disease, the probability of finding such kidneys is exceedingly remote.

In medical writings I have found abundant reports of "normal" kidneys associated with hypertension. But many of these reports are open to criticism, on the following grounds: 1. The term "normal" is applied to macroscopic appearance only. 2. The morphology is not described in sufficient detail. 3. The microscopic description shows that lesions are present, however slight. Indeed, it is a grave question whether any of these kidneys described as "normal" would pass muster under the hazard of a strict critique. It is for this reason that the term "minimal" is applied to the lesions about to be described. The term "minimal" permits of a wide latitude in interpretation. By this term I mean to convey that the kidneys grossly were normal, and that the lesions present are not sufficient to account for a hypertension, even by those that regard hypertension as the result of renal disease.

CASE 1.—*Summary*.—A patient, who was syphilitic, gave a short history of hypertensive disease with symptoms suggestive of coronary sclerosis. The blood pressure was 220 systolic, 90 diastolic. The urine was full of albumin and casts. Death resulted from cardiac failure. At necropsy a profound syphilitic disease of the aorta was found. The kidneys, with the exception of a lesion in a small number of glomeruli and chronic congestion, were normal.

CASE 2.—*Summary*.—A woman, aged 50, who had suffered from a hemiplegia seven years ago, entered the hospital with all evidences of mitral stenosis, auricular fibrillation and a grave myocardial insufficiency. The blood pressure varied between 214 and 190 systolic, and 86 and 75 diastolic. Tests showed only slight evidences of renal insufficiency. At necropsy, evidences of an old embolic lesion were shown in the forms of numerous healed scars in one kidney. The embolic probably arose from an old endocarditis of the mitral valve, which resulted in stenosis. In addition, the aortic valves showed an intense atherosclerosis, the aorta a slight one. Aside from the focal scarring of the kidneys, the organs

showed nothing grossly and microscopically but a chronic congestion consequent to the myocardial insufficiency.

CASE 3.—*Summary*.—A man, aged 56, obese and plethoric, entered the hospital with symptoms of grave myocardial insufficiency; blood pressure, 190 systolic, 110 diastolic. He died with symptoms suggesting a cerebral hemorrhage. At necropsy a generalized atherosclerosis was found with a fibrous myocarditis due apparently to disease of the coronary arteries. The kidney revealed very slight lesions, exceptionally infrequent diseased glomeruli and moderate atherosclerosis of the terminal vessels.

CASE 4.—*Summary*.—A woman, aged 41, who felt perfectly well, until a sudden right hemiplegia set in, had a fairly high tension (180 systolic, 125 diastolic) and evidences of a clinical nephritis. At necropsy a fairly marked atherosclerosis of the vessels was manifest. The kidneys, with the exception of an atherosclerosis of the terminal vessels and chronic congestion, were normal.

CASE 5.—*Summary*.—A man, aged 48, without premonitory symptoms, suddenly developed apoplexy. The blood pressure was 270 systolic, 120 diastolic. Clinically, there was a nephritis. Necropsy revealed a scattered atherosclerosis. The kidneys showed little change aside from an intense atherosclerosis of the terminal vessels.

COMMENT

These five cases demonstrate that even excessive hypertension may be associated with minimal lesions within the kidney. The chronic congestion present in each is a consequence of circulatory insufficiency and has no other bearing on the hypertension. Case 2 is open to criticism because the lesion may not in the strictest sense be deemed minimal, owing to the widespread scarring in the cortex of one kidney and the hypoplasia of the other. I do not believe, however, that such criticism is justified. In the first place, these scars are manifestly the result of an old embolic process following an old endocarditis, and occurred synchronously with the hemiplegia. They cannot conceivably be regarded in any way as the result of a nephritic process, because the intervening areas of kidney are practically normal. Mere scarring of the kidney, leading to diminution of the volume content of the organ, cannot be regarded as a possible cause of hypertension, as Pearce⁸ has shown. Finally, the hypoplasia of one kidney may be ignored as a possible factor in causing hypertension since such a relationship, as far as I am aware, has not been reported. Those who believe in a pathologic substratum as the cause of the hypertension in these cases may submit the argument that the greater or lesser degrees of arteriosclerosis present in all six cases was the "cause" of the hypertension. I believe that in the light of modern investigation (Allbutt,² Faber,³ Munk,⁶ Fra-boese⁹ and Löhlein,⁶) such a view is no longer justifiable. The reasons for this contention have already been submitted in the paper previously referred to.¹⁰ Allbutt, especially, adduces abundant evidence to show that arteriosclerosis is the result and not the cause of a continuous hypertension.

REVIEW OF THE LITERATURE

Case reports of hypertension, with normal or minimal lesions within the kidney, are not infrequent. Many of such reports are submitted without comment or without any regard to their bearing on the prob-

8. Pearce, R. M.: The Problems of Experimental Nephritis, Arch. Int. Med. 5: 133 (Feb.) 1910.

9. Fraboese: Zentralbl. f. allg. Path. u. path. Anat. 31: 225, 1921.

10. Moschcowitz, Eli (Footnote 1, first reference).

lem of hypertension (Romberg;¹¹ Fisher,¹² four cases; Gaillard,¹³ four cases; Widal and Boidin;¹⁴ Vaquez;¹⁵ Mosenthal,¹⁶ and Hirschfelder.¹⁷) Only a few studies are available which afford any conception of the relative frequency of such lesions associated with hypertension. Lee¹⁸ found some kidney lesion in over 71 per cent. of cases of hypertension. In fifteen out of fifty-three cases, no kidney lesion was found. Seven of these showed cerebral lesions, seven cardiac lesions and one general arteriosclerosis. All patients with a constant blood pressure over 200 systolic showed some renal lesion. There were seven cases without renal lesions and without arteriosclerosis. In none was the pressure over 200. Four showed brain lesions: (1) brain tumor; (2) tuberculous meningitis; (3) degeneration in the pons, and (4) traumatic cerebral hemorrhages. The remaining three were cardiac cases. Ophuls'¹⁹ material is large enough to permit a better evaluation. In a series of 1,000 necropsies he attempts by pure anatomic data to explain the relation of nephritis to arteriosclerosis and the relation of cardiac hypertrophy to hypertension. He presents a tabulated report of forty-six cases of general arteriosclerosis and cardiac hypertrophy, in which slight lesions in the kidneys were present. In three instances there were no renal lesions whatever; but there was cardiac hypertrophy and moderate arteriosclerosis. Schlayer²⁰ found renal lesions in all of forty-six cases of hypertension. In 24 per cent. the anatomic changes occurred only in isolated areas.²¹ He regards these cases as arguments against the Cohnheim-Traube mechanical theory of hypertension.

These reports indicate that the association of minimal renal lesions with hypertension is commoner than is supposed.



Fig. 1.—Section of kidney from Case 1, showing practically normal picture.

What is the significance of such lesions? What relation have they to the problem of hypertension? All these patients presented during life profound symptoms of renal disease, according to clinical criteria, and yet at necropsy the kidneys were not as altered as conventional teaching would lead us to expect. It would be futile to regard such associations as mere chance findings. Such an interpretation may be satisfying but inconsequential. In the study of disease, it is the exceptions and not the rules that are often of most significance.

These cases demonstrate, if they demonstrate nothing else, that sometimes at least a hypertension need not be of renal origin, even though clinically evidences of nephritis cannot be directly correlated in terms of morphologic evidence of renal disease, and vice versa. Even if a renal origin of hypertension is granted, these cases certainly prove, what has been demonstrated repeatedly in the necropsy room, that the degree of hypertension bears no relationship to the degree of anatomic destruction within the kidney. This is a rather important conclusion because, other things being equal, we should expect, if a primary renal origin of hypertension is tenable, that the degree of hypertension should be proportionable to the renal damage. In these cases, therefore, we must seek the cause of the hypertension in another origin.

Many of these patients showed atherosclerosis as evidenced by changes in the aorta. Even assuming that lesions in the aorta are indicative of a generalized arterial disease, which, as Jores²² has shown, is by no means true, every available evi-

dence we possess shows that arterial disease should no longer be regarded as the cause of hypertension but rather that the reverse is true. The arguments in favor of this view have already been submitted. Allbutt,² and Volhard⁵ in his latest monograph, settle this point, it seems to me, for all time. If the genetic relationship of hypertension to arterial disease is admitted, a fact based on demonstrable proof, it seems logical to surmise that perhaps the two lesions which are so frequently associated in the human frame, arteriosclerosis and arteriocapillary fibrosis, have the same etiology; and then if hypertension has actually been demonstrated as preceding the arterial disease, perhaps it

11. Romberg: Quoted by Allbutt.
12. Fisher: *Deutsch. Arch. f. klin. Med.* **109**: 469, 1912-1913.
13. Gaillard: *Tribune méd.*, Paris, 1907, p. 789.
14. Widal and Boidin: *Bull. et mém. Soc. méd. d. hôp. de Paris*, July 21, 1905.
15. Vaquez: *Arch. d. mal. du cœur* **6**: 225 (April) 1913.
16. Mosenthal: *Med. Clinics N. America* **1**: 119 (July) 1917.
17. Hirschfelder: *Diseases of the Heart and Aorta*, Ed. 3, Philadelphia, J. B. Lippincott Company, 1918.
18. Lee, R. I.: *Pathologic Findings in Hypertension*, J. A. M. A. **57**: 1179 (Oct. 7) 1911.
19. Ophuls, William: *Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies*, *Arch. Int. Med.* **9**: 156 (Feb.) 1912.
20. Schlayer: *München med. Wchnschr.* **60**: 63, 1913.
21. "Die vorhandenen anatomischer Veränderungen sind nur fleckweise."

22. Jores: *Deutsch. Arch. f. klin. Med.* **94**: 1, 1908.

may as well be the indirect cause of the nephritis. In other words, instead of seeking for an anatomic cause to explain a physiologic phenomenon, we must realize that dysfunction precedes anatomy.

As I tried to elucidate in a previous paper, the lesions of arteriocardiac fibrosis and of atherosclerosis and of albuminuric retinitis have so many points of analogy that for all practical purposes these may be regarded as one and the same lesion. The lesion in the kidney and in the retina is essentially the same as that in the arteries and the changes in the parenchymatous or, rather, extravascular, portions of these organs are in greatest part dependent on and explainable by the vascular changes. By vascular changes I refer to changes not only in the larger vessels but also in the glomerular capillaries. In order, therefore, to render the foregoing conception of "nephritis" complete, it is necessary to recognize an old but unappreciated bit of medical lore, namely, that sclerosis is not a disease limited in its activities to the arteries alone but to the capillaries and veins as well. The familiar glomerular lesions in nephritis may therefore be justly interpreted as representing atherosclerosis in miniature; indeed, the morphologic resemblance, as has already been pointed out, is striking. Whether the initial change begins in the capillaries of the glomerulus or, as some hold, in the terminal arterioles, will not be argued for the present. The fact that sclerosis of the capillaries of the glomerulus invariably occurs in arteriocardiac fibrosis is sufficient for our present purposes.

The following argument comes to mind: If hypertension is primary and sclerosis of the capillaries of the glomeruli is secondary, why is it that the capillaries in other organs do not partake in this process? The answer is that there is evidence that they do. It is significant that in the one organ most resembling glomeruli in conformation within the human frame, the islands of Langerhans, sclerotic changes associated with hypertensive disease are by no means uncommon, which probably accounts for the frequency of associated "nephritis" and diabetes.²³ A recent

author²⁴ has commented on the striking morphologic identity between glomerulitis of the kidney and "glomerulitis" of the islands of Langerhans.

Recent work on the pathologic physiology of the capillaries, it seems to me, furnishes abundant substantiation of this thesis. I deem this work of such importance and pregnant with so many possibilities in the study of disease that I shall summarize these studies in some detail. In 1916, Weiss²⁵ described a method of viewing the living capillaries in the skin. It is identical with that described by an American, Lombard,²⁶ four years previously. The method consists, briefly, in placing a drop of glycerin or some other clearing agent on the skin of the finger just behind the cuticle of the nail. This area is selected because the skin at this site is thin. A strong light is

then thrown on the finger and the skin is viewed under a low magnification. A remarkable picture presents itself. The loops of capillaries and the blood flow are plainly visible. Normally the loops appear as in Fig. 3.

The pathologic states which Weiss studied were confined to nephritis with hypertension, arteriosclerosis, diabetes and valvular disease. Each of these afforded a picture which was peculiarly its own. For our purposes, I shall describe only those of nephritis with hypertension and arteriosclerosis. In nephritis, Weiss says, the capillaries are narrow, long and tortuous (Fig. 3). The caliber is not uniform but irregular. Furthermore, anastomoses with other capillaries are present, a circumstance never present in other conditions. The flow of the blood is slow, in many capillaries there is actual stasis, the erythrocytes being clumped together. The flow, and this is specially characteristic, is granular (Körnig). He believes these changes are undoubtedly the result of local organic changes in the capillaries. He says, "After all we must consider the possibility that these changes in contracted kidneys, which appear to be the result of endarteritic and capillary processes, may enable us to view the origin of contracted kidney in an entirely new light." In atherosclerosis Weiss found practically identical changes.

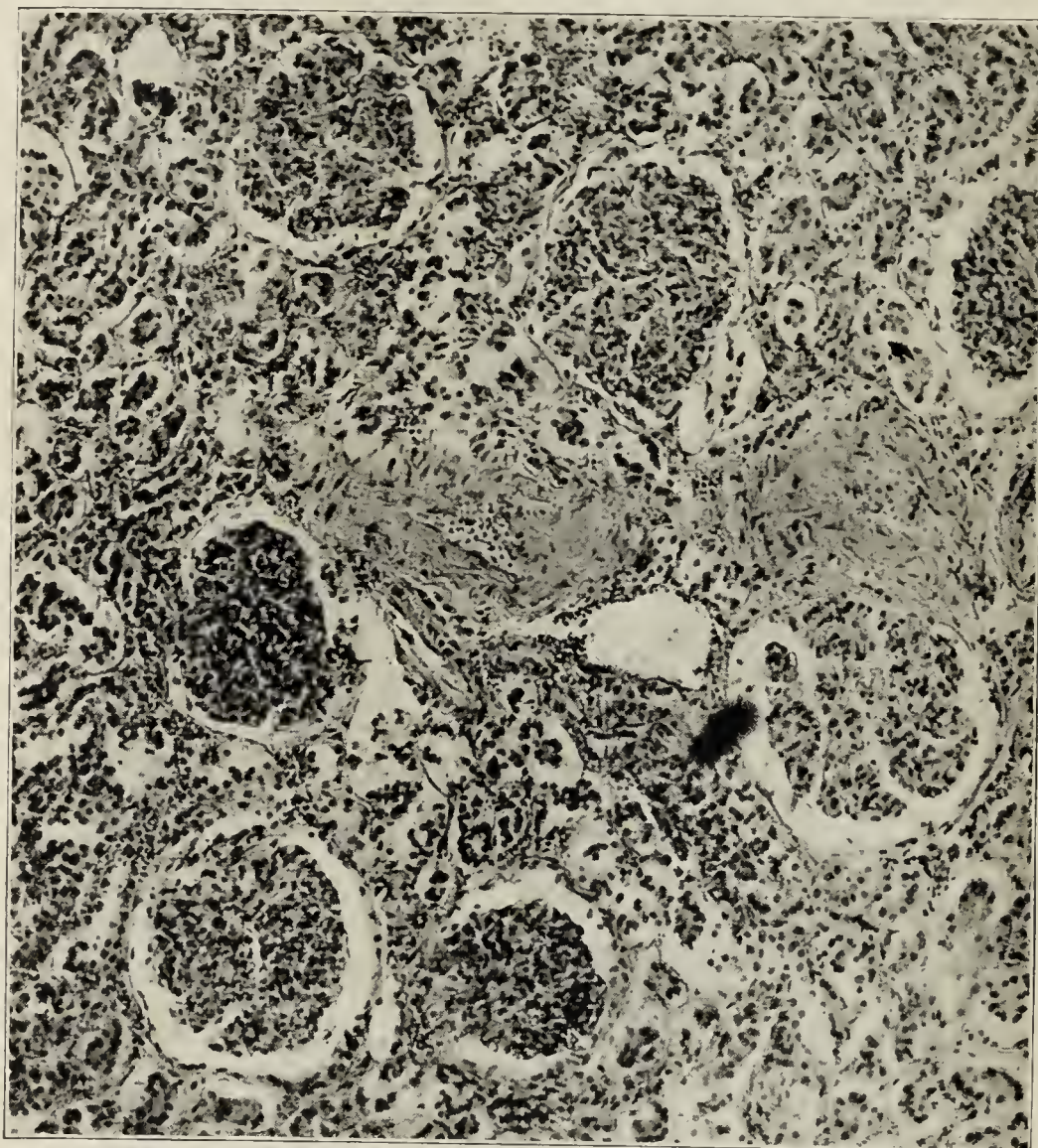


Fig. 2.—Section of kidney from Case 2, showing fairly normal picture with the exception of thickening of terminal blood vessels.

23. The marked parallelism, etiologic, anatomic, clinical and therapeutic, between diabetes and hypertensive disease has already been touched on in previous papers. This topic opens many possibilities, and is reserved for future discussion.

24. Barron: Surg., Gynec. & Obst. **31**: 437 (Nov.) 1920.

25. Weiss, E.: Deutsch. Arch. f. klin. Med. **119**: 1, 1916.

26. Lombard: Am. J. Physiol. **29**: 339, 1912.

Weiss' publication stimulated further researches, so that today the literature of capillaroscopy is considerable. Weiss' observations have been confirmed, especially by Jurgenson,²⁷ Draga,²⁸ Neumann²⁹ and M. Weiss.³⁰

It is difficult to resist the temptation to overestimate the importance of these observations in substantiating the thesis concerning the pathogenesis of arteriocapillary fibrosis and arteriosclerosis that I have submitted. It furnishes the most important missing link in the chain of evidence that I have adduced and helps much to give unity to the thesis. It certainly offers strong support to the argument that "nephritis" and atherosclerosis are essentially vascular phenomena and that of these vascular phenomena changes in the capillaries are of the first importance.

There is room for interesting speculation on the relation of these organic changes in the capillaries to recent studies on the physiology of the capillaries, especially by Krogh³¹ and Hooker;³² but such speculation would lead us somewhat astray from the topic under discussion. At all events, available data seem to show that these studies on capillary pathology have opened a new realm in the study of disease.

The argument has also been adduced, especially by Volhard, that the glomerular lesions are probably not the result of hypertension because, if this were so, all the glomeruli would be equally affected. Incidentally, it seems at the same time an equally cogent argument against any toxic origin. The argument cannot be satisfactorily answered in the light of our present knowledge, but some recent research on capillary functions is extremely suggestive. Krogh³¹ has shown that the capillary supply of an organ varies with its state of activity, and in a recent Harvey Lecture, Richards, in a brilliant series of investigations, showed that the capillaries within the glomeruli of a frog's kidney vary enormously in distensibility and activity and in the rate of flow of the contained corpuscles at different periods. It certainly seems reasonable to infer that these variations in functional activity may have some bearing on the onset of capillary lesions.

There is, furthermore, clinical evidence which indicates that simple hypertension precedes "nephritis." Most clinicians, I am sure, are familiar with the not uncommon observation that essential hypertension or hyperpiesis of Allbutt precedes the onset of nephritis, sometimes even by many years. So common is this

that Ringer³³ regards every patient with essential hypertension as a potential nephritic. While necropsies in cases of essential hypertension are rare, the few that have been performed show that the kidneys are normal or nearly so (Mosenthal,³⁴ Janeway³⁵ and John³⁶).

This interesting phase of the subject is reserved for more complete discussion at a later date.

The hypothesis that hypertension or the cause or causes of hypertension produce nephritis has been repeatedly broached by numerous writers. Senator,³⁷ as far back as 1902, thought that hyperpiesis, if neglected, goes on to granular kidney. Jores,²² in 1908, commenting on observed cases in which there was slight peripheral arteriosclerosis and slight lesions with, nevertheless, marked left ventricular hypertrophy, suggested that these evidences may be the result of arterial hypertension of unknown origin. Löhlein,³⁸ in reporting on three cases of apoplexy consequent on high blood pressure, in which at necropsy only

slight lesions of the glomeruli were present, although changes in the smallest arteries were marked, submits his belief that the tension is primary and the sclerosis and nephritis are secondary. Frank³⁹ believes in a primary hypertonic diathesis which causes hypertrophy of the heart and arteriosclerosis. This is identical with the presclerosis of Huchard. Frank's view was the result of an observation in which normal kidneys were found associated with a tension of 320. There was intimal thickening of the smallest blood vessels. Ophuls¹⁹ submits one of the most important contributions to the subject. He attempts to explain by anatomic data the relationship between arteriosclerosis, nephritis, hypertrophy of the left ventricle and hypertension. He shows the futility of explaining hypertension on the basis of anatomic data alone. He comes to some highly interesting and, for our purpose, suggestive conclusions: 1. There may be marked general arteriosclerosis affecting the peripheral vessels without continued hypertension. 2. The same is more rarely true when the arteriosclerosis is associated with extensive destruction of the kidneys. 3. At times we have long continued hypertension and cardiac hypertrophy followed by cardiac insufficiency of unknown origin with little arteriosclerosis and slight renal lesions. 4. This demonstrates that the interrelation between general arteriosclerosis, and arteriosclerotic renal disease, on the one hand, and hypertension with

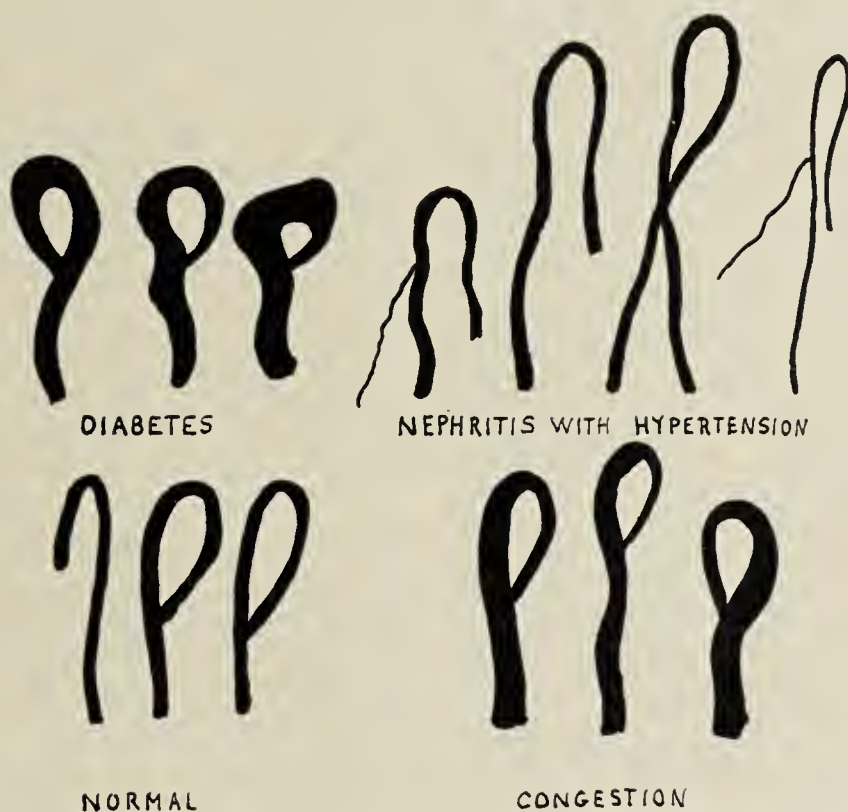


Fig. 3.—Appearance of capillary loops and blood flow under varying conditions.

27. Jurgenson: Ztschr. f. klin. Med. **96**, Nos. 5 and 6, 1918.
28. Draga: Wien. klin. Wchnschr., 1917, No. 22.
29. Neumann: Berl. klin. Wchnschr. **57**: 826, 1920.
30. Weiss, M.: Presse méd. **29**: 1905, 1921.
31. Krogh: Am. J. Physiol. **52**: 457, 1919.
32. Hooker: Physiol. Rev. **1**: 112, 1921.

33. Ringer: Am. J. M. Sc. **161**: 781 (June) 1921.
34. Mosenthal: Personal communication to the author.
35. Janeway: Am. J. M. Sc., May, 1906.
36. John: Med. Klin. **9**: 942, 1913.
37. Senator: Erkrankungen der Nieren, Berlin, 1902.
38. Löhlein: Ergebn. d. inn. Med. u. Kinderh. **5**: 411.
39. Frank: Berl. klin. Wchnschr. **48**: 609, 1911.

resulting cardiac hypertrophy must be a rather loose one. He concludes, "It is safe to say that the rôle of the kidney lesions in the production of hypertension has been evidently considerably exaggerated."

Ophuls' article furnishes a striking example of the quandary in which many observers find themselves when they attempt to explain clinical phenomena and especially the symptom hypertension on an anatomic etiology. Such a quandary will inevitably result when the problem of the relation of hypertension to arteriosclerosis and nephritis is divorced from a clinical aspect. It is interesting to note that in a recent publication Ophuls¹⁹ arrives at the conclusion that we have already submitted, namely, that arteriosclerosis and nephritis do not bear mutual reactions on each other, as is currently believed, but are simultaneous manifestations of a common etiology. Whether this etiology is a sepsis, as Ophuls believes, or hypertension and its unknown causes, as we believe, is not a matter for present argument. At all events, the concept of a common genesis for both these disorders certainly helps to clarify much of the current medical thinking on these topics.

It does not explain everything, however. It does not explain why in certain exceptional instances the extent and degree of the arterial lesion is entirely out of proportion to that of the renal lesion and vice versa. Here we must assume that factors, such as tissue resistance, tissue activity, etc., enter into the etiology which at present we do not understand.

An obvious thought now intrudes itself: If arteriosclerosis and chronic nephritis are reactions resulting from hypertension or its causes, how are we to explain the absence of hypertension in these not uncommon instances of advanced vascular and nephritic diseases which Allbutt has designated as "decreascent arteriosclerosis and decreascent nephritis," lesions which are limited to the aged? At first blush, the recognition of such cases seems to furnish a crushing argument against the thesis I have submitted. It seems to me that the answer lies in the recognition of the fact that normal tension and hypertension represent merely degrees of one functional process. As I have adduced in previous papers, every evidence seems to show, if we look facts squarely in the face, that the end-results of a glomerular nephritis with a secondary contracted kidney, and a decreascent nephritis (arteriosclerotic kidney, benign contracted kidney, primary contracted kidney) are morphologically practically identical (MacCallum,⁴⁰ Ophuls,¹⁹ Löhlein³⁸ and Rosenthal⁴¹). From this we may conclude that the causes must be alike; in the first, this is a tension which from cause or causes unknown exceeds the normal. As a consequence, the span between the initial damage and the terminal phases covers only a comparatively brief duration of years. In the second, a normal tension precedes unremittingly to the formation of vascular lesions; but the changes are slow, the "wear and tear" proceeds in almost insensible gradations, so that organism is never profoundly affected, and the patient usually dies of some other lesions. The issue is therefore essentially one of relativity.

The cases I have presented, therefore, furnish an additional and cogent argument against the conventional hypothesis that hypertension is the result of

renal disease. Furthermore, such cases are not inconsistent with the thesis that the renal lesions are consequent to a persistent hypertension or to the cause or causes of such a hypertension.

SUMMARY

1. Five cases are reported in which hypertension and other clinical evidences of nephritis were present, although the kidneys showed but slight lesions, certainly less than conventional teaching has led us to expect.

2. These cases, which my experience and the study of reported observations lead us to believe are not at all uncommon, show that clinical and postmortem nephritis are by no means synonymous; and that, above all, as has been insisted previously, the presence and the degree of hypertension bears no relation to the extent of the lesion.

3. These observations lend no support to the belief that the hypertension of chronic nephritis is of renal origin, but are not inconsistent with the previously submitted thesis that hypertension is one of the factors in producing nephritis, better termed arteriocapillary fibrosis.

4. Evidence is adduced to show that arteriocapillary fibrosis is merely the localized and prominent manifestation of a generalized capillary and vascular disease. This accounts for the frequency of associated clinical phenomena referable to other organs in hypertensive disease, e. g., brain, aorta, heart, pancreas, arteries, etc. In this conception, arterial disease and arteriocapillary fibrosis are not maladies which bear any mutual reaction to each other, but are contemporaneous reactions to the same insult.

5. Evidence is again submitted that the lesions of the secondary contracted kidney (malignant contracted kidney) in which hypertension is present and the decreascent kidney (benign contracted kidney, arteriosclerotic kidney, primary contracted kidney) in which hypertension is slight or absent, are morphologically, to all intents and purposes, identical. To explain the pathogenesis of the latter form of contracted kidney, the hypothesis is submitted that whereas in the secondary contracted kidney the most important, if not the main factor in its production, is vascular hypertension, in the primary or benign contracted kidney it is vascular tension. Hypertension in this conception is merely an exaggerated phase of a normal functional process. The functional changes in the organism are consequent on compensatory mechanisms.

41 West Eighty-Third Street.

ABSTRACT OF DISCUSSION

DR. O. H. PERRY PEPPER, Philadelphia: Dr. Moschcowitz referred to Weiss with too much emphasis. If I remember Weiss' original paper correctly he himself attributed the method to Lombard. The German literature contains references to it as Weiss' method, which is not justified because of priority of description by Lombard.

DR. EDWIN R. LE COUNT, Chicago: Many years ago Councilman discussed idiopathic hypertrophy of the heart at some length. It is not uncommon for those who have considerable experience in postmortem examinations to find deaths from cerebral hemorrhage, with a big heart, practically normal blood vessels and normal kidneys, or with changes in the kidneys solely those of and due to passive hyperemia. As I recall it, Councilman also discussed changes in the minute capillaries as a basis for hypertrophy of the heart. I

40. MacCallum: Textbook of Pathology, Philadelphia, 1917.

41. Rosenthal: Deutsch. Arch. f. klin. Med. 133:153, 1920.

have noted that syphilis is not uncommon with hypertrophy of the heart and death from decompensation, without much renal disease.

DR. ELI MOSCHOWITZ, New York: Dr. Pepper is correct. The fact that Lombard discovered capillaroscopy is mentioned in my paper. The point I wished especially to convey is this: that in studying the problem of hypertension and nephritis, we must not be guided too largely by tradition. We have been playing the game of "follow master" altogether too much. Before any progress can be made in the study of these problems, a revamping of current ideas is necessary. Furthermore, little headway will be made by studying such problems from the aspect of pathologic anatomy alone. The pathologist must be a clinician at the same time, and vice versa, so that he may be enabled constantly to check up clinical by pathologic data, and conversely.

DIAGNOSIS AND TREATMENT IN PATHOLOGIC CONDITIONS OF URINARY TRACT IN CHILDREN

MODERN METHODS*

WILLIAM E. STEVENS, M.D.
SAN FRANCISCO

The object of this paper is to emphasize the value of modern urologic methods in the diagnosis and treatment of pathologic conditions of the urinary tract in children, and to present a few selected cases illustrating the necessity for their employment.

While it is true that diseases of the urinary tract are less frequent in children than in the adult, they occur more often than is generally recognized, and deserve much greater consideration than is usually accorded them.

Cystoscopy, ureteral catheterization, functional kidney tests, roentgenography and pyelography are well recognized procedures in adults, but these valuable additions to the armamentarium of the genito-urinary surgeon are frequently neglected in the young. As a result of this omission, a correct diagnosis is at times impossible, and many pathologic conditions are not detected until the involved organ or organs are permanently damaged and recovery impossible.

Edwin Beer, in 1911, called attention to the feasibility of cystoscopy and ureteral catheterization in very young children. He uses specially constructed short examining cystoscopes of 10.5 F. and 12.5 F. caliber for bladder examinations and one of 15 F. caliber for ureteral catheterizations. The objectionable flexibility of the ordinary type of cystoscope under 18 F. in size is overcome by decreasing the length of the instrument. Beer's cystoscopes are 9.5 and 12 cm., respectively, in length. Hyman records cystoscopy in the case of a boy of 17 months and ureteral catheterization in a boy of 3 years and a girl of 22 months. I have succeeded in making cystoscopic examinations and catheterizing both ureters a number of times in a female infant of 12 months by means of a Wolff single catheterizing cystoscope of 16 F. caliber. Later it was possible to introduce a single catheterizing Brown-Buerger cystoscope of 18 F. caliber in this case. The latter is a much more desirable instrument. No case in which external urethrotomy was required in order to facilitate the introduction of a cystoscope has come under my observation.

Meatotomy in both sexes, and internal urethrotomy in male patients have occasionally been required.

Kretschmer and Helmholtz have catheterized the ureters in a female infant of 7 months with a catheterizing cystoscope of 18 F. caliber. They state that the urethra was abnormally large in this case. In normal cases I have found it impossible to introduce an instrument of 16 F. caliber in infants of this age. This may be accomplished, however, following gradual dilatation of the urethra.

TUBERCULOSIS OF THE KIDNEY

Tuberculosis of the kidney has been considered unusual in children, but careful examination will not infrequently reveal this condition. The importance of early recognition, when the infection is confined to one kidney and surgically curable, is obvious.

CASE 1.—A schoolgirl, aged 9, complained of frequent urination and slight pain in the left hip. Her family history was negative. With the exception of the year previous to nine months ago she had always suffered from frequency



Fig. 1.—Caseating, cavernous type of renal tuberculosis in a girl, aged 12 years.

aggravated by exercise or excitement. The pain in the hip followed an injury five months before, and she had been under treatment for tuberculosis of that joint for the last month. Examination of the heart, lungs and abdomen was negative. Catheterized specimens of bladder urine contained a moderate number of pus and blood cells, and tubercle bacilli were demonstrated by microscopic examination and guinea-pig inoculation. Culture of the urine revealed a scant growth of *bacillus mucosus-capsulatus* and a few colonies of pneumococci. Cystoscopy revealed a small ulcer partially surrounding a golf hole right ureteral orifice. It was impossible to introduce a catheter over 0.5 cm. into this ureter on account of a stricture. The left ureter was catheterized to the pelvis. The urine from the left kidney contained a few pus cells and gram-positive diplococci, but no tubercle bacilli could be found on microscopic examination or animal inoculation. As the phlorizin and urea functional kidney tests showed normal values on the left side, an enlarged, irregularly shaped right kidney was removed, under gas-oxygen anesthesia. The wound had healed by the ninth day, and the patient was permitted to leave the hospital on the twelfth day following operation. The kidney was almost completely destroyed by a caseating cavernous type of infection which was evidently of long duration. This type of infection is uncommon under 15 and very rare under 12 years of age.

* From the Genito-Urinary Department of Mount Zion Hospital.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

CASE 2.—A boy, aged 13, entered the hospital for the removal of adenoids. He had suffered from frequency of urination, occasional night sweats, weakness and loss of weight for the last year. His mother probably died of pulmonary tuberculosis. When $2\frac{1}{2}$ years of age, a gland was removed from his neck. The tonsils were removed one year ago. A number of pus cells were found on routine examination of the urine, and similar results were obtained from catheterized bladder specimens and, in addition, a number of tubercle bacilli were demonstrated. As the meatus was too small to permit the passage of even a small catheterizing cystoscope, it was incised under local anesthesia. Cystoscopy a few days later disclosed a normal bladder wall. Both ureters were catheterized to the pelves, and a number of tubercle bacilli were found in the urine from the right kidney. That from the left was negative. Indigocarmine injected intramuscularly appeared on the left side in eight and a half



Fig. 2.—Hydro-ureter in a girl, aged 8 years; catheter forming a loop in the lower third of the enormously dilated ureter.

minutes and on the right in twenty-six minutes. The right kidney was removed and four large tuberculous cavities found. The patient was out of bed the seventh day, the wound had healed on the fourteenth day, and he was discharged from the hospital on the twentieth day following operation. He gained 7 pounds in weight during the next two and a half weeks.

These cases emphasize the importance of the early examination of the urine for tubercle bacilli in every child with urinary disturbances. They are of interest because of the advanced caseating cavernous type of tuberculous infection occurring at such an early age.

HYDRONEPHROSIS AND HYDRO-URETER

In my opinion, hydronephrosis, often associated with hydro-ureter, is a relatively common condition in chil-

dren. It is probably caused by obstruction in the urinary tract below the level of the kidney. The hydronephrosis was unilateral in Cases 3 and 5 and bilateral in Case 4. In addition to the hydronephrosis, hydro-ureters and urethral strictures were present in Cases 3 and 4.

CASE 3.—A girl, aged 8 years, entered the hospital complaining of pain in the right lumbar region, frequent urination and headache. Her family history was not significant. She had suffered from abscesses in the neck and arm, fever and diarrhea, when 9 months old. Her urinary symptoms began when she was $3\frac{1}{2}$ years of age, at which time she suffered from diphtheria accompanied by frequent urination. Pus was found in the urine at that time. Two months later she complained of pain in the hypogastric region, fever and headache. She began to lose weight, vomited frequently, and had attacks of dizziness and epistaxis. She was treated for cystitis two years ago, but without improvement. Her headaches increased in severity, and her appetite began to fail. Examination at this time revealed a stricture at the external urethral meatus. A catheterized specimen of bladder urine contained a large number of pus cells. Colon bacilli were found on culture. Cystoscopy disclosed an inflamed bladder mucosa. The ureters were catheterized to the pelves, and urine was obtained for examination. That from the right kidney contained many pus cells and 30 mg. of urea in 100 c.c. The urine from the left kidney contained a few pus cells and 43 mg. of urea in 100 c.c. Pyelography revealed a marked dilatation of the right renal pelvis, and major and minor calices. Ureterography disclosed an oblong dilatation just above the bladder in which the roentgenographic catheter had formed a loop before proceeding upward in this enormously dilated ureter. The left pelvis and ureter were normal. Following this examination, the pain in the right side became more severe, and she also complained of marked tenderness in the right iliac region. The temperature rose to 39.9 C. (103.8 F.) and the pulse to 150. The blood count disclosed a leukocytosis of 16,000, of which 90 per cent. were polymorphonuclears. As the patient was too weak to permit of nephrectomy at this time, the kidney was opened and drained. Following this operation her condition somewhat improved, but the pain in the right lumbar region persisted, and the urine still contained a large number of pus cells. Two months later a large hydronephrotic kidney was removed. The pelvis, which was greatly dilated, contained a large quantity of purulent fluid. A stricture was also found at the ureteropelvic junction. Convalescence was uneventful. The urine is normal and the patient free from symptoms at the present time. The child's kidney could have been saved if the condition had been recognized in its incipency and proper treatment instituted.

CASE 4.—A boy, aged 10 years, entered the hospital complaining of dyspnea, malaise which was progressive in type, anorexia and nocturnal enuresis. He had not increased in height or gained in weight during the previous two years. He had measles eight years ago, was circumcised four years ago, and his tonsils were removed one year later. The family history was of no significance. He began to wet the bed at night when $2\frac{1}{2}$ years of age. One year later a physician was consulted, but no diagnosis made or treatment advised. No improvement followed circumcision or tonsillectomy. He was treated occasionally by general practitioners, but no relief was obtained. Two years ago a urologist was consulted, but no definite diagnosis was made. Cystoscopy was performed at that time, but the ureters were not catheterized. Operation was not considered advisable. One month before admission his symptoms increased in severity and he was brought to San Francisco for treatment. Examination revealed a large, tender, kidney-shaped mass in the left lumbar region. The urine was loaded with pus cells. No phenolsulphonephthalein was excreted by the kidneys in two hours. The blood contained 38 mg. of urea in 100 c.c. Roentgenography disclosed both kidneys large and low. Cystography disclosed bilateral hydro-ureters. A single catheterizing cystoscope was introduced with difficulty because of a urethral stricture.

The bladder mucosa was inflamed and the right ureteral orifice larger than normal. It was impossible to introduce a catheter beyond either ureteral orifice. No indigocarmine appeared at either ureteral orifice within twelve minutes after intravenous injection. Following the cystoscopy, catheteriza-



Fig. 3.—Bilateral hydro-ureters in a boy, aged 10 years.

tion of the bladder was necessary because of retention of urine. During this procedure the child developed convulsions and coma, and in addition, a nasal hemorrhage which was controlled with difficulty by packs. Glucose and sodium bicarbonate solution were given intravenously as well as by rectal drip, and the uremic symptoms gradually disappeared. The case is obviously inoperable, and the prognosis hopeless. The child's life could have been saved by a correct diagnosis and appropriate treatment when the symptoms first made their appearance.

CASE 5.—A girl, aged 14 years, entered the hospital, June 8, 1918, because of a mass in the left side of the abdomen which was first noticed four weeks previously. She did not complain of any subjective symptoms except constipation. Her family history was not significant. She had had measles and varicella. Fifteen months before entering the hospital she had had a sharp attack of pain in both sides of the abdomen which was accompanied by frequency of urination and pain and burning after urination. At intervals during a period of six weeks previous to two weeks before she entered the hospital she noticed blood in the urine. Her usual weight had been 106 pounds. Her present weight was 89 pounds. The right pupil was larger than the left, and reacted sluggishly to light. The left pupil was irregular, but reacted well to light and distance. There was dulness posteriorly over the left apex and harsh breathing posteriorly over the right apex. Scoliosis extended from the eighth dorsal to the third lumbar vertebra, with the convexity pointing to the right side. Examination of the left side of the abdomen disclosed a nonsensitive, firm, circumscribed, slightly movable mass extending from the lower border of the ribs to the crest of the ilium. The catheterized specimen of bladder urine contained numerous pus cells and a few blood cells. Cultures were negative. No tubercle bacilli were found, and the skin tests for both human and bovine tuberculosis were likewise negative. The blood count revealed 60 per cent. hemoglobin, 3,230,000 red cells and 10,600 leukocytes, of which 73 per cent. were polymorphonuclears. The temperature, pulse and respiration were normal. The Wassermann reaction was + + +. Cystoscopy revealed a slightly inflamed bladder mucosa. The right ureter was catheterized to the pelvis, but it was impossible to introduce even a filiform bougie over 2 cm. into the left

ureter. The urine from the right kidney was microscopically negative. After four injections of arsphenamin together with mercury inunctions and potassium iodid, there was an apparent decrease in the size of the tumor, and the patient was permitted to leave the hospital. Two months later, she reentered the hospital because of bronchopneumonia. The mass in the abdomen seemed smaller at that time. Before leaving the hospital, cystoscopy was again performed, and another unsuccessful attempt made to catheterize the left ureter. Indigocarmine injected intravenously appeared on the right side in four minutes. A less forceful, lighter blue spurt appeared at the left ureteral orifice in eight minutes. The urine from the right kidney was microscopically negative. It contained 252 mg. of urea in 100 c.c. The bladder urine contained many pus cells and only 112 mg. of urea in 100 c.c. The mass in the left abdomen was smaller and the antisyphilitic treatment was continued. Five weeks later, although it was impossible to introduce a catheter more than 2 cm. into the left ureter, I succeeded in injecting about 15 c.c. of a 20 per cent. solution of potassium iodid for pyelography. Because of the severe pain present, the patient was not roentgenographed at this time. The mass became larger following this injection. Two days later we succeeded in passing a filiform bougie to the pelvis of the left kidney. This was permitted to remain twenty-four hours. Operation was advised, but the patient left the hospital stating that she felt well.

Three months later she reentered the hospital. The mass in the left side was of the same size as at the first examination, and the urine contained a large number of pus cells. Culture revealed colon bacilli. The Wassermann test was now negative. I succeeded in passing a catheter about 10 cm. into the left ureter, and a 17.5 per cent. solution of sodium iodid was injected into the pelves of both kidneys. The pyelograms showed a normal right renal pelvis, but the left was multisaccular in appearance, a large amount of the injected fluid showing in the upper and lower poles. The upper portion of the left ureter, as well as the kidney pelvis, showed a marked irregularity. A large hydronephrotic kidney was removed through an oblique lumbar incision, and the patient left the hospital on the eleventh day following the operation in excellent condition.



Fig. 4.—Hydronephrosis and hydro-ureter in a girl, 8 years of age.

This case was especially interesting because of the question of diagnosis. The absence of tenderness on palpation, the normal temperature, the rather low blood count, the history of hematuria and the positive Wassermann reaction were somewhat misleading.

PYELONEPHRITIS

CASE 6.—A girl, aged 12 months, with bilateral pyelonephritis, had at times for the last two months suffered from pain during urination; the urine had been turbid and of strong odor, and micturition had been somewhat more frequent. She had been losing weight for the last month. The family history was not significant. The baby was breast-fed until one month before admission. She had never suffered from any previous illness. Examination failed to detect any urethral, vulvar or vaginal discharge. A catheterized specimen of bladder urine contained a moderate number of pus cells. Culture disclosed colon bacilli. No tubercle bacilli were found. Improvement resulted from appropriate diet, potassium acetate by mouth and irrigation of the bladder with a 5 per cent. solution of argyrol. Notwithstanding this improvement in the subjective symptoms, the urine remained turbid and contained many pus cells nine weeks after the beginning of treatment. As changing the reaction of the urine and the administration of hexamethylenamin resulted in an exacerbation of the symptoms, cystoscopy was considered advisable. Under ether anesthesia, the bladder was filled with 100 c.c. of boric acid solution and a Wolff single catheterizing cystoscope, 16 F., was introduced without difficulty. Several circumscribed areas of inflamed bladder



Fig. 5.—Pyelogram of left renal pelvis in an infant, aged 12 months, who was suffering from bilateral pyelonephritis.

mucosa were seen. The right ureteral orifice was normal. The left ureteral orifice was a little larger than the right and was surrounded by injected mucosa. Examination of the urine following catheterization of both ureters with No. 4 whistle-tip catheters gave the results tabulated herewith.

Right Kidney	Microscopic	Left Kidney
Numerous pus cells		Numerous pus cells
A few red blood cells		A few red blood cells
Numerous renal cells		Numerous renal cells
Colon bacilli	Culture	Colon bacilli
0.005	Urea	0.005

Following the intramuscular injection of phlorizin, sugar appeared in the urine from both kidneys in twelve minutes. Four days later the right ureter was catheterized and the pelvis of the kidney irrigated with a 0.5 per cent. solution of silver nitrate. The left ureter was catheterized with a roentgenographic catheter, and a 10 per cent. solution of sodium bromid was injected for pyelography. Four days later, cystoscopy was again performed, this time without anesthesia, the left ureter was catheterized, and the renal pelvis was irrigated with a 0.5 per cent. solution of silver nitrate. A roentgenographic catheter was then introduced into the right ureter and a 10 per cent. solution of sodium bromid injected for pyelography. The pyelograms of both kidneys revealed no pathologic condition. Cystography was also negative. There was no regurgitation of fluid into

either ureter. To date the renal pelvis have been irrigated eight times at intervals of from four to seven days. From 0.5 to 2 per cent. solutions of silver nitrate have been used on five and aluminum acetate solutions of the same strength on three occasions. Although the urine from both kidneys still contains a number of pus cells, the baby has gained weight and is apparently in good health.

PYELITIS

The pathologic condition of the upper urinary tract most frequently encountered in infants and children is a colon bacillus pyelitis. Although a diagnosis can usually be made without cystoscopy, this procedure is indicated in an appreciable number of cases, as many patients present symptoms common to other diseases, such as pyelonephritis, hydronephrosis, tuberculosis and renal calculi. It is likewise conceded that pyelitis may often be cured by constant alkalization of the urine, large quantities of fluid by mouth, rest in bed, and proper attention to the bowels. In this connection, Torres has emphasized the value of a carbohydrate diet in addition to drugs in rendering the urine alkaline. He calls attention to the fact that little or no alkali, such as potassium acetate, citrate or sodium bicarbonate is required for this purpose if a sufficient quantity of fruit juices and vegetables be given. Not infrequently, however, this method of treatment is unsuccessful, and it must be supplemented by dilatation of the ureters and pelvic lavage in order to accomplish the desired result. Cases 7 and 8 are illustrative of this contention:

CASE 7.—A boy, aged 9 years, complained of pain in the hypogastric region on urination, pain in the lower left abdominal quadrant, and pain in the left lumbar region. Urination was frequent and fever occasionally present. The symptoms began three weeks previous to admission to the hospital and had not responded to the usual treatment for pyelitis. Examination revealed tenderness on palpation in the lower left abdominal and left lumbar regions. A catheterized specimen of bladder urine contained a large number of pus cells. Roentgenography of the kidneys and of the ureteral and bladder regions was negative. Examination of the urethra revealed a stricture 3 cm. from the meatus. Following an internal urethrotomy, a cystoscope was introduced and both ureters catheterized. The urine from the left kidney contained a large number of pus cells. Culture disclosed staphylococci. Pyelography with a 15 per cent. sodium iodid solution revealed normal renal pelvises. The condition cleared up following three irrigations of the pelvis with silver nitrate solution.

CASE 8.—A girl, aged 8 years, presented the usual symptoms of a pyelitis in the right kidney. Examination revealed a stricture at the external urethral meatus. This was dilated, the cystoscope was introduced, and the ureters were catheterized. The urine from the right kidney contained a large number of pus cells. Culture disclosed colon bacilli. Objective and subjective symptoms disappeared following a single lavage of the renal pelvis with a 1 per cent. solution of silver nitrate.

STRICTURE OF THE URETHRA

Strictures of the urethral meatus in both sexes, and of the lumen of the canal in boys, are not infrequently encountered. They are readily detected by means of the olive-tip bougie. As these obstructions are sometimes responsible for pathologic lesions in the upper urinary tract, investigation for this condition should be a part of the urologic examination of every child complaining of symptoms referable to the urinary tract.

CASE 9.—The youngest patient suffering from urethral stricture that has come under my observation was a girl aged 3 years. She complained of frequent urination and pain in the

bladder region of one month's duration. The family history and past history were of no significance. Examination revealed a stricture at the external urethral meatus through which a No. 5 ureteral catheter was passed with difficulty. A catheterized specimen of bladder urine contained a few pus cells. Culture disclosed nonhemolytic streptococci. The symptoms improved after the second and disappeared after the fourth dilatation of the urethra.

CONCLUSIONS

In addition to pyelitis, urethral strictures, hydro-nephrosis, tuberculosis and other pathologic conditions of the urinary tract are frequently encountered in children.

Pelvic lavage with silver nitrate solution is often indicated in the treatment of pyelitis in children.

Modern urologic instruments should be used in the diagnosis and treatment of pathologic conditions of the urinary tract in children as well as in adults.

210 Post Street.

ABSTRACT OF DISCUSSION

DR. HERMAN L. KRETSCHMER, Chicago: As a broad, general statement one is justified in saying that infants and children do not receive very much routine urologic study. Certainly they do not receive the same amount of study that is given to adults. A few isolated attempts have been made, is is true, such as Dr. Hyman and Dr. Hinman have made, but there is not much work being done in this field. I think this is due to two facts: first, the size of the patients; and second, our limitations due to instruments. The more interest there is manifested in this work, the more effort will be put forth on the part of the instrument makers to provide us with smaller instruments. In some instances we have made cystoscopic examinations of patients with the ordinary pharyngoscope used by the nose and throat men. As brought out by Dr. Stevens, we can use a laryngeal instrument to dilate the ureter. We must educate the general practitioner and the pediatrician to the possibilities of urologic study in infants and children. There is no reason why these lesions should be different from those seen in adults, except a few congenital lesions.

DR. BRANSFORD LEWIS, St. Louis: There seems to be a general impression that if you let children go along with their urinary troubles they will outgrow them. In a girl, aged 3 years, when I made a cystoscopic examination, there was normal urine on the right side and foul, purulent urine on the left. There was a large pyonephrosis, but the parents had tolerated this condition because they thought the child too young to have anything done. We performed nephrectomy and obtained recovery. Another case was that of a little boy, aged 2½ years, who had been vainly endeavoring to urinate and continued to get worse. His suffering was terrific. Dr. Blair had tried catheterization with increasing lack of success, and finally had to give the boy an anesthetic every time he catheterized him. I found a very definite obstruction (contracture) at the neck of the bladder, which I opened up by cutting the neck of the bladder. The child got well. We should attack these problems just the same as if they were in grown persons.

DR. JOHN R. CAULK, St. Louis: The most important thing for us to do is to cooperate with the pediatricians and general practitioners, for they seem to hesitate to have these cases investigated. It is really remarkable how easily we can catheterize these children, but we have to be particularly careful with the child with a low function and a high nitrogen excretion. I watched a boy, aged 9 years, taper down in his function, and I hesitated to catheterize. The family insisted and I finally catheterized. In a minute or a minute and a half I got pus. The catheterization was performed with every aseptic precaution, but that child had a temperature of 108 F. and died within a few hours. Another child with low kidney function almost died. In other words, we should always find out the total kidney function before cath-

eterizing, and with low general function I should much prefer to open the kidney. In the other cases of pyonephrosis, usually occurring in congenital cases, you cannot do too much surgery. The children often look as if they would die; but all of mine have survived. It is important to do a two stage nephrectomy, first simply draining and later removing the kidney. It seems well to separate the kidney posteriorly to get a cleavage line for the second operation. If the second operation is done within from two to four weeks, it is usually very simple. I have had no mortality. It is always well not to subject these children to too much surgery.

DR. A. R. STEVENS, New York: My experience with children has led me to feel that calculus of the urinary tract is much more common than is reported in the literature. Within a year I have seen three little girls, varying in age from 3 to 13 years, with pyuria; these all had calculi, one in the bladder and in two cases in the pyelonephrotic kidneys. The urine cleared up after removal of the stone from the bladder in one case, and after nephrectomy for pyonephrosis in two cases. In another case I found pus coming from the kidneys, but in such small quantity and with a history of such



Fig. 6.—Pyelogram of right renal pelvis in an infant, aged 12 months, who was suffering from bilateral pyelonephritis.

marked improvement on treatment that I advised going on with hygienic measures. In the foregoing two kidney cases I used a direct vision, double catheterizing cystoscope of 18 F. caliber.

DR. ABRAHAM HYMAN, New York: During the last eight or ten years I have made cystoscopic examinations of approximately fifty children under 9 years of age. The youngest was a boy 17 months old. It is not necessary in most cases of gross surgical lesions to catheterize the ureters of these young children. One can obtain much information by chromocystoscopy. A solution of indigocarmine is injected into the buttocks; a small catheter is inserted into the bladder, and the appearance of the blue noted. The cystoscope is then introduced and the orifices are closely watched for the dye. In most instances the diseased kidney will fail to secrete any coloring matter, while from the healthy organ a deep blue will come. Of course, in some infants cystoscopy cannot be performed. A boy, aged 11 months, had been operated on for an intussusception but an enormously distended bladder was discovered. He had a very small penis and meatus which would not admit the smallest cystoscope. His bladder was

thoroughly irrigated and then filled with sodium bromid and a very good roentgenogram was obtained, showing two diverticula, one on each side of the bladder. These were successfully removed and the urine has since cleared up considerably.

DR. F. P. GENGENBACH, Denver: This paper is very timely here, and would also be timely in the Section on Diseases of Children, as well as in the Section on Practice of Medicine.

DR. CHARLES M. HARPSTER, Toledo, Ohio: The great thing we need is proper instruments. I have seen a number of cases of sarcoma in children. I think it is accepted as a fact that sarcoma is found rather frequently in even young children.

DR. FRANK HINMAN, San Francisco: I cannot agree with Dr. Hyman about the use of the cystoscope in boys under 4 years of age. I have made cystoscopic examinations of boys under 2 by doing external urethrotomy. This, of course, makes a minor operation and should be done only on very definite indication, but it is a very simple procedure. With respect to the use of the indigo carmin in preference to the ureteral catheter, I also disagree. It seems to me that we can get the most valuable information from microscopic examination of the urine. The separate functional determination is of secondary importance, and it is almost impossible to get any accurate idea of function after anesthetizing these children. Total function gives information as to the presence or not of at least one healthy kidney, and we do want to know the microscopic and cultural findings in these infected kidneys.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: I think the reason we have failed to make cystoscopic examinations is that most of us appreciate the difficulties of the procedure. It is really not a very difficult matter with children, and in very small children it is not always necessary to use an anesthetic. I have made cystoscopic examinations of children as young as 4 years. The functional test is of great importance, for the cystoscope is not without danger, and I agree with Dr. Caulk that the procedure is still more dangerous when we do it without knowing the functional ability of the kidneys.

DR. WILLIAM E. STEVENS, San Francisco: I was glad to hear Dr. Lewis emphasize the fact that pyelitis and pyelonephritis, like many other pathologic conditions of the kidneys, are not self-limited diseases. Many cases are neglected because of the mistaken idea that these infections are self-limited. As Dr. Caulk has stated, bilateral examination of the kidneys is of great importance in the presence of low total renal function. Dr. Hyman has called attention to the value of indigocarmine. I frequently use this dye for functional kidney tests, and although it is of considerable value, it should not replace other renal function tests, even though ureteral catheterization is required. It is often necessary to catheterize the ureters in order to determine which kidney is involved, and to obtain urine for microscopic examination. From 0.5 to 2 per cent. solutions of silver nitrate have been most efficacious in the treatment of pyelitis in children. Many cases clear up after from one to three pelvic irrigations.

KÖHLER'S DISEASE*

GEORGE I. BAUMAN, M.D.

CLEVELAND

In 1908, Köhler described a new and unusual disease or malformation of the scaphoid bone of the foot, and to this condition the name "Köhler's disease" has since been applied. Probably on account of seeing three cases within a short time, Köhler thought the disease must be rather common, but this idea has not been borne out by the number of cases reported since 1908, nor by my experience in a fairly large orthopedic clinic. Thirty-four cases have been reported. Thirteen of the patients were boys, five girls, and in sixteen

the sex was not mentioned. The age of incidence varied from 2½ to 7 years with an average of about 5 or 6. Two cases, both in boys, will be reported in this paper.

The condition seems, then, to be much more common in boys than in girls, and this may add weight to the theory that the trouble is due to trauma. Many are of this opinion, some even maintaining that it is a compression fracture of the bone. Others are of the opinion that it is an osteitis, possibly of rheumatic origin. Against this might be cited the fact that in only one case was there any associated similar condition in the patient. The center of ossification for the scaphoid is the latest of all the tarsal bones to appear, and this fact may have some bearing in considering the etiology of the affection. The most one can say is that it is probably an osteitis due to trauma or absorption from some focus of infection



Fig. 1.—Condition of left foot and ankle in Case 1.

and that this osteitis interferes with the normal development of the bone. It is probably not due to tuberculosis, osteomyelitis, rickets or syphilis.

The symptoms and the course of the disease are quite constant. The first complaint is a limp; pain is present usually only on walking. There may be some redness, swelling or thickening. There is usually some tenderness over the scaphoid, but no muscle spasm or atrophy in the leg.

The disease pursues a mild course, and the symptoms disappear within a few months or a year. The shape and structure of the bone as shown by the roentgen ray seem to return to normal with the disappearance of the symptoms.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Treatment consists essentially in support, and this may be obtained by a cast, by adhesive plaster strapping, or by a brace.

In order to establish, if possible, any connection between this disease in children and any variation in the shape of the adult scaphoid, we have made a study of 500 scaphoids from skeletons in the anatomic museum of Western Reserve University.

The size and shape of the scaphoid was found to be so variable that a normal was difficult to establish. There was rather marked thinning in twenty-four specimens, but these were all bilateral and usually accompanied by some thinning of other bones. From a study of these specimens, therefore, no connection between Köhler's disease and variations in the adult scaphoid could be established. We are not convinced, however, that such a profound change as is found in these cases in children could be outgrown before adult life.

REPORT OF CASES

CASE 1.—F. M., boy, aged 6, first seen, May 27, 1919, complained of limp and pain in the left foot. The family history was negative. Birth had been normal, at full term. The patient had had measles at 2 years of age, mumps two or three weeks previously and influenza Dec. 18, 1918. There had been no ear, nose, throat or tooth infections; no rheumatism or other joint troubles. The present illness had developed four weeks before, with pain and limp. Pain was noted especially in the region of the scaphoid. It was somewhat worse at night. There was a little intermittent swelling but no redness. The patient tired easily and was somewhat peevish. He had refused to walk for two days. He had had no cough, night cries or sweats. The patient's general condition was good. There was some limp and some swelling in the region of the left scaphoid. There was quite marked tenderness, a little pain on motion, but no muscle spasm. The arch was good. There was no redness nor heat. A roentgenogram (Fig. 1) revealed the scaphoid about half the size of the right, irregular and roughened. The architecture of the bone could not be distinguished. There was some increase in density. A cast and crutches were employed. Treatment continued for three months with subsidence of symptoms, but with little, if any, improvement in the roentgen-ray appearance of the bone. A little soreness and limp persisted for about two months. At last report, in January, the patient was entirely well; no recent roentgenograms have been made.

CASE 2.—A boy, aged 5, first seen Jan. 10, 1920, with a complaint of trouble with the right foot, gave a negative family and personal history. November 24 he had turned his ankle and had had some pain for a week or so; since then there was only a little pain at times, on certain movements. A little deformity has been noticed (varus, pigeon-toe). The patient walked with a slight limp, the foot in some varus, the arch high. There was a little thinning in the region of the scaphoid and the internal cuneiform. There was no heat or redness. Motions were free and painless. Roentgen-ray examination (Fig. 2) revealed marked thinning in the scaphoid and increase in density. The architecture of

the bone could not be distinguished. The bone was irregular and rough. A little change of similar nature was noted in the internal cuneiform. A cast was employed for five to six weeks. The patient had no other treatment and no further trouble. He walked without a limp. The right arch was still higher than the left. A roentgenogram made May 24, 1921, showed a little thinning and an increase in density in the scaphoid.

Osborn Building.

ABSTRACT OF DISCUSSION

DR. HENRY W. FRAUENTHAL, New York: I have not had the opportunity to make roentgenograms of the scaphoid in adults, but I have a translation of Köhler's description of the disease published in 1908, and he makes some important points in diagnosis. One is that the condition is nontraumatic, and the other is that the bone is denser, about one fourth the size of a normal bone, and that recovery takes place after two or three years. The only treatment in Köhler's cases was fixation. The patients were boys between the ages of 5 and 9, and he excluded tuberculosis and syphilis in the history, or rather in the fathers' histories. He makes one important point, that the greatest pain occurred at night, and that these patients have disturbance in their sleep, due to the pain, which would lead one to think of syphilis. The appearance of the scaphoid in Dr. Bauman's slides would make me think it is bone syphilis. In the literature, cases have been reported in which a cure was effected in two months, being an acute process: that is quite different from Köhler's disease, which lasts from two to three years, and in my judgment is a tuberculous development on a syphilitic base. In bone lesions of the hand and foot we often see a tuberculous invasion on a syphilitic focus. This is described by Köhler.

DR. EDWIN W. RYERSON, Chicago: This is a very interesting condition, but I am not sure that we can call it a disease. In the large clinic of the Children's Memorial

Hospital in Chicago only one case has been recognized since Köhler wrote of his cases. Another case is that of a little girl under treatment for a year and a half for tuberculosis of the ankle joint. The last time she came in, the opposite foot was roentgenographed and typical Köhler's disease was found in the scaphoid. Mention has been made of roughness of the surface of the bone. What is seen in a roentgenogram is not the surface of the bone, but the ossifying part; hence one cannot say that the surfaces are rough or destroyed, because they are not visible.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have seen several of these cases and want to make one point only, and that as to treatment. These patients should have a plaster cast or antisyphilitic treatment. I believe the condition is similar to traumatic epiphysitis of the anterior tibial tubercle, and requires no definite treatment and no prolonged use of plaster casts with crutches. I use a simple arch support within the shoe, which is quite sufficient.

DR. GEORGE I. BAUMAN, Cleveland: The Wassermann and von Pirquet tests were negative, and the family history was negative for tuberculosis and syphilis in my cases, and I do not think they could be so diagnosed. The first patient was not fully recovered after three months. The roentgen-ray



Fig. 2.—Condition of right foot in Case 2.

picture did not change, and the symptoms did not disappear in this length of time. In the second case the symptoms were not so severe, and they did disappear in a short time. I think the condition is of interest chiefly from a diagnostic standpoint.

LAVAGE OF THE RENAL PELVIS

AN EXPERIMENTAL STUDY*

VINCENT J. O'CONOR, M.D.

CHICAGO

This experimental work was undertaken to determine the comparative effects, on the renal pelvis and kidney, of the various solutions now being used for "pelvic lavage." While the effects of pyelographic mediums have been very carefully studied from an experimental point of view,¹ our knowledge of the action of the drugs used in the renal pelvis has been derived mainly from the clinical results obtained by their use. The experiments were carried out to ascertain the relative penetration, the route and degree of absorption, and the degenerative and regenerative changes brought about by the action of the drugs on the normal ureter, pelvis and kidney substance.

EXPERIMENTAL TECHNIC

The brevity of a paper before this section necessitates a general summary of this work rather than a detailed study of the individual protocols.

Thirty dogs were used in the experiments. Under ether anesthesia a laparotomy was performed and the bladder was opened in the median line. A No. 5 F. ureteral catheter was passed 4 cm. up one of the ureters. A rubber band was then placed around the lower portion of the ureter, preventing any reflux which might occur around the catheter.

The various solutions were then injected through the catheter either by gravity or by means of a record syringe. From 1.5 to 2.5 c.c. of the solution was injected in each instance. When gravity injection was used, a buret was so attached that the height of the injecting column of fluid was never more than 6 inches above the level of the dog's bladder. When syringe injection was used, the solution was introduced as slowly and steadily as it is possible to keep up a uniform inflow with a 5 c.c. record syringe; this closely approximated the same force previously calibrated at from 75 to 100 mm. of mercury pressure. The solution in question was held in the ureter by clamping the rubber tubing connected with the catheter. This interval varied in the different experiments from fifteen to thirty minutes.



Fig. 1.—Section of ureter, just below ureteropelvic junction, removed twenty minutes after lavage with 0.5 per cent. silver nitrate solution.

In those instances in which the immediate effects of the drug were under investigation, the fluid was allowed to run out through the catheter, and immediately following this both kidneys and ureters were excised. The kidneys were then bisected down to the pelvis, and the kidney, pelvis and ureter were thoroughly washed with distilled water. The sections were then prepared by various methods.

In the dogs, when longer periods of observation were desired, the rubber band was removed, the catheter withdrawn and the bladder was closed about a rubber tube. These operative procedures were carried out under strictly aseptic technic. The dogs were killed at a later date and the kidneys removed for study. In preparing the specimens in which the silver solutions were used, the tissues were exposed to direct sunlight for one hour. They were then fixed in solution of formaldehyd and, after embedding in paraffin, were stained with hematoxylin and eosin. When boric acid or aluminum acetate solutions were used, the sections were prepared by the ordinary methods of fixation and staining. In those tissues in which the various dyes were used, the tissues were prepared by frozen section and counter stained only with hematoxylin or eosin, depending on the reaction of the dye in question. In all experiments, careful gross and microscopic study of both the injected and the noninjected kidneys and ureters was made.

RESULTS

Boric Acid Solution.—Specimens after the injection of saturated boric acid solution, both by the gravity and syringe methods, showed no abnormality of the ureter, pelvis or kidney tissue. These experiments demonstrated that there is no physical injury to the epithelium of the pelvis or ureter following a slight overdistention for thirty minutes with a non-irritating solution.

Flavine and Brilliant Green.—When 1:500 acriflavine or 1:1,000 brilliant green solution had remained in the pelvis for thirty minutes, frozen sections, stained with eosin, showed the following: The superficial layers of the ureteral and pelvic epithelium were uniformly stained a yellowish green. There was slight disintegration of the nuclei, but there was no break in the continuity of the lining membrane. No dye was seen in the deeper layers of the epithelium, nor was any present in the submucosa or muscularis. The tips of the pyramids in both instances showed a penetration of the dye through the epithelial and basement membrane, and in several areas the most distal portions of the collecting tubules contained small amounts of the dye. No dye was present outside the tubules, and none was found at a higher level. There was no dye found in the opposite kidney or ureter. There was no round-cell infiltration in the neighborhood of the dye.

In a dog killed forty-eight hours after the injection of 1:500 acriflavine, no trace of the dye was found anywhere in the tissues. The superficial layers of epithelium had been denuded from the ureter and renal pelvis in a very uniform manner, but there was no round-cell infiltration in the submucosa.

Gentian Violet.—Two cubic centimeters of a 10 per cent. solution of gentian violet (in water) was injected

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

*From the Laboratory of Surgical Research, Harvard Medical School, Boston, and the McCormick Memorial Institute, Chicago.

1. Keyes, E. L., and Mohan, H.: The Damage Done by Pyelography, *Am. J. M. Sc.* **149**: 30-41, 1915. Braasch, W. F., and Mann, F. C.: Effects of Retention in the Kidney of Media Employed in Pyelography, *ibid.* **152**: 336 (Sept.) 1916. Burns, J. E., and Hopkins, P. B.: A Comparative Study of the Effects of Thorium and Other Substances on the Renal Parenchyma When Retained, *J. Urol.* **2**: 145 (April) 1918. Cameron, D. F.: A Comparative Study of Sodium Iodide as an Opaque Medium in Pyelography, *Arch. Surg.* **1**: 184 (July) 1920.

by gravity and allowed to remain twenty minutes. The pelvic and ureteral epithelium was faintly stained in the superficial layers. There was no evidence of disintegration of the nuclei. No dye was noted in the deeper structures nor in the renal tubules.

Aluminum Acetate Solution.—Two cubic centimeters of a 2 per cent. aluminum acetate solution was

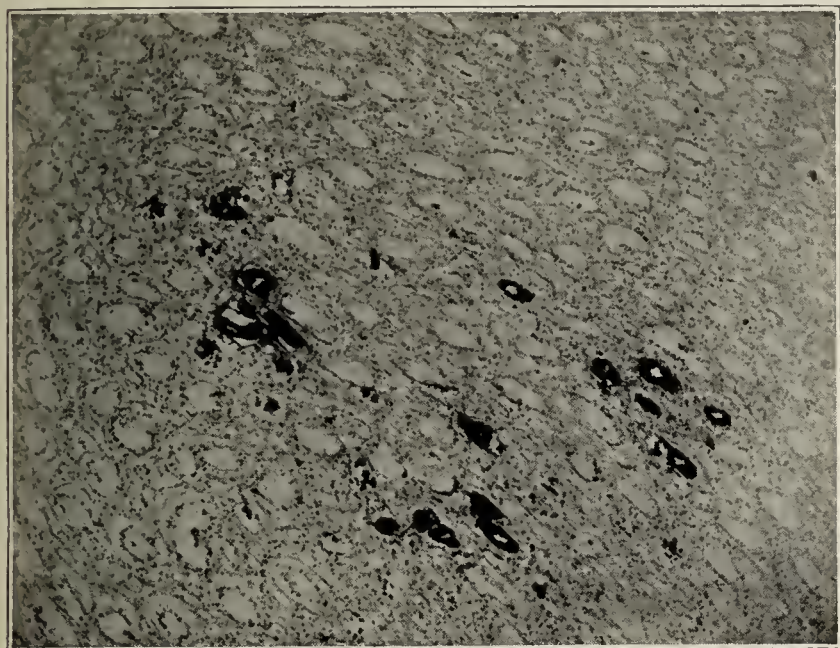


Fig. 2.—Silver solution in collecting tubules of kidney twenty minutes after low pressure gravity injection.

retained for thirty minutes after syringe injection. The epithelial lining was everywhere intact, although the regularity of the cell strata seemed affected by a diminution in size and outline of the more superficial cells. There was no erosion of the pelvic mucosa. The renal tubules and parenchyma were normal. There was no round-cell infiltration in the submucosa.

Specimens examined from a second similar experiment, but taken after forty-eight hours, gave somewhat different findings. The pelvic and ureteral epithelium was unevenly denuded of the more superficial layers of cells. The epithelial cells beneath these areas were irregular in outline, and some of the nuclei showed partial disintegration. There were no areas of round-cell infiltration in the submucosa, muscularis or medullary tips. The renal tubules appeared normal.

Silver Nitrate Solution.—Ten dogs were used to study the effects of silver nitrate. The solution was used in the strength of 0.5 per cent. Both the gravity and syringe methods were used for injection. The immediate effects were noted after a twenty minute interval. The remote effects were studied by killing a series of dogs every forty-eight hours for fourteen days.

The results were as follows: The immediate effect of silver nitrate solution on the ureteral and pelvic epithelium is a uniform corrosion of the entire mucosa. The more superficial layers are entirely replaced by a uniform deposition of metallic silver, and the deeper layers show a symmetrical distribution of silver within the cells. The nuclei of all the cells show partial or complete disintegration. The reaction is somewhat more marked when a 1 per cent. solution is used, as compared with the effects of a 0.5 per cent. solution. All of the medullary tips are corroded through the mucosa and submucosa, and there is a diffuse deposit of silver for a short distance both in and about the tubules in these areas. The strength of the silver solu-

tion used made no relative difference in the depth of penetration through the submucosa at the medullary tips. When a syringe was used for injection, the penetration at these areas was only slightly more pronounced than after injection by gravity.

Metallic silver was found in every instance in the more distal portions of the collecting tubules. The distribution was always irregular, but in the main followed the tubules from the tips of the calices, the amount always being greater in these areas situated at either pole of the kidney. No metallic silver was ever found above the collecting tubules. In every experiment the weaker solution of silver nitrate seemed to be carried higher in the collecting tubules than the stronger solution, although the penetration through the tips of the pyramids was slightly less marked.

No silver was ever demonstrated in the cortex, glomeruli, or the peripelvic or capsular structures. No silver was ever found in the opposite kidney or ureter.

After forty-eight hours the following effects were noted: The pelvic and ureteral mucosa was partially denuded and irregular. A slight deposit of metallic silver was still noted over the surface of some areas. The nuclei of all the cells were in various stages of disintegration, but the lower strata were still uniform in their arrangement. In many areas the entire mucosa was separated from the submucosa, and here there was a beginning round-cell infiltration. No reaction was noted in or about the tubules. The tubular walls appeared normal. The glomeruli were normal. The opposite kidney and ureter were normal.

Four days after lavage of the pelvis with silver nitrate, sections showed the following: The mucosa of the pelvis and ureter was entirely destroyed, with the exception of a very few areas in which several layers of epithelium had not separated from the submucosa.



Fig. 3.—Section of ureteropelvic junction; specimen removed forty-eight hours after lavage with silver nitrate solution.

There were numerous areas of round-cell infiltration in the submucosa. There was no abnormality noted in the tubules, renal parenchyma or glomeruli.

Six days after lavage with silver nitrate solution, the disintegration of the epithelial cells had ceased and the mucosa was being regenerated by a bridging over of the epithelial layers. The process was apparently uniform along the entire mucosa. There were still numer-

ous areas of round-cell infiltration in the submucosa. The glomeruli, tubules and renal parenchyma were normal.

Eight days after lavage with silver nitrate, the process of regeneration of the epithelial lining of the pelvis and ureter was well advanced, but the surface was irregular and the healing was not complete.



Fig. 4.—Destructive reaction in ureter four days after twenty minute lavage with 0.5 per cent. silver nitrate solution.

Ten days after lavage, the epithelial lining had been completely regenerated and the superficial layers of cells were intact. No reaction was noted in the contiguous tissues.

Mercurochrome 220.—A 1 per cent solution of mercurochrome 220 was used in this series of experiments. By fixing in formaldehyd and then making frozen sections, the red dye will be entirely preserved in the tissues. The latter can then be stained with hemotoxylin and a striking contrast picture obtained. Mercurochrome 220 stains the superficial epithelium of the pelvis and ureter in an irregular manner. There is no loss of surface epithelium, although there are areas in which the nuclei of superficial cells are partially disintegrated. The dye penetrates through the epithelial lining in all areas, and is uniformly distributed throughout the submucosa and muscularis. In certain areas, especially at the ureteropelvic juncture, it has stained through to the serosa of the ureter.

Under low pressure gravity injection when the kidney was removed twenty minutes after the introduction of 2 c.c. of mercurochrome 220, the dye was seen ascending the lumina of the tubules.

The majority of the tubules from each papilla contained the dye. The tubules were filled with the dye for varying distances. In some instances only the collecting tubules contained the dye; in others the dye had been carried the entire distance upward to, and surrounding, the glomeruli. Above the level of the pyramidal tips there was no dye outside the tubules. In experiments in which greater pressure was exerted (syringe injection), the dye ascended more uniformly throughout the entire length of the tubules. The tubules at either pole of the kidney took up the dye more readily than in the central portion of the kidney. No dye was ever found in the uninjected kidney.

Forty-eight hours after lavage with mercurochrome 220, there was no dye found in the tubules or pyram-

idal tips. The surface epithelium of the pelvis and ureter was intact, and there was no denudation apparent. The cytoplasm of only an occasional epithelial cell retained a reddish color. The submucosa and muscularis were still stained a deep red. There was no round-cell reaction in the mucosa or submucosa, and the tubules and medullary tips were normal.

The submucosa and muscularis of the ureter and pelvis retained the dye for from five to seven days without any surrounding tissue reaction. The kidneys in these dogs were entirely normal. Serial sections were made of the kidneys which were removed twenty minutes after the injection of mercurochrome 220 by gravity. These showed that the dye had traveled directly up the lumen of the individual tubule as far as the glomerulus. There was no dye in the opposite kidney.

COMMENT

The pathway of absorption from the renal pelvis has been a matter of some controversy. My findings with mercurochrome in this series of experiments substantiates the work of Burns and Swartz.² The pathway of absorption, at least when there is an appreciable increase in intrapelvic pressure, is directly up the tubules. In the case of mercurochrome 220 this absorption is very rapid and complete even when only a very low gravity injection was used. It is possible that other dyes used in this study made the same ascent, but that I was unable to demonstrate them because of technical difficulties in preserving them in the tissues. The dye is carried clear to the glomeruli and stains the walls of the glomerular capillaries. No dye was found in the opposite kidney in any instance; and the unbroken continuity of the dye in the tubules, as demonstrated by serial sections, precludes the suggestion of Weld³ that reabsorption from the blood stream may account for the presence of the substance



Fig. 5.—Section of ureter eight days after lavage with silver nitrate; regeneration of mucosa is almost completed; there is an area of round-cell infiltration in the submucosa.

in the cortex of the kidney. The ascent in the tubules, of solutions injected into the pelvis, takes place most rapidly at the poles of the kidney. As Weld has previ-

2. Burns, J. E., and Swartz, E. O.: Absorption from the Renal Pelvis in Hydronephrosis Due to Permanent and Complete Occlusion of the Ureter, *J. Urol.* 2: 445 (Dec.) 1918.

3. Weld, E. H.: Renal Absorption, with Particular Reference to Pyelographic Mediums, *M. Clin of N. America* 3: 713 (Nov.) 1919.

ously shown, the break in kidney substance will first occur in these areas when too great an intrapelvic pressure is induced.

Weld noted no absorption of phenolsulphonephthalein from the ureter of the dog in four days. In my

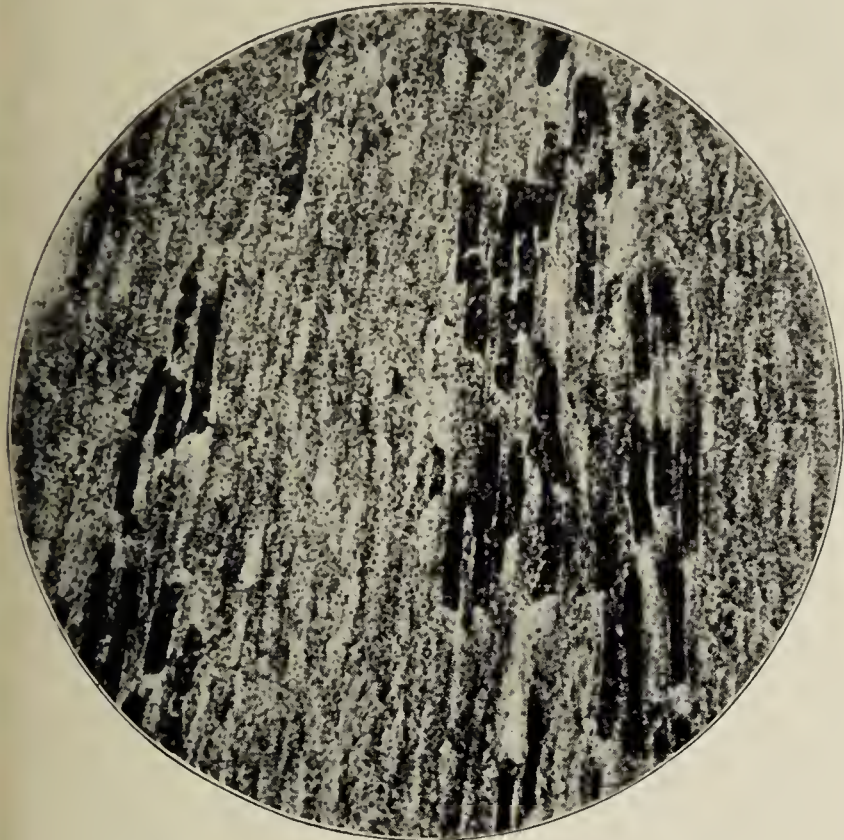


Fig. 6.—Frozen section of kidney removed twenty minutes after gravity injection, showing the collecting tubules filled with mercurochrome.

observations, mercurochrome remained in the submucosa and muscularis for from five to seven days, whereas it was not found in the tubules or parenchymal tissue after forty-eight hours. Magoun⁴ has shown that the pelvis of the kidney may readily be the source of infection of the blood stream. Absorption through the wall of the ureter or extrarenal portion of the pelvis does not appear to occur in appreciable amount.

Silver nitrate solutions destroy the mucosa by corrosion. No silver penetrates below the epithelial lining. Some silver can be found in the most distal collecting tubules, but it is minute in amount compared with the various dyes or such colloidal silver solutions as silvol. In the dog it takes ten days for the process of destruction and regeneration to be completed after a twenty minute exposure to 0.5 per cent. silver nitrate solution.

Mercurochrome 220 is the most penetrating and least irritating antiseptic among the drugs studied. The reaction of the tissues to this dye differs markedly from the silver solutions. There is only a very slight loss of surface epithelium, and there are no definite areas of round-cell infiltration in the submucosa. Young, White and Swartz⁵ found that the epithelial layers of the pelvis and ureter were more uniformly stained than the deeper structures. The sections examined in this series of experiments show a greater and more uniform penetration of the deeper structures than was primarily claimed for the drug by the original authors.

4. Magoun, J. A. H., Jr.: Pelvis of Kidney as Possible Source for Infection of Blood Stream, *J. A. M. A.* **74**: 73 (Jan. 10) 1920.

5. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220." Preliminary Report of Experimental and Clinical Studies, *J. A. M. A.* **73**: 1483 (Nov. 15) 1920.

The work of Cabot and Crabtree⁶ and others has demonstrated that the bacteria in persistent pyelonephritis are located in the submucosa of the epithelial lining of the pelvis and pyramidal tips, and less frequently in the convoluted tubules and in the lymph areas about the tubules.

Silver nitrate causes a marked superficial reaction which destroys the mucosa and brings about a reaction in the submucosa. Regeneration occurs in ten days. Mercurochrome penetrates more markedly to the deeper structures, and comes in direct contact with the tubular epithelium and the parenchyma of the pyramidal tips.

The variation of an antiseptic in the treatment of any localized chronic infection has recently been advocated by Richet⁷ after a research on the chemical, biologic and bacterial reaction of various antiseptics. From a purely experimental point of view it would seem that pelvic lavage done alternately with silver nitrate and mercurochrome 220, or some equally penetrating dye, might give us better results than those achieved by the sole use of either one.

30 North Michigan Avenue

ABSTRACT OF DISCUSSION

DR. WILLIAM C. QUINBY, Boston: The slides Dr. O'Connor has shown demonstrate the results of silver nitrate very strikingly. Silver nitrate is a corrosive; it destroys tissue. It may be that for therapeutic purposes you wish to get such a resection, but it is not ideal. The empiric results of silver nitrate for lavage show its use to be beneficial; but if it is beneficial, it is only because the whole of the mucosa of the passages is destroyed and, in the reaction called forth in repairing this, such increased vascularity is called forth that

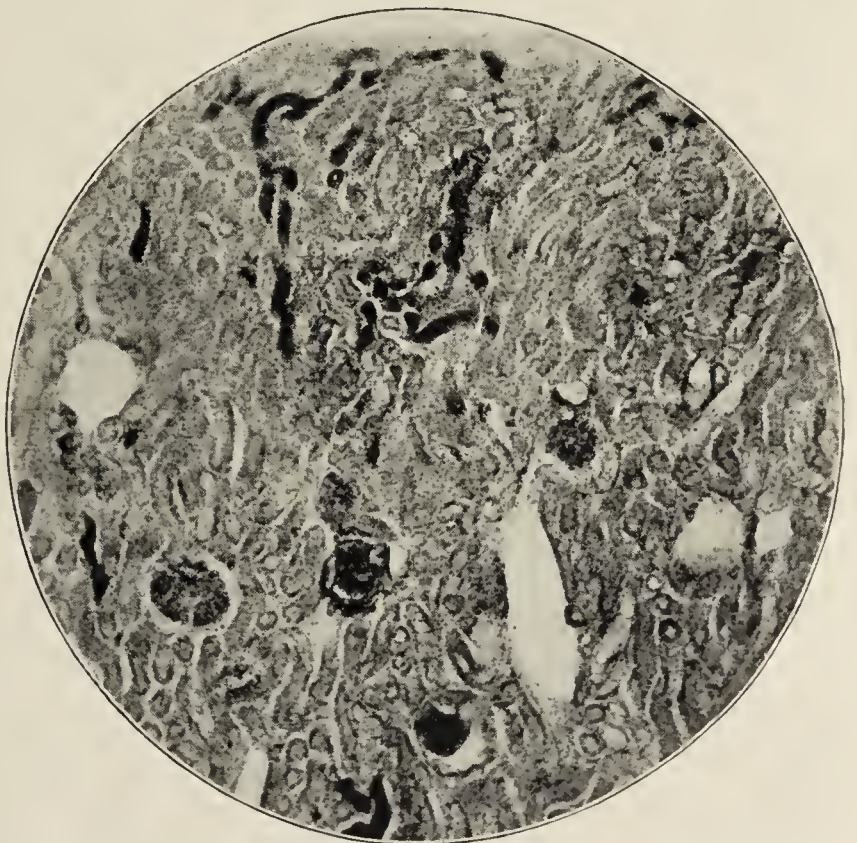


Fig. 7.—Frozen section of kidney removed twenty minutes after gravity injection. Note mercurochrome surrounding glomeruli and in the proximal convoluted tubules.

it carries with it destruction of bacteria. The slides which Dr. O'Connor has shown were made with only 0.5 per cent. silver nitrate, and it looks as though this was a dangerous

6. Cabot, Hugh, and Crabtree, E. G.: Nontuberculous Renal Infections, *Surg., Gynec. & Obst.* **23**: 495 (Nov.) 1916.

7. Richet, C.: Research on Antiseptics, *Medicine* **1**: 12 (Sept.) 1920, *Biol. No. A*, 719.

agent. If we wish to explain the fact that there is no difficulty following its use, the only explanation can be that it causes so much corrosion that it does not ascend into any but the lower tubules. A less corrosive solution, on the other hand, such as mercurochrome, will easily ascend sometimes as far as the glomerular capsule.

DR. A. E. GOLDSTEIN, Baltimore: In some recent experiments I have been able to demonstrate that, if a solution (sodium iodid in my experiments) was injected into the kidney, a definite expulsion time existed; in normal cases this was from three to seven minutes. No histologic studies were made of these kidneys, but fractional ureteropyelograms were made to see whether the solution was entirely out. Whether the same result can be obtained when dyes are used I am unable to state. Dr. O'Connor mentioned that in his experiments he tied the lower end of the ureter. This, of course, did not allow the solution to run out through the catheter, and it would necessarily have to remain in the kidney. It would be interesting to inject these solutions without tying the ureter and observe whether the solution would go into the kidney capsule and kidney proper, as this is what is done clinically. In pathologic cases, I have found that in injecting sodium iodid into the kidney it would remain as long as forty minutes in the kidney pelvis and ureter. If what Dr. O'Connor claims would occur in the human kidney as well as in the animal without tying the ureter, then, I think, silver nitrate would do much damage in pathologic cases, but this I have not observed in my experience.

DR. VICTOR D. LESPINASSE, Chicago: I have always been more or less skeptical about silver nitrate for pelvic lavage, probably because of some more disastrous results from it than most men obtain. Heretofore, pelvic lavage has been done very infrequently by me. Since mercurochrome came out, however, I have used it very extensively, and the results obtained have been most gratifying. From Dr. O'Connor's work I see why we obtained the results we did. Mercurochrome apparently makes the medium unsuitable for the growth of the organisms and still does not kill the cell. I did a similar piece of work on the vas and found as much variation between the different antiseptics then as Dr. O'Connor has reported in the kidney. If you wish to sterilize a patient, inject a little acriflavine, 1:1,000 into the vas deferens.

DR. JOHN R. CAULK, St. Louis: One or two things which have quite a big bearing on pyelography bear out what Dr. O'Connor has shown concerning injection of silver salts into the kidney pelvis. About a month ago a patient was given lavage for pyelonephritis and we injected about 1 c.c. of silver nitrate into the pelvis. She got great relief from the lavage; within a few days gallbladder plates showed the most beautiful stereoscopic renal pyelograms. That stimulated me to see what was the cause of this and whether we could reproduce it. The condition faded away within ten days, first leaving the true pelvis and then fading from the calices. We have never been able to reproduce it. The woman had a normal urine; she had not had drugs.

DR. JOHN T. GERAGHTY, Baltimore: We cannot always make practical application of the information we get from test tubes. Dr. O'Connor's work shows us that we should not do renal lavage until we are sure that the kidney can empty itself. If we have a retention we must not use silver nitrate, for we may get into serious difficulties. As to the practical value of silver nitrate and mercurochrome, the latter in the test tube is very much better and in the kidney the silver nitrate is very much better. It is not always the sterilizing influence that counts, but the reaction which is set up. Silver nitrate has been used for many years in infections of the genito-urinary tract, and it is not right for us to criticize it. It is the best thing we have had. It sets up a tremendous reaction. Silver nitrate increases the leukocytosis. As to the damage done the kidney, we have used silver nitrate for years, usually beginning with 1 per cent., after proving that the kidney can empty itself, and increasing to 5 per cent. if necessary. I have treated these patients for other troubles many times afterward, and have yet to find any damage done to the kidney that can be estimated functionally.

DR. HOMER G. HAMER, Indianapolis: In the base hospital at Camp Pike we had a man on whom we did lavage of the

kidney pelvis with a solution of silver nitrate. A day or two afterward a roentgenogram of the kidney region showed a beautiful pyelogram. We tried to reproduce it later but could not. The patient had been taking large doses of iodids, and it is possible that the combination may have had something to do with it.

DR. A. J. CROWELL, Charlotte, N. C.: I wish to emphasize what Dr. Geraghty said about the use of silver nitrate. Dr. O'Connor has shown that the injection of silver nitrate into the kidney pelvis, if left in for a considerable length of time, undoubtedly does damage to the kidney epithelium. I have noticed that we frequently get brilliant results from the use of silver nitrate, and at other times our results have been disappointing. Dr. O'Connor's paper gives me the explanation. I am satisfied that if the kidney pelvis empties itself completely we are perfectly safe in the use of this remedy, and will obtain excellent results from its use in infections of the kidney pelvis.

DR. EDGAR G. BALLENGER, Atlanta, Ga.: A patient who had an idiosyncrasy to mercurochrome was given a pelvic lavage of 8 c.c. of a 1 per cent. solution, and immediately there was a marked reaction. We had previously given him pelvic lavage on a number of occasions with other remedies, and had no reason to think the solution did not flow out, and we saw no cause for the serious condition which developed. The patient remained at the point of death for about three weeks. We had made up a quart of the solution, and subsequently used it on many other patients without any trouble, but in this individual it caused hematuria, pyuria, very severe pain in the back, marked rise in temperature and about the stormiest reaction we have seen following an injection of any kind.

DR. RICHARD F. O'NEIL, Boston: It seems to me that the type of pelvis which empties itself completely does not require injection. I believe that when there is good drainage these patients will recover without lavage.

DR. HERMAN L. KRETSCHMER, Chicago: I have used a lot of silver nitrate in the kidney pelvis and I shall continue to do so, because the results have been very gratifying. The fact that silver nitrate when retained produces a reaction should not influence us at all. As Dr. Geraghty has said, it is one of our most valuable agents. I think the fact that it does produce this reaction is the reason it is of so much benefit to our patients. Dr. O'Connor tied the ureters, but in lavage we do not tie the ureters. In lavage we have always made it a rule to use small catheters so that the silver nitrate would flow out of the catheter and not be retained. I think the paper has shown that the silver nitrate is not carried into the other kidney, and believe this is due to the fact that erosion of the mucosa occurred, and because not enough pressure was used.

DR. JOSEPH HUME, New Orleans: As Dr. Geraghty pointed out, Dr. O'Connor was not dealing with human beings but with dogs, and conditions are not the same. I wish to take my stand with Dr. Geraghty and Dr. Kretschmer about silver nitrate, for it is by all means the most superior drug we have. Dr. O'Neil says that if the kidney has drainage, the kidney gets well. I cannot understand that. We see many cases of pyuria and other conditions that persist for years, and yet the kidneys are open. The interesting thing is how to use silver nitrate. There is a great lack of information as to how to use pelvic lavage. I repeatedly lavage a kidney two or three times a day in cases that require it, and no harm is done. These cases have to be taken care of indefinitely. It has sometimes been a year or a year and a half before I have succeeded in curing some of these patients whose disease has been of twenty years' duration. If you will wash out the kidney with salt solution following lavage you will not have reactions and you will get cures.

DR. FRANCIS R. HAGNER, Washington, D. C.: I have been much interested in the pyelitis of pregnancy. These patients all have more or less retention of urine in the pelvis of the kidney. I have found that by lavage the results have been brilliant in many instances. But we must do something to relieve the retention. Associated with the washing of the kidney pelvis I have these patients take the knee-chest posi-

tion about every three or four hours during the day for five or ten minutes at a time, and find this of much assistance. This position seems to drain out the urine from the kidney pelvis. We have had patients who have had fever for many days, and immediately following pelvic lavage, and postural treatment, they have had an absence of fever and gone through their pregnancy without difficulty. I am in favor of silver nitrate and believe Dr. Geraghty is right. You are all probably familiar with the work Dr. Caulk has done with the Bulgarian bacillus. We have used this in many cases having infection of the kidney with alkaline urine. Some we treated with silver nitrate and other forms of lavage over long periods without results. After the use of the Bulgarian tablets dissolved in 4 c.c. of water, which makes a suspension, the pelvis is injected and the fluid allowed to drain out. If you get a growth of Bulgarian bacilli in the pelvis you get relief which nothing else will give. Some patients have had a chill, but many have no reaction. One patient who was treated for three months by other forms of lavage had a very marked reaction, following the treatment, but never had a return of pus in the urine.

DR. VINCENT J. O'CONOR, Chicago: There seems to have been considerable misunderstanding of the interpretation of this work. I do not feel that the work is contradictory to the clinical use of silver nitrate. I simply offered it for what it is worth, hoping to point out how the various drugs get to the pelvis, if at all, how the tissues react and, if possible, how often these drugs should be introduced into the pelvis. In regard to tying the ureters, I do not think that makes any difference, for I know that in no instance did I overdilate the dog's renal pelvis. But it makes no difference, so far as I can see, from the point of view of compression, whether the solution is kept constantly running in to keep up the normal capacity, or whether you introduce this amount at once and put a clip over the ureter.

In regard to the silver nitrate solution, I feel that unquestionably the way it produces its good results is that after two days there is a marked round-cell infiltration which will persist in certain parts of the ureter for ten days. In the other preparations (mercurochrome and aluminum acetate, etc.) there was never any round-cell infiltration. My final summary in regard to this work was not to decry silver nitrate, but to feel that the use of silver nitrate too frequently, because of its destructive effects, might not give us as good results as if we first lave the pelvis and wait for the healing to take place, because if we lave every four or five days we are keeping up the irritating factor. The organisms have been repeatedly found in the mucosa and submucosa, so their accessibility to drugs is somewhat difficult. If by combining these methods of lavage, getting to the deeper structures with mercurochrome and then supplementing that with what we know causes a much greater destruction, silver nitrate, may not the results be better? I simply ask from an experimental point of view whether some of you will not try the combined use of such a drug as mercurochrome, alternated with a drug like silver nitrate.

Maternity Hospitals.—Maternity hospitals call for much the same procedures and practically the same problems as do the general hospital so far as the executive, financial and general administrative affairs are concerned; but when you undertake to analyze its special functions as related to science and its place in the community, then it looms large as a specialty and requires its own special machinery. It is most gratifying to note the signs of awakening in the public mind to the need of using every means to preserve and conserve human life, and the opportunity of the maternity hospital was never before so great as it is today. Such a hospital that can claim nothing beyond giving suitable care in confinement is falling far short of the purpose it could and should serve. A maternity hospital should represent in its community a stronghold from which emanates the strongest possible standards and practices involved in child bearing and child life; and it is just here that the administration of such a hospital begins to take on aspects not so applicable to the general hospital.—N. E. Cadmus and M. LeJeune, *Hospital Social Service* 3:349 (May) 1921.

REPORT OF A CASE OF HEPATODUODENOSTOMY

WITH SOME OBSERVATIONS ON THE LYON-MELTZER METHOD OF BILIARY DRAINAGE

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AND

KARL CONNELL, M.D.

OMAHA

The case of Mrs. F. E. S. is worthy of record, not only because of the surgical course but more especially because of the unique opportunity afforded for the elucidation of certain phenomena in biliary secretion. Certain aspects of the secretion and passage of bile have of late assumed unwonted importance, empiric methods of diagnosis have been formulated from clinical observations which were of necessity somewhat loosely controlled, and a new method of therapy, "nonsurgical biliary drainage" has come into vogue.

REPORT OF CASE

Mrs. F. E. S., aged 31, married, came under our observation, April 27, 1920. She stated that four months prior, a cholecystectomy had been performed; that about two weeks after the cessation of drainage from the gallbladder operation, her right side began to feel swollen and sore, and that she suffered attacks of pain, chills and fever, with vomiting and jaundice.

The patient was poorly nourished, sallow and anemic, with slight icterus. Examination of the head, neck, mouth, throat, heart, lungs, pelvis, extremities and central nervous system revealed nothing abnormal. The abdomen was diffusely tender. Tenderness, however, was most marked in the right upper quadrant, where it was associated with some rigidity. A rather hard, tender mass, the surface of which measured about 10 by 15 cm., was palpable under the upper right rectus muscle.

The urine examination was negative, except for the presence of bile; the stomach contents had a total acidity of 70, free hydrochloric acid, 48. The examination of the stool was negative. The blood count revealed: hemoglobin, 75 per cent.; red cells, 3,920,000; leukocytes, 8,000; polymorphonuclears, 70 per cent. The Wassermann test was negative. A roentgenologic examination of the gastro-intestinal tract revealed nothing of importance save an imperfect duodenal cap and evidence of adhesions in the pyloric and gallbladder regions. On account of the repeated attacks of vomiting, chills and fever, and a palpable inflammatory mass, it was decided to explore with the presumptive diagnosis of a localized chronic inflammatory process in the region of the extirpated gallbladder with a possible stone in the common duct.

SURGICAL COURSE AND COMMENT

The surgical course of this patient seems worthy of record on the following counts: (1) to illuminate the surgical complications that may arise from loss of the common bile duct; (2) to illustrate the difficulties and fallacies of the rubber T tube as an anastomosing agent; (3) to record a failure of skin graft by the pedicle method to reestablish the common bile duct; (4) to illustrate the possibilities of sectioning the liver substance as an emergency method to secure bile drainage; (5) to show that repeated and severe surgical insults under desperate conditions may be borne under nitrous oxide-oxygen anesthesia with supplemental minimal quantities of ether, which insult would seem to have been fatal under ether alone, and (6) to record successful anastomosis of the duodenum to the hepatic duct furnishing a subject for controllable study of bile flow, a subject without gallbladder, without common bile duct, with shrunken hepatic ducts, and with an abdominal fistula that afforded direct access to the duodenal pool.

The first of our series of fourteen operations revealed an abscess between the under surface of the liver and the duo-

denum. This abscess cavity communicated below by fistula with the duodenum, and from another fistula leading into a mass of inflammatory tissue on the under surface of the liver, bile flowed into the abscess cavity. We assumed that this second fistula represented the open end of the cystic duct, not at that time knowing that the common bile duct was deficient. The sepsis and jaundice disappeared, following drainage, but bile flow came entirely through the abdominal fistula. After two months, the abdominal fistula tended to choke, and the patient suffered first with pains over the liver and a few days later with chills and fever to 104. She was therefore again opened.

The second operation showed that there was an absence of $1\frac{1}{2}$ inches of common bile duct. The duodenal end was readily picked up behind the second portion of the duodenum, but the proximal end could not be found. A small bile sac was encountered in a mass of scar tissue on the under surface of the liver, and this was drained by a rubber T tube into the residual sector of the common duct. For two months the T tube functioned well, and stercobilin was abundant in the stools. The tube then began to block proximally and to slip out of the bile sac, necessitating repeated replacements through a series of six operative procedures extending over a period of three months. At these replacements, it was seen that there was no epithelization that might lead to reconstruction of the common duct, and, as the replacements were progressively becoming more difficult, a pedunculated skin graft was taken from the left hypochondrium with the pedicle in the epigastrium. This graft was fashioned as a caterpillar with one end attached. After one month of circulatory readjustment, the free end of the graft was opened like a fan and swung into contact with the now shrunken liver ducts above and the common duct below. External bile drainage continued for a month, and a considerable amount of bile found its way into the intestine. After fourteen days of attachment, the skin graft was gradually severed from its pedicle and allowed to retreat within the abdomen. A month later, bile stoppage again became absolute, and sepsis and jaundice serious. Exploration disclosed no vestige of the

skin graft, all having sloughed or been absorbed. A dense mass of scar tissue was encountered in which the bile passage could not be found. As the patient became moribund, making further dissection impossible, the free edge of the liver was lopped off as the last chance of reestablishing bile drainage. Hemorrhage necessitated a whipover to secure hemostasis. After a stormy two days, bile drainage became profuse from the free edge of the liver, and the sepsis and icterus subsided. It is of interest to note that a large rent in the duodenum unsutured on account of the collapse of the patient healed rapidly without any apparent effect on the convalescence. After three weeks of drainage the liver surface scarred in, bile flow ceased, and sepsis with jaundice recurred.

Three subsequent attempts were made to reach the hepatic ducts, but each time on dissecting beneath the liver, the patient became moribund, necessitating artificial respiration by oxygen insufflation and cardiac massage, followed by intravenous digitalis and glucose medication. Each attempt resulted only in reestablishing bile drainage from the denuded liver edge. A few days after the last of these efforts, the field beneath the liver was freed and packed with petrolatum gauze, preparatory to an attempt at hepatoduodenostomy. Six days later, after hard search, a shrunken hepatic duct was found to the right of the incisura of the liver. The duct was slit longitudinally to a distance of one-half inch, and a tongue of duodenal mucosa was anastomosed to duct mucosa three fourths the way around the slit, which was spread and held open by suture to Glisson's capsule. The hole in the duodenum from which the tongue was lifted was then sutured as a catch basin about 1 inch in diameter, to the under sur-

face of the liver, completing a hepatoduodenostomy after the Mayo method. This anastomosis was completely successful in reestablishing bile flow. Bile appeared in three days, and the anastomosis has continued to function up to the present, five months later. In dissecting free the duodenum, a fistula was established for duodenal feeding, of which incidental use has been made for studies in biliary secretion.

EXPERIMENTS IN BILIARY SECRETION

A succession of operative procedures had furnished us with a patient with known absence of gallbladder and common bile duct, and in whom the hepatic duct had been anastomosed to the duodenum. For the purpose of feeding, a catheter had been so placed that it led through a fistula into that duodenal recess into which the liver poured its secretions. The patient had kindly consented to leave this catheter in place for experimental purposes. The patient's digestion was good and she felt well during the entire period in which biliary studies were made. During part of the time she was even able to carry on household duties. It is obvious that such an anatomic combination afforded an opportunity to test under exceptional control the Lyon¹ hypothesis of segregation of bile, namely: Under the action of a concentrated solution

of magnesium sulphate placed in the duodenum,² a sequential flow of bile is obtained: first, a pale yellow bile (A bile) which the hypothesis assumes comes from the common duct; second, a darker, more viscid flow (B bile) of which Lyon says, "It is my personal belief [Lyon elaborates five grounds for his 'belief'] that it is coming from the gallbladder wholly or in part but mixed, probably with a few milliliters of bile still delivered from the ducts or bile freshly secreted

from the liver"; third, a clear yellow bile of low specific gravity (C bile) assumed to be freshly secreted liver bile. On this hypothetical differentiation of bile flow into duct, gallbladder and liver bile, Lyon and his followers have elaborated a scheme for the diagnosis and treatment of biliary disease. Variations of bile in color, quantity and consistency, in cytology, in bacterial and crystalline content, have been translated into terms of morbid physiology. As the Lyon-Meltzer concept rests on variations in the physical state of the bile obtained after the introduction of a hypertonic solution of magnesium sulphate into the duodenum, any light that might be thrown on the physiologic effect of such solutions on the liver alone should be of value. In order to ascertain what sequence in bile flow would

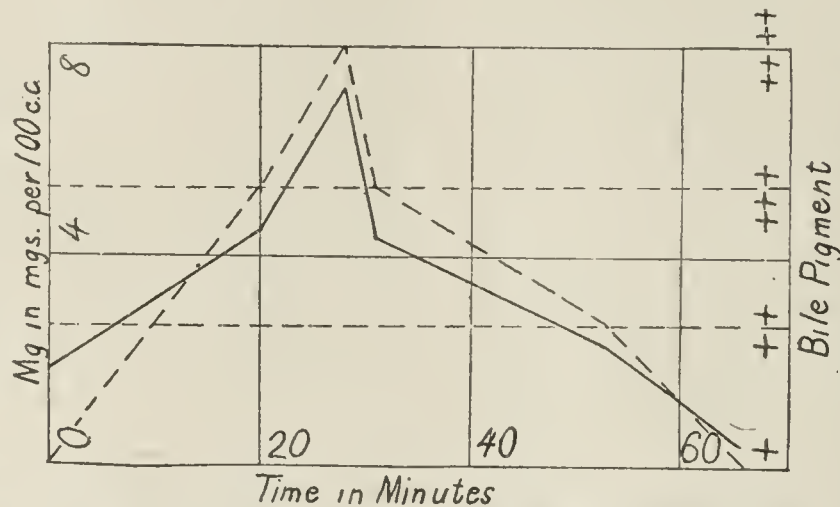


Chart 1 (Experiment 4).—One hundred cubic centimeters of 30 per cent. magnesium sulphate injected. 32 cm. into jejunum at 0 minutes. Bile samples collected from duodenum through fistula. Continuous line, magnesium; broken line, bile pigment.

1. Lyon, B. B. V.: *Am. J. M. Sc.* **160**: 522 (Oct.) 1920.

2. It was hard to conceive what alteration might occur in a simple magnesium sulphate solution in its passage over the gastric mucosa that would prevent its having the same effect on the duodenum and biliary apparatus as when introduced directly into the duodenum by tube. We learned early in our work with the Lyon-Meltzer method that it was not necessary that the magnesium sulphate solution be placed directly in the duodenum through the tube as universally advocated, in order to obtain the A B C sequence of bile flow. We have obtained A B C sequences typical both as to quality and quantity, in more than fifty instances by the following method: The duodenal bucket was introduced into the duodenum in the usual manner; the patient then swallowed from 75 to 100 c.c. of 30 per cent. magnesium sulphate solution; after a brief time the bile flow usually occurred in the same manner as when the magnesium sulphate was introduced directly into the duodenum by tube.

occur from a biliary system devoid of gallbladder and common duct and without a functioning sphincter of Oddi to be relaxed, when acted on by a magnesium sulphate solution, the following experiments were performed:

EXPERIMENT 1.—Eight days after the hepatoduodenostomy, 30 c.c. of 30 per cent. solution of magnesium sulphate was introduced directly into the duodenum through the duodenal istula by the "feeding catheter." In the first seven minutes, 2 c.c. of pale, turbid bile was secreted (A bile). In the following thirty-five minutes, 30 c.c. of dark, greenish-yellow, turbid, viscid bile was secreted (B bile). In the next hour, 92 c.c. of light, clear yellow bile, with a specific gravity of 1.012, was obtained (C bile). This experiment proves that the typical A B C sequence can be obtained by introducing 30 per cent. magnesium sulphate directly into the duodenum without the presence of either gallbladder or common duct. (It was clearly demonstrated at operation that there was no dilatation of the hepatic ducts which might possibly function similarly to a gallbladder in the concentration of bile.)

EXPERIMENT 2.—At the same hour the next morning, prior to the ingestion of food, and without magnesium sulphate injection, the bile was collected in fractions for two hours through the duodenal catheter. In total, 190 c.c. of pale yellow bile of uniform color and consistency was obtained, all fractions alike, except that some were acid and turbid from admixture of stomach secretions.

EXPERIMENT 3.—Three hundred cubic centimeters of 30 per cent. magnesium sulphate solution was introduced into the colon by rectum. The collected bile corresponded essentially to that of Experiment 2.

EXPERIMENT 4.—A catheter was passed 32 cm. through the duodenal fistula into the jejunum, and its position verified by the fluoroscope and by plates. One hundred cubic centimeters of 30 per cent. magnesium sulphate solution was injected into the jejunum, and the catheter was washed with physiologic sodium chlorid solution. It was then withdrawn, cleansed and reinserted into the duodenal pool to collect bile. The results of the experiment are shown in Table 1.

Chart 1 shows quantitative magnesium and bile pigment curves plotted against time for Experiment 4.

This and other experiments made with the same technic showed that in a case without gallbladder or common duct, the A B C sequence could be obtained by injecting 30 per cent. magnesium sulphate solution into the jejunum at a point 32 cm. distant from the second portion of the duodenum.

TABLE 1.—RESULTS OF EXPERIMENT 4

Sample Number	Time in Minutes	Amount of Bile in C.c.	Color	Lyon's Class	Specific Gravity	Magnesium in Mg. per 100 C.c.	Bile Pigment
1	0	15	Yellow	A	1.015	0.9	+
Magnesium sulphate introduced into the jejunum							
2	10	22	Brown	B*	1.040	1.3	++
3	20	21	Brown	B	1.026	4.5	++++
4	28	43	Dark brown	B	1.023	7.2	+++++
5	31	23	Dark yellow	B	1.012	4.2	+++
6	56	17	Yellow	C	1.015	2.27	++
7	66	17	Yellow	C	1.020	0.4	+

* In this experiment, the A fraction is not shown after the magnesium sulphate injection. It is obvious that, in the absence of common duct and with shrunken hepatic ducts in which but little bile can accumulate prior to the injection of magnesium sulphate, the A fraction may be easily lost in an initial gush of bile. This occurred frequently in our work in this case.

EXPERIMENT 5.—The same technic was employed as in Experiment 4, except that consecutive instillations of magnesium sulphate into the jejunum were made. The results of this experiment are shown in Table 2.

Chart 2 is a graph of quantitative estimates of magnesium and bile pigment plotted against time for Experiment 5.

This experiment showed that consecutive sequences of A B C bile could be obtained by introducing a 30 per cent. solution of magnesium sulphate in two fractions into the jejunum of a patient without gallbladder or common duct.

TABLE 2.—RESULTS OF EXPERIMENT 5

Sample Number	Time in Minutes	Amount of Bile in C.c.	Color	Lyon's Class	Magnesium in Mg. per 100 C.c.	Bile Pigment
75 c.c. of 30% magnesium sulphate was introduced into the jejunum						
1	5	10	Light yellow	A	1.0	+
2	13	8	Dark yellow	B	11.1	++
3	26	20	Dark brown	B	2.5	++++
4	28	8	Light yellow	C	0.7	+
50 c.c. of 30% magnesium sulphate introduced 32 cm. into jejunum						
5	37	10	Light yellow	A	6.0	++
6	42	10	Dark brown	B	0.8	++++
7	50	25	Light yellow	C	0.6	+

Chemical studies made for us by Prof. J. T. Myers, by courtesy of the University of Nebraska College of Medicine, gave some interesting data for study. Charts 1 and 2 are graphs of the analyses for mag-

nesium and bile pigments in the series of samples obtained in Experiments 4 and 5. These analyses were controlled by other series of samples obtained from the same patient by the same methods. Since variations in pigment values and in concentration of bile are the basis of the A B C differentiation, and since it has been customary for workers to interpret the change in intensity of pigment in the bile flow as change from common duct bile to gallbladder bile and from gallbladder bile to liver bile, efforts were made to determine the chemistry of these color changes. The variations in color were found to be not due to iron sulphid. Lead acetate paper was not discolored, and the Prussian blue and thiocyanate tests for iron were

negative. The color was found to vary only with the concentration of bile pigment. When concentrated nitric acid was added to the darker biles, a much deeper play of colors was produced than when added to the paler biles. Other oxidizing agents, such as hydrogen peroxid and potassium dichromate, produced similar results. The color changes were, of course, due to the oxidation of bilirubin to biliverdin, bilifuscin, biliprasin, choleprasin, bilihumin and bilicyanin, etc.³ The approximate concentrations of bile pigment were obtained by observing the intensity of color reaction, namely, greens, purples, blues and browns, produced by the addition of nitric acid. The following technic was used: One cubic centimeter of bile from each sample of a series was placed in a series of small test tubes. An equal volume of concentrated nitric acid was added to each tube. The pigment values were read "one, two, three or four plus," according to the depth of the colors. Several quantitative estimations showed the cholesterol curves to follow rather closely the curves of the bile pigments.

3. Wells: Chemical Pathology, Ed. 3, p. 484.

It is to be noted in the accompanying charts that the pigment curves correspond closely in form and in time to the curves of the concentrations of magnesium. It does not seem likely that regurgitation of magnesium sulphate from the jejunum into the duodenum would give such minimal but constant variations in concentrations of magnesium as were found in the bile samples. Quantitative sulphate determinations showed that the gram-molecular concentrations of SO_4 did not follow those of Mg in the proportion of MgSO_4 , proving that at least some of the magnesium occurred in another form of bile. Furthermore, no regurgitation of milk occurred when 1 quart of milk was introduced 32 cm. into the jejunum. These facts negate the possibility of regurgitated magnesium sulphate as an explanation for the curves of magnesium in the bile samples. It would seem far from likely that the small concentration of magnesium sulphate (2 to 55 mg. per hundred cubic centimeters), as calculated from the magnesium content of the bile samples, could act on the duodenal mucosa to produce bile flow in the manner set forth in the Lyon-Meltzer hypothesis. The method used for the determination of magnesium in bile was as follows: Ten cubic centimeters of bile was measured into a porcelain evaporating dish with a calibrated pipet, and 5 c.c. of concentrated nitric acid added to oxidize the organic matter. The sample was evaporated to dryness on the water bath and heated over a Bunsen flame till all carbon was removed. The residue was taken up with distilled water containing a little hydrochloric acid. This solution was made slightly alkaline with ammonium oxalate added, and the liquid filtered to remove possible traces of calcium or iron. The magnesium was precipitated with sodium ammonium phosphate. After several hours of warm digestion, the precipitate was filtered off, ignited in a porcelain crucible, and weighed as magnesium pyrophosphate, $\text{Mg}_2\text{P}_2\text{O}_7$. The quantities of magnesium and magnesium sulphate given above were calculated from this. Quantitative precautions were used throughout.

The close parallelism of the magnesium and bile pigment curves suggests quite naturally that we are dealing with an intestinal absorption of magnesium. Our work does not of necessity come into conflict with current pharmacologic views that magnesium sulphate is not absorbed from the intestine. As far as we have been able to ascertain from the literature, the conception of nonabsorption of magnesium sulphate from the intestine is based on the results of coarser methods which respond to much larger quantities of magnesium than those prevailing in our studies.

May not one of the following possibilities be the answer to the A B C phenomenon: first, an enterohepatic circulation of magnesium in which the latter, carried to the liver in the portal blood, acts directly on the liver as a cholagogue, *producing a bile flow rich in pigment*, or, second, a destruction of red corpuscles, possibly by the magnesium ion, somewhere in the portal system, resulting in sudden dumping of an increased quantity of blood pigment on the liver, which reacts to this stimulus by an increased output of bile rich in pigment? Work along these lines is contemplated.

CONCLUSION

Experiments carried out on a patient without gallbladder or common duct have shown that the assumption is not necessarily true that the B, or dark, viscid

fraction of the A B C magnesium sulphate bile sequence represents gallbladder bile, and that we are not yet justified in localizing disease of the biliary tract on evidence afforded by the Lyon-Meltzer method of bile segregation.

Our limited observations indicate that the A B C bile flow sequences obtained in this case were due to the reaction of the liver to the presence of magnesium in the portal blood.

808 Brandeis Theater Building.

NEW METHOD OF PREVENTING POST-OPERATIVE INTRA-OCULAR INFECTIONS

REPORT OF FOUR HUNDRED SUCCESSFUL CASES *

GEORGE HUSTON BELL, M.D

Attending Ophthalmic Surgeon, New York Eye and Ear Infirmary,
NEW YORK

The material herewith presented is the result of 400 intra-ocular operations without a single primary infection. If we can now approach the operating table with a feeling of confidence that we have not had in the past, I believe that a great load has been lifted from the shoulders of most ophthalmic surgeons.

How often have you witnessed an infection following intra-ocular operations? Unfortunately, this calamity has overtaken us all. How often have you been told by the bacteriologist that the smear from the conjunctival sac was dirty and how often have you waited for days for the smear to become negative before operating? You then operate and dress the eye with fear and trembling, forty-eight hours afterward. Again, we have been told by the bacteriologist that the smear was negative; we operate, and in forty-eight hours, we dress the eye and find an infection—that I believe has also happened to us all.

In no case of our 400 did we wait for a single day before operating to clean up whatever was found in the smear from the conjunctival culdesac.

Much valuable time is lost by trying to clean up the conjunctiva when there is a questionable smear. The time that is lost is due to inadequacy of hospital facilities and also to patients. According to my method we do away with all this "lost motion." If a patient's eye looks clinically clean, we go ahead and operate regardless of the findings in the smear. The so-called "senile catarrhs" are not looked upon as clinically unclean by us. In other words, we pay no attention to the findings of the bacteriologist.

I have such a strong faith in my method of treatment that I am anxious for all ophthalmic surgeons to give it a trial unless they have some better plan of procedure.

TECHNIC

First Step.—The focal infections, such as oral sepsis, diseased tonsils, and toxemias of the intestinal tract, must be removed. I hold that it is just as necessary for the ophthalmic surgeon to get his house in order before subjecting his patient to a major operation upon the eye as it is for the general surgeon to clean house. Every patient of mine, whether clinical or private, must stand the acid test for "the three T's" (teeth, tonsils and toxemia), before we will consider the operation. This routine is carried on in my clinic at the Infirmary, and also in my private practice. I said at Atlantic

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921

City at the A. M. A. session that "a dirty mouth" was one of the greatest menaces to the human race. I wish now to reaffirm and confirm that statement. We must make no mistake about oral sepsis, as it is the arch enemy of the ophthalmic surgeon. The germs themselves and toxins or their poisonous products must be eliminated from the system as far as lies in our power if we are to better our cataract results. In this way we can hope to reduce the amount of secondary post operative infections. If we clean the blood by getting rid of toxemia, then we will raise the resistance of our patients so that we may be able to approach the operation with a confidence and courage such as we have not had in the past. We must bear in mind that the longer toxemia exists the less nerve energy and resistance there is.

All of this work on focal infections must be done from two to three months before the patient is admitted to the hospital. I lay great stress on this work, as we must study the general state of patients more than we have done in the past. A Wassermann test is made in zonular and complicated cataracts; also in hard cataracts when necessary.

The urine is examined several times previous to the operation.

Second Step.—The patient is then admitted to the hospital. Twenty-four hours before the operation, a dose of castor oil is given, as nothing sweeps and cleans the intestinal tract like castor oil. Castor oil has been the standby of physicians since time immemorial. I know of no substitute for it.

Third Step.—Two hours before the operation, a smear of the conjunctival sac is taken, after which 2 drops of 1 per cent. solution of silver nitrate are instilled into each eye.

The silver produces an intense irritation, but not an inflammation, so that when the patient comes to the operating table the eyes look red and inflamed, with a certain amount of mucous at the inner corners. The eyes are then washed out with a normal salt solution, as a means of freeing the operating field of mucus, dust, etc. After the patient is well under the local anesthesia, the operation is performed. We always try to get a conjunctival flap. Our usual technic is then employed. Afterward we use 2 drops of 3 per cent. solution of atropin and 25 per cent. solution of argyrol, after which both eyes are bandaged for forty-eight hours. Then every two days, the eye is dressed and argyrol and atropin instilled.

ACTION OF SILVER NITRATE

I believe that silver nitrate furnishes a marked degree of stimulation to the conjunctiva, and in that way leukocytosis is produced and protective substances are formed which take care of the micro-organisms if any are present.

Even were an inflammation produced by the silver, which I do not think happens, it would only diminish the probability of infection, not increase it, because the leukocytes and their leukins are valuable means in battling bacteria.

Mr. Burchell, our bacteriologist at the infirmary, performed some experiments for me with the secretion from the conjunctival sac after the silver had been instilled. He made an emulsion of the secretion and submitted it to different strains of staphylococci for periods ranging from one to twenty-four hours with negative results.

Mr. Burchell's investigations lead him to believe that the good effects of the silver are not due to the bactericidal properties of the secretion; but that the silver acts as an irritant to the tissues, causing the accumulation of leukocytes in the blood vessels which produces diapedesis, thereby leaving the operating field protected from any micro-organisms. In other words, we leave the eye protected by means of the phagocytes. And what makes the phagocytes so active? It is the preoperative removal of foci of infection—going after "the three T's."

The accompanying table is a condensed record of the operations performed. The records of these cases can be more fully studied, if desired, at the New York Eye and Ear Infirmary.

OPERATIONS PERFORMED IN FOUR HUNDRED CASES OF INTRA-OCULAR DISEASE

Case	Diagnosis	Smear	Operation
2	Chronic glaucoma.....	Pus, mucus, large diplococci	Lagrange
64	Immature and mature senile cataracts.....	Negative	Prelim. iridectomy
20	Matured senile cataracts	Mucus, leukocytes, large diplococci....	Prelim. iridectomy
34	Glaucoma	Negative	Iridectomy
7	Acute glaucoma.....	P u s, pneumococci, mucus	Iridectomy
7	Old iritis.....	Mucus, leukocytes, no bacteria.....	Iridectomy
12	Chronic glaucoma.....	Negative	Lagrange
2	High myopia.....	Negative	Discission
3	Chronic glaucoma.....	Pus cells, mucus....	Trephine
6	Capsular cataract.....	Occasional diplococci.	De Wecker's
5	Secondary cataract.....	Pus Cells, mucus, bacteria	De Wecker's
2	Postpolar cataract.....	Mixed germs, diplococci	Discission
2	Postpolar cataract.....	Negative	Discission
7	Zonular cataract.....	Negative	Discission
5	Zonular cataract.....	Pus cells, mucus, bacteria	Discission
22	Secondary cataracts....	Negative	Discission
12	Secondary cataracts....	Mucus, leukocytes...	Discission
1	Foreign body in anterior chamber	Mucus, leukocytes...	Extraction of steel
1	Buphthalmia	Leukocytes, large diplococci	Iridectomy
14	Traumatic cataracts.....	Negative	Linear extraction
1	Traumatic cataract.....	Leukocytes, cocci....	Linear extraction
2	Traumatic cataract.....	Small, large diplococci	Linear extraction
3	Zonular cataracts.....	Negative	Linear extraction
60	Mature senile cataracts.	Negative	Extraction
5	Mature senile cataracts.	Pus cells, no bacteria	Extraction
10	Mature senile cataracts.	Leukocytes, occasional coccus....	Extraction
5	Mature senile cataracts.	Mucus, bacteria, leukocytes	Extraction
3	Mature senile cataracts.	Epithelium, pseudo-"K.L.B."	Extraction
10	Mature senile cataracts.	Much mucus, no bacteria	Extraction
8	Mature senile cataracts.	Mucus, diplococci, pus cells.....	Extraction
5	Mature senile cataracts.	Leukocytes, no bacteria	Extraction
5	Mature senile cataracts.	Mucus, staphylococci.	Extraction
5	Mature senile cataracts.	Mucus, leukocytes, no bacteria.....	Extraction
4	Mature senile cataracts.	P u s, pneumococci, mucus	Extraction
4	Mature senile cataracts.	Mucus, few cocci, no pus.....	Extraction
5	Mature senile cataracts.	Leukocytes, large and small diplococci	Extraction
4	Mature senile cataracts.	Pus, mucus, leukocytes	Extraction
9	Mature senile cataracts.	Mucus, large and small diplococci....	Extraction
12	Dislocated lens.....	Mucus, leukocytes, bacteria	Extraction
12	Complicated cataract....	Pus cells, mucus, bacteria	Extraction

SUMMARY

If we are to better our cataract results and have fewer post-operative infections, we must start at the bottom and not at the top. It is just as necessary for the ophthalmic surgeon to clean house as it is for the general surgeon.

1. The arch enemy of the ophthalmic surgeon is oral sepsis. Patients must stand the acid test for focal infections, "the three T's," before we will consider the operation. This applies to all patients except emergency cases.

2. I wish to express a strong faith in silver nitrate as a germicide and irritant. In all of these 400 cases, 1 per cent. silver nitrate was instilled into the eye two hours before the operation and 25 per cent. solution of argyrol used at the time of operation.

3. If a patient's eye looks clinically clean we operate. The so-called "senile catarrhs" are not looked upon as clinically unclean by us. We pay no attention to the findings of the bacteriologist.

4. In analyzing our 400 cases, we have had two secondary infections coming on nine days after the operation. One of these patients recovered and will have some vision; the other developed a chronic iridocyclitis. These patients had negative smears. We were able to trace these infections to faulty technic in reference to oral sepsis.

5. Cases 1 and 2 were the same patient. His smear showed pus and diplococci, mucus; also he had chronic dacryocystitis. The patient had chronic glaucoma with very little vision. I performed a Lagrange operation without bringing the tension down; in two weeks, another Lagrange operation was performed. No infection followed either of these operations. Dr. Stout was house surgeon at that time and assisted me.

6. Vitreous humor was lost in four cataract cases. In Case 55 a bead of vitreous humor appeared. The smear contained pus and a number of diplococci. No infection resulted. Case 67 was a bad case of ozena; a smear showed pus cells and staphylococci. There was no infection. An iridectomy was performed in Case 80, after which a secondary membrane was removed. Some vitreous was lost. A smear showed considerable mucus and a few leukocytes and an occasional diplococci. There was no infection. In Case 91, an iridectomy and capsulectomy were performed. Vitreous was lost; the smear was negative and no infection resulted. Case 118 presented a dislocated lens. Iridectomy and extraction of the lens were performed; considerable vitreous was lost in this case. A smear showed a few leukocytes and some bacteria. No infection resulted. In Case 179, there was a thick secondary membrane. De Wecker's method was employed. Some vitreous was lost. Smear showed pus cells and staphylococci. No infection resulted. In Case 299, there was ozena. A smear showed leukocytes and large diplococci. No infection resulted. In Case 397, the patient squeezed, and lost considerable vitreous. The smear was negative. No infection resulted.

7. In soft or lamella cataracts, I perform a peripheral linear incision with a flap just back of the limbus. Also in all discissions, I enter the anterior chamber through the conjunctiva and sclera, just back of the limbus. The same rule applies to hard cataracts. I make the section in the sclera just behind the limbus, always having in mind a conjunctival flap. I consider it obsolete to go through the cornea in performing discissions, soft or hard cataracts.

8. In our list of 400 cases, we operated upon 142 mature senile cataracts and twenty soft cataracts, making all told 162 cataracts removed, with one eye lost from a secondary infection. Not a single case of primary infection or panophthalmitis resulted.

We performed fifty discissions on soft and secondary cataracts, 132 iridectomies, fourteen Lagrange operations, eleven de Wecker operations, three trephines and twenty-eight miscellaneous operations without an infection.

It is interesting to note that the ages of our patients ranged from 2 months to 90 years. Two of our patients with cataract had 3 per cent. sugar in the urine. Sugar is no barrier to the operation unless it exceeds 4 per cent.

As regards the whole question of postoperative intra-ocular infections I believe that the technic that I employ is absolutely reliable if it is followed to the letter of the law.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

DR. WALTER EYRE LAMBERT, New York: When Dr. Bell first called my attention to this method I was rather skeptical about it. It did not impress me at all. The reaction produced by the silver nitrate made a very unattractive looking eye on which to operate; however, as Dr. Bell was undoubtedly having most satisfactory experience with the method, I was induced to try it and the procedure, so far as the use of the silver nitrate is concerned, has been made a routine practice in my clinic. We have a record in my clinic of about 200 operations—75 cataracts, 29 discissions, 75 iridectomies, 10 trephinations, 5 Lagranges and 6 de Weckers—in which the preventive method described by Dr. Bell was used, and in none of these cases has any sign of infection occurred. It would seem, therefore, that we have a certain amount of evidence that it is a most useful method. It is my intention to continue the method of Dr. Bell. Perhaps, with a larger experience, we may be able to draw some positive conclusions. At present, however, it is rather hazardous to consider it as absolutely infallible.

DR. J. A. DONOVAN, Butte, Mont.: If Dr. Bell's results so far published are proved by further experience to maintain his position, we certainly have a very valuable addition to our operative work. However, I am a bit skeptical. Several times I have said something about the use of a mercury ointment in these operations, particularly red mercuric iodid, and have reported the strength as 1 : 5,000. I have increased the strength to 1 : 1,000, mixed with a little potassium iodid dissolved in water, and then incorporated in anhydrous wool fat, and finally add the petrolatum. I depend on it a little more than on anything else, and my results have usually been very satisfactory. I use it in routine office work, and after every eye operation. Though it does not in the least irritate an eye just operated on, it is frequently quite irritating to a normal eye or, in some cases, after prolonged use, but not so if its use is stopped for about three days, and then resumed.

DR. FREDERICK H. VERHOEFF, BOSTON: It is difficult to draw definite conclusions in regard to infection because it occurs so seldom. The method of preparation I have used for about five years is this: I do not prepare the patient's eye before operation at all, except to clip the eyelashes, because I think it is a mistake to irritate the eye before operation. At the time of operation the first procedure is to paint the skin with 2 per cent. tincture of iodine, and, as I use a suture, this is very important in avoiding infection of the suture. I paint practically the whole face on both sides; then we pay special attention to rubbing the iodine on the eyelashes and lid margins. In addition, for about two years we have put a gauze mask, similar to that the surgeon uses, over the patient's nose and mouth so that we may have an almost completely sterile field. Then I try to sterilize the conjunctival sac by using a 4 per cent. solution of protargol. At first, for about a year, I used 2 per cent. thinking that perhaps the stronger solution would be too irritating, and in that time had one infection in a case of diabetes. Since using 4 per cent. I have been fortunate enough not to have a single infection, not even a late one. Of course, this is the same principle as that of Dr. Bell, the activity of protargol being due to the silver nitrate in it, and 4 per cent. protargol is about as bactericidal as 1 per cent. silver nitrate.

DR. GEORGE H. BELL, New York: I do not think that smears from the conjunctival sac mean anything, provided the eye looks clinically clean. Cultures are also unreliable. Red mercuric iodid is good as far as it goes, but the leukocytosis produced by the mercury salts is not sufficient. I used mercuric chlorid and gave it up for that reason. Protargol acts along the same line as silver nitrate in producing a leukocytosis, but I do not think that it produces such a marked leukocytosis as silver nitrate. Protargol, being one of the salts of silver, is not as efficacious and as irritating as silver nitrate. I know of no substitute for silver nitrate. It is the best bactericide and irritant. Silver nitrate irritates the eye, and that is what I want. The field of the operation in a cataract case can never be considered surgically clean; therefore, it is necessary to use silver nitrate to prevent infection. My method leaves the eye protected during the healing process.

THE REPAIR OF SCLERAL WOUNDS (INCLUDING RUPTURE) NEAR THE LIMBUS*

LEE MASTEN FRANCIS, M.D.
BUFFALO

This paper supplements one read before this Section in 1913, at which time I described a double conjunctival flap for closing wounds of the sclera, situated far enough from the limbus to admit undermining sufficient adjacent conjunctiva to fashion adequate flaps. While this procedure serves its purpose well in proper cases, for those wounds more anteriorly placed, some other method is necessary. Although closure with scleral sutures, in many cases, is quite sufficient, more firmness and security from infection can be gained if such wounds can be reinforced by a proper conjunctival covering. It is with this in mind that the following procedure is presented:

The types of wounds for which this technic is adaptable are: first, scleral ruptures; second, penetrating

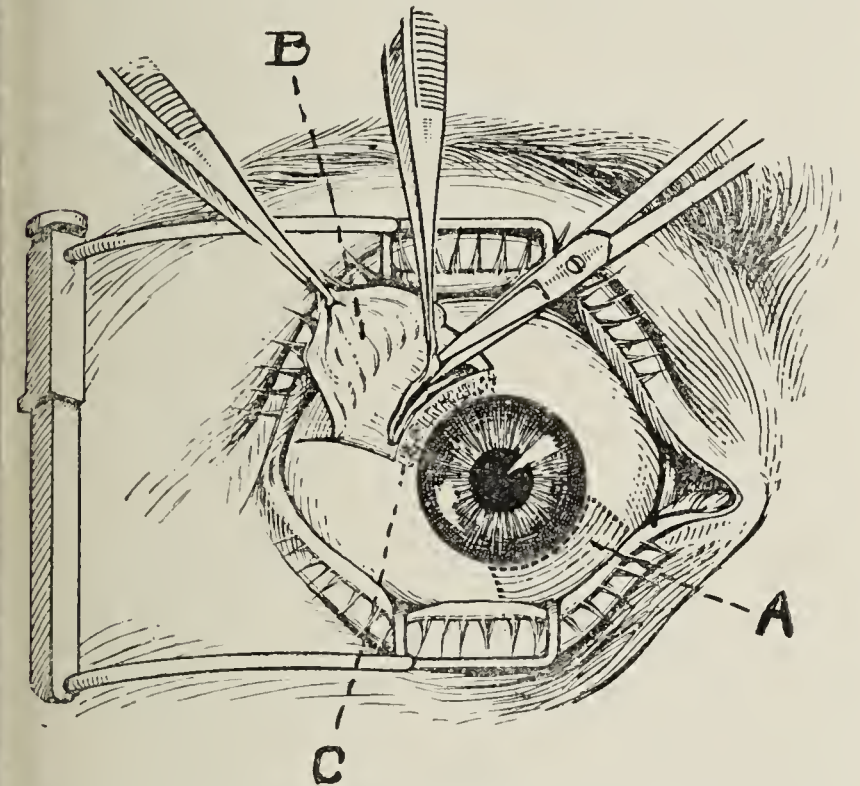


Fig. 1.—A, site of flap opposite scleral wound; B, equatorial flap, elevated, and C, area of conjunctiva roughened. Toilet of scleral wound.

wounds of the sclera near, and if linear, parallel or nearly parallel to, the limbus, and third, prolapsing cataract wounds.

TECHNIC

First Step.—Diametrically across the cornea from the wound, a tongue of conjunctiva is elevated from the sclera, wide enough to admit of several sutures and long enough to readily stretch nearly across the cornea without undue tension (A, Fig. 1). This flap is easily undermined with the tips of blunt scissors, and should include subconjunctival tissue to insure proper strength and firmness. This flap having been elevated, its length is tested by stretching across the cornea.

Second Step.—If there is normal conjunctiva between the wound and the limbus, the surface is slightly denuded and roughened by means of a curet or scalpel in order to provide union with the flap which will later cover it (C, Fig. 1).

Third Step.—The original wound, through the conjunctiva, is then enlarged several millimeters on either side, parallel to the limbus.

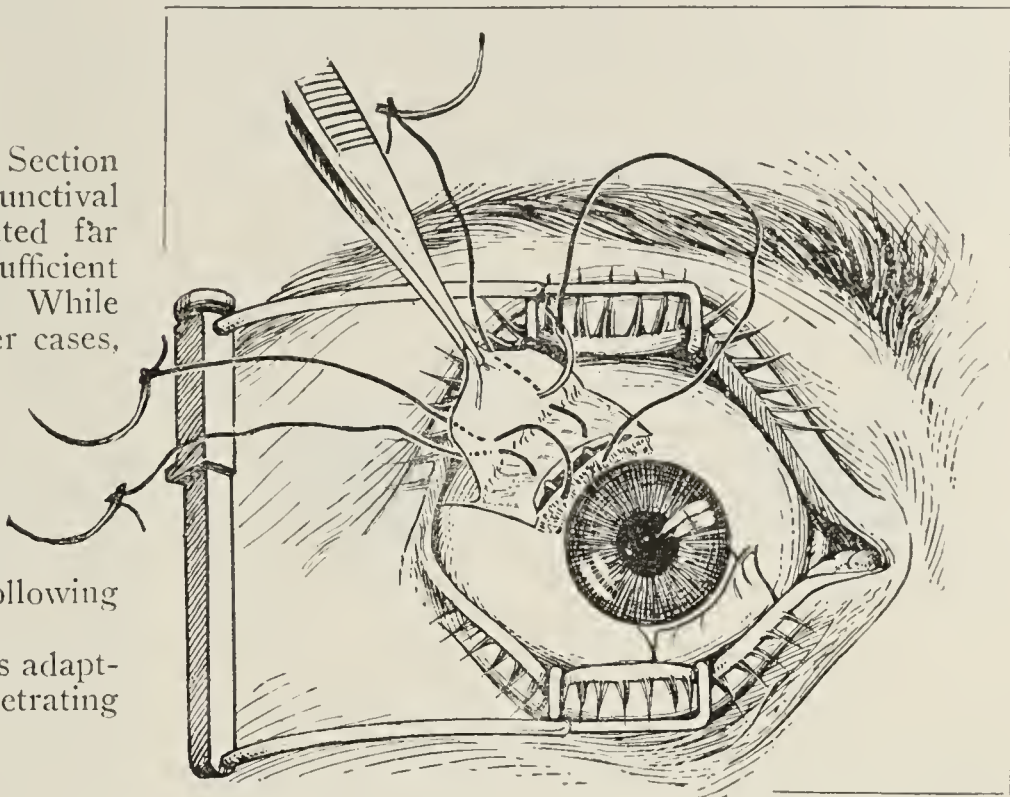


Fig. 2.—Scleral sutures matted through equatorial flap.

Fourth Step.—On the equatorial side of the wound, a thick conjunctival flap is undermined, wide enough amply to cover the wound and long enough to meet the flap already fashioned on the opposite side (B, Fig. 1). The size and length should be tested before proceeding. If subconjunctival rupture of the sclera is being repaired, the conjunctiva covering the rupture may be utilized in the equatorial flap, if it is of sufficient thickness and not damaged.

Fifth Step.—Débris and loose tags are trimmed away from the scleral wound with sharp scissors, and if need be, the edges are smoothed and freshened (Fig. 1). The wound is then closed by means of fine silk or linen, double armed with sharp cutting needles. Kalt's corneal needles are ideal for this purpose. The sutures

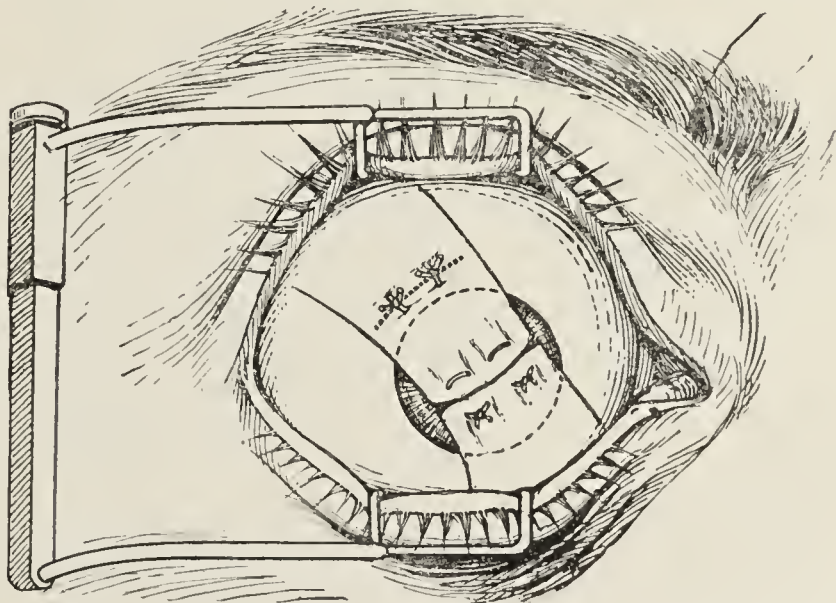


Fig. 3.—Flaps in position; sutures tied.

should dip firmly into the lips of the scleral wound but not entirely through. Each suture is then matted through the equatorial flap at a point where it will cover the wound when it is joined to the opposite flap from across the cornea (Fig. 2).

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

Sixth Step.—The two flaps are then united across the cornea by means of firm silk sutures. Mattress sutures are preferred for joining the tongues of conjunctiva because they are less likely to cut out than single sutures. The sutures closing the scleral wound matted through the equatorial flap are then tied (Fig. 3). Both eyes are bandaged, and the sutures are removed on the fourth or fifth day, at which time the flaps will retract, leaving the wound sealed.

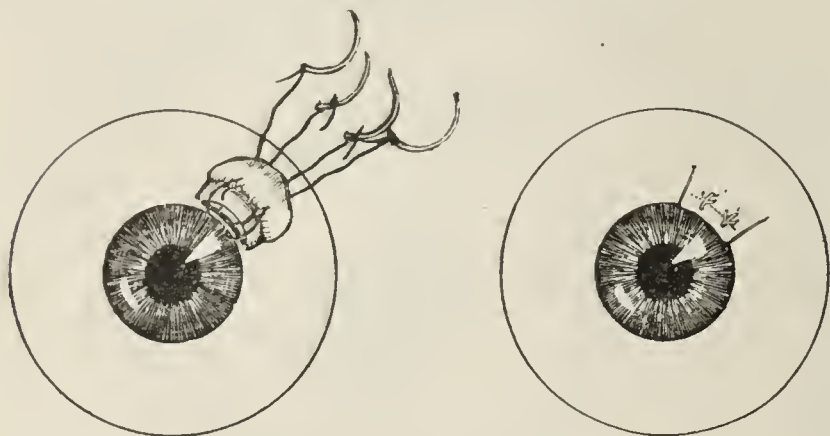


Fig. 4.—Single equatorial flap for small wounds.

For small wounds such as those arising from recent puncture or older fistulating wounds and even small prolapses following cataract, a flap from the opposite side is not necessary. The equatorial flap is sufficient and offers ample protection and strength (Fig. 4). In rupture of the sclera, however, it is deemed best to provide a flap from the opposite side of the cornea.

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ABSTRACT OF DISCUSSION

DR. C. D. WESCOTT, Chicago: This is a most ingenious method, and I have no doubt it will be successful in the hands of most of us. I have not used it since reading the paper, but have used the method proposed by Dr. Francis in 1913, and it has been very successful in my hands. At the first opportunity I shall try this new method of closing scleral rupture.

COMPLETE DISCISSION OF THE LENS BY THE V-SHAPED METHOD*

S. LEWIS ZIEGLER, M.D.
PHILADELPHIA

The term discission as it is now employed in ophthalmic literature is somewhat confusing, since it is applied to three different operative procedures: (1) incision of the anterior capsule; (2) incision of the lens cortex, and (3) incision of the posterior capsule for after-cataract. To be precise and accurate in our terminology, the first procedure should be called "anterior capsulotomy" or "cystotomy," since the lens is intact in its capsule or cyst; the second should be designated "discission," and the third should be classed apart as "posterior capsulotomy."

Discission is derived from the Latin word *discidere*, which means "to cut through." Discission of the lens should, therefore, designate a cutting through of the lens in toto, rather than an incision in the anterior capsule, as has been our habit to apply the term during the last century or more. Prior to that time, our ophthalmic progenitors usually applied the term rightly to the cutting up of the lens into fragments, whether the

cataract was hard or soft, but sometimes they also applied the term wrongly to incision of the posterior capsule.

Discission is the operation of choice in cases of soft cataract, whether congenital, juvenile, choroidal or traumatic, and also for removal of the lens in high myopia. Many have inveighed against too free discission in such cases, chiefly because of the rapid swelling of the cortex and the serious sequelae arising from acute pressure in the angle against the ciliary body. This swollen cortex may set up cyclitis, iritis, iridocyclitis, iridochoroiditis, panophthalmitis, and acute glaucoma, any one of which might seriously menace the integrity of the eye. The surgeon must, therefore, perform either (a) paracentesis (linear extraction) to empty out the swollen lenticular masses, or (b) iridectomy to relieve the sudden increase of tension. If the principles laid down in this thesis are accepted, it might be surgically correct to propose a third emergency procedure: (c) incision of the posterior capsule, which would thus transfer the pressure of the swollen cortical from the ciliary angle to the vitreous chamber. We have all seen irritable eyes improve after posterior capsulotomy, even though such a serious operative interference was apparently contraindicated.

One of the chief disadvantages of discission as now practiced is the fact that at least three, and often four or more, operations are necessary; the first, a small incision in the anterior capsule; the second, a bolder stirring up of the cortex (sometimes repeated), and the third a posterior capsulotomy. To these, we may add a possible fourth, paracentesis for swollen cortical. As a rule, however, the cortex dissolves so slowly, averaging from three to six months for each eye, that both patient and surgeon become exhausted long before the ultimate result is obtained. The parents, meanwhile, pass through many periods of unnecessary anxiety, delay and expense.

To escape these complications as well as to hasten convalescence, I began some years ago to perform discission by dividing the lens, through and through, after the technic of my V-shaped iridotomy.¹ The analogue that first suggested this method to me came from a study of cases of perforating wound of the eyeball with traumatic cataract. So long as the globe remains open there is freedom from inflammatory complications, but as soon as the globe heals, pain, cyclitis, and ciliary swelling immediately develop. In like manner, so long as the anterior and posterior capsular surfaces of the lens are divided and remain open, solution of the cortex rapidly progresses without pain, inflammation or swelling, but if the anterior capsule is poorly opened, or if it recloses and pockets the cortex, or if the posterior capsule remains intact, then the cortex begins to swell in the angle and to press against the ciliary body, thus causing all the sequelae that usually follow this complication.

OPERATION

First Stage.—Under cocain anesthesia and full mydriasis, the cornea is punctured above with the Ziegler knife-needle turned on the flat. The knife is then rotated, edge downward, the point swung to the left of center, and the lens punctured with a quick thrust at a point as low down as possible, close to the iris margin but high enough to avoid injury to the ciliary body.

Second Stage.—With a sawing movement in line with the axis of the knife, the lens is divided through and through, the incision being carried from below upward as far as possible, but without pressure on the lens or injury to the iris.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Ziegler: History of Iridotomy, Author's V-Shaped Method, J. A. M. A. 52: 539 (Feb. 13) 1909.

Third Stage.—The knife is then raised up through the rift of the divided lens and swung across the anterior chamber to a corresponding point on the right of center. The lens is again punctured and the incision carried from below upward as before, thus making two converging or V-shaped cuts. Care must be taken to have these converging incisions meet or cross at the apex of the V in order to free the pupillary area from ultimate secondary cataract after the cortex has dissolved.

Fourth Stage.—The knife is then turned on the flat and withdrawn. The corneal puncture is curetted with an iris spatula and touched with 5 per cent. iodine. A very light dressing is applied.

Double fixation with a small horseshoe shaped forceps is preferably employed for restless children. If the head is firmly held by an assistant, the globe is easily controlled.

Preliminary iridectomy is unnecessary but full mydriasis is always required in order to prevent cutting or "nicking" of the iris sphincter. This accident would cause "dimpling" of the pupillary margin. For the same reason, the knife is inserted through the cornea instead of through the sclera. This location also offers a better fulcrum for the sawing movement.

Incising the lens gives one the sensation of cutting cheese with a sharp knife. No pressure should be made on the lens or it may be dislocated. One should cut clear through the lens with a free incision and make a large V. Boldness of incision is a virtue, and conversely, timidity is a vice. Do not *stir up* the cortex or vitreous, but saw in a straight line. Incision of the vitreous is, in itself, not dangerous if you make a clean cut, as witness the analogues of iridotomy, posterior capsulotomy, posterior sclerotomy and magnet extraction. If the iris is adherent to the anterior capsule through posterior synechiae, it may be necessary in making a broad V to puncture the iris tissue and cut through this (together with the lens) until the knife emerges into the pupillary area.

In puncturing the lens below, one should be careful not to injure the ciliary body as cyclitis or acute glaucoma will surely follow. If the eye becomes red or painful, ice compresses will usually give prompt relief.

The freedom from postoperative sequelae is very noticeable. As the capsular sac is freely opened, both anteriorly and posteriorly, the physical pressure of the swollen cortical can be exerted only forward into the anterior chamber or backward into the vitreous chamber, thus freeing the angle from pressure on the ciliary body and avoiding pain and swelling from this cause. The wide wedgelike opening in the lens below encourages free exit of cortex at that point, while both sides of the apex above are quickly freed by the aid of gravity. I have never seen the anterior chamber made shallow by increase of tension, because there is no posterior capsular resistance and no occluded angle.

Occasionally, the nucleus is turned out during the operation and some lens sectors may fall forward into the anterior chamber a few days later. If the cortex in the angle should swell too rapidly, it only pushes itself out from the periphery toward the center and empties into the pupillary area without causing any physical disturbance. In fact, rapid swelling of the cortex is usual, and prompt solution of it soon follows. If any fragments of the nucleus should not dissolve, they can be removed by paracentesis. As a rule, the patient is discharged from the hospital on the third or fourth day, convalescence is complete in one month, and cataract glasses are fitted at the end of that period.

Aside from the satisfaction of this short convalescence, the surgeon enjoys a certain mental comfort in

the assurance that the patient, even if living at a distance, need not visit the office more than once or twice a week and that a different variety of "pathologic shock" will not be registered at each inspection of the eye. Instead of the usual aggressive inflammatory reaction, one sees only a uniform negation of symptoms. The tumbling masses of fluffy cortical substance are as placid as falling snowflakes. The patient should be warned, however, to refrain from roller skating or sudden stooping so as to avoid unnecessary dislodgement of the swollen cortex.

REPORT OF CASES

CASE 1.—W. G. L. developed soft cataract at 3 years. The left eye was operated on by Dr. Strawbridge about thirty years ago, followed by swollen cortical, paracentesis, iris prolapse, posterior synechiae and subsequent retinal detachment.

Some years later, I made a free discission in the right eye without reaction or complication. Although good vision was then obtained by S+9.D, the eye has gradually shown increasing myopia. The present refraction is: O.D. S—1.D C—1.25D Ax 90° = 20/20 pt. Add S+2.D = J-1. The patient has useful vision without glasses.

CASE 2.—W. R. L., son of patient in Case 1, developed same type of soft cataract at 3 years of age.

April 24, 1917, under cocain and full mydriasis complete division of the lens of the left eye was performed. He left the hospital on the third day. There was no reaction. The cortex was dissolved in one month, when cataract glasses were prescribed: O.S. S+9.D = 20/20 pt. Add S+4.D = J-1. Ordered in bifocals.

May 19, 1920, a broad V incision of the right eye was made under cocain and full mydriasis. He returned home on the third day. There was no reaction. Solution was rapid. June 20, the eye was clear. Ordered S+10.D for temporary use.

CASE 3.—R. W., aged 8, patient of Dr. Welden, Bethlehem, Pa., developed hazy vision at 7 years of age. The patient has soft cataract in both eyes; cloudy nucleus, peripheral spicules and indistinct fundus. Vision: O.D., 20/100, J-8; O.S., 20/200, J-10.

Nov. 19, 1919, under cocain and full mydriasis a V-shaped discission was freely performed on right eye. The patient returned to Bethlehem, Pa., on the fourth day. November 26, the cortex was swollen, the nucleus lying in bottom of anterior chamber. There was no reaction. December 15, the cortex was rapidly dissolving. Jan. 12, 1920, the pupil was free. Refraction of O.D. yields 20/40. The patient still has useful vision in the left eye. February 20, cataract glasses were ordered.

March 8, 1920, a broad converging V incision was made through the dilated pupil of left eye. Two sectors of the lens promptly turned out into the anterior chamber. There was slight reaction on the second day, which yielded to ice pads in a few hours. The patient returned home in one week. April 2, the cortex was rapidly dissolving. April 19, a rift in the cortex shows the pupil clearing. There were small fragments of nucleus in the anterior chamber. Refraction yields 20/50.

June 4, 1920, both eyes were retested with these results:

$$\begin{aligned} \text{O.D. S} + 9.50\text{D} &= \text{C} + .50\text{D Ax } 90^\circ = 20/20 \\ \text{O.S. S} + 10.50\text{D} &= \text{C} + .75\text{D Ax } 90^\circ = 20/30 \\ \text{Add O.D. S} + 3.50\text{D} &= \text{J-1} \\ \text{O.S. S} + 3.50\text{D} &= \text{J-1} \end{aligned}$$

Ordered biconvex torics, centers displaced down 3 mm. and bifocals added.

CONCLUSION

Complete discission of the lens by the V-shaped method accomplishes these results:

1. One operation replaces four.
 2. Expansion of cortex anteroposteriorly relieves pressure in the ciliary angle.
 3. Inflammatory complications are avoided.
 4. The lens cortex is rapidly dissolved.
 5. Convalescence is hastened.
 6. Cataract glasses can be ordered in one month.
- 1625 Walnut Street.

ABSTRACT OF DISCUSSION

DR. GEORGE HUSTON BELL, New York: I like Dr. Ziegler's operation very much, and always employ it in juvenile cataracts and high myopia. I do a preliminary iridectomy because I feel surer of my ground; it is safer for the patient if several operations are necessary or if complications arise. It leaves the eye stronger and minimizes the risk to the patient in the years to come. It enables me with safety to the eye to do all my operations just back of the limbus. In case a linear extraction is necessary, there is then no iris or capsule to become entangled in the scar. I think it is a great mistake to make a corneal section in needling juvenile or secondary cataracts. The chances for infection are greatly increased by the corneal route, as you are selecting the weakest part of the eye for a traumatism. In my discussions with the Ziegler knife-needle, I enter the anterior chamber through the conjunctiva and sclera just back of the limbus; also in linear extractions I make my section in the same place. I should like to ask Dr. Ziegler if he has had any infections following his operations? In 1920, T. Harrison Butler reported seven infections in juvenile cataracts following the corneal route; all of his patients had a septic eye in two or three days and it had to be removed. I have the records of thirty-five cases of soft cataracts and two cases of high myopia that I have done according to this method, without any infections and practically without any postoperative reactions. Of course, in all my intra-ocular operations I used a 1 per cent. solution of silver nitrate in both eyes two hours before operating, as a preventive measure against postoperative infections. In doing these operations in this way I have come to regard them as comparatively free from all risk. We must bear in mind that in all discussions, which of necessity open up the vitreous, the vitreous, containing no antibodies, is particularly liable to infection.

DR. S. LEWIS ZIEGLER, Philadelphia: I have never had any infection in cases in which I have operated for juvenile cataract. In 1886 I had one infection in a posterior capsulotomy, but it was not serious, and I had one about ten years later. Those are the only two cases I can recall. The infection was from perspiration running down into the eye; probably ice was not applied as quickly as it should have been. But those cases had nothing to do with the condition I am referring to today. In those cases in which dissection of the lens is done by the V-shaped method, the postoperative condition is the most placid I have seen. There is no operation on the eye that has so little reaction. I operated in three cases about two weeks ago, and not one patient had reaction. One of the patients went away to another city and came back without any reaction whatever. I do not know of any operation that I can feel less discomfort over than the V-shaped method of doing complete dissection of the lens. I have never felt that there was any danger of making my incision through the cornea, but, of course, we all know that there is that possibility in many operations. While I do my iridotomy, as a rule, through the limbus, I very often do it through the cornea so that I avoid making incision in the pupillary margin. In regard to iridectomy, I do not think it is necessary to add this complication. I do not care for iridectomy in cataract operation. I think it is a mutilation to the eye to a certain extent, and if we can avoid it we should do so. These eyes, after the operation I have described, look so nice and so normal after recovery, they are free from the complications which so often occurred when the old-fashioned method of dissection was employed, that I always feel a certain amount of satisfaction in doing one and watching its result.

Temperamental Peculiarities.—If we concede that only half the world is in some slight sense psychopathic, still we would not claim that any one is entirely free from undesirable habits of thought, prejudices, immoderate emotional reactions—those weaknesses of personality that we are apt to call temperamental peculiarities, which, as a rule, are quite harmless and may be very delightful. But sometimes they prove to be drawbacks to the doing of a job. In short, there is hardly anybody who would not benefit from a course in mental hygiene.—M. C. Jarrett, *Hospital Social Service* 36:362 (May) 1921.

THE TREATMENT OF OTITIS EXTERNA
WITH ACRIFLAVINE*

J. COLEMAN SCAL, M.D.

NEW YORK

Otitis externa is an infection of the cartilaginous portion of the external ear and is caused either directly by the micro-organisms of an existing purulent otitis media, or indirectly, by introduction of a foreign body.

The canal itself is an irregular passage from about 29 to 35 mm. in length and is composed of an osseous and a cartilaginous part. The latter contains the ceruminous glands and hair follicles and is the part usually affected.

The diagnosis in this affection is made readily, although care should be taken to recognize the possibility of a coexisting middle ear infection. Pain and tenderness of the cartilaginous canal are the first symptoms and may be followed by a feeling of stuffiness and partial deafness in the affected ear. This is due to the edema and swelling occluding the canal. When furuncles have formed, and the pus has burrowed backward into the epimastoid tissue, it simulates mastoiditis.

Heretofore, this condition has been treated by incision of the furuncles, heat applications and douching of the canal. Though often successful temporarily, these methods are unsatisfactory in that the process does not cease. New furuncles and foci of infection appear and continue for a long time until the process has run its course and clears up spontaneously. Vaccines have been used also but have proved unsatisfactory.

The use of acriflavine eliminates the necessity for any heroic treatment. In a series of seventeen cases, the process has been arrested with one application if the patient was seen early, while in well developed cases, three applications have sufficed. The substance used is the ordinary acriflavine now on the market. Its action as an antiseptic is based on its being a dye which chemically is known as diamino-methylacridinium chlorid. It is powerful because of its selective, destructive action on micro-organisms, without, however, harming the tissues. It is used in solutions of 1:500 and 1:1,000 with good effect.

The method of treatment consists in first cleansing the ear canal with dry cotton applicators, then packing the canal tightly with gauze strips, saturated with 1:1,000 solution of acriflavine, being careful not to pack too near the drum. This packing tends to stretch the canal and permits the antiseptic to act on all the micro-organisms in the crevices and fissures. The patient is supplied with some of the solution and instructed to keep the packing moist by the use of a medicine dropper. This procedure is repeated every twenty-four hours, until the ear canal is completely patulous and free from infection and pain. One week is the usual length of time required to clear up an infection. In cases in which definite furuncles have formed or are forming, when the packing is removed, the furuncles will be found to have opened themselves and the pus to have been absorbed by the gauze.

In conclusion, I will say that any one treating these patients will do well to give this treatment a trial.

* From the Oto-Laryngological Department of the Beth Israel Hospital.

Incision of the furuncles is avoided and the length of the process is remarkably shortened.

Seventeen cases of otitis externa were treated at the Beth Israel Hospital Clinic by this method with excellent results. The subjoined cases are a few that may be of interest.

REPORT OF CASES

CASE 1.—A. H., woman, aged 45, gave a history of having irritated the canal of the right ear with a hairpin, the ear becoming painful three days later. At the same time, she noticed stuffiness and diminution in hearing. Examination revealed the right ear canal greatly diminished in caliber, the swelling almost occluding the outer third. The drum was intact. An acriflavine packing was introduced, and the patient was instructed to keep the packing wet with the solution by use of a medicine dropper. When the packing was removed, twenty-four hours later, the patient admitted improvement. The ear canal was patulous, with an open furuncle located on its floor. The pus had been wiped off in the removal of the packing. Another packing of acriflavine was introduced and when the patient returned, forty-eight hours later, the canal was entirely open and free from pain and tenderness. The patient was discharged cured and instructed to keep hairpins out of her ear canals.

CASE 2.—H. J., aged 8, gave a history of pain and swelling of the left ear for the last week. Examination revealed an external otitis with several open furuncles. Acriflavine packing was applied. The patient returned in forty-eight hours with ear canal open and the furuncles dry, and was discharged cured.

CASE 3.—A. A., woman, aged 35, complained of pain and swelling in the right ear for the last five days. Examination revealed a diffuse infection of the cartilaginous canal, which was almost occluded. An acriflavine packing was applied. The patient returned in twenty-four hours. Improvement was apparent; open furuncles were now located at the anterior and upper walls of the canal. The ear canal was repacked with acriflavine, and forty-eight hours later, she was discharged cured.

950 Park Avenue.

Clinical Notes, Suggestions, and New Instruments

USE OF HOLLOW TUBE FOLLOWING SUBMUCOUS RESECTION OF THE NASAL SEPTUM

HENRY M. GOODYEAR, M.D., CINCINNATI

Almost all patients who have had a submucous resection will agree that the most distressing period of the entire procedure occurs in the first twenty-four hours following the operation, resulting from the complete obstruction of the nose by packing. The patient is compelled to breathe through the mouth; the throat becomes dry, and the entire head feels full and heavy.

There are a few operators who use no packing after the resection; but if one follows a series of cases packed and those without packing, the end-results, on the whole, are better in those cases in which the hemorrhage has been kept in check, the submucous flaps retained in apposition, and a hematoma prevented by proper packing.

If one wishes to know the distress of having the nose packed, let him hold the nares closed and attempt to drink a glass of water. He will then realize what most patients suffer for twenty-four hours or longer after a submucous resection.

It occurred to me several years ago that this vacuum in the nasopharynx on swallowing could be prevented and the patient given considerable breathing through the nose, by the use of a hollow rubber tube placed on the floor of one side of the nose with packing inserted above it, and on the opposite side of the septum in the usual manner.

The results of this procedure have been so gratifying both to the patient and to the operator that this method of packing

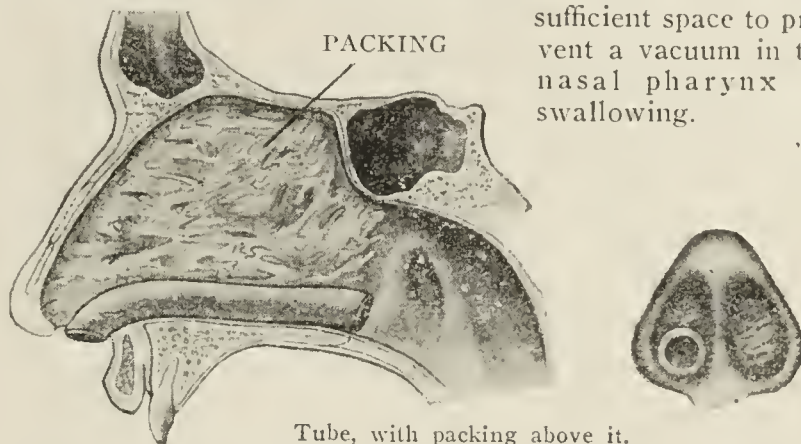
following a submucous resection of the nasal septum has been followed as a routine for two years.

The tube is usually inserted on the floor opposite the side of the primary incision, as pictured in the accompanying illustration, and is removed with all packing at the end of twenty-four hours.

Pure gum hospital tubing with a one-quarter inch opening is the most satisfactory. A number of varieties of tubing have been tried, and it is important that the tube be pliable, with a comparatively thin wall, affording a caliber of one-quarter inch for routine practice.

I find that the average length of the tube required is from $2\frac{1}{2}$ to $2\frac{3}{4}$ inches. It is better to have the tube a trifle short than to have it too long, as it may touch the pharyngeal wall or gather mucus more rapidly than it would if buried deeply in the postnasal opening. If the tube should become clogged, the patient may blow through it without danger of dislodgment, or an applicator may be passed to clear its opening. When the tube is clean, I find that the patient, while quiet, can often breathe comfortably through it without opening the mouth. Even should the tube partly fill, there still remains

sufficient space to prevent a vacuum in the nasal pharynx on swallowing.



Tube, with packing above it.

Three per cent. iodine thoroughly applied between the flaps before packing acts as an ideal antiseptic in the absence of water. Thus, all irrigations are avoided immediately prior to operation.

Petrolatum gauze packing is used in strips sufficiently long that but one strip is used in each side. This is an aid in removing later, as it prevents fishing for a second piece and affords assurance that the nose has been completely emptied in all cases, when the tube and one strip of gauze have been removed from each side.

The use of the tube is so simple and yet so revolutionizes the after-treatment of submucous resection that one wonders it has not been described before.

8 East Eighth Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

MIXED BACTERIAL VACCINES (See New and Non-official Remedies, 1921, p. 314).

Lederle Antitoxin Laboratories, New York.

Acne Combined Vaccine.—A suspension of killed acne bacilli and killed *Staphylococcus albus* and *Staphylococcus aureus*, marketed in packages of four 1 Cc. vials, containing, respectively, 5, 10, 20 and 40 million killed acne bacilli, 25, 50, 100 and 200 million killed *Staphylococcus albus* and 25, 50, 100 and 200 million killed *Staphylococcus aureus*; in packages of one 5 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus*; in packages of one 10 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus*; in packages of one 20 Cc. vial, each Cc. containing 40 million killed acne bacilli, 200 million killed *Staphylococcus albus* and 200 million killed *Staphylococcus aureus*; in packages of one 20 Cc. vial, each Cc. containing 400 million killed acne bacilli, 2,000 million killed *Staphylococcus albus* and 2,000 million killed *Staphylococcus aureus*; also in packages of four syringes containing, respectively, 5, 10, 20 and 40 million killed acne bacilli, and 25, 50, 100 and 200 million killed *Staphylococcus albus* and 25, 50, 100 and 200 million killed *Staphylococcus aureus*.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address : - - - "Medic, Chicago"

Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, OCTOBER 1, 1921

MODERN PROBLEMS IN TWO MEDICAL SPECIALTIES

The young man in medicine frequently feels that the routine of his work is slowly submerging him into the depths of obscurity and that no opportunity exists whereby he may contribute to the permanent knowledge of his profession and thereby make himself known in his chosen field. Viewing the vast tomes which are printed on various medical topics, he may well believe that so much has been discovered that there are no problems remaining on which he may contribute further light. It was possibly with this idea in mind that the presidents of two of our special medical societies this year devoted their addresses to pointing the way to problems yet unsolved.

"The Neurologic Dilemma," which formed the subject of the address of Dr. S. I. Schwab¹ before the American Neurological Association, is to know the exact limits of the field of neurology. Neurology, according to Schwab, is concerned with the totality of the problems presented by the nervous system in health and disease, and any condition influenced by this disturbed function. There seems to have been developed a wide separation between neurology and psychiatry, the psychiatrists establishing themselves as a separate specialty and devoting their attention to problems of the mind without any reference to body structure or physiologic function. Schwab would accentuate the conclusion that there is no psychiatric point of view and that there is no such thing as a psychiatric method of approach which can be logically divorced from the neurologist's point of view; the latter has been reached through anatomic and physiologic methods of thinking, and thus a mass of definite tangible information has been acquired. Neurology suffers when it separates itself too far from the problems of medicine as a whole, and psychiatry, he believes, has suffered from such artificial separation. Thus, the neurologists' objection to a great deal of the Freudian conception of the neuroses is not due to the conclusions but to the loose methods of thinking. "In

the physiology of the nervous system," says Schwab, "is to be found the key to the neuroses, and from it will eventually arise the laws governing the grouping, distribution and quality of the sensory objectivation of hysteria, just as definitely set as those produced by a tabetic lesion of the posterior root and column." In other words, the study of psychiatry is not following the correctly scientific lines which have governed the large majority of neurologic investigations. Instead of seeking for the etiology of dementia praecox, of hysteria or of any of the other psychoses, in disturbed anatomic structure or deranged physiologic function, attempts have been made at weird classifications and fanciful hypotheses. Students have been led afield and lost in a maze of terminology without the guidance of rigid actual data. The determination of such data opens a wide field for the neurologic research worker of the future.

In addressing the American Dermatological Association, Dr. J. F. Schamberg² mentioned a few of the diseases of the skin which are today the subjects of much interesting discussion. To him the recently demonstrated factors in cancer of the skin do not support the parasitism of this disease. Dermatologic experience indicates that cancer of the skin is in a vast majority of the cases due to repeated mechanical, chemical and actinic or electromagnetic stimuli. Such influences applied to hypersusceptible individuals seem to result frequently in cancer, but the causes that render persons hypersusceptible to these influences are still a fertile field for investigation. One of the most common of skin diseases—a condition which seems to affect at least 70 per cent. of young persons in their adolescent period—acne, is as yet an unsolved problem. Most writers believe the cause to be bacterial, and yet all authors cite contributory causes, including disturbances of the alimentary and utero-ovarian systems. Practically all young female patients with acne exhibit a menstrual exacerbation of the eruption. Here are a number of known facts which may point the way to studies which will yield a positive conclusion. It is interesting to think of hormones or of similar bodies, but the actual demonstration of such factors yet remains to be made. In fact, the whole subject of the relation of internal secretions and endocrine disturbances to dermatologic irregularities is just as obscure as are most of the other problems of endocrine relationships. Schamberg, postulating his idea on the interlocking reciprocal influences of the various organs of internal secretion, even suggests the existence of a possible internal secretion from the skin itself. His final words are on that conglomerate concept known as "eczema." "It becomes the duty of the dermatologist," he says, "to ascertain whether protein sensitization from food or bacteria, endocrine disturbances, focal

1. Schwab, S. I.: The Neurologic Dilemma, Arch. Neurol. & Psychiat. 6: 255 (Sept.) 1921.

2. Schamberg, J. F.: Research Problems in Dermatology, Arch. Dermat. & Syph. 4: 293 (Sept.) 1921.

infection, intestinal toxemia, renal insufficiency or some general metabolic disorder is the etiologic factor." The list presented includes subjects which have occupied a vast amount of space in medical literature during the last few years, causes to which have been accredited a multitude of human disturbances, and yet in most cases actual evidence is lacking.

The young man in medicine will here find food for thought and suggestions for extended investigation. The leaders in two important specialties have pointed out where opportunity lies.

VITAL CAPACITY AND PHYSICAL FITNESS

The factors that limit the size of such organs as the liver or the kidney in normal men and animals are practically unknown; but we generally assume that the control is chemical, the specific organ responding with growth to the work placed on it by the chemical activities of the other organs of the body. The well known hypertrophy of the blacksmith's biceps, and the more obscure compensatory hypertrophy of glands seem to support this assumption. But, as the late Samuel J. Meltzer pointed out years ago, nature works on a wide "margin of safety." The relation between specific needs of the body as a whole and functional capacity of an organ to meet this need is not a direct arithmetical ratio. We can maintain good health with one normal kidney, one thyroid lobe, etc. It is thus evident that, if functional need on the part of the organism is the stimulus and limiting factor in organ development, the organ response in growth is much greater than suffices to meet the maximum need under conditions of health. This is obviously an advantageous arrangement for the individual under conditions of disease. It is also a disturbing factor to the scientist who attempts to deduce laws of function from anatomic measurements. The view that functional capacity of an organ can be measured by its cubic content has serious limitations. Nevertheless, important correlations between anatomic and functional measurements have actually been made out in certain fields, for example, the relation of body surface to basal metabolic rate in warm blooded animals, and the less significant but more frequently used ratio of body height to body weight as a measure of normal health and physical fitness.

Prof. Georges Dreyer, the Oxford pathologist, has recently endeavored to deduce another anatomic measure of physical fitness in the relation of vital capacity to body weight and sitting height (length of torso).¹ On the basis of four anatomic measurements (body weight, length of torso, chest circumference and vital capacity) on sixteen normal men and boys, Dreyer has developed mathematical formulas by which any one of these measurements can be calculated from the

others. He concludes that, "the vital capacity of the chest is a function of the body weight, and a simple function of the body surface." In the book, practical directions are given for taking these measurements accurately, and numerous tables are reproduced, representing the figures for different sized normal persons. Accepting Dreyer's conclusions, one may readily ascertain the "normalcy" of an individual by comparing the four measurements with these standard tables.

But is the matter really as simple as this? Dare we conclude with Dreyer that "if a person has a vital capacity 10 per cent. less than that which is normal for his class, it is probable that he is suffering from some health depressing condition; if he is 15 per cent. below the normal limit, it is practically certain that he is abnormal"? We question the validity of such generalizations from a few anatomic measurements on sixteen men and boys. Nearly eighty years ago, Dr. John Hutchinson² concluded, on the basis of a great many measurements, that the vital capacity increased in a simple arithmetical progression with the length of the body. But there appears to be no simple relation between length of body and physical fitness or span of life. Of course, Dreyer takes issue with Hutchinson's conclusion.

One of the practical and at the same time most difficult and least satisfactory parts of Dreyer's work is the arrangement of the population in three classes representing perfect, medium and poor vital capacity and physical fitness. The lines of division are mainly those of occupation. In the first class are placed all army and navy personnel, policemen, university students, boys in public schools, blacksmiths, and the like. In the second class come physicians, lawyers, business men, railway men, mechanics, children in "upper schools" and "clerks, upper class." In the third class we find tailors, shop keepers, "clerks, lower class" and children in the elementary grades. The grouping may fit the population of the city of London. It is of doubtful value as applied to the people of the United States. The farmer is not placed in any class. The American reader will scarcely understand the apparent improvement in the physical fitness of school-children with their advance in the school grades, or the significance of the "upper" and "lower" classes of clerks, except on the basis of the relation of poverty to disease. There appears to be more patriotism than science in the placing of all military personnel in the A class.

What do we measure by vital capacity? Merely the maximum tidal air that may enter or leave the lung. It is not a measure of respiratory efficiency, as the latter involves not only chest volume but also lung, circulatory, blood and tissue conditions. Is vital capacity a measure of the individual's resistance to disease, specifically, disease of the lungs? The most

1. Dreyer, Georges: Normal Vital Capacity in Man, *Lancet* 2: 226 (Aug. 9) 1919. Dreyer, Georges, and Hanson, G. F.: *The Assessment of Physical Fitness*, New York, 1921.

2. Hutchinson, John: *Lancet* 1: 630. 1846.

that can be said at present is that a very much reduced vital capacity may be one of the predisposing factors to pulmonary tuberculosis. We all know that a subnormal vital capacity is compensated for by a more rapid rate of respiration, and under conditions of modern life, it is a rare exception that one is called upon to sustain the maximum lung ventilation of 150 liters of air per minute.³ The vigorous "one-lunger" with his subnormal vital capacity is not a myth.

The late war stimulated some mature and some infantile scientific endeavors. The medical profession shared in both. One of the species *ridiculus mus*, brought forth by the British air service, was the selection of cadets on the basis of vital capacity, the standard being that of the most competent fliers!

It was once believed that greater than average mental capacity meant a larger than average brain. This has proved not to be true, as the cubic content of an organ does not reveal the quality of the tissue. Hence, conclusions as to physical fitness and vital resistance, based on anatomic measurements alone, require extensive statistical verification before one is justified in accepting them.

IS CHRONIC NEPHRITIS A PROGRESSIVE DISEASE?

Despite the didactic manner in which chronic nephritis is ordinarily discussed in medical publications, it must be confessed that the origin of this condition is still a subject for critical discussion. Unfortunately, the attempts to produce chronic nephritis through experimental procedures have not been sufficiently successful to establish any defensible theory of the common causes of the degenerative conditions. Herrick⁴ clearly pointed out several years ago that experimental work can scarcely be expected to duplicate or even approximate the conditions that seem operative in the production of chronic interstitial nephritis in man. The influence of heredity, dietetic errors, faults of metabolism, syphilis, many of the infections, the wear and tear of the strenuous life and of excessive mental and nervous strain—all these continuing perhaps for years, as Herrick remarks—cannot be reproduced experimentally in animals.

The most common assumption—it is scarcely more than that—regarding the production of chronic nephritis is that it represents a prolongation of the action of causes which bring about acute nephritis. Thus, Strauss⁵ remarks in a recent volume on the nephritides that the chronic types may arise from acute forms. He pictures the intensity and the duration of the disease as essentially dependent on the potency and continuance of the predisposing factors. The prolonged application of the latter is particularly empha-

sized. American writers have similarly expressed the indefinite belief that some factors which, when operating suddenly or with great intensity, produce acute nephritis may, if operating for a longer period or with less severity, produce the chronic form of the disease. At the Boston session of the American Medical Association, Frothingham⁶ expressed the suspicion that chronic nephritis may consist in a progressive degeneration of the renal tissue dependent either on disturbance in its nutrition on account of scars from former lesions, or on some toxin originating elsewhere in the body and coming to the kidney for excretion.

In contrast to these traditional familiar views, Emerson⁷ of Indianapolis has defended in the pages of THE JOURNAL the thesis that chronic nephritis is essentially the result of the summation of repeated acute injuries to the renal tissues. In this condition he distinguishes two processes: first, the chronic, that is, the permanent element, the epithelial cell proliferation and the scar tissue formation, both of which are evidences of healing; and, second, an acute injurious element, of the nature of a definite acute nephritis, which perpetuates the disease and indirectly increases the permanent lesion. Hence he insists that, in general, chronic nephritis is not a progressive disease varying in severity at different periods but nevertheless progressing; on the other hand, it is rather a succession of slight, distinct, acute diseases distributed over years, each adding a little to the permanent injury of the kidney as a whole. The albumin, blood cells, renal cells and casts in the urine are evidences of the acute process and are, in amount and number, fairly proportional, on the one hand, to its severity and, on the other, to the previous good condition of the renal epithelium. The urine between two acute exacerbations may be perfectly normal, even though the kidney is quite scarred.

There are unquestionably many clinical facts that fit in well with such an hypothesis, which denies that chronic nephritis is a process which, once started, necessarily tends to continue because of a mechanism of its own. As Emerson has expressed the outlook, the bad prognosis which is usually assumed is not due to the injuries the kidneys have received, but to those they are receiving and will receive. The patient does not suffer from one attack of nephritis, but from one thousand and one. The acute exacerbations frequently betray themselves by accompanying febrile reactions which serve as an index and a warning. It becomes an immediate therapeutic duty, therefore, to search for present causes usually remediable because they are temporary and incidental. Focal infections naturally loom large in the contemplation of those who are most devoted to the search for these forms of menace to human health. Renal insults of dietary origin, food

3. Bainbridge, F. A.: The Physiology of Muscular Exercise, London, 1919, p. 32.

4. Herrick, J. B.: Osler's Modern Medicine 6:163, 1909.

5. Strauss, H.: Die Nephritiden, Berlin, 1920, p. 20.

6. Frothingham, Channing, in discussion of Emerson's paper (Footnote 4).

7. Emerson, C. P.: The Acute Element in the Chronic Nephropathies, J. A. M. A. 77:745 (Sept. 3) 1921.

allergy, exposure to cold, overwork and other equally indefinite factors which may affect delicate organs must be kept in mind as etiologic possibilities—or causal agents, as a recent correspondent⁸ would have us write—in the attempts at relief. In any event, there is something more hopeful both from a therapeutic and a prognostic standpoint in directing attention to the possible elimination of temporary flare-ups in the kidney rather than to the less promising attempt to alleviate a permanent defect that is presumably progressive.

INFLUENCE OF "PATENT MEDICINE" INTERESTS IN BRITISH PARLIAMENT

When one becomes pessimistic over the monstrous waste and the injury to the public health, for which the "patent medicine" industry of this country is responsible, turn to some of the magazines and newspapers published previous to 1907. Compare the advertising of that time with the advertising of today and it will be realized that the world does move and that public health legislation has accomplished something. If it is difficult to get hold of newspapers or magazines of this old date, the same reaction can be obtained by getting current issues of British newspapers and periodicals. Broadly speaking, the ethical standard of the "patent medicine" industry in Great Britain in 1921 is that which obtained in the American "patent medicine" industry prior to 1907. These statements are made in no "holier than thou" spirit. Thoughtful Americans recognize the tremendous potentialities for evil still inherent in the nostrum business in this country, and thoughtful Englishmen, both physicians and laymen, are alive to the deplorable waste and fraud for which the English "patent medicine" business is responsible.

Our readers will remember that as long ago as 1912 the British Parliament created a Select Committee on Patent Medicines to investigate the subject. This the committee did, earnestly and exhaustively, and published a voluminous and enlightening report in the latter part of 1914. The coming of the World War, however, favored the nostrum interests and no legislative action was taken until 1920, when in July of that year the Proprietary Medicines Bill was introduced in the House of Lords by the Parliamentary Secretary to the Ministry of Health. In general the provisions of the bill followed the recommendations of the Select Committee in its report.

At the time of the introduction of this bill THE JOURNAL called attention to the fact that the "patent medicine" interests were putting up the same fight and along the same lines, that was staged in the United States in 1905-1906, when Congress was considering

the bill that became the National Food and Drugs Act. At that time¹ THE JOURNAL said:

That the Proprietary Medicines Bill will become a law in its original form is not to be expected. The "patent medicine" trade in Great Britain is as powerful as it is in the United States. It has millions behind it, and it forms a substantial section of the London Chamber of Commerce. British newspapers may be counted on, practically as a unit, to fight any bill that will restrict the sale of "patent medicines"; some of them have already published editorial denunciations.

Now comes the *Medical Press and Circular* (London) complaining editorially because the Proprietary Medicines Bill has been pigeonholed and the government seems to be in no hurry to bring it before Parliament for action. Our British contemporary points out that in 1920 the British Government received revenue from the sale of "patent medicines" totaling £1,332,661 (in normal exchange times equivalent to about \$6,663,305). It points out also that the very fact that a government, hard up for revenue, should be able to obtain so vast a sum from a business, so largely tinctured with fraud and such a menace to the public health, may be "a sufficient reason" in explanation of the British Government's attitude of "innocuous desuetude" toward this bill. In passing, it is worth calling attention again to the inadvisability of levying a tax on the "patent medicine" industry. It not only makes that industry a source of income to the government but also it invests it with an air of respectability wholly foreign to it and, in addition, leads an uninformed public to assume that the government stamp in some way causes the government to stand sponsor for the product that bears it.

The *Medical Press and Circular* also calls the attention of its readers to the fact that the British Government in passing on the Proprietary Medicines Bill is not breaking virgin soil nor exploring untraversed territory. As our London contemporary says: "Meanwhile there is not much which the United States Government does not know in regard to the question of patent medicines, and the means of dealing with their control."

1. The British Proprietary Medicines Bill, editorial, J. A. M. A. 75: 675 (Sept. 4) 1920.

Definition of Term "Stillbirth."—In the report of the Bureau of the Census on Birth Statistics for the Birth Registration Area of the United States, for 1918, it is pointed out (pages 28 and 29) that the data relating to stillbirths must be interpreted with caution. Since the term stillbirth is not used in the same sense in the various states, the percentage of completeness of these reports is not known. The "model law" reads: "A stillborn child shall be registered as a birth and also as a death . . . provided that a certificate of birth and a certificate of death shall not be required for a child that has not advanced to the fifth month of utero-gestation." Minnesota, New York and North Carolina have similar provisions; the District of Columbia requires a certificate for a fetus "passed the fifth month"; the Indiana law reads "seven months gestation and over"; and the remaining states use the term of stillbirth without defining it.—W. T. Howard, Jr., *Am. J. Hygiene* 1:204 (March) 1921.

8. Heald, G. H.: Why Shun Short Words? Correspondence, J. A. M. A. 77: 958 (Sept. 10) 1921.

Current Comment

THE TREND OF MORTALITY IN CONTROLLABLE AND UNCONTROLLED DISEASES

In a recent address on public health activities, Prof. Raymond Pearl¹ of the School of Hygiene and Public Health at the Johns Hopkins University has uttered a protest against the widespread assumption that all of the decline in the death rate which has occurred in the last few decades is attributable to the activities of modern hygienic reforms and the propaganda of preventive medicine. A comparison of the trend of the death rates for various causes of death furnishes some unsuspected results. It appears from Pearl's compilations that in the case of deaths from bronchitis, paralysis without specific cause, purulent infection and septicemia, and softening of the brain, four groups in which public health activities and sanitation have had little if anything to do with the trend of mortality, the latter actually shows greater improvement than in the case of the four diseases phthisis, typhoid fever, diphtheria and dysentery which have long been the subject of special consideration by sanitarians. One cannot avoid the conclusion that factors which the modern public health program does not primarily emphasize or seek to secure are concerned in the decline in death rate. This is not meant to disparage the value of the present day attacks upon the known causes of controllable disease, but rather to call attention to little appreciated or even unknown factors that make for well-being. There are forms of immunity, for example, that may become increased through the modern methods of life. Perhaps we have been engaged so assiduously in the search for the materies morbi and the effort to eliminate it that we have failed to realize the potency of man himself to resist the encroachments of disease. Pearl has possibly taken a depressing and unwarranted stand when he asserts that we shall save a good deal of money and human energy if we first take the trouble to prove that what we are undertaking to do is in any degree likely to achieve any useful end. Nevertheless, it is well to look squarely at the facts of the trend of mortality.

INJECTION OF GAS TO OUTLINE THE KIDNEY

Among the newer methods of examination brought to light during the last few years is the injection of air or gas into various body cavities, with subsequent application of the roentgen ray, revealing the outlines of various organs and, in the case of the female genital tract, showing the patency of the fallopian tubes. Carelli and Sordelli² have now applied a similar method to throw into relief the outline of the kidney. The technic involves a preliminary roentgenogram to show the location and relations of the second lumbar transverse process. A narrow needle, 10 cm. long, is then

introduced down to this bone. When the needle touches the bone, the tip is slanted away from it, and the manometer connected with the needle begins to fluctuate as the tip reaches the adipose tissue surrounding the kidney. With the idea of inducing an emphysema in the perirenal adipose tissue, from 200 to 400 c.c. of carbon dioxide gas are injected, and a second roentgenogram is taken. The report, which is accompanied by six roentgenograms of normal kidneys and three of kidneys with calculi, indicates that, by this method, the authors have been able to show definitely the outline of the kidney, the ureter and the suprarenal gland. In the earlier experiments oxygen was used, but the investigators found that twenty-four hours were required for absorption, and hence changed to carbon dioxide. The little discomfort that patients are reported to feel is said to disappear in less than half an hour when carbon dioxide is used.

NITROBENZENE POISONING, METHEMOGLOBINEMIA AND WINCKEL'S DISEASE

Nitrobenzene is a substance widely used in the dye industry, in shoe polish, and in soaps and inks; it has also been extensively employed for denaturing alcohol. Within the past few years, reports have been frequent¹ of cases of illness, including such symptoms as cyanosis, vertigo, headache and tinnitus, in persons who had recently worn shoes freshly dyed with materials containing this substance. All of the symptoms were manifestations of methemoglobinemia, as evidenced chiefly by a grayish blue cyanotic color of the skin and the mucous membranes. In rare instances, nausea, vomiting, great muscular weakness, marked dyspnea and convulsive movements ensued, and in one instance, reported by Donovan,² death occurred following the drinking of a small quantity of shoe polish. Recently Neuland³ has called attention to the possibility of poisoning from dyes and inks stenciled on articles used by and in the vicinity of young children. Two infants about 11 days old were found one morning to be bluish gray in appearance and, except for this intensely livid aspect, wholly normal. Naturally a congenital heart defect suggested itself, but the sudden and simultaneous onset in the two children cast doubt on such a diagnosis. Finally it was found that anilin ink had been used to stencil the laundry marks at numerous points on the diapers and clothing of the infants. Removal of the fresh dye resulted in prompt recovery of the babies. Neuland⁴ therefore warns that such laundry marks be thoroughly boiled before garments are worn. He supplements his observations with a discussion of twenty-three cases of hemoglobinuria with afebrile cyanosis and jaundice described by Winckel⁵ in 1879. It occurs to Neuland that this con-

1. Stifel, R. E.: Methemoglobinemia Due to Poisoning by Shoe Dye. *J. A. M. A.* **72**: 395 (Feb. 8) 1919. Scott, R. W., and Hanzlik, P. J.: Poisoning by Alcohol "Denatured" with Nitrobenzene, *ibid.* **74**: 1000 (April 10) 1920. Sanders, F. G.: Nitrobenzene Poisoning with Cyanosis, *ibid.* **74**: 1518 (May 29) 1920.

2. Donovan, W. M.: The Toxicity of Nitrobenzene, *J. A. M. A.* **74**: 1647 (June 12) 1920.

3. Neuland, W.: Poisoning of Infants and Children by Methemoglobin Producing Substances (Anilin, Naphthalin, etc.), *Med. Klin.* **17**: 903 (July 24) 1921.

4. Neuland, W.: Winckel's Disease, *Med. Klin.* **17**: 906 (July 24) 1921.

5. Winckel: *Deutsch. med. Wehnschr.*, 1879, p. 24.

1. Pearl, Raymond: The Biology of Death, VII, Natural Death, Public Health, and the Population Problem, *Sc. Month.* **13**: 193 (Sept.) 1921.

2. Carelli, H. H., and Sordelli, E.: Un nuevo procedimiento para explorar el riñón, *Rev. de la Asociación Méd. Argentina* **34**: 424 (June) 1921.

dition, since known as Winckel's disease, fifteen cases of which were also described by Reuss⁶ in 1914, is a chemical poisoning rather than an infectious or constitutional disease, although it is possible for bacterial intoxication to induce a similar clinical picture. In any event, the importance of ruling out the possibility of anilin poisoning when methemoglobinemia is the predominant symptom is quite apparent.

"EAT-MORE" CAMPAIGNS

This is the day of the "Eat-More" campaign. From billboards, newspaper advertisements and periodical pages, the slogan "Eat-More" crashes upon the reader's intelligence. He is besought to eat more meat; he is requested to eat more raisins; it is hoped that he will eat more oranges; he is invited to eat more apples; the coffee planters beg him to drink more coffee; the tea importers beseech him to imbibe more tea, and the tobacco manufacturers plead for purchase in carton rather than in individual package. And whenever possible the earnest advertiser drags in a medical argument to sustain his plea. Without reference to the actual justice or injustice of any of this advertising, it is well to bear in mind that greatest of all medical aphorisms: "Moderation in all things."

THE VON HELMHOLTZ CENTENARY

This year marks the centenary of the birth of Hermann von Helmholtz, a man who has very properly been ranked with the foremost of those investigators and thinkers on whose work the great advances in twentieth century science rest. Few men have approached him at any time in the wide range of their intellectual activities; for he was distinguished as a mathematician, physicist and physiologist, in addition to which his contributions to other fields of learning have been of a high order. Professor Mendenhall⁷ recently remarked that, in respect to his prodigious learning and the wide scope of his investigations, Helmholtz may be put in the same category with Francis Bacon and his own renowned fellow countryman, Alexander von Humboldt. The enormous extension of the bounds of human knowledge within the last fifty years and the irresistible tendency to specialization make it certain, Mendenhall ventured to assert, that there will never be an addition to this group. To the physicist the name of Helmholtz stands out in connection with his contribution to the concept of energy. In 1847, at the age of 26, Helmholtz read before the Physical Society of Berlin one of the most remarkable papers of the century. The doctrine of the indestructibility of matter had already become axiomatic. The work of the young German who, like many other scientists of distinction, came to his career through the applied science of medicine, helped to establish the doctrine, now so fundamental and familiar that it does not require comment, that energy also is constant and indestructible. To the medical profession, however, the centenary should bring to mind Helmholtz's inven-

tion of the ophthalmoscope, an instrument that has proved of inestimable value in practice during the seventy years since it was first described in 1851. It is said⁸ that when von Graefe first saw with it the interior of the eye he cried out, "Helmholtz has unfolded to us a new world." In a generation of rapidly accumulating technical aids in medical procedure, when progress sometimes seems so rapid that we forget the humbler beginnings of practice, it is well to pause now and then to recall the origin and the originators of every day helps to success.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Personal.—Governor Campbell has announced the appointment of Dr. Clarence E. Yount, Prescott, as a member of the state board of medical examiners, to succeed Dr. Charles S. Vivian, Phoenix, resigned.

CALIFORNIA

Hospital News.—It has been announced by the board of supervisors that plans and specifications have been awarded for the construction of the communicable diseases building, to be erected at the County Hospital, Los Angeles, at a cost of \$150,000. The new building will be three stories high and will provide accommodations for 100 patients, with every modern equipment. Cottages for the employees of this unit will also be constructed, at a cost of \$18,000.—A new twelve bed hospital has been erected and recently opened at Artesia, under the management of Drs. David Zbinden and Charles Stein. The building has all modern conveniences and improvements.

ILLINOIS

Appointment of Assistant Director in State Health Department.—Dr. Thomas H. Leonard, Lincoln, has been appointed by Governor Small as assistant director of the state department of public health. The appointment became effective, Sept. 16, 1921. Dr. Leonard will devote the most of his time to tuberculosis work.

Elgin Academy of Medicine.—To forward in every detail the high ideals and standards of the study of medicine is announced as the purpose of the Elgin Academy of Medicine, recently organized. The officers elected for the year are: president, Dr. Ora L. Pelton; vice president, Dr. William S. Brown; secretary-treasurer, Dr. Arthur L. Langhorst.

Many Local Better Baby Conferences Held.—Better baby conferences have been popular this fall in Illinois. Following the sixth annual Better Babies Conference conducted in August by the state department of public health, and which was the most successful ever undertaken, more than a score of local communities carried out similar programs in connection with county fairs.

State Department of Health Endorses Cancer Week.—Dr. Isaac D. Rawlings, director of public health, has announced that the state department of public health heartily endorses the action of the American Society for the Control of Cancer in designating the week of October 30 to November 5 as "Cancer Week." Several local medical societies in Illinois have already acted on the matter favorably and have organized committees and outlined suitable programs for the week. In Chicago the plan embraces a course of public lectures to be given in school auditoriums by internists, surgeons, gynecologists and pathologists. The state department of health is urging other local societies throughout the state to take similar action.

6. Reuss: Diseases of the New-Born, 1914, p. 421.

7. Mendenhall, T. C.: The Centenary of the Birth of Hermann von Helmholtz, Science 54: 163 (Aug. 26) 1921.

8. Sedgwick, W. T., and Tyler, H. W.: A Short History of Science, New York, 1917, p. 444.

Typhoid Fever More Prevalent Than in 1920.—Reports to the state department of public health show a considerable increase in typhoid fever incidence this year over that for 1920. During June, July and August there were 910 cases reported against 511 for the same period last year. A total of 1,324 cases had been reported up to September 1, while only 1,021, a little more than 300 less, were reported for the entire year of 1920. While cases have been reported from all parts of the state, still more than half of the 422 recorded for August occurred in less than a dozen counties. These counties, together with the number of cases reported from each are as follows: Cook, 45, of which only 9 were in Chicago; Kane, 31; Franklin, 19; Stephenson, Will and Williamson, 18 each; Fayette, 17; Macon and Sangamon, 14 each; Champaign and Johnson, 10 each. The results of a large number of special investigations carried out by the department at various points throughout the state indicate that much of the typhoid fever has been due to the activities of carriers. In some instances an entire outbreak has been definitely traced to one or two carriers who were engaged in the production and distribution of food products, particularly of milk.

Illinois Birth and Death Rates for 1920.—Figures recently released by the division of vital statistics of the state department of public health show that the general death rate for Illinois in 1920 was the lowest ever recorded with the exception of that for 1919. The death rates per thousand population for the state for the past five years were as follows: 1916, 13.2; 1917, 13.8; 1918, 16.2; 1919, 12; 1920, 12.6. The birth rates per thousand population for the same years, respectively, were 18.5, 17.4, 18.4, 17.2 and 18.4. During the same period the annual birth rates and death rates for Chicago have been slightly in excess of those for the state as a whole. The death rates per thousand population for the five years in Chicago were as follows: 1916, 14.4; 1917, 14.8; 1918, 17; 1919, 12.5; 1920, 12.8. For the same years, in the above order, the birth rates per thousand population in Chicago were 19.0, 19.3, 19.0, 16.5 and 18.4. Out of a total of 82,132 deaths in the state during 1920, accidents caused 1,587. Of this number 734 were caused by automobiles, 558 by railroads, 128 by street cars, 33 by interurban railways, 3 by aeroplanes and 131 by various other means. Of the 734 automobile fatalities, 450 occurred in Chicago against 284 for the rest of the state. There were 149 fatal railroad accidents and 105 deaths caused by street cars in Chicago, compared with 409 and 23, respectively, for the rest of the state.

Chicago

Drive for Mount Sinai Hospital.—A campaign was opened this week to raise \$500,000 for the Mount Sinai Hospital.

Personal.—Dr. Frederick H. Falls, Chicago, has been appointed head of the department of gynecology and obstetrics of the State University of Iowa College of Medicine.

Forbes Criticizes Speedway Hospital.—Director C. R. Forbes of the Veterans' Bureau in a recent visit to Chicago inspected the Speedway Hospital and criticized its efficiency. He is reported to have emphasized what has previously been alleged: that 300 employees were taking care of eighty patients and that the hospital could never accommodate satisfactorily more than 800 patients.

Diphtheria Committee.—A committee appointed by Health Commissioner John D. Robertson to investigate the cause of the high diphtheria rate in Chicago is holding meetings with a view to outlining a plan for controlling this disease. The committee is headed by Dr. George H. Weaver of the Durand Hospital of the Memorial Institute for Infectious Diseases and Dr. Julius Hess, professor of pediatrics in the Medical School of the University of Illinois.

INDIANA

Personal.—Dr. John Connelly, Rockville, has been appointed general physician and surgeon of the Indiana State Tuberculosis Hospital, Sand Creek.

MAINE

Personal.—Dr. Adam P. Leighton, Jr., of Portland has been reappointed to the state board of registration of medicine for the six-year term.

Dispensary Offered to City.—The Edward Mason Dispensary which was a gift to the Bowdoin Medical School is reported to have been offered to the city of Portland for the city's use and maintenance since the medical school closed its doors, June 25.

Hancock County Medical Society.—At the meeting of the society, held, September 6, at Blue Hill, under the presidency of Dr. Arthur H. Parcher, Dr. John J. Moorhead, New York, Dr. William C. Peters, Bangor, and Dr. James M. Anders, professor of medicine at the University of Pennsylvania, were among the visiting physicians.

MARYLAND

Personal.—Dr. William Walter Cort, associate professor of helminthology in the School of Hygiene and Public Health, has returned after spending four months studying hookworm larvae in Trinidad, West Indies. He was director of the expedition sent out for that purpose by the International Health Board of the Rockefeller Foundation.

Lecture on Herter Foundation.—Trustees of the Johns Hopkins University announce that the thirteenth course of lectures on the Herter Foundation will be given by Sir Arthur Keith, F.R.S., M.C., conservator of the museum and hunterian professor, Royal College of Surgeons, England, at the medical amphitheater, Johns Hopkins Hospital, October 5-7, on "The Differentiation of Modern Races of Mankind in the Light of the Hormone Theory."

MICHIGAN

Physical Stock Taking of Schoolchildren.—Beginning October 3, sixteen physicians, serving as half-time school medical inspectors for the department of health, will commence the annual campaign of true preventive medicine. Four of this group will serve as an immunization squad, and on them will devolve the entire work of vaccination against small pox and immunization against diphtheria. This group will follow a schedule from school to school, and the nurses will have ready for them the children whose parents have given permission for immunization against these two diseases. The other twelve men will serve as physical examiners. They will be divided into four teams of three men each. A nurse will be assigned to each team. All physical examinations in the schools will be conducted by these men, who will follow a schedule, traveling from school to school. This work will be concluded before December 1. Following this the teams will again make the circuit of the schools, examining all first grade children and such casuals from other grades as are referred by the nurses. Completing this work by March 15, the teams will again make the circuit, examining all fifth grade children. It is expected that 50,000 children will be reached by these physical examinations during the course of the school year.

MONTANA

Personal.—Dr. William F. Cogswell, secretary of the state board of health, has been appointed field agent of the U. S. Public Health Service in Montana. The appointment is part of the campaign of cooperation between the state and the federal government in the wood tick control as a means of combating Rocky Mountain spotted fever.

NEW JERSEY

Death Rate Low Despite Typhoid Outbreak.—Although the typhoid fever epidemic in Burlington County resulted in a large number of deaths the report of the bureau of Vital Statistics of the State Department of Health for August shows a total of 2,971 deaths, of which 160 were of non-residents, leaving a total of 2,811 resident deaths or a decrease of nineteen from that of the previous month in New Jersey.

NEW YORK

Personal.—Dr. Victor C. Jacobson has been appointed instructor in pathology at the Albany Medical College.—Dr. Isaac W. Brewer, former city health officer of Watertown, has been made superintendent of Pleasant Valley Sanatorium, the Steuben County Tuberculosis Hospital, at Bath.

Electrotherapeutic Society.—The New York Electrotherapeutic Society will hold its next meeting at the United States Naval Hospital in Brooklyn on Wednesday, Oct. 5, 1921, 8:30 p. m. The program will include exhibition of equipment, methods and results of treatment, and moving pictures. All physicians are invited. The Naval Hospital is located east from the Brooklyn Navy Yard, corner of Flushing Avenue and Ryerson Street.

District Medical Meeting.—The fifteenth annual meeting of the fourth district branch of the Medical Society of the

State of New York was held in Schenectady, September 13, under the presidency of Dr. E. MacD. Stanton. Dr. Walter Lundblad, Sayre, Pa., read a paper on "Basal Metabolism," and Dr. William W. Howell, Boston, on "Primary Tuberculosis, Its Diagnosis and Extension." The present officers were all reelected for another year.

Voluntary Parenthood League to Hear Dr. Stopes.—The Voluntary Parenthood League announces a lecture by Dr. Marie C. Stopes of London to be held at the Townhall, New York, October 27. The patrons of the meeting include a number of noted authors and the following physicians: Drs. Henry P. DeForest, Maurice J. Exner, William F. Roby, William J. Robinson and Edwin H. Swift. The purpose of the meeting is announced as a preliminary step toward making birth control clinics in America practicable.

New York City

Infantile Paralysis Cases Increase.—The number of cases of poliomyelitis reported to the health department during the week ending September 24 was the largest recorded in any single week since the epidemic of 1916. There were sixty-nine cases reported, and of these nineteen were discovered as a result of a canvass of 7,000 homes by nurses of the department.

New York Scores Its Lowest Death Rate.—The mortality record of the week ending September 17 is the lowest ever experienced by the city of New York, there having been only 967 deaths recorded, or a death rate of 8.77 per thousand of the population. The next lowest death rate was that for the week ending July 17, 1920, which was 9 per thousand population, and the second lowest that of Sept. 20, 1919, which was 9.04.

Public Health Exposition.—A public health exposition will be held in Grand Central Palace, November 14, under the joint auspices of the health department and the American Public Health Association, which will hold its annual convention in this city at that time. The proceeds from the sale of tickets will be used to assist in defraying the expenses of the American Public Health Association and to establish nutritional clinics in New York City for the benefit of undernourished children.

Increased Dental Service for Schoolchildren.—The bureau of child hygiene of the department of health, with funds allowed for increasing its dental service, which became available, September 1, has appointed four dentists, six dental hygienists and eight nurses of the total quota allowed. The bureau was given sufficient appropriation to appoint five dentists on full time instead of nine on half time, eighteen hygienists and nine new nurses. It is planned to operate eight new clinics apportioned in the various boroughs, one being established in the borough of Richmond which, to date, has had no departmental service.

Infant Mortality Rate Falls.—The infant mortality rate for the first thirty-five weeks of the year, that is, the period ending August 27, was 76 per thousand children born, as against 91 for the corresponding period of last year. There is a reduction in the infant death rate from practically all causes, except congenital diseases. In contrast to this, a report issued by the International Health Board of the Rockefeller Foundation, entitled "Infant Mortality in New York City," calls attention to an infant mortality rate in New York City in 1885 of 273.6 per thousand children born. The rate in 1919 was 81.6.

Second International Congress of Eugenics.—This congress was held in the American Museum of Natural History, New York, from September 22 to 28, under the presidency of Prof. Henry Fairfield Osborn of New York. Many notable foreign scientists were in attendance, among them Major Leonard Darwin, son of Charles Darwin, and Dr. A. Barbara Dale, England; Dr. A. Govertz, Belgium; Dr. D. F. Ramos, Cuba; Dr. Don Arturo Scroggie, Chili; Dr. B. Feierabend and Dr. A. Sum, Czechoslovakia; Mr. Georg Bach, Denmark; Messrs. Lucien Cuénot, Lucien March and George Vacher de Loupouge, France; Dr. Jon. Alfred Mjoen, Norway; Dr. Ales Hrdlicka, Prague; Dr. Phya Medna, Siam; Dr. J. Varela, Uruguay, and Dr. N. D. Dakin and Dr. R. Ruggles Gates, Venezuela. In the numerous papers and discussions the outstanding point that continually received emphasis was that education and environment, contrary to the popular opinion, do not alter racial values. The speakers seemed to be pretty generally agreed that the admixture of poor stock with good does as much harm to the good stock as it benefits the poor.

It was further emphasized that the great need is obviously for more light on the part of both citizen and scientist.

Examination of Food Handlers.—The *Bulletin* of the New York City Health Department for September 24 presents a report showing that during the last year a total of 16,484 food handlers were examined in the occupational clinics of the city, while 55,673 examinations of food handlers were made by private physicians during 1920. A comparison of the results of these examinations indicates that the private physicians are not contributing conscientiously to the protection of the public health from food handlers who may be affected with communicable disease. Of the 16,484 food handlers examined, 28 per cent. were found to present a physical defect of significant character. In the city as a whole, the ratio of food handlers with sputum positive for the tubercle bacillus was 278 per 10,000. If this ratio obtained among all food handlers in the city, there would be 19,275 such food handlers in the city of New York. In the city as a whole, 104 cases of active syphilis were excluded, giving a ratio of 65 per 10,000 food handlers. The Manhattan Occupational Clinic placed on probation sixty-six cases of latent or inactive syphilis in the course of the year, giving a ratio of 133 cases per 10,000. The ratio of active gonorrhea cases was 6 per 10,000. On this basis there are at least 450 male food handlers in this city so affected. There were 28 male food handlers with evidences of chronic gonorrhea. If this ratio is assumed to represent the prevalence of this condition among food handlers, we would expect to find 4,350 such cases among the food handlers of the city. In all, three active typhoid carriers were found among this group of food handlers. In addition, there were a number of different forms of parasitic skin affections, as well as one case of tonsillar diphtheria and one of scarlet fever.

NORTH CAROLINA

Personal.—Dr. David Russell Perry has been elected full-time health officer for Davidson County, to succeed Dr. Raymond B. Yokeley, who resigned to resume private practice.

OHIO

Mississippi Valley Conference on Tuberculosis.—At the conference held in Columbus, September 12-14, Dr. Robinson Bosworth, St. Paul, was elected president; Dr. Robert A. Patterson, Columbus, vice president, and Dr. Hoyt E. Dearholt, Milwaukee, was elected secretary treasurer.

Clinic for Crippled Children.—Clinics are being arranged, at state expense, for crippled children under the direction of Dr. Bert Chollett, Toledo, assisted by Dr. H. T. Thornberg. One of these clinics was held at Tiffin, with the cooperation of Fostoria and the county health board, September 22.

Health Conference.—The second annual conference on state health was held at Columbus, September 12-16. Dr. Clarence D. Selby, Toledo, was elected president of the Ohio Public Health Association, to succeed Dr. C. B. Bliss, Sandusky. Dr. Robert Patterson, Columbus, was elected secretary.

First National Meeting of the American Red Cross.—The meeting will be October 4-8, at Columbus. A pageant entitled "Historical Pageant of the Red Cross," which requires the services of more than 3,500 participants, including a chorus of 1,000 voices, will be given on two evenings of the convention. Participants at this pageant will be groups of overseas veterans, nurses and war workers, including a delegation from the Walter Reed Hospital at Washington, D. C.

PENNSYLVANIA

Personal.—Dr. Walter Estell Lee, Philadelphia, has been appointed a member of the State Board of Medical Education and Licensure to succeed Dr. John M. Baldy.

Philadelphia

Personal.—Dr. Lawrence Webster Fox, ophthalmologist, who sailed for Hawaii in July, has returned to Philadelphia.

Horse Show to Aid Hospital.—The proceeds of the coming Bryn Mawr horse show to be held on the grounds of the Bryn Mawr Polo Club, September 28 to October 1 will benefit the Bryn Mawr Hospital.

City Ready to Aid \$3,000,000 Hospital.—Indication was given by the Board of Surveyors at a public hearing in the City Hall, September 19, that approval will be given to the

request of the Society of Friends for revising lines and grades of several streets in Fox Chase so as to permit unified construction of the \$3,000,000 Jeans Memorial Hospital.

RHODE ISLAND

Personal.—The Reconnaissance française, a bronze medal, has been awarded by the French government to Dr. Harriet A. Rice, a negress, for her services in French military hospitals during the war. Dr. Rice was a graduate of Wellesley College and the Woman's Medical College of the New York Infirmary for Women and Children.

SOUTH CAROLINA

Plan to Record Hospital Births.—At the regular meeting of the executive committee of the state board of health, Columbia, a resolution was adopted making available for inspection by the state health officer, or his representative, records pertaining to births in all hospitals in South Carolina.

TENNESSEE

Personal.—Dr. Marie M. Long has been appointed head of the department of child hygiene of the city health department, Memphis.

TEXAS

Meeting of the Pathological Society.—The second semi-annual meeting of the State Pathological Society of Texas will be held in Galveston, Oct. 12, 1921, the morning session at John Sealy Hospital and the afternoon session at Medical College Library.

UTAH

State Medical Meeting.—At the twenty-seventh annual meeting of the Utah State Medical Association, held, September 13-14, at Salt Lake City, under the presidency of Dr. Robert R. Hampton, Dr. Albion L. Hewlett, San Francisco, read a paper on "Normal and Pathologic Reactions to Vestibular Stimulation," and Dr. Isaac H. Jones, Los Angeles, on "Effect of Quinin Sulphate on Auricular Fibrillation," with lantern slides. The following officers were elected for the ensuing year: president, Dr. Augustus C. Behle, Salt Lake City; first vice president, Dr. Frank K. Bartlett, Ogden; second vice president, Dr. George H. Hyde, Provo; third vice president, Dr. Lawrence C. Snow, Park City; secretary, Dr. William L. Rich (reelected), and treasurer, Dr. Frederick L. Peterson, Salt Lake City, also reelected.

VIRGINIA

Personal.—Dr. William Edward Brown, former first assistant to the director of the Catawba Sanatorium, Charlottesville, and connected with the tuberculosis work of the state board of health for the last five years, has been appointed superintendent and medical director of the Blue Ridge Sanatorium, the state institution for the care and treatment of tuberculosis, located near Charlottesville. He succeeds Dr. Walter C. Klotz, who resigned to accept a similar position at Johnson City, Tenn. In addition to his work at the sanatorium, Dr. Brown will also instruct students of the medical department of the University of Virginia in the diagnosis and treatment of the diseases of the chest.—According to a recent announcement, Dr. Allen Fiske Voshell, former resident orthopedist at Johns Hopkins Hospital, Baltimore, will assume charge of the department of orthopedic surgery at the University of Virginia Medical School and Hospital.

WISCONSIN

State Association of Industrial Physicians and Surgeons.—At the close of the state medical meeting, Dr. Clare F. Schram, Fairbanks-Morse, Beloit, was elected president; Dr. Robert A. Waite, International Harvester Company, Milwaukee, vice president, and Dr. Robert C. Fitzgerald, of the A. O. Smith Company, Milwaukee, secretary-treasurer.

CANADA

Medical Council of Canada.—It has been announced by the council that the autumn examinations will take place in Montreal and Halifax, October 18. Dr. Robert W. Powell, Ottawa, is the registrar.

Public Health.—The problem of the narcotic drug addict is the subject of a pamphlet issued by the Committee on Nar-

cotic Drugs, and prepared by the Council on Health and Public Instruction. The Canadian government duly makes acknowledgment to the American Medical Association for the privilege of using some of this material for the Canadian profession.

Ontario Medical Association.—The district meeting of the association was held, September 21, at Peterboro, under the presidency of Dr. Frank J. Farley. Dr. Frederick W. Marlow, Toronto, gave an address on "Symptomatology and the Treatment of Some Gynecological Conditions," and the secretary of the association, Dr. Thomas C. Routley, on "Organization Progress in Ontario and Other Provinces."

University Medical School Limits Admission.—On account of lack of efficient facilities, the Medical School of Toronto University has decided to limit applications to 110 persons. These, with the students who are repeating the year on probation, comprise the first year. Selection of successful candidates was made on this basis: first, returned soldiers, with full standing; second, students with honor matriculation, and third, students with junior matriculation, and over 19 years of age. The university's registration in medicine, 1,106, is the largest in Canada.

GENERAL

Personal.—Dr. John Constatas, associate surgeon of Georgetown University, Washington, has sailed for Europe to study immigration and assist in reorganizing, along American lines, the hospitals of Greece.

Five-Year Colleges Secure Further Recognition.—An official statement from the Conjoint Board of London states that students graduating from medical schools which have adopted the fifth year of the curriculum (the intern year) before granting the M.D. degree will be admitted to the final examination of that board without taking an additional year of study after graduation.

Safeguarding Child Workers.—A report has just been issued by the U. S. Department of Labor through the Children's Bureau describing the employment certificate system in Wisconsin. This report is the fourth of a series dealing with the administration of child labor laws, previous reports having summarized methods of administration in Connecticut, Maryland and New York.

Accidents in Quarries.—According to a report issued by the U. S. Bureau of Mines limestone quarries employed 43,151 men in 1920, an increase of 8 per cent. over the number of men employed in 1919. During the year ninety-six men were killed and 5,321 were injured, a total of thirty-one more deaths and 890 more injuries than during the previous years. The causes of such accidents were usually falls, slides of rock, injuries resulting from burns and accidents from electricity.

Meeting of American Academy of Ophthalmology and Otolaryngology.—The American Academy of Ophthalmology and Otolaryngology will present a study course in connection with the annual meeting to be held in Philadelphia, October 17 to 22, in which an effort will be made to set forth the accepted views of modern ophthalmology and otolaryngology. Admittance to the course will be by badge to be secured at the headquarters of the postgraduate committee. All communications relative to the course should be sent to the proper member of the committee, either to his home address or to the Bellevue Stratford, Philadelphia. The committee consists of Dr. Harry Gradle, Chicago, chairman; Dr. Meyer Wiener, St. Louis, ophthalmologist; Dr. Hanau W. Loeb, St. Louis, laryngologist, and Dr. W. P. Wherry, Omaha, general operations.

LATIN AMERICA

Hookworm in Guatemala.—During the year 1920, in the hookworm campaign being conducted under the auspices of the Rockefeller Foundation in Guatemala, there were examined 28,142 persons, of whom 18,311 had hookworm disease, 13,221 received the first treatment and 5,932 were cured.

Venereal Diseases.—Pursuant to the request of the president of Costa Rica, for municipal aid in a venereal disease campaign, the department of Nicoya has appropriated the sum of 1,000 colones (about \$500).—The proceeds of certain taxes have been set aside at Quito, Ecuador, for an anti-venereal campaign.

Colombia Invites a German Leprosy Expert.—The government of Colombia has authorized the director general of leper hospitals to bring a German leprologist to Colombia to study

the cause of leprosy and its prevention. This expert will submit recommendations as to the prophylaxis of the disease and make necessary arrangements for isolating lepers.—The government has ordered an issue of 100,000 pesos in special nickel coins for exclusive circulation in leper hospitals.

New Hospitals and Sanatoriums.—A new sanatorium has been completed in the town of Girardot, Colombia. It is intended to supply the needs of patients who used to go to Panama or elsewhere abroad for treatment.—A new institution called La Milagrosa Sanatorium has been opened at La Calzada del Cerro, Cuba, for the exclusive treatment of women.—A new surgical ward has been opened at the St. Francis de Sales Hospital, Haiti. New equipment has also been provided for the hospital laboratory. The Haiti section of the American Red Cross has opened a free dispensary at Port-au-Prince, Haiti.—The government of Panama has opened at Colón a free clinic for tuberculosis cases, and mothers and infants.

Monument to Carlos Finlay in Havana.—Notice has appeared in THE JOURNAL on several occasions as to a monument to Carlos Finlay recently unveiled in Havana. A photograph of the monument is reproduced herewith. It stands in the center of a park known as "Finlay Park" in which it is proposed to place also the busts of the other scientific investigators who, with Dr. A. Agramonte, confirmed the transmission of yellow fever by the mosquito. The other busts to be erected include those of Drs. Gorgas, Guiteras, Delgado and Lazear.

FOREIGN

Typhus Fever and Rabies in Spain.—At Herencia (Ciudad Real) there have been reported twenty cases of typhus fever. The health authorities are investigating the matter.—There have been reported cases of rabies in the province of Cádiz. So far there has occurred one death from the disease.

Sol Sanat.—Under this name a society has been organized in a Holland city for the purpose of aiding persons with surgical tuberculosis to get the full benefit of sun baths. Dr. H. Verploegh of Gravenhage is one of the officers, and the members of the society are contributing and collecting funds to supply facilities for heliotherapy and other forms of radiotherapy and educate the public in regard to the dangers and prophylaxis of tuberculosis.

Medical Papers Lost.—It is reported that the licensure certificate No. A-03070 issued by the California Board of Medical Examiners to Dr. Jay Randolph Charpsteen, a graduate of the University of California Medical School, May 11, 1921, has been lost. Instead of having lost a reciprocity certificate, as previously reported, we are informed that Dr. Claude C. Chick of Heppner, Ore., reports the loss of his diploma issued by the American Medical College, March 25, 1897. Licensing boards are advised to be on the lookout for these credentials since they may be presented by those not entitled to their use.

Far Eastern Association of Tropical Medicine.—The fourth biennial congress of the association was held in Batavia, Java, August 6-13, under the presidency of Dr. T. de Vogel, the chief health officer of the Netherlands Indies. This was the first international medical congress ever held in the Dutch East Indies. It was well attended, delegates being present from Japan, the Philippines, Straits Settlements, Federated Malay States, Formosa, India and Australia. To commemorate the event the Dutch government authorized the publication of a large volume giving the history of Holland's participation in the development of tropical medicine. Dr. A. E. Horn, general director of the medical services of Malaya, was elected president for the next two years. The 1923 meeting will take place in Singapore. Vice presidents were elected for the following countries: Federated Malay States, Dr. Richard Dowden; Straits Settlements, Dr. A. L.

Hoops; Japan, Prof. S. Hata; Ceylon, Dr. Bridger; Siam, Prince Tharava; Philippines, Dr. Salvador Rosario; Hongkong, Dr. J. T. C. Johnson; Indo-China, Dr. M. L. R. Montel; Java, Dr. J. J. Van Lonkhuyzen; Borneo (Br.), Dr. Dingle; China, Dr. Wu Lien Teh; Australia, Dr. J. H. L. Cumpston; Macao, Dr. Jose Soares; Formosa, Dr. J. Hatori; India, Lieut.-Col. W. F. Harvey. The following resolution, dealing with the control of beriberi, was unanimously adopted:

WHEREAS, Beriberi is known to prevail extensively in the following countries: Netherlands East Indies, Japan, Malaya, Siam, Borneo, Philippines, Indo-China, Hongkong, China, and other territories in the Far East;

WHEREAS, There is enormous annual loss of human life, with corresponding invalidism and disability, due to deficient diet in the above countries, and whereas the deficiency is mainly due to the overmilling of rice, which removes a vital part of the essential food factors, and whereas, nothing has been put forward in the past ten years which disproves that beriberi cannot be controlled by substituting undermilled for polished rice in countries in which rice is the staple article of diet;

WHEREAS, It has been demonstrated by Fraser and Stanton and others that a satisfactory standard of milling is the presence of a minimum of 4/10 of 1 per cent. of P_2O_5 (phosphorus pentoxid) in rice; therefore be it

Resolved, That this fourth Congress of the Far Eastern Association of Tropical Medicine considers it urgently desirable that the governments concerned should take action to discourage the use of rice which is below this standard; therefore, be it further

Resolved, That, with a view to taking united action, the Far Eastern Association of Tropical Medicine recommends the appointment of a commission to which each country is asked to send a delegate, which shall make recommendations as to the best methods of bringing beriberi under control.

To assist in the attainment of the above object it is proposed that the congress request each vice president to present these proposals to his government and that the general secretary-treasurer send official copies of these resolutions to the countries concerned. If favorable action is taken, the governments are asked to communicate with one another as to the place in which such commission should sit.

VICTOR G. HEISER, Chairman.

Control of Narcotic Drugs in English Hospitals.—In enforcing the British Dangerous Drugs Act, which went into effect September 1, special regulations have been found necessary for hospitals. As it was not possible to formulate regulations applicable to all institutions, hospitals have been divided into three classes, viz., institutions in which the dispensary is in charge of a qualified pharmacist, those having no qualified pharmacist but a resident medical officer, and those having neither. In hospitals of the first class, supplies of the prescribed drugs are in charge of the qualified pharmacist. Ward supplies are in charge of a nurse, who is responsible for their use and who secures her supplies from the

dispensary by written requisition. Medicines for patients must be ordered in writing by the visiting physician or house physician on the history sheet, which must be sent to the dispensary and a record made on it when the prescription is filled. A separate prescription must be recorded each time that the preparation is made up for the patient. Bona fide public institutions, approved by the secretary of state, which do not employ a qualified pharmacist may be granted an exemption, provided they employ a dispenser who has had three years' experience. In institutions of the second class, the drugs are in charge of the resident physician. Stock preparations must be kept in a locked cupboard by the nurse in charge, who can secure them only on written requisitions. Medicines for all patients must be ordered by the physician on the patient's history sheet and a record kept, showing the amount. Hospitals of the third class must present orders for drugs signed by one of the attending physicians. Drugs are in the charge of the matron, who issues them under direction of the attending physician. In the case of medicines ordered for individual patients, the prescription must be given by a doctor and made up by a duly qualified pharmacist. In all cases a record of all drugs received and dispensed must be kept. Wholesale dealers are required to pay a license fee of £5 for dealers in one drug only, and £2 for each additional drug dealt in. If a manufacturer wishes to deal in raw opium, medicinal opium, cocain, diamorphin and morphin, the annual cost would be £13.



Monument to Finlay erected in Havana.

Deaths in Other Countries

Dr. Ernest Dupré, professor of mental disease at the University of Paris and one of the leaders in modern psychiatry, aged 59. He has published works on self-accusers, the value of testimony, poisoners, organic psychopathies, the psychology of hysteria, etc., and was on the editorial staff of the leading French psychiatric journals. His reports as medicolegal expert in certain famous lawsuits are regarded as classic.—Dr. J. Bach y Cortadella of Madrid, retired medical inspector of the Spanish army.—Dr. Franklin Grout of Rouen, at one time connected with the Passy sanatorium for mental diseases but long retired from practice.—Dr. F. Schwarz, an otologist and laryngologist of Capetown.—Dr. Bercial, surgeon in the Spanish army, killed recently in the Morocco campaign.—Dr. N. A. Cholodkowsky, professor emeritus of zoology at the University of Petrograd, known for his research on creeping disease.—Dr. K. Hagenbach-Burckhardt of Basel.—Dr. Soulié, professor of topographic anatomy at the University of Toulouse.

Government Services**Public Health Service Men to Veterans' Bureau**

It is announced that 277 medical officers of the Public Health Service have been detailed to the Veterans' Bureau. Of this number thirty-nine are medical officers in Washington, D. C., who have been detailed to the Veterans' Bureau headquarters in that city; the remaining 238 are medical officers in the field division of the Public Health Service throughout the United States. The Sweet law recently enacted by Congress creating the Veterans' Bureau gives specific authority for the detail or temporary transfer of medical officers from the Public Health Service. They are still officers of the latter service and their assignment to the Veterans' Bureau does not change their status. Some uncertainty has existed among the field officers of the Public Health Service because these so-called transfers have been made, but assurances are definitely authorized that the Veterans' Bureau will use officers of the Public Health Service in the hospital work and dispensary facilities which have been built up during the last two years by the Public Health Service in its program for the care of ex-service men. In the medical care and treatment of the beneficiaries of the Veterans' Bureau, it is apparent that a great many doctors will be needed for many years to come. The Sweet law has made wise provision for the administration of this work by authorizing the transfer or temporary detail of doctors in the Public Health Service for the continuation of this program.

**Secretary Weeks Presents Opinion on Disabled
Emergency Officers**

Secretary of War Weeks has issued a statement declaring that disabled emergency officers, many of whom served in the Medical Corps during the war, do not belong on the retired list of the Regular Army with the pay of retired officers. The statement represents the personal opinion of the Secretary and is made in opposition to the stand taken by the American Legion. A bill is now in the Senate giving emergency officers disabled in the war the same privileges as the regular commissioned officers of the Army retiring because of injuries. The Secretary in explaining his position said that the contract made by the government with Regular Army officers guaranteed them retirement pay because of conditions of the service, which disqualified them from making adequate provision for old age or their dependents, while the contract with emergency officers was an entirely different matter, and placing them on the retired list would merely load it up. There are now eligible for retirement under the plan urged by the American Legion some 3,000 emergency officers, of which number several hundred are former medical officers, and the number would constantly increase as the years passed. Whatever Congress might decide to do with these men, Secretary of War Weeks added, they should not be placed on the retired roll of the Army, which was created for an entirely different purpose.

Foreign Letters**LONDON***(From Our Regular Correspondent)*

Aug. 29, 1921.

Healthy London

The annual report on the health of London during 1920 by Dr. W. H. Hamer, health officer, has just been published. The facts set out are not only important, but more than usually interesting. The birth rate rose from 18.2 to 26.4 per thousand. The death rate fell to 12.6, the lowest ever recorded. The infant mortality was 76, compared with 80 for England and Wales as a whole, and 85 for New York, the only other great aggregate of population comparable with London. These rates relating to so large a population must give pause to those who advocate on grounds of health a "return to the land," and cause hope to spring in the breast of even the most pessimistic of the 4½ millions whose vocations compel them to live or work within a few miles of St. Paul's. A death rate of 12.6, if maintained at that level for a series of years, would entail an average duration of life of the fourscore years deemed some thousands of years ago to be attainable only "by reason of strength," and far exceeding the expectation of life of the first life table of William Farr, and of all the later life tables, too.

The Census

The preliminary report of the census enumeration, just published, shows that while the population of Great Britain during the last ten years increased by nearly two million, the rate of increase was the lowest yet recorded in any intercensal period. The slowing down of the numerical expansion of the nation must be largely attributed to the influence, direct and indirect, of the war. There was a direct loss of 628,000 lives in active service, and indirectly the war checked the growth of the population by influencing a progressive decline of the birth rate between 1913 and 1918.

The population of Great Britain, June 19 this year, was 42,767,530, an increase on the 1911 figures of 1,936,134. This increase was at the rate of 4.7 per cent. as compared with 10.4 for the period 1901-1911, which was lower than the rate in any previous decade. For the three divisions of Great Britain the respective increases were: Wales, 9 per cent.; England, 4.8 per cent., and Scotland, 2.5 per cent. The population of England on census day was 35,678,530, as compared with 34,045,290 in 1911 and 11,281,957 in 1821. For Wales the figures were 2,206,712 in 1921; 2,025,202 in 1911, and 718,279 in 1821. For Scotland they were 4,882,288 in 1921; 4,760,904 in 1911, and 2,091,521 in 1821. The 1921 population of Great Britain was made up of 20,430,623 males and 22,336,907 females. The proportion of females to males rose from 1,066 in 1911 to 1,093 in 1921. This preponderance is greatest in England, where there are 1,101 females to each 1,000 males.

The population of Greater London is given as 7,476,168, an increase of only 3.1 per cent., as compared with 10.2 per cent. in the preceding intercensal period. After London, the ten towns in England with the largest populations are: Birmingham, 919,438; Liverpool, 803,118; Manchester, 730,551; Sheffield, 490,724; Leeds, 458,320; Bristol, 377,061; West Ham, 300,905; Hull, 287,013; Bradford, 285,979, and Newcastle-on-Tyne, 274,955.

Complete empire figures are not available, but in the Indian Empire the population rose in the years 1911-1921 by nearly 4,000,000, to 319,075,132. In the Australian commonwealth there was an increase by nearly a million, to 5,426,008. New Zealand without the Maoris showed an increase of more than 200,000, to 1,218,270, and the European population of the

Union of South Africa had an increase of about 150,000, to 1,521,635. The census of 1921 was the first taken since 1821 without the inclusion of Ireland, because of political difficulties. The population of the United Kingdom in 1911 was 45,221,615, and to this total Ireland contributed 4,390,219. Assuming that the Irish population—a declining one since 1841, when it stood at 8,196,597—is about 4,200,000 at the present time, the new total for the United Kingdom would be in round figures about 47,000,000. Comparison between the rate of growth of the population of Great Britain and that of European countries is possible in only a few instances. The population of France, inclusive of three new provinces, was given in March this year as 39,194,550, as compared with combined figures for France and Alsace-Lorraine ten years previously of 41,476,272. In Sweden the present population of 5,904,292 shows an increase of 8.17 per cent. over the figures of ten years ago. The United States, with a population of 105,710,620, has registered an increase in the decennial period of 14.9 per cent. In Switzerland the population in the past ten years has increased by 3.4 per cent.

Phthisis Mortality

Dr. Hamer has many interesting observations on the influence of the migration from the country on London's health statistics—particularly on the tuberculosis death rate. He hazards the "rough guess" that nearly a sixth of the recorded phthisis mortality of London is a mortality of men and women (mostly men) who have not come to London until after early middle life. London draws in, as it were, like a vortex, the enterprising and ambitious girls and boys from miles around. But, perhaps even more important from the phthisis point of view is the fact that the lure of London continues to be exerted in later years. At the higher ages there are, however, marked distinctions and differences *qua* sex and *qua* quality. The female immigration apparently reaches its maximum at an earlier age than the male, and the male curve continues at a higher level long after the female curve has noticeably declined. Moreover, as the age of the immigrants is increased their quality becomes poorer, and this is particularly the case in the males. The young people are conspicuous by their absence from the phthisis death returns, partly because they represent in large measure healthy stock from outside, partly because if they do succumb to the influence of the London environment they often leave and die outside London. The old persons, on the other hand, men for the most part, who die in London have in many instances drifted there after contracting phthisis. Finally, the middle-aged patients do succumb in considerable numbers in London itself to the London environment, mainly for the reason that when they fail they are more likely than the young folk and the elderly women to remain in London to die, partly also for the reason that at the latter middle ages (among men) the figures, as has been seen, are swelled by immigrants from the country districts for miles around.

Nutrition of Children

In spite of the decreased general death rate and the low infantile mortality, there were some features in 1920 that were disquieting. During the war years there was a notable improvement in the general physical condition of the children. In 1919, however, there was a perceptible deterioration of nutrition especially in infants entering on school life, in whom it might be expected that the earliest reaction to adverse circumstances would be seen. This has continued, and is now shown in boys and girls at all ages, but especially in the 8-year-old group, in which the greatest amount of undernourishment is likely to be found. It reflects the effects of combined high prices and unemployment. The significance of the figures is underlined by their close correspondence

with the numbers of children requiring to be fed at school. There is serious cause for concern at the fact, for instance, that 9 per cent. of the boys at the age of 8 are marked as undernourished and that the number so marked has increased during the last two years.

Children on Barges

A committee appointed by the ministry of health has made a report on the conditions of children in canal barges. So far as health, cleanliness, morality, feeding and clothing are concerned, the bargee and his family are found to be fully equal, if not superior, to town dwellers of a similar class. Fifty per cent. of the children are born on the boats, yet an experienced nurse says she has never known of a mother dying in childbirth, and has known only one case of a child being born dead. But the boat children are scandalously undereducated. The number of children of school age living on the boats is estimated at 1,000, and investigations show that more than 85 per cent. of them are almost uneducated. Their only opportunities for schooling occur when the boats are tied up for loading or discharging, and as many of the parents are unable to read or write they care little that their children should make full use of even these opportunities. Half of the children do not put in twenty half-day attendances in the year. The committee recommends that, after a period of grace of a year, to enable arrangement to be made, children of school age should be prohibited from living-in on canal boats during school terms. It is also recommended that the owners of canal boats should be required to take out annual licenses, in order that more accurate information may be available as to the number of boats used as dwellings, and to insure regular inspection.

Death of the Danish Minister from a Wasp Sting

M. Castenskiold, Danish minister in London, returning home from playing golf, complained of having been stung by an insect, presumably a wasp. Swelling appeared in the nape of his neck, and he was soon in great pain and was forced to take to bed. He rapidly became worse in spite of the constant attentions of several specialists. He died at the end of a fortnight.

PARIS

(From Our Regular Correspondent)

Sept. 2, 1921.

Statistics on Vaccination in Paris

Before the council on public health, Dr. Roux, director of the Pasteur Institute in Paris, recently made an interesting report on vaccination in Paris. In 1920, the vaccination stations of the city of Paris performed 192,238 inoculations. These figures are 34,742 less than those for 1919, but are higher than for the years immediately preceding the war. If we note that during 1919 there were 126 cases of smallpox in Paris and that they gave rise to 32,000 vaccinations in the homes and 54,459 supplementary inoculations in the schools, we can easily account for the difference between the figures for 1919 and those for 1920. According to information furnished by Dr. Guilhaud, head of the vaccination service, the vaccinations for 1920 were distributed as follows: charity organizations, 19,029; maternity wards in hospitals, 23,147; wards of the state, 3,602; hospitals and homes for the poor (inpatients), 40,379; hospitals (outpatients), 13,161; schools of the city of Paris, 65,482; charitable institutions (city of Paris), 8,459; departmental institutions (homes), 2,026; secondary schools, 7,270; Academy of Medicine, 655; Pasteur Institute, 5,376, and domiciliary vaccinations, 3,652. In 1920, the registered births in Paris numbered 55,813, an excess of 17,192 over those of 1919. Of the 55,813 new-born, 30,972 were vaccinated at the municipal vaccination stations. If, from the total number of births, we deduct the number of deaths that

occurred during the first three months of existence (3,359), the number of infants placed out to nurse and of those vaccinated at home, we must admit with Dr. Guilhaud that a very small number of new-born in Paris escape vaccination. The percentage of successful initial vaccinations at the Tenon Maternity Hospital was 99.8 per cent., and at the Hôpital de la Maternité, 89 per cent. Since the war, vaccinations are made in the schools of Paris at two different periods of the year: at the opening of school, in October, and just before the closing of school, in June. During the October period, children 7 and 11 years of age are revaccinated; also, without distinction as to age, those for whom their parents desire inoculation. Of 50,249 pupils inoculated in October, 46,607 have reached their eleventh year. Of 23,739 boys, 10,906 were successfully vaccinated, and of 22,868 girls, 10,185 showed positive results. In June, 15,233 children who had not reacted the previous October were revaccinated, and of this number 4,681 presented a vaccinal lesion. In the primary schools of the 2,309 inoculations in children less than 6 years old, 1,349 were successful. These figures, gathered from various schools, give further proof of the necessity of revaccination. A proposed amendment to the law of 1902 for the protection of public health, taking account of the observations made in the schools of Paris and the proposals of the commission for the improvement of the bureau of public health, prescribes revaccination at the ages of 6, 13 and 21. During 1920, six cases of smallpox were observed in Paris, from which no epidemic resulted and only one death ensued. In two instances the disease was brought in from the outside; in the four other cases it developed in residents of Paris, and it was impossible to discover where they contracted the disease. This proves that in a large city like Paris, in which the movement of population is very great, there are always smallpox bacilli ready to develop, even though there is no epidemic, unless a large majority of the population has been immunized. Therefore, we must never cease to speak in favor of repeated reinoculations. Professor Letulle stated that, if we exclude maternity hospitals, the total number of vaccinations performed in the inpatient departments of hospitals will not greatly exceed 40,000. It is evident that the number of patients admitted is far in excess of these figures. He is of the opinion that it would be expedient to ask the bureau of public charities to see that vaccinations are made in the wards periodically, and that vaccination be made compulsory if possible. Dr. Netter supported Letulle's suggestions. He recalled that formerly—especially in children's hospitals—the medical personnel had authority to perform vaccinations whenever they deemed it necessary, and he asked that this method be again put in practice. Dr. Roux directed attention to the importance of Dr. Netter's suggestion, as it was not rare for students to leave school without having performed a single vaccination. He added that, whatever method of procedure is employed, compulsory vaccination should be established in hospitals, otherwise no results, or at least no adequate results, will be secured.

Franco-American Collaboration in Science

In several of my letters to THE JOURNAL I have noted the increasing tendency toward the development of reciprocal scientific relations between France and the United States. Further evidence of this tendency is furnished by two recently published fascicles of the *Traité de Médecine*, now in course of publication (Masson et Cie, publishers) under the editorship of Prof. G.-H. Roger, dean of the medical department of the University of Paris; F. Widal, and Pierre Teissier. Alongside of articles signed by French professors, we find several from the pens of American writers. Thus, we read in Part 3 an interesting article on trench fever by Richard P. Strong, professor of tropical medicine in the med-

ical department of Harvard University, and an article on yellow fever by A. A. de Azevedo Sodré, professor of clinical medicine at the School of Medicine of Rio de Janeiro. In Part 7 a chapter on infantile scurvy is by Dr. G. Araújo Alfaro, professor at the School of Medicine of Buenos Aires.

MEXICO

(From Our Regular Correspondent)

Sept. 4, 1921.

Etiology of Pinta

The pinta, or mal de los pintos, is an endemic disease which prevails in some of the low and hot lands in this country. While several investigations have been made as to its cause, so far none of the conclusions reached by the workers have received medical endorsement. Recently Dr. J. González chose this subject for his inaugural thesis as member of the Academy of Medicine. As he was not willing to confine himself to speculations, he decided to conduct some investigations of his own in the Rio Balsas region. While González' conclusions may not be definitely accepted because of the small number of patients studied and his inability to produce the disease in animals, they deserve mention in order that they may be either proved or rejected in the future. It seems that he found a fungus in the scales of the blue and red "pintos" (spots), besides the skin sections in the dermis. When cultures are made they cause a pigmentation. This fungus belongs to the genus *Penicillium*, its species being as yet undetermined. González assumes that the mosquito is the vector of the parasite. This is not unlikely in view of the distribution of the disease along borders of rivers where this mosquito would naturally find its habitat. Another worker had previously connected the pathogenesis of pinta with a bacillus, but in view of the clinical analogies between our "pintos" and the "caratejos" of Colombia it seems more likely that pinta is a mycosis somewhat similar to "caraté."

Antivenereal Campaign

A free evening dispensary has been opened for the treatment of venereal disease. This dispensary is the first of the eight projected by the public health department, and also the first official one. Some time ago there was a free dispensary for the administration of arsphenamin to indigent patients, but it was established by a newspaper and afterward dispensaries were also opened by the Spanish Welfare Society and the Venereal Prophylaxis Society, the latter being still in operation. The authorities had not given, so far, the importance it deserves to the scientific treatment of these diseases from a public health standpoint. The only thing lacking now is that the public health department should exercise its authority against the quacks who manufacture on such a large scale alleged remedies for syphilis, gonorrhea and chancroids. These so-called remedies are undoubtedly a very important factor in the spreading of these diseases.

Epidemic Diseases

No case of human plague was reported at Tampico during the month of August; during the month of July there were only two cases. As antiplague measures are being pushed, this important Atlantic port may be considered free of danger. At Manzanillo, a port on the Pacific Coast, there were reported in August ten deaths attributed by the port authorities to so-called "hemorrhagic malaria." It seems, however, that they were caused by yellow fever, as two patients who left Manzanillo and were isolated at Mazatlán as suspected cases died there, and postmortem lesions were observed which suggested the latter disease. In view of the discrepancy in the reports and in order to conduct a campaign against yellow fever, the public health department sent Dr. J. G. Casasús to Manzanillo to investigate the situation.—At

Payo Obispo, a port on the Carribbean Sea, there was also reported a death from yellow fever. This seemed to originate in the English colony, Belice, since three cases of the same disease had occurred there. In order to investigate the situation, Dr. E. I. Vaughn of the International Health Board of New York and a member of the Yellow Fever Commission, who happened to be at Tuxpam, Vera Cruz, left immediately for British Honduras. The sporadic cases in different parts of this continent seem to indicate the existence of endemic foci where the disease is overlooked because of its benign form. They show what vast efforts are required to eradicate yellow fever from the New World.

New Journal

There has been issued the first number of the *Revista Médica*, a monthly, published by the students of the Medical School of Morelia, Michoacán, and edited by a group of professors of the same school. The subscription price is three pesos (\$1.50 a year).

Personal

Dr. J. Huici, once a prominent member of the Superior Board of Health and co-worker of the late Dr. Licéaga, died, August 24.—Gen. T. C. Lyster, director of the International Commission Against Yellow Fever, has returned to Mexico on account of the yellow fever cases previously mentioned, and is now visiting Mazatlán, Sinaloa and Manzanillo. Dr. Lyster will study the situation and suggest to the Mexican authorities a plan for pushing the campaign against the disease.—Dr. A. Caturegli has been suggested for minister of Mexico in Berlin; this physician had been appointed minister to France, but his appointment was afterward canceled.—Dr. J. M. Albiñana, associate professor of the Medical School of Madrid, has been commissioned by the Spanish government to study Aztec medicine in Mexico, and has already arrived here, receiving many attentions from the Spanish colony.

Monument to Dr. Licéaga

A statue will be erected in a public square in honor of the late Dr. Eduardo Licéaga, prominent as a physician, and a sanitarian of international reputation. The funds are being collected by public subscription, and a good sum has already been received. The president of the republic gave \$3,000 out of his own pocket. When the monument is inaugurated, the department of public health will issue a pamphlet containing the speeches delivered at Dr. Licéaga's funeral services and at other meetings held in his honor.

BERLIN

(From Our Regular Correspondent)

Sept. 2, 1921.

Movement of the Population in the German Empire

During 1919 and 1920, as we learn from data recently published by the government statistical bureau, the number of marriages in the German empire exceeded, by a considerable margin, the figures for the prewar period. This condition is explained primarily by the fact that many marriages that could not be entered into during the war were contracted during the months following the war. Whereas, before the war, an average of half a million marriages were entered upon in Germany (exclusive of Alsace-Lorraine) every year, the number of marriages concluded in 1914 was only 450,648, falling then in 1915 and 1916 to 273,853 and 274,396, respectively. In 1917 the number rose again to 308,446 and in 1918 to 352,543. Thus, in the five years from 1914 to 1918, inclusive, almost half a million marriages less were contracted than would normally have been the case. However, this notable falling off in marriages during the years of the war was compensated for, in the main, during 1919 and 1920; for

in these two years the number of marriages reached the high figures of 842,787 and 851,508, respectively. Whereas in 1913 there were only 7.7 marriages to 1,000 inhabitants, in 1920 there were 14.8. Normally, forty marriages to 1,000 inhabitants could have been expected during the five years of the war, but, instead, only 25.1 marriages were entered upon. Eighty-two per cent. of the decrease has been made up during the last two years. Owing to the war, the difference in the age at marriage has changed markedly for both men and women. In Bavaria, for example, before the war, the husband was, on an average, 2.6 years older than the wife; now the age of the husband exceeds by three years that of the wife. Similar figures may be noted in other parts of the country. In this connection it is noteworthy that there has been a great increase in the number of widows who remarry. For example, in Bavaria, before the war, 6.9 per cent. of all women entering into the married relation were widows; in 1919 there were 13.8 per cent. widows. The war, as is well known, caused a great decrease in population, not only by reason of the rapid increase in mortality but also on account of the considerable decrease in the birth rate. Not only during the war, but also during the first few months after the war, the mortality rate in Germany took an upward turn, not only as regards adults, but children as well. The increase in mortality was due, on the one hand, to the losses of war and, on the other hand, to the inadequate nutrition. It is estimated that to the latter cause alone may be ascribed 700,000 deaths, occurring mainly during the last two years of the war. Figures from the official bulletins show the great decrease in births during the war period. In 1914, the number of children born was 1,830,892. In 1915, the number had fallen to 1,040,209 and in 1917, to 939,938. In 1918, the number had risen again to 956,251. In place of the normal 8,950,000 births in the period from 1914 to 1918, we find only 4,550,000 recorded, which signifies a loss of 4,400,000 due to the war. In 1919 the total number of children born was still about 400,000 below normal, as may be seen by referring to the average figures for the prewar period. Not until 1920 was the number of births again around normal, the records showing 1,512,162 births or 27.1 to every 1,000 inhabitants, as compared with 1,707,834 births, or 28.5 per thousand inhabitants in 1913, in which connection it should be noted that for 1920 no statistics are available for Mecklenburg-Schwerin and Mecklenburg-Strelitz, and only partial statistics for Wurttemberg. The number of deaths in 1920 was 888,795; that is, there were 16.3 deaths to every 1,000 inhabitants, the mortality for 1919 having been 16.1 per thousand. The last year before the war (1913) showed a mortality of 924,919, or 15.8 per thousand inhabitants. Especially during the first three months of 1920 the mortality rate was very high. More particularly, diseases of the respiratory organs and influenza exacted many victims during this period. In Berlin, more than a third of all deaths; namely, 37.7 per cent., were due to diseases of the respiratory organs, whereas during the first quarter of 1913 only one seventh of all deaths in Berlin were ascribable to such causes. During the last three quarters of 1920, the mortality rate fell considerably, having been 14.9, 14.5 and 15.4 per thousand inhabitants, as over against mortality rates of 19.9, 22.0, 19.7, 20.8 and 25.1 for the five-year period from 1914 to 1918, inclusive. The year 1919 showed a slight excess of births over deaths and the year 1920 a still greater excess.

Form in Relation to Sex

Before the Berlin Society for Neurology and Psychiatry, Dr. Arthur Weil recently delivered a lecture based on a series of investigations that he has been conducting on the physical body as an expression of the constituted sex. Weil found that, whereas in a normal man the relative proportion of the length of the upper part of the body to that of the

lower was, on the average, as 100 to 95, and in a normal woman as 100 to 93, these body proportions in sexual variants, especially in homosexual men and women, were just the reverse, the proportion of the length of the upper part of the body to the lower, in both men and women, being as 100 to 108. Likewise, the relation of shoulder breadth to breadth of hips is also distinctly different. Whereas in a normal man this proportion was found to be as 100 to 81, and in a normal woman, owing to her hips being much wider, as 100 to 92, Weil noted in homosexual men and women the remarkable fact that in the two sexes the proportion was almost identical, the average proportion being as 100 to 86 and 100 as to 88, respectively. An extensive comparison of statistical data yielded the result that this peculiar fact was not due to accident but rested on a biologic law, as it were. Weil's discovery seems to confirm the theory of intermediate sexual gradations as proposed by Dr. Magnus Hirschfeld twenty-five years ago, according to which there are a large number of so-called sexual transitions between the male and the female sex, both as regards physical and mental characteristics. In addition to the hermaphrodites proper, he recognizes four further groups: the androgyns, who in their general physical qualities constitute a combination of masculine and feminine sex characters; the "transvestites," who in their external appearance, more especially in dress, affect the appearance of the opposite sex; and the homosexual and the metatropic human beings—men and women—who are drawn toward persons of their own sex—men with feminine characteristics who become enamored of women of masculine type, and vice versa.

Compulsory Physical Training

The council on physical education, which was chosen by the government to deal with the question, has drafted a bill in regard to the compulsory physical training of youth, which contains, among others, the following provisions: 1. Every citizen of the German empire, from the beginning of school age until he reaches his majority, shall participate in exercises for physical training. 2. Facilities for the performance of this duty shall be furnished by the institutions for public instruction, in which physical training shall be adopted into the regular course of instruction and constitute a part thereof. 3. This duty may be performed also in gymnastic clubs and in clubs devoted to various forms of sport, provided they have been recognized by the superior administrative council as conducive to the public welfare, or by participation in regular exercises and contests that have been organized by the empire, the several states, communal associations, communes or public institutions; for example, higher institutions of learning, of all kinds. 4. Until the completion of the twenty-fifth year of a German citizen, the bestowal of testimonials with reference to examinations absolved and in regard to qualifications for any given position or employment; likewise the granting of the right to practice any profession of any kind (including attestations, concessions, etc.) on the part of the empire or the several states, the communes or the public institutions, shall take place only on presentation of a certificate containing satisfactory evidence as to the fulfilment of the duty of participation in physical training.

Death of Dietrich Gerhardt

Professor Gerhardt, the director of the Würzburg Innere Klinik, died suddenly, during a journey from Berlin to Stuttgart, at the age of 55. In the field of lung and heart diseases he contributed many valuable treatises. He was the son of Carl Gerhardt, and suffered from the constant comparison that is always applied to the sons of great men. Like his father, Dietrich Gerhardt was distinguished by his simple, upright character, holding himself aloof from all forms of ostentation.

Marriages

CHARLES HAYDEN PHILLIPS, Wilkes-Barre, Pa., to Miss Joyce Marjorie Whineray of Neston, England, at Neston, August 3.

ALFRED ERNEST LANGE, Rochester, Minn., to Miss Ruth Arvilla Wedge of Zumbrota, Minn., September 15.

THOMAS MORCOM, Seattle, to Miss Ruth Imboden of Wichita, Kan., at San Francisco, September 8.

LAURENCE MATTHEW MARLEY, Chicago, to Miss Mary Kathryn Conroy of Beloit, Kan., September 1.

WILLARD BOYDEN HOWES, Detroit, to Miss Esther Marian Lewis of Traverse City, Mich., September 21.

ROY NELSON REUBER, Klemme, Iowa, to Miss Gladys Marie Wichman of Garner, Iowa, September 15.

WILLIAM McMICKEN HANCHETT, Chicago, to Miss Alice Mark of Lake Forest, Ill., September 17.

WILLIAM HOWARD HAILEY, Hartwell, Ga., to Miss Helen McClure of Atlanta, Ga., September 8.

CLAUDE D. THOMPSON, Lexington, N. C., to Mrs. Frances M. Clark of Richmond, Va., July 11.

SIGFRED ENGH to Miss Nora Melvian Lerstad, both of Cottonwood, Minn., September 4.

GEORGE DEREYNA to Miss Marguerite Tujague, both of New Orleans, September 19.

CYRUS WALFORD ANDERSON to Miss Juanita Fruth, both of Denver, September 22.

JAMES J. ARROYO to Miss Denise Castell, both of New Orleans, September 7.

LAURENCE C. COOK to Miss Vena Edith Calyton, both of Denver, September 3.

CYRILL G. SIDNEY, Ohio, to Miss Helen Hayward of Baltimore, September 12.

ARNOLD P. GRUENHAGEN to Miss Floy Brown, both of St. Paul, in September.

GROVER PENBERTHY, Detroit, to Miss Elizabeth Wardner of Boston, July 16.

Deaths

Walter Ruffin Ashe ☉ Blasdel, N. Y.; New York University Medical College, 1888; member of the Academy of Medicine, Buffalo; on the staff of the Polyclinic Medical School and Hospital, New York, 1889-1891; formerly resident physician New York City Hospital for Insane and the Bloomingdale Asylum; president and medical superintendent, Maplewood Sanatorium, Lebanon, Ohio; house physician Demilt Dispensary, New York; died suddenly, August 30, from heart disease, aged 56.

Charles DeWitt Conkey ☉ Duluth, Minn.; Rush Medical College, Chicago, 1882; member of the Medical Society of the State of Wisconsin; specialized in ophthalmology, otology, laryngology and rhinology; member of the Obstetrical Society of Boston; died, September 8, in Los Angeles, following an operation for gallstones, aged 65.

Lewis H. Gundry ☉ Relay, Md.; College of Physicians and Surgeons, Baltimore, 1890; member of the Maryland Psychiatric Society; member of the American Medico-Psychological Association; specialized in neurology and psychiatry; superintendent and owner of the Relay Sanitarium; died, September 15, after a long illness, aged 53.

John Bull Hench ☉ Hinsdale, Ill.; Rush Medical College, Chicago, 1883; practitioner for forty years in Hinsdale; for several years instructor in medicine in the medical department of the University of Illinois; member of exemption board during the World War; died, September 17, from cerebral hemorrhage, aged 66.

Edith Eareckson ☉ Baltimore; Women's Medical College of Baltimore, 1893; postgraduate course in Berlin; member of the Medical Society of the United States; the Medical Chirurgical Faculty of Maryland; the Baltimore City Medical Society; died, September 19, from a complication of diseases, aged 55.

☉ Indicates "Fellow" of the American Medical Association.

Frederick Seely Long, Sr., San Francisco; New York University Medical College, 1881; veteran of the Civil War; member of the San Francisco board of health, 1891-1905; member of the San Francisco Clinical Society; chief surgeon of the Buena Vista Sanatorium; died, September 19, aged 66.

Walter John Whitehouse, Marcus Hook, Pa.; Medico-Chirurgical College of Philadelphia, 1905; attached to the Marcus Hook quarantine station since 1910; major, M. C. U. S. Army, during the World War; died, September 19, at the Chester Hospital, from chronic nephritis, aged 39.

James Alexander Black ☉ San Francisco; Kentucky School of Medicine, Louisville, 1892; Long Island College Hospital, Brooklyn, 1893; specialized in ophthalmology, otology, laryngology and rhinology; member of the Pacific Coast Oto-Ophthalmological Society; died, September 19, aged 52.

Abraham J. Kesler, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1886; member of the Indiana State Medical Association; formerly coroner of Allen County; member of the state board of health; died, September 15, from cerebral hemorrhage, aged 59.

Lloyd Henry Brannon ☉ Hayti, Mo.; St. Louis College of Physicians and Surgeons, 1915; specialized in pediatrics; was shot through both lungs, by E. S. Jimmeson of Hayti, and died in the Baptist Hospital, September 15, aged 36.

Joseph Reed Luten, Fulton, Ky.; Tulane University of Louisiana School of Medicine, New Orleans, 1868; Civil War veteran; member of the state legislature, 1881; died, September 11, from a complication of diseases, aged 78.

Samuel B. Whittington, New York; Missouri Medical College, St. Louis, 1887; since 1898 head of the Sprague Institute, New York; died, August 15, at his summer home in New Gardens, L. I., from tuberculosis, aged 52.

James A. Stafford, Newcastle, Ind.; Physio-Medical Institute, Cincinnati, 1867; for twenty years president of the Physio-Medical College of Indiana, Indianapolis; died September 13, from cerebral hemorrhage, aged 81.

Robert H. Mason, Rochester, N. Y.; McGill University, Montreal, 1896; member of the Medical Society of the State of New York; on staff of the Park Avenue Hospital, where he died, September 12, aged 52.

John F. Cully, Bainbridge, Ind.; Rush Medical College, Chicago, 1880; member of the Indiana State Medical Association; died, September 14, from cerebral hemorrhage, aged 68.

Samuel R. Peacock, Ladago, Ind.; University of Buffalo, N. Y., 1892; member of the Indiana State Medical Association; died, September 12, from cerebral hemorrhage, aged 53.

Franklin Pierce Warner, Canandaigua, N. Y.; New York University Medical College, 1881; member of the Medical Society of the State of New York; died, August 30, aged 69.

Madison D. Hull, Bloomington, Ill.; Louisville (Ky.) Medical College, 1876; consulting physician, St. Joseph's Hospital; died, September 8, from heart disease, aged 70.

George F. Clark, Saginaw, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1893; health officer of Saginaw; died suddenly, August 16, aged 53.

Warner E. Brown, Fort Worth, Texas; Washington University Medical School, St. Louis, 1869; died, August 6, from cerebral hemorrhage, aged 74.

Cipriano Hernandez Leon ☉ Tucson, Ariz.; National School of Medicine, Mexico, 1896; died, September 13, from heart disease, aged 50.

Ernest Hubert Vincent, Dallas, Texas; M.D., B.S., University of London (Eng.), 1888; died, September 5, from chronic nephritis, aged 54.

Margaret E. Holland, Houston, Texas; Northwestern University Woman's Medical School, Chicago, 1873; died, September 1, aged 73.

A. L. DeSouchet, Chicago; Chicago Homeopathic Medical College, 1886; died, September 21, in Los Angeles, from diabetes, aged 59.

Nathan M. Hancock ☉ Cane Valley, Ky.; Medical Department University of Louisville, 1893; died, September 13, aged 65.

Joseph E. Sterrett, Los Angeles; Chicago Medical College (Northwestern University), 1869; died in September, aged 79.

William J. H. Booher, Oxford, N. C.; Leonard Medical School, Raleigh, 1908; died, August 24, aged 40.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Joyner's Gui-A-Col Compound.—A quantity of this article, shipped in January, 1921, by the Williams-Ellis Drug Co., Norfolk, Va., was declared misbranded. The Bureau of Chemistry reported that analysis showed the article to consist essentially of guaiacol, an iodid, sugar, alcohol, and water. The stuff which was "Guaranteed by the Gui-A-Col Medicine Co., Inc.," was falsely and fraudulent labeled as a remedy for consumption, whooping cough, sore throat and "All Affections of the Throat, Chest and Lungs." In April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9269; issued Aug. 19, 1921.]

Egyptian Regulator Tea.—The Kells Co., Newburgh, N. Y., shipped a quantity of this preparation in April and May, 1920, from New York to Nebraska. The federal chemists reported that analysis showed that Egyptian Regulator Tea consisted



Egyptian Regulator Tea
HAS NO EQUAL as a quick and pleasant cure for
Constipation, Biliousness, Dyspepsia, Sick Headache, and all Disorders of the Stomach.
Its daily use will Purify the Blood, Remove all Blisters from the Face, and Restore the Complexion. Ladies will find this a valuable remedy for all Female Complaints. As a Liver and Kidney cure it has no equal. Specially adapted for children and delicate women and those who cannot take pills, as it is agreeable and pleasant to take.
Egyptian Regulator Tea is made from the original and only genuine recipe obtained in Cairo by the late Prof. Hurr of Paris, and is sold on its merits only. All other advertised remedies of this class are imitations of the original. The ingredients—22 in number—will be given to any reputable physician on application.

essentially of senna, coriander, dog grass, ginger, taraxacum (dandelion), sambucus (elder flower), licorice and cinnamon. The trade package bore such claims as the following:

"A Speedy and Positive Relief for Dyspepsia, Liver Complaint, Sick Headache, Nervousness."

"Nature's own gift to dyspeptic, debilitated men, to Wornout, Nervous women, to Mothers of Peevish and Sickly Children, to girls just budding into womanhood, to sufferers from defective nutrition and blood diseases, to corpulent people whether male or female, old or young."

"Ladies will find this a valuable remedy for all female complaints, also for liver and kidney trouble."

Because of these false and fraudulent claims the product was declared misbranded and in March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9235; issued Aug. 12, 1921.]

Nervosex Tablets.—In August, 1920, the United Laboratories Co., St. Louis, Mo., shipped a quantity of "Nervosex Tablets" which were misbranded. The federal chemists reported that analysis showed the tablets to consist essentially of strychnin, phosphates, and iron, zinc, and calcium salts. The preparation was falsely and fraudulently labeled "a compound of nerve and muscle stimulants for low vitality, lack of energy, sexual weakness." In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9246, issued Aug. 12, 1921.]

Castalian Natural Mineral Water.—J. P. Forbes & Co., Chicago, Ill., and Santa Cruz, Cal., shipped in September, 1920, over ten dozen bottles of Castalian Natural Mineral Water which the federal authorities declared misbranded.

This water was recommended for rheumatism, Bright's disease, dyspepsia, diphtheria, hay fever, diarrhea, leucorrhea, granulated eyelids, sea sickness, sunburn, goiter, locomotor ataxia, asthma and pimples, and many other conditions. The claims were declared false and fraudulent; moreover, the quantity of the contents was not declared on the outside of the package. In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9244; issued Aug. 12, 1921.*]

Man's Capsules.—In April, 1920, the Man's Capsule Co., Washington, D. C., shipped a quantity of this product in interstate commerce. The Bureau of Chemistry reported that analysis of a sample of the article showed that the contents of the capsules consisted essentially of powdered cubebs and copaiba. Some of the claims made on the trade package for this preparation were:

"Man's Capsules. A prompt and reliable remedy for Gonorrhea and Gleet . . . ;"

"For All Inflammations Of The Urinary Organs, Kidneys, Bladder, Etc.;"

The claims were declared false and fraudulent and in December, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9211, issued Aug. 12, 1921.*]

Correspondence

CANINE PARAPLEGIA

To the Editor:—During the years 1905-1909 at the U. S. Quarantine Station, Blackbeard Island, Ga., a disease known locally by the name of staggers was observed among a pack of hunting hounds. The name described accurately the early symptoms of the disease.

In the early stages the dog had a very characteristic gait; the hind quarters owing to weakness of the muscles, were very unsteady, causing lurching from side to side, with stumbling in the hind feet. The weakness steadily increased until finally the dog was unable to stand up, but dragged himself about by the forequarters, with total loss of power in the hind quarters, which dragged along the ground. No incontinence of urine or feces was observed.

On examining dogs thus affected it was found that the inner surfaces of the ears, especially those portions free from hair, were covered by masses of wood ticks so firmly attached that artery forceps were required to remove them, and in doing this some of the epithelium was detached also, where the mouth parts of the ticks were attached.

Dogs heavily infected with ticks developed paralysis quickly. The severity and rapidity of onset of the paralysis was closely associated with the numbers of ticks adherent to the ears in each case. Solitary ticks attached to dogs, although gorged with blood, caused no demonstrable symptoms of paralysis. When no other means than the removal of the ticks was employed, the paralysis rapidly disappeared, the dogs regained their former health, and they were able to hunt as well as ever.

Cattle roaming the woods throughout the year were singularly free from ticks, only an occasional solitary gorged tick being found. None of the cattle developed paralysis during the five years during which they were observed. Wild deer and wild ducks were free from ticks. The wild deer apparently would have the same opportunity to pick up ticks in the woods as the dogs. Some raccoons which were captured were free from ticks.

Human beings were rarely attacked by ticks; when they were, a solitary tick could be found in each case. On human beings a favorite point of attack was between the shoulder blades where the tick was difficult to reach, and an annoying

itching sensation was experienced, accompanied later by pain and inflammation. On removal of the tick, the symptoms rapidly disappeared.

M. K. GWYN, M.D., Baltimore.

Surgeon, U. S. Public Health Service.

[COMMENT.—In this connection, compare article on "Paralysis in Children Due to the Bite of Wood-Ticks," by Dr. P. D. McCornack, *THE JOURNAL*, July 23, 1921, p. 260.—ED.]

THE PREVENTION OF TYPHUS FEVER IN HOSPITAL PERSONNEL

To the Editor:—I will attempt to describe the system we adopted at Milina, Dalmatia, where I was associated with Dr. C. C. Yount of the American Red Cross, in clearing up the epidemic at Cattaro Bay. If a person in the hospital contracts the disease, it shows that there is a break somewhere in the disinfection or, more properly speaking, in the delousing. No person working in a properly regulated typhus hospital should become infected, unless through his own carelessness. In the field, where physicians and nurses are required to come in close contact with infected cases, it is important that they be provided with a combination undersuit of closely woven white cotton. This garment should be made of the ordinary sheeting, which is so closely woven that the louse cannot crawl through the meshes. It must be smooth, white material, and made up so as to leave no rough edges at the seams, that is, the seams must be turned down and resewed so as to make the edges smooth and leave no hiding place for the louse. The pattern should be a one-piece suit, to include stockings, long sleeves and a high collar. The sleeves can be fastened tightly about the wrists. This garment should be worn under or just over the underclothing. An outer garment similar to a surgeon's gown must be worn over all the other clothing. Rubber boots or high laced boots must be worn to prevent the louse from crawling up from the floor.

We have never insisted on the wearing of rubber gloves, as they are very bad for the skin if worn continuously, are clumsy if of the heavy loose type, and are easily torn if made of thin material. I know of only one authentic case in which an infection was produced by a bite on the hand alone.

Woolens should be avoided, as the louse clings to such garments. Cotton and silk are best. I myself prefer to wear a trench-coat as an outer garment. The material is of such texture that the louse cannot cling to it and is easily shaken off.

At the completion of the day's work the outer garment should be taken off, shaken and hung up where it will not come in contact with other articles of clothing. A bath should be taken every night, and all the clothing, including the protective suit, should be changed. To finish the bath, the body should be sponged with a soapy water made of germicidal soap which should not be washed off. I have been using this soap ever since I began to work in typhus areas; and as I have caught several lice on my body and have never been bitten by one, I am convinced that the louse will not bite the skin recently washed with such a soap.

One thing that must be remembered is that typhus is not as frequently conveyed by the bite of the louse as it is from the crushing of the louse and smearing the body contents over the abraded skin. The natural instinct when one feels a bite is to scratch or rub the area through the clothes. This is just what must not be done, because this crushes the louse and smears its body contents. In Milina we carried a bottle of chloroform; and when we suspected the presence of a louse on the body or when we felt a nibble, we simply covered the spot with the open mouth of the bottle and inverted it so as to saturate the clothes over the area with chloroform.

In this way the louse, if present, was killed and we avoided the danger involved in crushing by scratching or rubbing. Not only does the chloroform kill the louse, but it neutralizes the virus in the bite.

Protection of the personnel in the hospital lies mainly in the efficiency of the delousing and disinfecting squad. As is commonly known, typhus is not directly infectious; therefore, if the patients are properly disinfected there is absolutely no danger to the hospital personnel. In this respect typhus is similar to malaria. There is no danger from a patient with malaria, nor is there any danger from a patient with typhus.

At Milina all cases coming from the hospital were put through a delouser. All the hair was clipped from the body, head, armpits and pubis, and the patient was scrubbed thoroughly with soap and hot running water. Then the hairy areas of the body were anointed with kerosene (coal-oil). Clean pajamas were placed on the patient, and he was wrapped in a clean blanket and transferred to his bed in the hospital. The clothes were at the same time put through a pressure steam sterilizer, and furs were put through a sulphur bath. In this way only louse free patients arrived at the hospital.

Any person finding a louse on a patient or on the clothing of the personnel was required to report this immediately to the physician in charge of the hospital or to the chief nurse, at which time special steps were taken to discover from what source the louse came and to delouse the patient or person suspected.

It is seldom necessary for physicians or nurses to expose themselves by handling louse infected patients and articles of clothing, as there are always present persons who have had typhus, who can handle typhus patients and their clothing. The work of the physician and the nurse should be directing and not the handling of the patients and articles of clothing. Too many overenthusiastic persons think they must demonstrate the fact that they are not afraid of typhus or of work. These people are "penny wise and pound foolish." They are sure to become infected sooner or later, and then their work must be done by some one else.

J. R. RANSON, M.D., Saloniki, Greece.

American Red Cross Sanitary Inspector.

"EXPERIMENTAL STUDIES ON TRACHOMA"

To the Editor:—If you look in the 1920 Transactions of the American Academy of Ophthalmology and Otolaryngology, page 196, you will find my contribution to the rôle of the fly in the dissemination of trachoma; and the facts herein related may be of interest in the light of Nicolle and Guénod's research which you have just given editorial notice (THE JOURNAL, September 17, p. 943).

H. B. YOUNG, M.D., Burlington, Iowa.

[COMMENT.—In his paper Dr. Young made the suggestion that the fly may convey trachoma, and supports his contention with the statement that where trachoma abounds, flies also abound and that he has observed a diminution of the number of cases as screening and other sanitary measures were introduced.—Ed.]

DANGER IN SIMILARITY OF ETHER AND CHLOROFORM CONTAINERS

To the Editor:—A large manufacturer of anesthetic supplies is now dispensing chloroform in tin cans which closely resemble those containing ether. The very great and real danger of confusing these two containers, as well as the possibility of the operating-room personnel pouring the contents of one half can into another half can is sufficiently obvious to cause the prompt and complete exclusion of such containers from the operating-room. P. J. FLAGG, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WILDBOLZ AUTO-URINE TEST FOR TUBERCULOSIS

To the Editor:—Please publish the technic of the method used by Lanz in the auto-urine test for tuberculosis. Kindly omit my name.

M. A. P., Pennsylvania.

ANSWER.—The reaction referred to was first described by Wildbolz (*Cor.-Bl. f. Schweiz. Aerzte* 49:793 [May 31] 1919) as a means of differentiating between active and inactive tuberculosis. The article was abstracted in THE JOURNAL, Aug. 9, 1919, p. 456. Lanz merely reported his observations on the use of the method (*Schweiz. med. Wchnschr.* 50:321 [April 22] 1920). Wildbolz demonstrated that when there is an active process of tuberculosis the urine contains an antigen which, injected by the Mantoux intradermal technic, induces infiltration and redness. This does not occur with urine from healthy persons or in urine from persons with healed tuberculous processes. It never occurs unless the person gives a positive response to injection of 1:10,000 tuberculin, but it seems to occur whether the urine is from the person being tested or not, so long as he has an active tuberculous process anywhere in the body, in glands, peritoneum, lung, bones or elsewhere. Wildbolz evaporates morning urine to 1:10, passes it once or twice through a paper filter impregnated with 2 per cent. phenol, and then makes three sets of two injections on the arm, the two upper with 1:1,000 tuberculin; 3 or 4 cm. below this, two with 1:10,000 tuberculin, and the same distance below, two with a minute amount of the 1:10 evaporated urine. The response with an active, tuberculous process is the same with the urine as with the diluted tuberculin, but the tuberculin response persists unmodified after the process has healed, while the urine response fades out completely. A similar response was never obtained in the nontuberculous, not even in syphilis, influenza, etc., with the single exception that urine containing large amounts of staphylococci induced a reaction, so that the findings are not pathognomonic in certain cases of nephritis. With this exception, it is said that this biologic reaction may be depended on to reveal the tuberculous or nontuberculous nature of lesions, and it will also disclose when they are healed. If the urine reaction persists after the clinical healing of the known process, there is some other active process elsewhere. The specific nature of the urine reaction is demonstrated still more conclusively by the fact that, after subsidence of the urine reaction, if an injection of 1:1,000 tuberculin is made nearby, the apparently extinct urine reaction flares up anew, the infiltration and redness becoming distinct again.

OWNERSHIP OF ROENTGEN-RAY PLATES

To the Editor:—Will you kindly forward me court rulings concerning ownership of roentgen-ray plates, i. e., do the negatives belong to the patient or to the roentgen-ray operator? As rulings may be different in different states, I am particularly interested in the state of Colorado, and will be pleased to have court decisions.

J. J. MAHONEY, M.D., Colorado Springs.

To the Editor:—Can you enlighten me as to the just ownership of roentgen-ray films; whether or not they remain the property of the laboratory that takes the picture, or whether the patient is the owner? We have a case in which a patient submitted himself to a physician here for physical examination and a diagnosis of an ailment. The physician referred him to the roentgen-ray department for roentgenograms of his chest, and we found, on examination, a cardiospasm present. The patient was given a written diagnosis and the copy of the roentgen-ray findings was sent to the physician and a print was also made from the negative and given to the patient. He now claims that the films belong to him and has instigated legal proceedings to recover them. We have maintained that these films are the property of the roentgen-ray department and part of our records, and we have therefore refused to give him these negatives on the ground of having set this rule that no films are to leave the department, but that prints will be made and given to the patient.

I will be obliged if you can refer some of the past actions and your rules on this technicality. There are no statutes in our state dealing with this form of action.

H. H. PRATT, M.D., Colorado Springs.

ANSWER.—This question has never been passed on by a court of last resort, but it may be answered by analogy. The

patient goes to the physician, primarily, for a diagnosis of his condition, and for such treatment as may be indicated. The physician makes an examination, of which the taking of the roentgenograms is a part. If the photographs are taken by the physician himself, then the plates are a part of his record of the case. If they are taken by a roentgenologist, then the report to the physician, perhaps accompanied by prints of the negatives, is a part of the clinical record. The diagnosis is based on the examination and the clinical record. The patient pays for the opinion and the treatment, not for the means by which they were determined. He does not pay for the plates any more than he does for the apparatus. In the absence of any special agreement, the plates belong to the person who made them. This conclusion is borne out by analogy. The courts have consistently held that a prescription does not belong to the patient. He does not pay for it, but for an opinion as to his disorder and for treatment. The prescription is an order on the druggist to supply the patient with certain drugs. The patient delivers this order to the druggist and receives his medicine. The druggist holds the order as his voucher or authority for supplying the drugs. The situation is similar to that of a depositor writing a check on a bank. The check is not money. It is simply an order on the bank, as custodian of the depositor's money, to pay a certain amount to the holder of the check. Unless some specific agreement to the contrary is made, photographic plates belong to the person who makes them. An additional analogy is found in the question of the ownership of ordinary photographic plates. A person goes to a studio for photographs. The negative is a part of the apparatus by which photographs are produced. The patron does not pay for the plates any more than he does for the camera. The courts have repeatedly decided that the plates belong to the photographer, who is, however, required to restrict their use to proper purposes. The following references are to previous discussions of this question and to court decisions bearing on it:

American Mutoscope Biograph Company v. Edison Manufacturing Company, 137 F 262.

Itzovitch v. Whitaker, 39 So. 499; 115 La. 479; 1 L. R. A. 1147.

Schulman v. Idem, 39 So. 707; 115 La. 628.

In re Whitaker, idem.

Burrow-Giles Lithograph Company v. Sarony, 111 U. S. 53.

Thornton v. Schreiber, 124 U. S. 612.

Nottager v. Jackson, 11 Q. B. Div. 627.

The Property in a Prescription, *THE JOURNAL*, Nov. 25, 1916, p. 1612.

Ownership of Roentgenograms, *THE JOURNAL*, May 20, 1916, p. 1650.

Medical Ethics in Relation to Roentgenology, *THE JOURNAL*, Oct. 18, 1913, p. 1485.

Ownership of Prescription, *THE JOURNAL*, Dec. 7, 1907, p. 1936.

"VETERINARY CHIROPRACTIC"

To the Editor:—The comment on "Veterinary Chiropractic" (*THE JOURNAL*, September 17, p. 944) reminds me of an incident of two or three years ago. A chiropractor was making regular calls at the home of a prosperous farmer to "adjust" the farmer's wife. The farmer had a full blood Holstein heifer fresh for the first time and unfortunately the heifer gave milk from but two teats. To attend the heifer the farmer called a graduate veterinary surgeon, who had made two or three trips to the farm but who had not succeeded in obtaining milk from the other two teats. The heifer was mentioned in presence of the chiropractor, who said, "Let me see the heifer, I can fix her for you." So after adjusting the farmer's wife the chiropractor went to the barn, ran his fingers along the heifer's spine, and said "Here is the trouble, right here." He secured a croquet ball and mallet, returned to the barn, placed the ball on the heifer's back and hit it with the mallet, assuring the farmer that the heifer would be all right now. The heifer never gave milk from the other two teats. The farmer tells the story and thinks it a great joke that the chiropractor should attempt to adjust the heifer, but it has not yet dawned on the farmer that there is any joke in the chiropractor adjusting his wife.

ROLLA CAIRNS, M.D., River Falls, Wis.

GRAM STAIN MADE WITH FORMALDEHYD SOLUTION

To the Editor:—Kindly publish the formula for a modified Gram stain made with formaldehyd solution which appeared in *THE JOURNAL* several years ago and had the advantage that it was permanent. Please omit my name.

"FRESNO."

ANSWER.—The formula for this stain was published in *THE JOURNAL*, Oct. 9, 1920, p. 1017. It is as follows: gentian violet, 4.8; alcohol, 100; formaldehyd solution, 15; water to 400. The iodine solution used with this stain is the usual 1, 2 and 300 combination of iodine, potassium iodide and water.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.

COLORADO: Denver, Oct. 4. Sec. Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

FLORIDA: Tallahassee, Oct. 11. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 11. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.

IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.

ILLINOIS: Chicago, Oct. 19-22. Director, Mr. W. H. H. Miller, Springfield.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 10-12. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.

PHILIPPINE ISLANDS: Manila, Oct. 11. Sec., Dr. Fortunato Pinceda, 612 Rizal Ave., Manila.

PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Bacz, Box 804, San Juan.

RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

UTAH: Salt Lake City, Oct. 4. Sec., Dr. J. T. Hammond, Capitol Bldg., Salt Lake City.

WEST VIRGINIA: Clarksburg, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

A completely revised list of hospitals approved for internships was published in the 1921 edition of the American Medical Directory. In the list published in the Hospital Number of *THE JOURNAL* (April 16, 1921) general hospitals approved for intern training are indicated by an asterisk (*). The following hospitals have been approved since March 15, 1921:

SECTION I: General Hospitals.

St. Mary's Hospital, San Francisco.

SECTION II: Special hospitals (neuropsychiatric), approved only for affiliated internships and graduate medical teaching.

Livermore Sanitarium, Livermore, Calif.

Manhattan State Hospital, Ward's Island, New York City.

SECTION III: Special hospitals, approved only for affiliated internships and graduate medical teaching.

North Chicago Hospital, 2551 North Clark Street, Chicago. (Eye, ear, nose and throat hospital.)

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary, Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 12-14, 1921. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 28 candidates examined, 25 passed and 3 failed. Five candi-

ates were licensed by reciprocity. The following colleges
ere represented:

College	PASSED	Year Grad.	Per Cent.
orgetown University.....	(1914)	85.1, (1921)	77.5,
83.5, 84.1, 84.3, 87, 87.6, 92.8			
orge Washington University.....	(1920)	86.7, (1921)	76.7,
79.2, 80.1, 81.3, 82.5, 82.5, 83.5, 84.2, 86, 88.5,			
88.8, 90.1			
oward University	(1921)		86.8
ilane University	(1921)		82.6
erson Medical College.....	(1918)		84.1

College	FAILED	Year Grad.	Per Cent.
oward University.....	(1920)	68.1, 73.8, (1921)	73.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
orgetown University	(1918)		Louisiana
ush Medical College.....	(1911)		Arkansas
hns Hopkins University.....	(1917)		Maryland
aryland Medical College.....	(1912)		Maryland
iversity of Michigan Homeopathic Med. School....	(1880)		Iowa

Miscellany

REGULATION OF MIDWIFERY IN MASSACHUSETTS

Maternal mortality has increased in Massachusetts from 42 per 10,000 live births in 1900 to 60 in 1919. Vital statistics reports for 1918 show that of 2,944 babies who died less than one week after birth, 9 per cent., or 2,656, died as a result of prematurity, congenital debility or malformations received at birth. In the same year, 27.2 per cent. of the total number of infant deaths occurred in the first week of life and 39.7 per cent. during the first month. This situation led the Massachusetts Department of Public Health to make an investigation of the conditions surrounding maternity throughout the state. This study was started in the fall of 1919 by the division of hygiene, and a report of the investigation appears in the *Bulletin* of the State Department of Health for April, 1921.

Representative sections were selected and carefully studied, the investigation being limited to births occurring in the last six months of 1918. The midwife situation in Massachusetts is unusual. The supreme court held, in the case of *Commonwealth v. Russo*, that midwifery is a department of medicine and that the practice of midwifery comes under the state medical practice act. This means that in Massachusetts no one can legally qualify as a midwife unless she can also qualify as a physician and surgeon. At the same time, the vital statistic law specifically requires midwives to report births and stillbirths. The result of this legislation has not been to prevent midwives from practicing but, on the contrary, to drive them to practice secretly; and, in order that they may not be detected in any violation of the medical practice act, they refrain from reporting births. Midwives continue to practice especially among foreign born women, but they are afraid to report the births which they attend. Births attended by midwives are either reported by the parents or by a physician, who reports them over his own signature as a matter of accommodation to the midwives.

Out of 17,499 births, 90.5 per cent. were reported by physicians, 6 per cent. by midwives, and 3.5 per cent. by others. One hundred and seventeen midwives were found living in the districts studied, together with seventeen "neighbors" who reported that they had attended one or more births, and seven midwives living outside the districts but practicing in them, making a total of 138 women who had attended women in childbirth in the districts studied. Of this number, eighty were visited in their homes. Thirty were found to be personally clean and living in clean surroundings; twenty-nine were graded "fair" and twenty-one as "dirty." Twenty-five were selected for more detailed study. Of these, two were between 20 and 30 years of age, eight between 30 and 40, nine between 40 and 50, and six were over 50. Two were born in the United States; one each in Austria, England and Syria; two in Portugal; three in Finland; six in Poland, and nine in Italy. Twenty-three were married and two were widows. Eighteen could read and write English. Twenty could read and write their own language. Fifteen could read and write both languages. Regarding cleanliness, fifteen were graded "excellent"; five, "fair," and five "dirty." Three had received

training in the United States, ten in foreign countries, and ten had had no training at all. Regarding length of time of practice, two had practiced from one to five years, two from five to ten years, seven from ten to twenty years, six from twenty to thirty years, one from thirty to forty years; and in seven cases the length of time of practice was unknown. Twelve claimed to use prophylaxis for eyes in all of their cases; six did not. In seven cases it was not determined. Regarding the number of confinements attended, twenty-five midwives had reported 370 live births in six months and two stillbirths.

Inquiries among clergymen, physicians and others as to midwifery elicited opinions from foreign born clergymen working among their own people which were unanimously in favor of midwifery, the reasons being given that such services were economical and customary. Letters were sent to 292 physicians practicing in the districts studied asking their views regarding midwives. Only thirty replied. Personal calls on the physicians increased the number of opinions to forty-two. Fourteen physicians were in favor of training, licensing and supervising midwives; three were opposed to such action, and ten had no suggestions to make. An analysis of 850 births in one city shows that 33 per cent. were attended by midwives and were reported, and that less than two thirds were attended by physicians, the difference being births where there was no one in attendance. It was also found that attendance by a midwife was not a financial question but a racial custom, and that it persisted in spite of financial conditions, free clinics, etc. The report also contains an interesting summary of the regulation of midwifery in the United States.

LUDENDORFF RECEIVES HONORARY MEDICAL DEGREE

The *Münchener medizinische Wochenschrift*, Aug. 26, 1921, contains the following item:

LET US HANG OUR HEADS

The *Darmstädter Zeitung*, the official organ of the government of Hesse, contains in No. 193 the following article:

DOCTOR LUDENDORFF!

The medical faculty of the University of Königsberg in East Prussia, the well known stronghold of the German nationalist party, on the occasion of the Tannenberg celebration, bestowed the title of doctor *honoris causa* on the former field-marshal general Ludendorff. In the document pertaining thereto, it is stated that the title is conferred upon "the hero who with the sharp blows of his unconquered sword protected the German people from the crowd of booty-hungry enemies, until the people, trusting in false statements, abandoned its unbroken defense and its strong leaders."

The medical faculty of the university would seem to have been living on the moon during the last seven years. The gentlemen, who, while acting as army surgeons, during the war, prescribed untold quantities of acetylsalicylic acid to wounded soldiers with heart, lung, gastric and intestinal diseases, as if it were a panacea and the only remedy known to medical science, now seem to have their brains entirely befuddled. It is certain that the German people trusted to false statements; that is true—unfortunately—namely, to the words of Ludendorff, Tirpitz and his consorts, who imposed on the people their nonsense about "the annihilated reserves of Foch," the "great success of the submarine war," and the "entire impossibility of America throwing troops on to the continent," in spite of the fact that any person who was half awake knew that, after America entered the war, our cause was absolutely lost.

Ludendorff and his associates, by their senseless sacrifice of the German reserves and by their pernicious maneuvers, broke their own defense, and Hindenburg, together with Ludendorff, were the very ones who whiningly twice implored Prince Max to take steps that would lead to the immediate negotiation of a truce, as they otherwise "could not answer for the consequences."

After the receipt of these telegrams it became clear to the German people that Hindenburg and Ludendorff had announced their complete bankruptcy; that the Siegfried line had been abandoned, and that the army of the crown prince had begun a wild retreat, and then—not even then did the German people depose its leaders, as the all wise medical faculty of the University of Königsberg asserts, and as the leaders would have richly deserved; the latter, however, gave evidence of their heroism by quickly disappearing over the borders. They withdrew before the people could inquire into their accountability; they abandoned the German people—not the reverse.

We congratulate Mr. Ludendorff on his new title. Murder of the masses and doctor of medicine—they go well together.

This utterance of the official organ of the government of a German state deserves to be known to wider circles. Comment is superfluous.

In accordance with the suggestion of the *Münchener medizinische Wochenschrift*, the "utterance of the official organ" is here made "known to wider circles."

Book Notices

TICE'S PRACTICE OF MEDICINE. In ten volumes; Volume 8. Editor-in-Chief, Frederick Tice; Advisory Editor in Medicine, Luther F. Warren; Advisory Editor in Neurology, Julius Grinker. Price, \$115 per set. Hagerstown, Md.: W. F. Prior Company, Inc., 1921.

The most satisfactory article in this volume is that on diseases of the pituitary gland by Engelbach and Tierney. It has been carefully written. There is evidence of familiarity with the literature. Matters are presented in a clear and orderly manner, and the article is one that a reader may well consult for an up-to-date presentation of the subject. Numerous clinical cases are cited with minute details, one might almost say with superfluous details, though where knowledge concerning the manifestations of a disease is so rudimentary as is our knowledge concerning the pituitary gland, details must be full, as otherwise there may be omitted features that in future will be shown to possess significance. Other contributions are on alcoholism and drug addiction, by Jewett; lead poisoning, mercury poisoning and arsenic poisoning, by Tasker Howard; food poisoning, by Seale Harris; milk sickness, by Arthur Clay; diseases of the suprarenals, thymus, pineal, ovaries and testicles by the younger Sajous, and of the thyroid and parathyroid glands by the senior Sajous; diseases of the spleen, by Bunting, and Gaucher's disease, by Brill and Mandelbaum. All of the authors who write on the endocrine glands might read with profit the recent article by Dr. Harvey Cushing and the recent editorials in *THE JOURNAL* calling attention to the danger of failing to discriminate between fact and theory. In these writings it is often hard for the reader to decide what he may regard as established fact and what as some theory still on trial or merely under discussion. We feel, also, that some editorial readjustments might properly have been made. The article by Engelbach and Tierney occupies more than half of the 698 pages of text. Surely this is an unjust proportion. The thyroid has only one fifth as much space. To have some articles brief and sketchy and others full justifies criticism on the basis of lack of uniformity. From what we have so far seen of this System it is not, as a whole, in any sense a monumental work, comparable, for example, to Nothnagel's System of twenty years ago or to Ziemssen's of earlier date. There are too many short articles, brief epitomes, and too few carefully written, comprehensive monographs. This criticism, we may add, will apply also to other systems of medicine that are now being published in this country.

DIE INNERE SEKRETION. Eine Einführung für Studierende und Aerzte. Von Dr. Arthur Weil, Privatdozent der Physiologie an der Universität Halle. Paper. Price, 28 marks. Pp. 140, with 35 illustrations. Berlin: Julius Springer, 1921.

Instead of discussing each so-called gland of internal secretion separately after noting the effects of extirpation, hyposecretion, hypersecretion or dysfunction of the gland on the various body processes, the author, after a short introduction on the historical aspects of the subject and histogenesis of the various glands, takes up the various physiologic processes of the body and discusses them from the point of view of any influence which the various glands of internal secretion may or do have on them. The titles of the various chapters indicate his subdivisions of the physiologic functions which are taken up from this point of view: the physiology of the blood, circulation of the blood, respiration and speech, metabolism, growth and body form, reproduction, sexual urge, and the mind. The presentation of the subject from this point of view involves a discussion in every chapter of the interdependence of the various glands and the vicarious activity of one gland during hypo-activity of another. This novel method of presentation of the subject for physicians and medical students has much to commend it. In view of the size of the volume, the author has done remarkably well. Unfortunately, he diagrams an interrelationship of organs which might readily influence the reader to assume a beautiful finality on a subject in which more facts are necessary both from the clinic and from the laboratory. Some old and unreliable work is incorporated in the volume. The illustrations are well chosen. The book contains no bibliographical references.

THE BASIS OF PSYCHIATRY (PSYCHOLOGICAL MEDICINE). A Guide to the Study of Mental Disorders for Students and Practitioners. By Albert C. Buckley, M.D., Associate Professor of Psychiatry, Graduate School of Medicine, University of Pennsylvania. Cloth. Price, \$7. Pp. 447, with 79 illustrations. Philadelphia: J. B. Lippincott Company, 1920.

The close relationship between the subjects of biology and psychology is responsible for the change in the approach to problems of psychiatry—on lines of experimental biology. Beginning with the simplest protoplasmic activities of metabolism, growth, reproduction, irritability and conductivity, the reader is led to the understanding and differentiation of "reaction types" in man. The inherited attribute to meet changing conditions of environment demands ability to make suitable adjustments. It is a maladjustment which manifests itself as a psychosis or neurosis with or without gross physical changes. The problems of psychiatry can best be approached from a biologic point of view if we look on the nervous system as the organ of adjustment, not only of single organs and systems, but also of the organism as a whole. The chapters on biologic phenomena, cerebral development, receptive apparatus, mental development and psychologic processes are very complete. The chapter on methods of examinations, including laboratory diagnostic methods, is good. The classification of mental disorders accepted by the author is the one proposed by the committee appointed by the American Medico-Psychological Association. The description of the schizophrenic and cyclothymic psychosis—biogenetic psychosis—is very detailed. Attention is called to the tendency in recent years to shift patients from one of these groups to the other according to whether it is considered warranted by the clinical picture presented. The dementia praecox patients have been falling in number, and the manic-depressive increasing. The defective groups, such as idiocy and imbecility, have been purposely omitted. A glossary of biologic, psychologic and psychiatric terms is given as an appendix. The work of Dr. Buckley is a concise expression of modern thought in psychiatry, and presents a good guide to the study of mental disorders.

DISEASES OF THE EAR. By Philip D. Kerrison, M.D., Aural Surgeon to the Willard Parker Hospital for Infectious Diseases. Second edition. Cloth. Price, \$6.50. Pp. 596, with 333 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

This is a comprehensive, well-written presentation of the present status of our knowledge of diseases of the ear. The book easily takes a foremost place among textbooks on otology from this country, as well as those which have been published abroad. One notes a few minor errors. For example, on page 72 the author refers to the fork vibrating 128 double vibrations per second as the "C" fork, whereas it should be designated the small "c" fork, and on the same page the fork vibrating 64 double vibrations is designated as the "C-2," whereas it should be written "C." Another such error is noted on pages 266 and 267, where he confuses the aqueductus vestibuli with the ductus endolymphaticus. He perpetuates an error common to most textbooks when on pages 126 and 145 he insists that nasal obstructions including those resulting from anatomic variations, such as irregularity of the nasal septum, play an important part in the etiology of diseases of the eustachian tube. His statement on page 355 that disturbances of equilibrium and vertigo following the sudden destruction of one labyrinth is caused by a hyperactivity of the sound labyrinth cannot be accepted, as there are no grounds for assuming that the activity of one labyrinth is in any way disturbed by injury to the opposite ear. He refers repeatedly to "irritation" of the labyrinth as a cause for disturbances of equilibrium and vertigo (pp. 528 and 531). As a matter of fact, the disturbances which arise from injury to the labyrinth are not caused by irritation but are due to suppression of function. This suppression, confined to one side or involving one side more than the other, gives rise to the disturbance of equilibrium and vertigo because of the unbalance produced by the continuation of the normal activity of the opposite side. On page 92, when speaking of the causes of diffuse suppuration of the labyrinth he overlooks the frequent invasion of the labyrinth from meningitis, especially the epidemic cerebrospinal type. On the whole the author's discussions of the numerous otologic problems are clear and his deductions are logical and show excellent judgment.

ment. We commend especially his discussion of both the acute and chronic types of suppurative otitis media, and his presentation of the proper indications for operative interference in these diseases. In his discussion of sinus thrombosis one gets the impression that the procedure of opening the sinus and ligating the jugular is called for whenever in the presence of a suppurating otitis media the fluctuating temperature suggests absorption of infection into the sinus. The author seems to justify the opening of the sinus in such cases, even when free bleeding from both ends demonstrates no evidence of a thrombus, on the assumption that a small parietal thrombus must be there somewhere which required the operation on the sinus. A more conservative method of handling such cases has demonstrated that in a great many the symptoms characteristic of absorption into the sinus promptly disappear after cleaning out the infection about the sinus wall. This problem of handling cases suspected of sinus involvement is not sufficiently analyzed, nor does he discuss the difficult problem of how to proceed in the not uncommon situation where symptoms pointing to a probable sinus involvement occur in cases of bilateral otitis media. These are criticisms of minor importance. The book will be found an excellent and safe guide for those undertaking the study of otology. The text is too voluminous to be practical for the use of undergraduate students.

INVESTIGATION OF THE CENTRAL NERVOUS SYSTEM. Part I. Methods and Instruments. By R. H. Clarke, M.A., M.B. Part II. Atlas of Photographs of the Frontal Sections of the Cranium and Brain of the Rhesus Monkey (*Macacus Rhesus*). By R. H. Clarke, M.A., M.B., and E. E. Henderson, B.A., M.B., F.R.C.S. The Johns Hopkins Hospital Reports (Special Volume). Paper. Price, \$5. Pp. 172. Baltimore: The Johns Hopkins Press, 1920.

The purpose of this volume is to describe mechanical devices which will direct needles and similar fine instruments for intracranial operations, substituting mechanical for visual direction. With the instrument as perfected by the authors, the operator may get his needle within a 2 mm. circle of any given portion of the brain every time. The instrument should be very useful, therefore, in enhancing our knowledge of the anatomy, physiology and surgery of the brain. By its use, heretofore inaccessible portions of the brain, e. g., the central nuclei or any minute portion of them, can be stimulated electrically or directly by drugs without the slightest mutilation of the structures surrounding them. Again, localized lesions of any size can be made in any portion of the brain or cord with practically no injury to any of the surrounding cerebral, cerebellar or cord tissue. The authors describe the instruments in detail, which makes it possible to conduct highly accurate researches in the field of nervous physiology. The first paper on this subject was published by the late Sir Victor Horsley (in *Brain* **31**, 1908). Part of the atlas appeared in the *Journal für Psychologie und Neurologie* **21**:273, 1914.

A TEXTBOOK OF GYNAECOLOGICAL SURGERY. By Comyns Berkeley, M.A., M.C., M.D., Gynaecological and Obstetric Surgeon to the Middlesex Hospital, and Victor Bonney, M.S., M.D., B.Sc., Assistant Gynaecological and Obstetric Surgeon to the Middlesex Hospital. Second edition. Cloth. Price, \$11 net. Pp. 829, with 505 illustrations. New York: Paul B. Hoeber, 1920.

This edition presents many excellent features. The opening remarks on the bearing of the surgeon and speed in operations are excellent. The minute descriptions of operative equipment indicate a large clinical experience, although it might be said that there is too much detail on instruments, suture material, sterilization, etc. The authors sanction the granny knot and advocate half inch buried catgut ends, both details contrary to the usual American procedure. The chapter on examination and preparation of the patient contains excellent detailed instructions, superfluous for most specialists in this field, but invaluable to the younger man and the general surgeon in smaller communities. The operations on the vulva and vagina are the typical ones, well illustrated, and tersely but completely described; and here, as well as throughout the book, there is abundant evidence of ample clinical material. In the main the authors have selected in their operative technic the approved procedures. The indications are well put, the operative steps clearly stated, and the dangers thoroughly canvassed. Especially praiseworthy is the chapter on the treatment of myomas, the

authors having incorporated the latest generally accepted views on conservative surgery of the uterus in the child-bearing period. A little more space devoted to the underlying pathologic condition would materially enhance the value of the text. By far the best chapters are those on postoperative complications, in which the authors display convincingly their grasp of the clinical problems that confront the gynecologist. The volume is well worth careful reading, and should find a place in the library of every gynecologist and abdominal surgeon.

A HANDBOOK OF MIDWIFERY FOR MIDWIVES, MATERNITY NURSES AND OBSTETRIC DRESSERS. By Comyns Berkeley, M.A., M.C., M.D., Obstetric and Gynaecological Surgeon to the Middlesex Hospital. Fifth edition. Cloth. Price, \$2.25. Pp. 550, with 75 illustrations. New York: Paul B. Hoeber, 1921.

This is a comprehensive little book, designed to meet the requirements of pupil midwives and also to be of help to the practicing midwife. It is well illustrated for a work of its size. The subject matter is well arranged for teaching purposes, and the size of the volume recommends it for pupil use. The style is extremely simple and should be comprehensible to any fairly well educated student. In addition to the treatment of obstetric subjects it includes short discussions of the elements of physiology, bacterial infection and immunity, and the principles of domestic and personal hygiene. There is also a chapter on the action of drugs in midwifery practice. At the end of the book is a short quiz compend founded on the rules of the Central Midwives Board. There are numerous slight inaccuracies throughout the text, but on the whole the book is well calculated to fill the requirements of the students for whom it is designed.

TUBERCULOUS SALPINGITIS. A Clinical Study of 200 Cases. By J. P. Greenberg. The Johns Hopkins Hospital Reports. Volume XXI, Fasciculus II. Paper. Price, \$1. Pp. 57, with 4 illustrations. Baltimore: The Johns Hopkins Press, 1921.

This is an excellent report of the cases of tuberculosis of the fallopian tubes and of the other female generative organs occurring at the Johns Hopkins Clinic. The author gives a comprehensive review of the literature and brings the work up to date, making it an excellent reference work for those interested in this subject. The treatment is ably discussed and outlined with especial reference to the problem of drainage in these cases.

AN ATLAS OF THE PRIMARY AND CUTANEOUS LESIONS OF ACQUIRED SYPHILIS IN THE MALE. By Charles F. White, O.B.E., M.B., Major Royal Army Medical Corps, and W. Herbert Brown, M.D., Physician for Diseases of the Skin, Victoria Infirmary, Glasgow, with a Foreword by Lieut.-General Sir T. H. J. C. Goodwin, K.C.B., D.S.O., K.P.H., Director-General Army Medical Service. Cloth. Price, \$9. Pp. 32, with 79 illustrations. New York: William Wood and Company, 1920.

This is a well illustrated article on clinical syphilis. It records a large and useful war experience. One objection to it is the same that pertains to nearly all the foreign books we are now receiving—its price is out of all proportion to its value.

DIAGNOSTIC AND THERAPEUTIC TECHNIC. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, A.B., M.D., F.A.C.S., Consulting Surgeon to the Nassau Hospital, Mineola, L. I. Third edition. Cloth. Price, \$8 net. Pp. 894, with 892 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The general practitioner will find much useful information in this manual. One of the chief advantages of the book lies in the illustrations, which are numerous, clear, well selected and carefully arranged. It has been brought up to date by a thorough revision of the former editions, and the practical character of the former edition has been maintained.

ESSAYS ON SURGICAL SUBJECTS. By Sir Berkeley Moynihan, K.C.M.G., C.B. Cloth. Price, \$5. Pp. 253, with 17 illustrations. Philadelphia: W. B. Saunders Company, 1921.

All of the essays in this volume have appeared in periodicals, but a few revisions and additions have been made. The essays are equally divided between the scientific medical and the historical or literary medical subjects. The volume, which is dedicated to the Mayo brothers, opens with the Murphy memorial oration. The type, a heavy face, easily readable, is artistic and the volume is quite suitable as a gift book.

Medicolegal

Barred Testimony of Physician and of Assistant

(*Manufacturers' Life Ins. Co. v. Brennan et al. (U. S.), 270 Fed. R. 173*)

The United States Circuit Court of Appeals, First Circuit, says that the Porto Rico statute relative to physicians as witnesses was obviously intended to be so framed as to avoid the doubts and difficulties encountered by various courts in the United States, in construing and applying earlier analogous enactments, while protecting in all essential particulars the privilege grounded on the confidential relation of physician and patient. Whether perfection in that regard has been attained may well be doubted. The statute provides, among other things, that:

A physician or surgeon or the assistant of either of them cannot, without the consent of the patients, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable the physician or surgeon to prescribe or act for the patient; but this subdivision does not apply in an action between a physician or surgeon and his patients in which the treatment of the patient by the physician or surgeon is in issue. And provided, that a physician or surgeon is competent to testify as to the cause of the death of any person. . . . In an action brought by the beneficiary to recover on a policy of life insurance, taken out by the person whose life was insured, a physician or surgeon may, with the consent of the beneficiary, testify as to any information acquired by him in attending the deceased, but must not be compelled to so testify.

In this case, which was an action brought by the beneficiaries on a life insurance policy, a physician testified that he had attended the insured, one Brennan, seven or eight times, including two or three times during his last sickness; also, without objection, that he had certified that the cause of the insured's death was pulmonary tuberculosis. Counsel for the insurance company then addressed to the physician as an expert a series of questions intended to bring out the reasons for his opinion that the insured died of pulmonary tuberculosis. In affirming a judgment in favor of the beneficiaries, the court holds that a ruling was right, excluding, on objection, such questions. There was no evidence warranting a finding or ruling that the beneficiaries had waived their rights under the statute. It was equally plain that, if the physician had been permitted to answer the questions, or, as it was said, to testify at length and fully as to the cause of death of the insured, he would have grounded his testimony in large part, if not entirely, on information acquired by him in attending the insured as his patient, and presumably necessary to enable him to prescribe for the patient. The proviso "that a physician or surgeon is competent to testify as to the cause of the death of any person" is not to be construed as admitting evidence, not only of the cause of death, but of all the reasons which led the attending physician to the conclusion stated.

The court also holds that where a physician, who was a bacteriologist employed in laboratory work as an intern in a hospital, was called on by the insured to make an examination of his sputum, the testimony of such physician tending to show that the sputum indicated tuberculosis was, on a motion therefor, properly stricken from the record, as the statute required the exclusion of the evidence, the insured having been brought to him by the medical director of the hospital, who as a physician had been consulted by the insured and who testified that the bacteriologist was an assistant under his direction, as to any patient coming to the hospital.

Right to Sue Employer for Requested Services

(*Feldstein v. Buick Motor Co. (N. Y.), 187 N. Y. Supp. 417*)

The Supreme Court of New York, Appellate Term Department, says that its investigation failed to disclose any case in which the precise question here presented had been passed on, nor did counsel cite any apposite authorities. This action was brought by the plaintiff, a physician, to recover the reasonable value of professional services he rendered at the request of the defendant's superintendent to several of the defendant's employees, who were injured in the course of their employment. The defendant resisted the claim, contending that under the workmen's compensation law of New York State the plaintiff's exclusive remedy to recover the

money value of his services was by application to the industrial commission, on whom the law imposed the duty of fixing the plaintiff's fees, and hence that the municipal court in which this action was brought had no jurisdiction over an action of this character. There was no dispute as to the rendition of the services, nor as to their reasonable value. Unconvinced by the defendant's legal contention, the municipal court rendered judgment for the plaintiff, which is here affirmed.

The facts and the law involved in a case wherein an employee attempted in an action at common law to enforce her claim against her employer for medical services, when the employer had refused to provide any, had no application to the case at bar. Here the employer contracted for the plaintiff's services, not the employee. Here the physician was endeavoring to enforce his claim against the employer. Might he enforce his claim by an action at common law, or was he by statute restricted to an application before the industrial commission for the fixation of his fees?

The compensation law requires that an injured employee be given necessary medical services, when injured in the course of his employment. That duty primarily falls on the employer. If he refuses the employee's request for such aid, or neglects to furnish the proper service, the employee may select his own physician. Manifestly, therefore, the defendant here was legally obligated to furnish the services to its injured employees for the value of which the plaintiff sought to recover in the instant case. Read in the light of the legislative intent and purpose, it seems clear that the provision of the law that "all fees and other charges for such treatment and services shall be subject to regulation by the commission" has reference only to fees and charges incurred by the working man for medical treatment, when the employer refuses or neglects to provide such treatment. No attempt to regulate private arrangements entered into between the employer and the physician he might select is either expressly or by implication to be spelled out of its provisions, and wisely so, for in no way could that be a matter of public concern. Nor is there any plan or schedule set forth for enforcement thereof. Recourse to a court of law therefore follows as the sole remedy, in the absence of a proper, expressed and comprehensive provision for enforcement under the act. It is clear, therefore, that when the physician's claim is based solely on an agreement with the employer, and is not a part of the injured workman's claim for compensation, the compensation commission is without legal authority to fix the fee and enforce it, and the physician still retains his right to prosecute his claim in a common-law action.

Admissibility of Physical Demonstrations in Court

(*Friedler v. Heckler (Conn.), 112 Atl. R. 651*)

The Supreme Court of Errors of Connecticut says that the physical demonstration before the jury of alleged muscular limitations is permissible within the limits of sound judicial discretion. When the demonstration amounts only to the use of the injured party as an exhibit to display some relevant fact or condition already testified to, whose existence or non-existence is apparent on inspection, no oath is required. But when the demonstration is carried to the point of using the injured party as a witness to prove the truth of a material and disputed fact by inarticulate muscular contractions instead of by words, it ought to be conducted under the sanction of an oath. When it may be doubted whether the injured party is a competent witness, the necessary sanction may be provided by causing the demonstration to be conducted by a properly qualified witness, who thus makes it a part of his own testimony. In this personal injury case error was assigned in permitting the plaintiff's attorney to exhibit her before the jury and question her and direct her, she not being under oath and incapable of taking oath, being but a child about 5½ years old. The incident occurred while a physician was on the witness stand, testifying as to the extent and character of the plaintiff's injuries. He had already testified that a scar above her left eye tended to pull the eyelid upward so that the lid did not cover the eye completely, especially during sleep; but added that the child could close her eye with forcible constriction fairly well. Thereupon the plaintiff's counsel called the little girl to him and

asked her to show the jury to what extent she could close her eye. Even assuming that the performance had an evidential value due to the conduct of the child herself, she being too young to understand the nature of an oath, the court thinks that the demonstration might be regarded as a part of the physician's testimony and under the sanction of his oath. It was claimed and admitted on that ground, and properly so, for if the child's conduct before the jury did not correspond with the physician's testimony as to her physical capacity, the insincerity of her performance could have been developed on his cross-examination. Moreover, immediately after the alleged offending ruling was made, the trial court suggested that it would be better to let the physician demonstrate, and thereupon he took the child in hand, and without further objection proceeded to demonstrate her control over the muscles of her eye. If, therefore, it be assumed that the original performance was evidential and not under oath, any error in failing to direct the jury to disregard it was cured by the immediate repetition of the same performance under the physician's oath and without objection.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Colorado State Medical Society, Pueblo, Oct. 5-7.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.

KENTUCKY STATE MEDICAL ASSOCIATION

Seventy-First Annual Meeting, held at Louisville, Sept. 19-22, 1921.

The President, DR. J. A. STUCKY, Lexington, in the Chair

SYMPOSIUM ON MALIGNANCY

Cancer of the Breast

DR. J. GARLAND SHERRILL, Louisville: The mortality from cancer of the breast has increased within recent years (63 per thousand in 1909 to 81 per thousand in 1915, from the United States registration area), particularly in the centers of population. This increase is due, in part, to more accurate diagnoses and registration, and, in part, to a rather evident increase in the disease. The subject of mammary neoplasms is worthy of careful consideration for two special reasons: (1) to urge on the profession the necessity of a campaign for education of the public, so that these patients may promptly come under skilful surgical care, and (2) to emphasize the fact that the diagnosis of breast cancer in the early stages is by no means easy even to those most experienced in such work.

Treatment of Malignant Uterine Conditions with Radium

DR. WOOLFOLK BARROW, Lexington: I have followed the advice of Cameron of using 100 mg. of radium element, 50 mg. inside the uterus, and 50 mg. across the cervix, thereby obtaining a maximum dosage by cross firing. The radium is held in position by gauze packing in the vagina. A large amount of this gauze is used, as it not only holds the radium in position, but it also pushes away the bladder and rectum, which is necessary in preventing a burn of these structures. The time of application depends on the extent, depth and characteristics of the cancer. My results in these cases have been gratifying. I believe that radium is the method of

choice in every case of cancer of the cervix regardless of the extent of the cancer.

Malignancy of the Uterus

DR. LOUIS FRANK, Louisville: In early carcinoma of the cervix, although radical operation continues to be a justifiable procedure, as good, if not better, results, in view of the primary mortality, are obtained by radium treatment. All borderline cases should be treated with radium. Late cases may be improved and palliated by radium as by no other means at our command. If the five year period of curability is to be accepted as indicating a cure, then the results of radium treatment surpass by far those obtained by the profession at large in the treatment of cancer of the cervix by surgical means.

Necessity for Early Recognition of Cancer of Gastro-Intestinal Tract

DR. JOHN H. BLACKBURN, Bowling Green: If any material improvement is to be made in our treatment of cancer of these parts, it must come from an earlier diagnosis and earlier operative treatment. In any case with a suspicious history of stomach trouble, the methods of diagnosis are physical examination, gastric analysis, and roentgen-ray examination. Cancer of the sigmoid and rectum can be diagnosed by the local and general symptoms, by the history, physical examination and roentgen-ray examination. When all the means of diagnosis afford a well founded suspicion of cancer in the stomach or intestine, the abdomen should be opened and proper surgical removal of the tumor done.

Malignancy of the Rectum

DR. BERNARD ASMAN, Louisville: That prevalence of rectal malignancy is greater than heretofore has been generally believed. The early symptoms are not always indicative, and diagnosis is often delayed. Investigation of the rectal interior should be made a routine part of every general examination. Precancerous lesions of the rectum should receive adequate early treatment to prevent malignant transformation. In operable cases of malignancy of the rectum, the proper treatment is radical removal; but radium and the roentgen ray are useful in preventing or limiting metastasis. Preliminary celiotomy and temporary or permanent colostomy should be made in practically every case of rectal cancer. When the disease has already progressed to an inoperable stage, palliative treatment is indicated, the original neoplasm being allowed to remain undisturbed.

Diagnosis of Urologic Diseases

DR. WILLIAM T. BRIGGS, Lexington: Previous infections may explain etiologically urinary pathology. Trauma is often the cause of movable kidney, hydronephrosis and perinephritic abscess. Urinary disturbances in the past should be considered as having a close rather than remote relationship to the present illness. Pain may point unmistakably to the urinary tract or it may simulate closely pain seen in disease of the gallbladder, the appendix, or other abdominal organ. It may even effect the upper extremities. Pain in the renal area occasionally occurs in prostatitis and vesiculitis. Almost any renal or vesical pathology may cause frequent urination, so its presence simply suggests the upper urinary tract, but it is well to remember that it is more noticeable at night in early renal tuberculosis, prostatic hypertrophy and pyelitis. Rectal examination with a woven catheter in the prostatic urethra is the best way to diagnose cancer of the prostate since cancer usually originates in the posterior lobe. With cystograms a diagnosis of vesical diverticula is often possible when cystoscopy is unsatisfactory, and in cancer of the bladder a filling defect can often be seen at the location of the tumor.

Treatment of Malignant Conditions with Radium

DR. WILLIAM J. YOUNG, Louisville: Radium is indicated in the treatment of both precancerous and cancerous cervix lesions; also in internal or deep malignancies, with certain reservations, not to supplant surgery, but as an important adjunct. In malignancy of the uterus, surgery is preferable. In cancer involving the mouth, nares, nasopharynx, esophagus, stomach, breast, urinary bladder, prostate and rectum, benefit

has been derived from the application of radium and the roentgen ray. In cutaneous lesions radium is the treatment *par excellence*.

Surgical Treatment of Certain Types of Dyspepsia

DR. STUART MCGUIRE, Richmond, Va.: The unsatisfactory results which sometimes follow operations for the cure of dyspepsia may be classed under four heads: (1) failure to recognize the true cause of the symptoms; (2) failure to apply the proper technic to meet the indications; (3) failure of surgery to develop a satisfactory operation to correct certain conditions, and (4) failure properly to direct and supervise the patient's posthospital treatment. The postoperative treatment of patients is carried out during their convalescence at the hospital under the supervision of the surgeon. The posthospital treatment is continued after their return home under the direction of their family physician. Only by cordial cooperation between surgeon and physician can the best results be secured for these patients.

Diagnosis and Pathology of Bladder Tumors

DR. HERBERT BRONNER, Louisville: Hematuria, especially of the painless variety, should be regarded as a dangerous condition until proved otherwise. Prompt cystoscopy should be resorted to in all such cases in order to make an early diagnosis. Before deciding on the best operative procedure, we should endeavor to determine the pathology by histologic examination, cystoscopic picture, results of high frequency treatment and palpatory signs.

Surgical Treatment of Goiter

DR. JOHN R. WATHEN, Louisville: If we wish to obtain the highest percentage of permanently cured or markedly improved patients and also keep our mortality at the lowest figure, we should (1) operate on cystic and adenomatous goiters before they become so large as to encroach on the trachea and produce dyspnea or degenerate into the toxic types from long standing; (2) we should study more carefully our exophthalmic cases and prepare them properly before we even attempt to do a preliminary pole ligation as a step in advance of a later more radical operation; (3) we should give toxic adenomas a still more careful study and look far beyond the enlarged thyroid for degenerative changes in the cardiovascular system and important organs, as the liver and the kidneys.

Newer Fads of Obstetrics

DR. EDWARD SPEIDEL, Louisville: True conservatism consists in being thoroughly posted on the condition of the patient in labor, allowing nature a reasonable time to effect a delivery, but using proper interference at once, the moment there is a hitch. All of the newer fads are sponsored by men who stand high in the profession, and it is reasonable to suppose that an obstetric expert in ideal surroundings can with impunity attempt things that cannot be imitated by the general practitioner in the home without assistance.

Treatment of Neurosyphilis

DR. H. J. FARBACH, Louisville: Prevention of neurosyphilis depends on the physician who first treats the patient. Spinal puncture should always be made and the fluid examined. In no other way can the diagnosis be perfected. Early diagnosis is imperative to secure the best ultimate results. Treatment is both specific and general. Cases may be divided into three classes: (a) ill-defined types; (b) tabes and (c) paresis. The ill-defined types are best treated by intravenous neo-arsphenamin and spinal drainage. In tabes and paresis the Swift-Ellis method should be employed.

Blood Transfusion

DR. J. ROWAN MORRISON, Louisville: The conditions in which blood transfusions are indicated may be epitomized as being those which indicate the necessity of restoring the lost or impaired body tissue (blood) by a homologous transplant. The definite effects of transfused blood are restoration of the bulk of the circulating fluid; provision of oxygen and assimilable pabulum for tissues; increase of the coagulability; stimulation of the hematopoietic organs, and increase of resistance to infection by its antitoxic and bactericidal prop-

erties. Transfusion is indicated in hemorrhage, whether medical or surgical, and such conditions of poisoned blood as carbon dioxide poison, chronic hemorrhage or chronic devitalizing state of the blood, such as occurs in carcinoma, in chronic nephritis, pernicious anemia and the leukemias. It is indicated in the acute toxic septic conditions. It is important to select a donor as regards health and type of blood. As to methods of transfusion, apparently the eitrated method gives the best results to the majority of operators, although the Kimpton tube and such methods offer a safe and effective means of unaltered blood when the donor is willing to make the sacrifice for such method.

Immediate Repair of Lacerations Versus Delay

DR. ALICE N. PICKETT, Louisville: The immediate repair of lacerations is advocated on the delivery table in clean cases when the woman's condition is good, and when it is believed that we are so equipped as reasonably to expect good results. When such favorable conditions do not exist, the repairs are best done within thirty-six hours, which repairs can be justly classified as immediate.

Pellagra, with Special Reference to the Pathologic Evidence of Infection

DR. B. E. GIANNINI, Kenvir: The pathologic evidence which shows that pellagra is infectious may be thus summed up: (1) a relative increase of lymphocytes and a lymphatic infiltration of the brain with mononuclear cells; (2) pellagra shows an increase in lymphocytes of the cerebrospinal fluid; (3) the disease shows at certain stages a marked leukocytosis similar to that in malaria; (4) pellagra is benefited by arsenic treatment; (5) the nervous system is involved centrally. Pellagra, like leprosy, has peripheral nerve formations, burning numbness and pain; (6) pellagra, like malaria, shows a complete absence of eosinophilia; (7) diarrhea is a characteristic of infectious diseases rather than chronic intoxication, as illustrated by cholera and some forms of malarial fever; (8) pellagra produces changes in the eye and often the formation of cataracts.

Colitis in Children

DR. PHILIP F. BARBOUR, Louisville: This disease in children is essentially an inflammation of the mucosa of the colon, but unfortunately it is not always limited to the mucosa nor does it confine itself to the colon, but usually involves also the ileum, sigmoid flexure, and even other portions of the intestinal canal directly or through the sympathetic system. The symptoms naturally vary with the location, extent, intensity, etc., of the inflammation, but, in general, the characteristic features will be the presence of mucus in the stools mixed with more or less blood, and accompanied by toxemia and tenesmus. Toxemia and tenesmus occur only when there is an involvement of the sigmoid flexure and the rectum, and vary in severity with the intensity of the local infection. Antiseptics have a slight and rather a disappointing action on intestinal bacteria. Those which are not also constipating, such as red mercuric iodid or mercuric chlorid in small doses, sodium sulphocarbonate, etc., may be used. The acidophilic bacteria, in conjunction with a carbohydrate diet, will be of benefit in cases of infection by the bacillus of dysentery. If the gas bacillus is present, these would be contraindicated and the diet should be protein. Milk, being a mixed food, should be stopped immediately on the beginning of any kind of diarrhea. If the child has suffered from a prolonged and severe attack, it may be necessary cautiously to give boiled skimmed milk, protein or buttermilk according to tolerance.

Rectal Affections Observed in Children

DR. GRANVILLE S. HANES, Louisville: Prolapse of the rectum and rectal polypi are observed more frequently in children than in adults. Practically all prolapses in children yield to treatment. A polyp that might never be detected with the finger may be easily seen through the proctoscope. Most children who are unable to retain urine over normal periods of time and do not have some disease or unnatural condition of the genito-urinary system have a deep-seated infection in the anterior rectal wall which is responsible for the frequent urination.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Dermatology and Syphilology, Chicago

September, 1921, 4, No. 3

- Research Problems in Dermatology. J. F. Schamberg, Philadelphia.—p. 293.
- Sachs-Georgi Reaction in Spinal Fluid of Patients with Syphilis. W. W. Harryman, Ann Arbor, Mich.—p. 299.
- Recklinghausen's Disease: Its Relation to Endocrine System. O. L. Levin, New York.—p. 303.
- Radium Technic in Treatment of Malignant Diseases of Skin. D. Quick, New York.—p. 322.
- Case of Multiple Benign Sarcoid of Boeck-Darier-Roussy. C. W. Finnerud, Chicago.—p. 342.
- Four Cases of Lichenoid Trichophytide. C. M. Williams, New York.—p. 353.
- Optimum Conditions of Fixation of Complement in Wassermann Test. R. L. Kahn, Lansing, Mich.—p. 358.
- Experimental Verification of Significance of Delayed Negative Wassermann Reaction. R. R. Mellon and P. M. Avery, Rochester, N. Y.—p. 363.
- Onychia Due to *Bacillus Coli Communis*. L. Hollander, Pittsburgh.—p. 366.
- Treatment of Larva Migrans. L. W. Ketron, Baltimore.—p. 368.

Recklinghausen's Disease.—Levin believes that Recklinghausen's disease is a complex of cutaneous and general symptoms depending essentially for its etiology on endocrine dysfunction.

Multiple Benign Sarcoid.—The case reported by Finnerud is said to be of special interest because (1) it is associated with bone involvement; (2) it is of mixed type (Boeck and Darier-Roussy); (3) there are no definite concomitant tuberculous findings; (4) there is no response to prolonged therapy of the varieties generally employed in these cases with some or much success. The histologic picture is practically unique, and because it so closely resembled that of a noncaseating tuberculous process, the greatest amount of effort has been directed toward isolation of the tubercle bacillus. A bibliography of the pertinent literature is appended to this article.

Colon *Bacillus* Onychia.—Two cases of onychia are cited by Hollander in which cultures from the purulent material obtained from the nail bed yielded practically a pure strain of *Bacillus coli-communis*. These two cases permit the assumption of two different routes of conveyance of the infecting organism. The first case, presenting no general symptomatology and rapid relief after surgical interference, may have been a contact infection, while the second case, an autogenous one, through the hemotogenous route.

Treatment of Larva Migrans.—A case of larva migrans is reported by Ketron in which two insects were present in the sole of one foot. Both insects were destroyed by once freezing a 25 cent-sized area around the advancing end of the burrow.

Archives of Neurology and Psychiatry, Chicago

September, 1921, 6, No. 3

- Neurologic Dilemma. S. I. Schwab, St. Louis.—p. 255.
- Intracranial Telangiectasis. E. M. Hammes, St. Paul.—p. 263.
- Contrast Between Brain Lesions Produced by Lead and Other Inorganic Poisons and Those Caused by Epidemic Encephalitis. G. B. Hassin, Chicago.—p. 268.
- Studies in Asymptomatic Neurosyphilis. I. A. Tentative Classification of Early Asymptomatic Neurosyphilis. A. Keidel and J. E. Moore, Baltimore.—p. 286.
- Comparative Study of Sugar Content of Spinal Fluid in Diseases of Nervous System. L. D. Stevenson, St. Louis.—p. 292.
- Epidemic Encephalitis (Lethargic Encephalitis). L. B. Hohman, Baltimore.—p. 295.

Intracranial Telangiectasis.—Two cases of probable cerebral telangiectasis are reported by Hammes. In one case a diagnosis of jacksonian epilepsy due to irritation of the right motor region, cause undetermined, was made and craniotomy was performed. Enormously dilated blood vessels were found on the pia over the right motor region, arranged in the form of an irregular circle. These were ligated in four places and the dura was closed. During the next twenty-four hours the patient had twelve convulsions of such severity that chloroform had to be administered. The following night he had two more and was then placed on two-thirds grain luminal

three time a day. Since then he has had only one unconscious seizure but at about weekly intervals he has had twitching of the left arm with blurred vision lasting a few minutes. In the second case a diagnosis of beginning dementia praecox or of a cyst secondary to the trauma in the right frontal region was made. The dura was found adherent to the skull. The dura appeared bluish, which was due to a marked angiomatous condition on the surface of the brain cortex. This mass of blood vessels covered the entire operation field and appeared like a nest of bluish angeworms. Vessels were ligated in several places; bleeding was profuse but easily controlled. The patient made an uneventful recovery both physically and mentally.

Psychosis of Epidemic Encephalitis.—Hohman analyzes the psychotic features of epidemic encephalitis as they have been observed in a group of twenty-three cases. A study of the psychotic data has made diagnosis possible in some patients who presented few neurologic signs, and the mental picture has been found to offer valuable confirmatory evidence in doubtful cases with neurologic findings. Several characteristic symptoms have been made out as well as certain general reaction types. While the reaction types are not distinctive and decisive, they are often suggestive and helpful. Nine syndromes are presented in the order of their diagnostic importance.

Boston Medical and Surgical Journal

Sept. 8, 1921, 185, No. 10

- *Reduction of Hypertension in Unusually Difficult Case by Means of "Salt-Free" Diet. M. J. Konikow and M. Smith, Boston.—p. 281.
- Differential Diagnosis Between Tuberculosis and Certain Other Chronic Pulmonary Infections with Special Reference to Late Effects of Gas Poisoning and Influenza. J. B. Hawes, Boston.—p. 291.
- Psychiatric Aspects of Epidemic Encephalitis. H. R. Stedman, Boston.—p. 295.

Hypertension Reduced by "Salt-Free" Diet.—Konikow and Smith cite the case of a woman who, at the age of 30, after giving birth to her only child, was operated on for tuberculous salpingitis and localized tuberculous peritonitis, when both tubes and ovaries were removed. Notwithstanding the character of this operation the patient continued to menstruate for eight years afterward, when the menopause occurred. The patient's troubles began with the established menopause. She began to suffer frequently with rheumatoid, muscular and sometimes obscure pains in the joints and many other parts of the body; annoying itch; insomnia and headaches; pulse invariably above 80, frequently reaching 100, accompanied by a normal temperature. Physical examination revealed nothing abnormal about the chest or abdomen; urine, negative; Wassermann, negative; systolic blood pressure, from 230 to 275 mm. All attempts to reduce the hypertension failed until the patient contracted an influenzal pneumonia, during which the systolic pressure began to fall steadily until at the height of the fever it reached 130 mm., and on her complete recovery rapidly rose again to the usual height. The patient was put on a salt-poor diet, i. e., a diet made up of foods containing a minimum amount of chlorid. The systolic blood pressure steadily and definitely fell to 170 mm. on the last day of the "salt-free" diet, and rapidly rose again with the reintroduction of the previous unrestricted diet. These observations support the view that lessened intake of salt is a lowering factor in hypertension cases.

Sept. 15, 1921, 185, No. 11

- Legislative Aspects of Vaccination. S. B. Woodward, Worcester.—p. 307.
- Cancer. J. E. Talbot, Worcester.—p. 310.
- Etiology of Hysteria. M. Baff, Worcester.—p. 313.
- *Two Cases of Blastomycosis. W. B. Howes and P. F. Morse, Detroit.—p. 315.
- "Surgical Aspects of Abdominal Tuberculosis in Children." W. E. Ladd, Boston.—p. 317.
- Value of Quantitative Perimetry in Study of Postethmoidal Sphenoidal Sinusitis Causing Visual Defects. C. B. Walker, Springfield, Mass.—p. 321.
- *Treatment of Fracture of Neck of Scapula. F. J. Cotton and W. J. Brickley, Boston.—p. 326.

Blastomycosis of Lung.—Howes and Morse report two cases of blastomycosis in which there was pulmonary as well as cutaneous involvement. In one of the cases there was also pericardial blastomycosis. The spleen was diffusely spotted over with tubercle-like points varying in size from a pinhead

to a pea, but on pressure exuding the pinpoint-like droplets of pus. There were a few very early areas in the right kidney, and the right suprarenal had three such spots in its cortex.

Fracture of Neck of Scapula.—In the case cited by Cotton and Brickly there was no trace of the classical picture started by Astley Cooper, of a shoulder dropping downward, replaceable, but tending to fall away again from gravity pull. There was a displacement inward with the shoulder obviously driven in, and held in the abnormal position by muscle spasm. The patient was etherized and the deformity reduced by leverage of the humerus across the fist in the axilla as a fulcrum. Reduction was obvious. Before she came out of the ether, a heavy wedge pad was set in the axilla, the arm was brought to the side and held with an adhesive swathe as tightly as might be without seriously checking the circulation. A pillow rolled lengthwise was strapped vertically to the middle of the upper back with adhesive, and a sandbag, loosely filled, weighing perhaps 3 pounds, laid on the front of the shoulder. The mattress beneath, originally too flexible, was kept flat over "bed boards." This apparatus was kept on not quite three weeks, requiring a considerable use of hypnotics to render it even tolerable. Then the patient was allowed up, still with the axillary pad and swathe. Massage regularly, after two weeks, and motion after three weeks brought about a recovery substantially complete within eight weeks. There is now no deformity, limitation of motion or weakness resulting.

Journal of Experimental Medicine, Baltimore

Sept. 1, 1921, 34, No. 3

- *Studies on Complement Fixation. I. Rate of Fixation of Complement at Different Temperatures. R. L. Kahn, Lansing, Mich.—p. 217.
- Measurement of Growth of Tissues in Vitro. A. H. Ebeling, New York.—p. 231.
- *Studies on Pneumococcus Immunity. I. Active Immunization of Monkeys Against Pneumococcus Type I Pneumonia with Pneumococcus Type I Vaccine. R. L. Cecil and G. I. Steffen, Washington, D. C.—p. 245.
- Development of Heterakis Papillosa in Fowl. H. W. Graybill, Princeton, N. J.—p. 259.
- Lymphopenia Following Exposure of Rats to "Soft" Roentgen Rays and S-Rays of Radium. J. C. Mottram and S. Russ, London.—p. 271.
- *Thyroidectomy and Parathyroidectomy with Relation to Development of Immune Substances. E. E. Ecker and H. Goldblatt, Cleveland.—p. 275.
- Christispira in North American Shellfish. Spirillum Found in Oysters. H. Noguchi, New York.—p. 295.

Rate of Fixation of Complement.—It is shown by Kahn that by complement fixation studies with protein antigens and specific immune rabbit serums the rate of fixation of complement is determined by the concentration of antibodies in the immune serums, that the greater part of fixation of complement takes place during the first hour, and that fixation is practically completed at the end of four hours at icebox temperature. It is further shown that the rate of fixation of complement is practically the same as icebox, room, and water bath temperatures, the tendency being for slightly stronger fixation at icebox temperature.

Pneumococcus Immunity.—Cecil and Steffen assert that the subcutaneous inoculation of monkeys with three large doses of pneumococcus Type I vaccine confers on them a complete immunity against experimental pneumococcus Type I pneumonia. The intravenous inoculation of small doses of pneumococcus Type I vaccine also confers complete immunity against the homologous type of pneumonia. Specific protective bodies may or may not be present in the serum of monkeys vaccinated against pneumococcus Type I. There appears to be no intimate relation between active immunity against pneumonia and the presence or absence of protective substances in the serum of the vaccinated animal.

Effect of Thyroidectomy on Immune Body Production.—Ecker and Goldblatt found that after thyroidectomy with partial parathyroidectomy the maximum and average hemolytic titers of the serum of rabbits injected intravenously with sheep blood are equal to or higher than those of normal animals similarly injected. Thyroidectomy with partial parathyroidectomy does not inhibit antibody production. This fact is in accord with the results of Garibaldi, Launoy and Levy-Bruhl, Lerda and Diczy, and others. Thyroidectomy with partial parathyroidectomy does not cause serious dis-

turbance in the adult rabbit. If the operation is performed properly, the animals survive and only moderate cachexia develops in time. After complete thyroparathyroidectomy a small portion of the animals survive even after developing very severe tetany. Those that recover do not show further signs of serious disturbance, but in time develop a moderate degree of cachexia no greater than that of the thyroidectomized animals. Thyroparathyroidectomized rabbits develop antishoop hemolysin of a uniformly low titer—on an average one fifth that of the controls. Injection of bovine blood into rabbits that survived complete thyroparathyroidectomy from one to two months previously results in the production of hemolysin of a uniformly low titer compared with that of normal animals similarly treated.

Journal of Industrial Hygiene, Boston

July, 1921, 3, No. 3

- Physiologic Effects of Automobile Exhaust Gas and Standards of Ventilation for Brief Exposures. Y. Henderson, H. W. Haggard, M. C. Teague, A. L. Prince and R. M. Wunderlich.—p. 79.
- *Influence of Fatigue on Health and Longevity. H. M. Vernon.—p. 93.
- *Syphilis and Industry. A. N. Thomson.—p. 99.
- *Trinitrotoluene as Industrial Poison. A. Hamilton.—p. 102.

Influence of Fatigue on Health.—The data presented by Vernon appear to indicate that in men of good physique the fatigue of heavy work has, as a rule, but little direct effect on sickness and longevity. It is probable that the excessively exhausting work of the steel melters forms an exception to this dictum, but it seems highly probable that the heavy work of the iron puddlers, of the tinplate mill men, and of the rolling mill men has no injurious effect on health except indirectly, when it induces the men to sit about in damp clothes. The men may be working nearly to the limit of their strength, but the mere fact that they have to continue on the same class of work week after week and year after year must deter them from overstraining themselves, unless they do it unwittingly.

Syphilis and Industry.—If any one, or any combination, of the following easily observable signals can be found, Thomson asserts that further examination for the detection of syphilis is necessary: ataxic gait; mental slowness; defective hearing; voice defects; pupils, irregular, unequal or reacting abnormally to light and accommodation; enlargement of the lymph glands, especially of the epitrochlear nodes; interstitial glossitis; leukoplakia; Hutchinson's teeth; scars not obviously due to injury; cardiac conditions; and altered reflexes, especially knee jerk.

Trinitrotoluene Poisoning.—T. N. T. is absorbed chiefly through the skin and, therefore, the most important part of the prevention of T. N. T. sickness is the protection of the worker against direct contact with it. Next in importance to cleanliness of the premises comes the provision of clean working clothes, socks, and gloves. Examination showed that T. N. T. could probably be continually absorbed from dirty gloves and dirty overalls. The necessity for providing ample washing facilities, hot and cold running water, soap and towels, and the time to use them, is emphasized by Hamilton, not because it is not perfectly obvious in connection with such a poison as T. N. T., but because it was ignored in several of the T. N. T. plants during the war and is ignored in some of the coal-tar dye works even at the present time.

Journal of Infectious Diseases, Chicago

September, 1921, 29, No. 3

- *Experimental Streptococcus Pneumonia and Empyema. III. F. P. Gay and B. Rhodes, Berkeley, Calif.—p. 225.
- Methods of Isolation and Cultivation of Anaerobic Bacteria. A. I. Kendall, M. Cook and M. Ryan, Chicago.—p. 227.
- Production of Ammonia and Carbon Dioxid by Streptococci. H. Ayers, P. Rupp and C. S. Mudge, Washington, D. C.—p. 235.
- *Antirabic Vaccination by Means of Desiccated Virus. R. D'Aunoy, New Orleans.—p. 261.
- "Blackhead" in Turkeys. E. E. Tyzzer, M. Fabian and N. C. Foot, Boston.—p. 268.
- Rapid Method of Determining Presence and Type of Botulinus Toxin in Contaminated Foods. P. F. Orr, Boston.—p. 287.
- Negri Bodies in Salivary Glands and Other Organs in Rabies. L. Jackson, Chicago.—p. 291.
- Protozoan Parasite in Salivary Gland of Dog. L. Jackson, Chicago.—p. 302.
- Virulent Micrococcus Catarrhalis in Influenza. P. F. Clark and E. J. Murphy, Madison, Wis.—p. 306.

On Claim That Some Typhoid-Paratyphoid Strains Survive Milk Pasteurization. C. Krumwiede and W. C. Noble, New York.—p. 310.
Bacteriology of Blood of Dogs with Eck Fistula. D. J. Davis and S. A. Mathews, Chicago.—p. 313.

Experimental Streptococcus Pneumonia and Empyema.—Experimental pneumonia may be produced in the rabbit by bronchial insufflation of very small amounts of a passage culture of hemolytic streptococcus. Histologically this pneumonia is lobular in distribution, necrotizing in effect, does not resolve readily, and is characterized by peribronchial and perivascular edema and later infiltration of mononuclear cells (interstitial bronchopneumonia). It is quite different in character from the pneumonia produced by the pneumococcus. These differences are further marked by the occurrence of pleurisy with effusion, involving by extension both pleural cavities and the pericardium, in the streptococcus infection. On the other hand, septicemia is the rule with the pneumococcus infection but not with the streptococcus. Both forms resulted fatally. The natural route of infection with the streptococcus seems to be from the alveoli to the pleura, rather than by the lymphatics of the larger bronchi. When injections are made into the pleural cavity, the micro-organisms never penetrate through the pleura into the lung tissue. This would militate against the idea of a lymphatic stream from pleura to hilum. Experiments with an artificial respiration chamber seemed to prove that the streptococcus passes from the lungs to the surface of the pleura in a few minutes. It is evident, however, that conclusions derived from such experiments cannot explain conditions in the living body where it is found that involvement of the pleura takes place in a matter of hours (six to twelve) rather than of minutes.

Desiccated Virus for Antirabic Vaccination.—The Harris method of preparing rabies virus with some modifications has been used by D'Aunoy for six years. Adults are given eleven treatments of a total of 17,750 "minimal infective doses," except in severe penetrating injuries of the head when fifteen treatments of a total of 25,750 "minimal infective doses" are administered. The cases of 1,538 treated patients are reported, 697 injured by animals proved to be rabid. One death following complete treatment is reported. No paralysis or other untoward effects have been noted in the series of patients treated. The results reported, on the basis of comparison with similar reports on the use of the original Pasteur dried cord method, argue for the efficaciousness and safety of the desiccated virus method of prophylactic antirabic vaccination.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1921, 18, No. 2

- Physiologic Action of N-Methylhistamin and of Tetrahydropyrido-3,4-Imidazole ("Imidazolisopiperidin" of Fränkel). H. H. Dale and H. W. Dudley, Hampstead.—p. 103.
*Response to Drugs of Excised Bronchi from Normal and Diseased Animals. D. I. Macht and Giu-Ching Ting, Baltimore.—p. 111.
Epinephrin Hyperglycemia. II. A. L. Tatum, Chicago.—p. 121.
Quantitative Pathologic Studies with Arsenic Compounds. I. Influence of Fasting and Various Diets on Arsphenamin Poisoning and Comparative Toxicity of Arsphenamin Neo-arsphenamin and Para-oxy-meta-aminophenyl-arsenoxid. C. W. Hooper, A. C. Kolls and K. D. Wright, Washington, D. C.—p. 133.
*Effects of Vasomotor Depressants on Volume of Liver. C. W. Edmunds, Ann Arbor, Mich.—p. 155.

Response of Excised Bronchi to Drugs.—Differences in the behavior between bronchial tissue obtained from normal and pathologic lungs have been noted by Macht and Giu-Ching. Normal preparations of bronchial muscle respond promptly and quickly to the action of certain pharmacologic reagents. Bronchial preparations obtained from pathologic lungs even in a very fresh condition, respond to the action of the same drugs much less readily or not at all. This difference in the response between normal and pathologic bronchial preparations would seem to indicate that in the latter case there is an impairment of the normal physiologic properties of bronchial muscle.

Volume of Liver Decreased by Vasomotor Depressants.—Edmunds found that the nitrite group of vasomotor depressants lowers the portal blood pressure and decreases the volume of the liver. These effects are secondary to the changes produced in the general systemic blood pressure. The blood tends to accumulate therefore in other abdominal

organs than the liver in contrast to the condition in anaphylactic shock in dogs and also as a result of certain poisons where the liver drains the remaining abdominal organs. In the case of still other vasodilators, such as the depressant substance in dogs' urine, the exact location of the blood when the action is fully developed is not accurately known. This point, it is stated by Edmunds, is a subject requiring further investigation.

Journal of Physiology, Baltimore

Sept. 1, 1921, 57, No. 2

- Artificial Extrapause of Ventricle of Frog's Heart. S. de Boer, Amsterdam.—p. 179.
Researches of Rhythm and Metabolism of Bled Frog's Heart. S. de Boer, Amsterdam.—p. 189.
*Studies on Brain Stem. V. Carbon Dioxid Excretion After Destruction of Optic Thalamus and Reflex Functions of Thalamus in Body Temperature Regulation. F. T. Rogers and S. D. Wheat, Dallas, Texas.—p. 218.
Physiology of Reproduction in Birds. IX. Relation of Stale Sperm to Fertility and Sex in Ring-Doves. O. Riddle and E. H. Behre, Cold Spring Harbor, N. Y.—p. 228.
Id. X. Inadequate Egg Shells and Early Death of Embryos in Egg. O. Riddle, Cold Spring Harbor, N. Y.—p. 250.
Id. XI. Effects of Feeding Soluble Calcium Salts on Reproductive Secretions and on Total Inorganic Constituents of Egg Shell. O. Riddle and M. C. E. Hanke, Cold Spring Harbor, N. Y.—p. 264.
Id. XII. Relation of Nerve Stimuli to Oviducal Secretions as Indicated by Effects of Atropin and Other Alkaloids. O. Riddle and C. V. King, Cold Spring Harbor, N. Y.—p. 275.
*Comparative Studies of Early Reactions in Spinal Cats Produced by Various Methods. V. Prewitt, New York.—p. 291.
*Visceral Sensory Nervous System. X. Vagus Control of Esophagus. A. J. Carlson and A. B. Luckhardt, Chicago.—p. 299.
Quantitative Studies on Intracellular Respiration. V. Nature of Action of KNC on Paramecium and Planaria, with Experimental Test of Criticism, and Certain Explanations Offered by Child and Others. E. J. Lund, Minneapolis.—p. 336.
Gradients of Vital Staining and Susceptibility in Planaria and Other Forms. J. W. MacArthur, Chicago.—p. 350.

Carbon Dioxid Excretion After Destruction of Optic Thalamus.—It is suggested by Rogers and Wheat, as the result of their study, that reflex changes of skeletal muscle tone and of the sympathetic system induced by stimulation of the temperature nerves of the skin involve the thalamus as an essential part of the functional pathway.

Early Reactions in Spinal Cats.—In general, Prewitt says, the length of life after spinal transection is much greater when the cord is severed between the second and third dorsal segments, when no ligations to control hemorrhage are made, and no artificial respiration are given. Body temperature falls appreciably in cats undergoing spinal transection in the region of the first cervical segment.

Vagus Control of Esophagus.—Data are presented by Carlson and Luckhardt which it is stated afford additional evidence that the primary action of many drugs on visceral motor mechanisms depends on the predominant innervation (motor or inhibitory) of the organs. The data indicate that tonic inhibitory innervation via the vagus nerves play a rôle in the motor control of the esophagus and the cardia. But the conditions found in one animal group or species do not necessarily apply to another group or species, as the degree of differentiation in the motor control from the primitive condition appears to vary greatly in different species.

Kentucky Medical Journal, Bowling Green

July, 1921, 19, No. 7

- Infant Feeding. J. H. Pritchett, Louisville.—p. 375.
Diagnosis and Management of Hyperthyroidism. C. W. Dowden, Louisville.—p. 380.
Goiter. B. F. Van Meter, Lexington.—p. 385.
Control of Milk Supply. J. D. Maguire, Lexington.—p. 391.
Significance of Elevation of Temperature. R. J. Estill, Lexington.—p. 394.
Venereal Prophylaxis. W. E. McWilliams, Stanford.—p. 397.
Nonsurgical Drainage of Gallbladder. C. G. Lucas, Louisville.—p. 398.
Treatment of Eclampsia. E. Speidel, Louisville.—p. 408.
Cesarean Section; Indications; Report of Cases. J. H. Peak, Louisville.—p. 410.
Chronic Parenchymatous Nephritis. H. A. Gilliam, Bardwell.—p. 422.
Multiple Osteochondroma in Mother and Son. J. D. Trawick, Louisville.—p. 424.
Syphilis. B. C. Rose, Bryantsville.—p. 426.
Significance of Acidosis in Children. T. M. Marks, Lexington.—p. 428.
Foreign Body Removed from Nasopharynx. J. R. Peabody, Louisville.—p. 433.
Syphilis of Rectum. G. S. Haynes, Louisville.—p. 434.
Case of Meningitis. I. A. Ledermann, Louisville.—p. 436.
Encephalitis; Case Report. W. A. Jenkins, Louisville.—p. 437.

Laryngoscope, St. Louis

July, 1921, 31, No. 7

- Modern Labyrinthology. R. Barany, Upsala, Sweden.—p. 401.
 Otosclerosis (Idiopathic Degenerative Deafness). A. A. Gray, Glasgow.—p. 422.
 Complications and Sequels of Mastoiditis. E. B. Dench, New York.—p. 429.
 Acoustic Method for Training Deaf. M. A. Goldstein, St. Louis.—p. 444.
 Effect of Methodic Acoustic Exercises on Hearing Organ of Deaf-Mutes. V. Urbantschitsch, Vienna.—p. 477.
 Recent Progress in Surgery of Accessory Sinuses. E. J. Moure, Bordeaux, France.—p. 479.
 Review of Twenty-Five Years' Observation in Plastic Surgery, with Special Reference to Rhinoplasty. J. C. Beck, Chicago.—p. 487.
 Reestablishing Intranasal Drainage of Lachrymal Sac. H. P. Mosher, Boston.—p. 492.
 Cancer of Larynx. St. C. Thomson, London.—p. 522.
 Are There Cases of Foreign Body in Lung Impossible of Bronchoscopic Removal? C. Jackson, Philadelphia.—p. 528.
 Suspension Laryngoscopy and Its Problems. R. C. Lynch, New Orleans.—p. 539.
 Special Forms of Hay Fever and Desensitization. W. Scheppegrell, New Orleans.—p. 549.
 Otolaryngologic Education. D. J. G. Wishart, Toronto.—p. 551.
 Laryngoscope Twenty-Five Years Ago. M. D. Lederman, New York.—p. 570.

Medical Record, New York

Sept. 3, 1921, 100, No. 10

- Thyroid Action and Fever. E. H. P. Ward, White Plains, N. Y.—p. 399.
 Cancer Control. S. W. Little, Rochester, N. Y.—p. 407.
 Myocardium and Heart Murmurs; Case Reports. S. E. Earp, Indianapolis.—p. 410.
 Role of Prostate in Focal Infections. P. S. Pelouze, Philadelphia.—p. 412.
 Writer's Cramp: Its Cause and Cure. W. H. Bates, New York.—p. 415.
 Chlorazene Treatment of Pellagra. J. W. McCready, New York.—p. 417.
 Acute Follicular Tonsillitis. W. W. Griffin, New York.—p. 418.

Sept. 10, 1921, 100, No. 11

- Human Readjustment. (Or Coordination of Structure and Function in Organism as a Whole.) J. M. Taylor, Philadelphia.—p. 441.
 Teaching of Medicine and Therapeutics to Undergraduate Students. T. F. Reilly, New York.—p. 447.
 Aims of Internal Therapeutics. L. R. Grote, University of Halle, Germany.—p. 449.
 Therapeutic Nihilism. F. M. Pottenger, Monrovia, Calif.—p. 451.
 Future of Therapeutics. R. W. Wilcox, New York.—p. 453.
 What Can the Association of Cardiac Clinics Do? R. H. Halsey, New York.—p. 455.
 Role of Radium in Surgery. M. V. Abrams, Brooklyn.—p. 457.
 Important Factor in Use of Protargol in Gonorrhea. M. Huhner, New York.—p. 459.

**Michigan State Medical Society Journal,
Grand Rapids**

July, 1921, 20, No. 7

- Attainment of Certain Ideals in Obstetrics. A. M. Campbell, Grand Rapids.—p. 263.
 Digitalis Therapy. J. B. Whinery, Grand Rapids.—p. 266.
 Peripheral Nerve Injuries. W. T. Dodge, Big Rapids.—p. 268.

September, 1921, 20, No. 9

- Giant Magnet in Ophthalmology. R. Connor, Detroit.—p. 329.
 *Ocular Findings in Cases of Abnormal Basal Metabolic Rate. L. V. Stegman, Battle Creek.—p. 335.
 Sphenoid Sinus. H. L. Simpson, Detroit.—p. 338.
 Indications and Contraindications for Use of Pituitary Extract in Obstetrics. R. S. Cron, Ann Arbor.—p. 340.
 Scarlet Fever Quarantine. W. N. Bracey, Highland Park.—p. 345.
 Psoriasis; Etiology and Treatment. G. Van Rhee, Detroit.—p. 348.
 Surgery of Pancreas. B. M. Davey, Lansing.—p. 350.
 *Sterilization of Nose and Throat Diphtheria Carriers with Ultraviolet Rays. L. C. Donnelly, Detroit.—p. 356.

Ocular Findings and Basal Metabolic Rate.—The ophthalmoscopic finding of a maroon spot edged with pigment in the macular region, or a vacuole in the crystalline lens, prompted Stegman to establish a relationship between this sign and the basal metabolism. An analysis was made of seventy-eight cases, which is here presented. These eighty-nine patients of ages ranging from 12 to 64 had had both a pathologic metabolic rate and a fundus examination. Stegman states that consistently a careful ophthalmoscopic examination has made it possible to "guess" the cases of disordered basal metabolism. In this list are found: seven cases with clear media (four of these were cases of minus metabolism with endemic encephalitis); four vitreous opacities; two remnants of pupillary membranes; two ulcers of the cornea

from smallpox pustules; twenty-two specks or spokes; twenty-two vacuoles; twenty both vacuoles and specks or spokes; sixty-four out of seventy-eight, or 82 per cent. had lens opacities, either vacuoles or striae or spokes; sixty-one were minus rates and seventeen were plus. Every case, except two, that had been sent to the metabolism laboratory because vacuoles were found. Only one patient with vacuoles in the lens and the vacies of hypometabolism returned from the laboratory test with a hypermetabolism rate. On further inquiry, he disclosed the fact that he had been taking iodine for many months.

Diphtheria Carriers Sterilized by Ultraviolet Rays.—Donnelly has treated forty or more chronic nose or throat diphtheria carriers with ultraviolet rays from the Kromayer lamp. All the carriers have been sterilized. The ultraviolet rays are projected onto the tonsils through a hollow metal tube applicator 6 inches long, one-half inch in diameter, with the end slanted so that it fits over the tonsil. The rays are applied directly on all portions of the tonsils for from three to five minutes. From one to three applications may be required to entirely cover each tonsil. The tonsils are treated separately. If the cultures come back positive, the same procedure is repeated, giving a four to six minute dose. In 50 per cent. of the cases, one treatment sufficed to sterilize. Only three or four cases have required a third treatment. None have required four treatments.

New Orleans Medical and Surgical Journal

September, 1921, 74, No. 3

- Removal of Twenty-Penny Wire Nail from Bladder. H. W. E. Walther, New Orleans.—p. 149.
 *Cancer of Appendix: Report of Two Cases. J. M. Perret, New Orleans.—p. 151.
 Unsuspected Sinus Involvement as Sequel to Contagious and Infectious Diseases. E. V. Whitaker, Baton Rouge, La.—p. 155.
 Case of Long-Continued Masturbation in a Girl, Cured by Fright. E. M. Ellison, Washington, D. C.—p. 160.
 Treatment of Urethritis. M. H. Foster, Alexandria.—p. 165.
 *Acute Ileocolitis in Infancy. M. S. Picard, Shreveport.—p. 172.
 Recent Progress in Ophthalmology. C. A. Bahn, New Orleans.—p. 182.
 Gastro-Intestinal Cases. L. W. Fortier and T. T. Gately, New Orleans.—p. 188.
 Treatment of Antepartum Hemorrhage. J. C. Gremillion, Alexandria.—p. 193.
 Surgery of Biliary Tract. J. A. Danna, New Orleans.—p. 196.
 Cholecystostomy vs. Cholecystectomy. E. D. Martin, New Orleans.—p. 204.

Cancer of Appendix.—In one of Perret's cases operation was advised on account of dyspeptic symptoms and dull pains in appendix region. The patient was a woman, aged 22. She made an uneventful recovery and left the hospital on the ninth day. No idea of the malignant condition of the appendix was suspected at time of operation. Microscopic examination showed carcinoma. The second patient, a female, aged 44 years, complained of abdominal pains for two years. Examination showed a large sensitive mass above the appendix region. A diagnosis was made of appendiceal abscess. A large, hard friable mass was found occupying the head of the cecum, the terminal ileum and the appendix which on further examination, Perret says, showed all the typical structural characteristics of a carcinoma.

Cocoa in Acute Ileocolitis in Infants.—Picard places much faith in the value of cocoa as a food in these cases. He says that cocoa seems to have a special affinity and curative action on the lower intestines. He uses a method of feeding recommended by Myer. The child is fed every four hours. At 6 a. m., cocoa; 10 a. m., cocoa and junket; 2 p. m., broth and scraped beef; 6 p. m., cocoa and junket; 10 p. m., cocoa. In twenty-four hours the stool commences to show semisolid fecal contents. On the third or fourth day toast and egg are given. The coca is made with water, a teaspoonful to the cup of water, sweetened with saccharin; at the end of a week, potatoes and baked apples are added. A number of illustrative cases are cited.

Oklahoma State Medical Assn. Journal, Muskogee

August, 1921, 14, No. 8

- Problem of General Practitioner with Summer Babies. R. K. Pember-ton, McAlester.—p. 193.
 Infant Feeding. J. L. Day, Norman.—p. 199.
 Wassermann Reaction Appeal for Standardization. W. Langston, Oklahoma City.—p. 202.
 Cyst of Bartholin's Gland. F. S. Clinton, Tulsa.—p. 204.

Rhode Island Medical Journal, Providence

July, August, September, 1921, 4, Nos. 7, 8, 9

- Problems in Treatment of Diabetes. A. M. Burgess, Providence.—p. 103.
Obstetrics: Two Man Job. P. Appleton, Providence.—p. 108.
Surgery of Salivary Calculi. W. L. Chapman, Providence.—p. 110.
Ocular Tuberculosis. J. W. Leech, Providence.—p. 112.

Tennessee State Medical Association Journal, Nashville

August, 1921, 14, No. 2

- Unusual Obstetric Complications Necessitating Operative Interference. E. T. Newell, Chattanooga.—p. 121.
Gastric and Duodenal Ulcer. J. T. Moore, Algood.—p. 126.
Modern Surgical Operation. C. N. Cowden, Nashville.—p. 130.
Medical Society. J. A. McCulloch, Nashville.—p. 134.
Vertigo. J. J. Shea, Memphis.—p. 138.
Tonometers and Tonometry. J. Green, St. Louis.—p. 141.
Value of Determination of Basal Metabolism. W. H. Cheney and F. B. Bogart, Chattanooga.—p. 149.
Enlarged Prostate: Diagnosis and Management. W. D. Haggard, Nashville.—p. 153.

Operative Obstetric Complications.—The cases reported by Newell are: ruptured uterus, twisted ovarian pedicle, and termoid cyst blocking the pelvic outlet.

Value of Knowing Metabolic Rate.—Cheny and Bogart noted forty-nine cases in which the basal metabolism was determined as a routine in general diagnostic studies. Eight of these cases were definitely diagnosed as hyperthyroidism and one as hypothyroidism.

West Virginia Medical Journal, Huntington

July, 1921, 16, No. 1

- Vital Factors in Control of Cancer. F. L. Hupp, Wheeling.—p. 11.
Primary Factors in Treatment of Mental Diseases. C. W. Sawyer, Marion, Ohio.—p. 21.
Goiter Enlargement of Thyroid. E. R. McIntosh, Elkins.—p. 30.

Wisconsin Medical Journal, Milwaukee

August, 1921, 20, No. 3

- Selection of Operation in Toxic Goiter. S. J. Seeger, Milwaukee.—p. 105.
Cancer Investigation and Experimental Cancer. W. E. Ground, Superior.—p. 107.
Premature Heart Contraction. F. M. Smith, Chicago.—p. 114.
Physiotherapeutic Treatment in War Injuries and Industrial Accidents. J. C. Elsom, Madison.—p. 116.
Epidemic Encephalitis. A. W. Rogers, Oconomowoc.—p. 122.
Internal Secretions of Skin. K. W. Doege, Marshfield.—p. 125.

Internal Secretion of Skin.—From an anatomic and histologic point of view and bearing in mind the tremendous epithelial surface of the rete malpighii, its very intimate relation to the capillary circulation, its abundant nerve supply, as well as its extensive system of lymph spaces, it would seem to Doege that other, perhaps more important, functions than that of excretion and mechanical protection might pertain to this tissue. One might conceive that the living skin has the function, either of furnishing certain substances necessary for the basal metabolism, or to paralyze certain toxins by the product of these substances. Whether its extensive inner surface constitutes the laboratory where metabolic processes go on, changing or destroying the toxic agents, or whether it elaborates a secretion, necessary for proper metabolism, similar to the secretions of the thyroid, suprarenals, and gonads must for the present still be left undecided. The hypothetic assumption of the existence of an internal secretion of the skin is made probable, and the existence of a metabolic and biologic function is made positive, by the contemplation of certain facts. For instance, not only does a close or perhaps compensatory dependency exist between the functions of the various ductless glands themselves, such as thyroids and suprarenals, pituitary body and gonads, but there is evidence also of the existence of an intimate connection between these glands of internal secretion and the skin. Clinical facts make this evident. Perhaps, the most familiar examples are the appearance of myxedema with the loss of thyroid function; the dependency of certain skin eruptions or pigmentations on the sexual glands, pregnancy, puberty and the climacteric period; the appearance of the bluish discoloration of the skin in Addison's disease, an affection of the suprarenals. Again, the fact that many infectious diseases such as measles, diph-

theria, smallpox, spotted fever, and syphilis run their course with a conspicuous and essential involvement of the skin is certainly not without a deeper significance, and points straight to the probable fact that the skin performs an important function in the overcoming of these affections. The established impression that measles and the scarlatina rash must "come out thoroughly" to prevent serious involvement of the inner organs, and that an abundant and well marked secondary and tertiary lesion of the skin in syphilis is a material safeguard against the later affections of the nervous system in this disease, would suggest and justify the assumption of a biologic protective function in the skin. The value of heliotherapy, sun baths, and Alpine light in the treatment of tuberculosis by stimulating the skin and its biologic function (or internal secretion, if you wish) thus becomes not only apparent, but also important, and demands of us as surgeons that we should utilize and exploit it.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

July, 1921, 2, No. 44

- *Lesions of Brachial Plexus Associated with Rudimentary Ribs. P. Sargent.—p. 95.
Structural Laws in Nervous System: Principles of Neurobiotaxis. C. U. A. Kappers, Amsterdam.—p. 125.
*Pathogenesis of Disseminated Sclerosis. J. L. Birley and L. S. Dudgeon.—p. 150.
*Experimental Study of Disseminated Sclerosis. W. E. Gye.—p. 213.
*Case of Myoclonic Encephalomyelitis of Malarial Origin. M. G. Marinesco.—p. 223.
Double Innervation of Striated Muscle. J. T. Wilson.—p. 234.

Rudimentary Ribs and Brachial Plexus Lesions.—Variations in the composition of the brachial plexus Sargent states are apt to be associated with costal abnormalities, prefixation with a seventh cervical rib and postfixation with an abnormal first thoracic rib. There is, however, no regular relationship between the costal and neural anomalies. The results of operative treatment in fifty cases are given, the majority having been traced for a period of from two to twelve years. Pain was cured in nineteen cases, and relieved in eight. Muscular wasting was cured in twelve cases, relieved in twelve, and unrelieved in seven. Vasomotor symptoms were cured in fourteen cases, relieved in six, and unrelieved in two.

Pathogenesis of Disseminated Sclerosis.—Two clinical types of disseminated sclerosis are recognized by Birley and Dudgeon: (a) the remittent type characterized by acute exacerbations at widely varying intervals alternating with quiescent periods, and (b) the chronic progressive type. In the series reported on (thirty-five patients) the proportion of remittent to chronic progressive cases is as six is to one. In early cases of the remittent type, once the acute disturbance has subsided, the patient may present no clinical evidence of organic disease over prolonged periods. The possibility of spontaneous cure cannot therefore be entirely denied. The remittent type in its later stages tends to assume the characteristics of the chronic progressive type. The great bulk of clinical and histologic evidence is opposed to the view that these two types correspond to two different pathologic processes. On the contrary, they are to be regarded as manifestations of one and the same disease, namely, disseminated sclerosis. Cultural and microscopic examination of the cerebrospinal fluid has in our hands thrown no light on the pathogenesis of the disease, and no specific organism has been isolated. The authors' attempts to transmit disseminated sclerosis from man to animals (rabbits) have been unsuccessful. They regard the transmissibility of the disease from man to animals as unproved. The clinical and histologic evidence is overwhelmingly in favor of the view that the morbid process underlying the disease is inflammatory in character.

Cause of Disseminated Sclerosis.—In Gye's opinion disseminated sclerosis is probably an infectious disease. The virus may sometimes be formed in cerebrospinal fluid.

Myoclonic Encephalomyelitis of Malarial Origin.—From the clinical aspect, the slight fever, and the indefinite lymphocytosis, Marinesco thought he was dealing with a case of epidemic encephalitis of myoclonic form; but examination of

the blood, followed by the study later of the alterations in the central nervous system, revealed the presence of hematozoa and even of crescents. The hematozoa localized their action principally to the nerve centers such as the brain, bulb and spinal cord, while the cerebellum was invaded to only a slight extent and the spinal ganglia still less.

Dublin Journal of Medical Science

August, 1921, 4, No. 18

Rotunda Lying-In Hospital. Report for 1919-1920. G. Fitzgibbon, J. S. English and A. H. Davidson.—p. 337.

Indian Journal of Medical Research, Calcutta

October, 1920, 8, No. 2

Chemical Investigation in Connection with Leprosy Inquiry. S. Ghosh.—p. 211.

Vaccine Institute, Belgaum. R. W. Fisher.—p. 216.

Arthropods of Medical and Veterinary Importance in Mesopotamia, and Their Relation to Disease. IV. Nematocera. W. A. Patton.—p. 245.

Id. V. Some Miscellaneous Arthropods. W. S. Patton.—p. 253.

Vaccine Lymph Production, Preparation and Preservation. W. F. Harvey.—p. 257.

Bacteriologic and Laboratory Technic. W. F. Harvey.—p. 270.

Survey of Culicide of Rubber Estate. R. A. Senior-White.—p. 304.

*Pathology and Bacteriology of Influenza. E. D. W. Greig.—p. 326.

Chemical Composition of Nim or Margosa Oil. K. K. Chatterji and R. N. Sen.—p. 356.

*Weight at Birth of Infants in India. D. F. Curjel.—p. 363.

*Reproductive Life of Indian Women. D. F. Curjel.—p. 366.

Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. VII. Oleum Eucalypti. J. F. Caius and K. S. Mhaskar.—p. 372.

Id. VIII. Chloroform. J. F. Caius and K. S. Mhaskar.—p. 379.

Id. IX. Eucalyptus-Chloroform Mixture.—p. 384.

Prevalence of Ancylostomiasis in Madras Presidency. K. S. Mhaskar.—p. 395.

Hookworm Infection and Sanitation. K. S. Mhaskar.—p. 398.

Bacteriology of Influenza.—Necropsies were made by Greig in sixty cases of fatal influenza. As a result of a study of the pathologic and bacteriologic evidence obtained, it became evident that this was not a hemolytic streptococcal infection, but one associated with *B. influenzae* and pneumococcus. The pathologic lesions were those associated with influenza and in the respiratory system it took the form of an acute bronchiolitis without serious involvement of the pleura, such as empyema, also other serous membranes, e. g., pericardium and peritoneum, were not attacked, the organisms associated with the lesions were *B. influenzae* and the pneumococcus, the hemolytic streptococcus did not play a part in the causation of the disease.

Weight at Birth of Infants in India.—Records of the weights at birth of 1,849 normal Indian infants, representing many different castes and classes, show that the Indian infant has reached at the time of birth the average weight of 6.5 pounds. This average compares favorably with the weights at birth of infants of other parentage born in India. The earlier marriage age of the Indian mother (as compared with European races), does not adversely affect the development and general nutrition, as shown by the weight, of her child at birth. The subsequent high mortality among such children is largely due to unfavorable postnatal conditions.

Reproductive Life of Women in India.—Among 489 Indian women representing many different castes and races, the average age of the onset of puberty (catamenia) was 13.63 years. The average age at marriage among the same women was 13.83 years. The average duration of menstrual (reproductive) life among Indian women, 32.14 years, does not appear to differ materially from the limits for European races. The earlier age at marriage among Indian women does not appear to influence the duration of their reproductive or menstrual life as compared with European races.

Lancet, London

Sept. 3, 1921, 2, No. 10

Importance of Industrial Medicine to Community. E. L. Colls.—p. 487.

*After-Effects of Epidemic Encephalitis in Children. D. Paterson and J. C. Spence.—p. 491.

*Effect of Culture Medium on Agglutination of Meningococci. I. W. Hall and G. E. Tilsley.—p. 494.

*Protista and Disease. J. J. Clarke.—p. 495.

*Value of Complement Fixation Test in Pulmonary Tuberculosis. A. L. Punch.—p. 497.

Two Probable Cases of Ambulatory Encephalitis Lethargica. C. E. Williams.—p. 499.

Foreign Body in Knee-Joint for 13 Years. A. C. Sharp.—p. 499.

After Effects of Epidemic Encephalitis in Children.—The after effects in twenty-five cases of epidemic encephalitis occurring in children between the ages of 3 months and 11 years, in which the diagnosis of epidemic encephalitis appeared to be straightforward and incontrovertible are analyzed by Paterson and Spence. Only one case was fatal. In six of the remaining twenty-four cases a complete recovery has resulted. The remaining eighteen children all show definite affections directly attributable to the original attack of encephalitis. Seven are grossly mentally deficient and eleven show minor degrees of mental deficiency. The seven grossly mentally deficient cases appear to be in a state of permanent and hopeless idiocy. Two of these cases are, moreover, in a condition of spastic diplegia with "scissor legs" and contractures. In the second group of eleven cases the mental changes are greater than could be accounted for by the long period of ill health. The worst cases, though able to recognize their parents and other familiar objects, are yet too dull to learn a simple lesson. Others of this group are classified as being slightly mentally deficient. The results of encephalitis are much more serious in the infants and young children than in the older children. Of those affected before the age of 12 months only one has made a complete recovery, while four have become quite mentally deficient. The severity of the initial attack of encephalitis appears to be in direct proportion to the after-results which follow it. Some degree of mental deficiency may be expected to result from the illness if the stupor and lethargy persist for three or four weeks in a young child. On the other hand, a short illness, with stupor for a few days only, will probably result in complete recovery. The physical changes following encephalitis in childhood include spastic diplegia, hemiplegia, symptomatic paralysis agitans, muscular rigidity, and tremors.

Culture Medium and Agglutination of Meningococcus.—Hall and Tilsley state that individual strains of meningococci when grown on nut nasgar medium become more agglutinable than when they are grown on legumen agar, with or without the addition of blood. The observation may be a possible explanation of some of the "inagglutinable" strains of various bacteria. The agglutinogenic substance in meningococci shows also a relation to the content of nutrient mediums. It is more active in coccal emulsions prepared from nut nasgar medium than those obtained from legumen medium. This may have a bearing on the production of antisera. Emulsions of meningococci in physiologic solution of sodium chlorid made with freshly distilled water heated to 65 C. for twenty minutes, standardized numerically, and then preserved with 0.5 per cent. phenol, have remained unchanged as to numbers, and sterile for five years. At the end of this period, the agglutinability and agglutinogenic capacity persist practically unaltered.

Protista and Disease.—Clarke discusses certain bodies found by him in cancer, sarcoma, a secondary syphilitic lesion, in the vaccinated cornea, and in some other pathologic conditions. He thought at one time that they were of the same nature as Cobbold's psorosperms. Now he is of the opinion that the bodies referred to are of the same class of organisms as the Synchytrium of a thistle. There are some points of difference, and the parasites which, with others, he has described in human and some animal diseases constitute a group as yet unplaced in biology. They require a name; and having in view their being a branch of the Chytridiales, hence belonging to the vegetable protists with an affinity to the Mycetozoa; and in view of their being the plasmon state at the initial stage of their intracellular life Clarke suggests the name Plassomyxineae.

Value of Complement Fixation Test in Tuberculosis.—Punch presents an analysis of a second series of cases, and offers further proof of the accuracy of the test. One hundred and eighty-five bloods have been tested in seventy-one gave a positive result. Punch is convinced that the complement-fixation test is a reliable means for the diagnosis of an active or recently active pulmonary tuberculous lesion. It must be emphasized that it is the pulmonary form only of the disease that is dealt with in this paper. A negative result is as reliable an indication of the absence of such a lesion as a positive is of its presence.

Medical Journal of Australia, Sydney

July 9, 1921, 2, No. 2

High Frequency Current in Complicated Urethritis. J. C. Booth.—p. 19.
Hookworm in Pigs. P. A. Mapleston.—p. 20.
Medical Ethics. II. A. V. M. Anderson.—p. 20.
Pubiotomy. J. W. Dunbar Hooper.—p. 27.
Prenatal Crying. M. W. Sprod.—p. 27.

Prenatal Crying.—Sprod records the case of a quadripara, who was in heavy labor. On examination, the cervix was fully dilated, but the head had not engaged the brim. The membranes were ruptured and a large amount of amniotic fluid gushed out. During this maneuver the patient was fully under chloroform preparatory to forceps extraction. A few moments later, three distinct cries were heard, slightly muffled, as if under a blanket. Further examination showed that it was not an unexpected quick delivery. Sprod immediately applied high forceps and delivered a blue baby with the cord around the neck. The child began breathing after a little prompting.

July 16, 1921, 2, No. 3

*Pathogenicity of *Demodex* (Owen) in Human Being. H. Lawrence.—p. 39.
Medical Ethics. III. A. V. M. Anderson.—p. 40.

Pathogenesis of *Demodex*.—The presence of the *Demodex* in skin affections has been studied by Lawrence for some years and he doubts very much the innocence of this parasite in other conditions apart from the typical impetiginous condition described by Whitfield and himself. There are many skin affections in which the *Demodex* appears in such numbers that its possible causative effect in the production of the disease cannot be overlooked. In applying parasiticide remedies the disappearance of the parasites and cure of the disease occur simultaneously.

July 23, 1921, 2, No. 4

Lectures on Medical Ethics. IV. National Medical Service. A. V. M. Anderson.—p. 58.
*Voluntary Arrest of Pulse and Apparently of Heart. S. Gillies and H. R. Sear.—p. 63.
Case of Hyperpituitarism. A. E. Mills.—p. 64.

Voluntary Arrest of Pulse and Heart.—Gillies and Sear cite the case of a woman who, through some abnormality of the fibers of the diaphragm surrounding the inferior vena cava and of the fascia in the upper thoracic region, is able by straining to cut off almost completely the venous blood supply to her heart, with the result that it quickly empties and then goes on contracting with empty chambers until she is unable to continue straining, when it refills.

Practitioner, London

September, 1921, 107, No. 3

Nevi in Children and Their Treatment. D. C. L. Fitzwilliams.—p. 153.
*Examination of Blood in Diabetes Mellitus. R. T. Williamson.—p. 169.
Gynecologic Causes of Acute Abdomen. A. W. Bourne.—p. 174.
Prognosis in High Blood Pressure. A. Graham-Stewart.—p. 183.
Some Uses and Doses of Hypnotics. F. Wyatt-Smith.—p. 201.
Idiopathic Purpura. E. J. Bradley.—p. 214.
*Traumatic Rupture of Diaphragm, Patient Lives Over Two Years. H. Dodgson.—p. 219.
Case of Hematuria. J. Hirschmann.—p. 221.

Blood Test in Diabetes Mellitus.—Williamson describes a test for blood sugar. Twenty c.mm. blood are mixed with 1 c.c. of a 1:6,000 aqueous solution of methylene blue and 40 c.mm. liquor potassae. The mixture has a deep, definite blue or bluish green color. The tube containing the mixture is placed in a water bath, and the water kept boiling for four minutes. If the blood sugar is decidedly increased, the blue color of the mixture will change to brownish yellow (almost the color of normal urine). When the blood sugar is not increased the mixture tube retains its blue or bluish green color.

Traumatic Rupture of Diaphragm.—In Dodgson's case, half the stomach, a considerable portion of the transverse and descending colon, as well as several coils of small intestine were occupying the left pleural cavity and lying anterior to the left lung. He found a large circular aperture, about 4 inches in diameter, in the center of the left half of the diaphragm. The left lung, which was lying posterior to coils of colon and small intestine, was very small, shrunken, and collapsed, and showed well marked anthracosis. No other gross lesions were found. A death certificate given by a colleague stated that death was due to pneumonia.

Archives Médicales Belges, Liège

June, 1921, 74, No. 6

*Chronic Intestinal Stasis. L. Fouarge and H. Houdmont.—p. 481.
*Puncture of Elbow Joint. R. Reynders.—p. 520.
*Diagnosis of Syphilis. Godeau.—p. 527.

Chronic Intestinal Stasis.—Fouarge and Houdmont explain why chronic intestinal stasis comes to be so often diagnosed and treated as appendicitis, migraine, ovaritis, arthritism, glandular insufficiency, etc., and they review the medical treatment for stasis at different points, and the surgical measures necessary when this fails. They do not endorse Lane's total colectomy, urging the importance of saving the ileocecal valve, and hence advocating subtotal colectomy.

Puncture of the Elbow.—Reynders recalls that even 5 c.c. of fluid in the elbow after a contusion or other trauma does as much harm as 20 or 30 c.c. in the knee. Even a simple sprain of the elbow may be accompanied by an effusion, and an effusion or hematoma may deceptively complicate a fracture. A cystic, fluctuating zone can be felt at the outer border of the olecranon, above the edge of the head of the radius, and this is the point to puncture. There are no important vessels here; the cavity of the joint is largest at this point, and the capsule is separated from the skin only by the aponeurosis of the triceps.

Diagnosis of Syphilis.—Godeau remarks that every physician should realize that syphilis is the most prevalent of all chronic diseases.

Archives de Médecine des Enfants, Paris

August, 1921, 24, No. 8

*Acute Encephalitis in Children. J. Comby.—p. 457 and p. 488.
*Relapses of Scarlet Fever. V. Hutinel and M. L. Nadal.—p. 471.
*Hirschsprung's Disease in Child. G. L. Hallez and G. Blechmann.—p. 484.

Acute Encephalitis in Children.—Influenza had preceded the acute encephalitis in 16 of Comby's 62 cases in children from 1½ months to 15 years of age; whooping cough in 7; enteritis in 10; vaccination, measles, inherited syphilis, or a fall on the head in 2 each, and in 17 nothing to explain the encephalitis could be discovered. A predisposition on the part of the nervous system was occasionally noted. Isolation seems to be superfluous, he says, and until we can recognize and treat the carriers, there can scarcely be any question of prophylaxis. The onset was almost always brutal and violent; convulsions, spasms and unconsciousness for twelve to twenty-four hours are common. There was an apoplectic shock in 12 per cent., but very often the symptoms were credited to the preceding infectious disease. The spinal puncture fluid was found clear in 11 of the 18 cases examined. He reviews the wide range of symptoms that may be presented. The disease may prove fatal in a few days, or complete recovery may follow in a few days or weeks. Recovery without sequelae occurred in 21, about a third of his cases. In 8 other cases there were mild sequelae, agitation and irregular movements, but the other 33 were left with spastic paralysis, epilepsy, multiple sclerosis or idiocy. One girl of 3 developed dementia praecox fifteen years later. His mortality was 9.6 per cent. but encephalitis may have been overlooked in certain fatal cases of other diseases. Sequelae were left in 66 per cent. but the spastic and paralytic often proved curable under physical training and reeducation. The epilepsy, hydrocephalus, blindness in 2 and deafness in 2 proved permanent, but aphasia and mutism subsided in time. The prognosis is infinitely less grave on the whole than that of bacillary meningitis. He denounces the fixation abscess in treatment as barbarous and exposing to accidents. Among the 6 children that died, 3 had been treated with a fixation abscess while 56 recovered without it. Let adults have their fixation abscess if they wish, he says, but do not enforce it on protesting children. Besides the usual symptomatic measures, he mentions revulsion to back of neck and hexamethylenamin. After the acute phase, for the motor or psychic sequelae, due mostly to sclerosis of the brain, iodid, bromids, active and passive movements may improve and even cure spastic paralysis deemed incurable at first. Special training is necessary for children left abnormal by the encephalitis. He does not attempt to distinguish between sporadic and the epidemic encephalitis; both begin the same and run the same course. Lethargy is not pathognomonic and is not constant.

Relapse and Recurrence of Scarlet Fever.—Hutinel and Nadal have noticed that in the cases of recurring scarlet fever or a relapse during convalescence, the subject had been under the influence of some other coincident infection at the time. This had evidently modified the natural immunization process. In seven cases described in detail the children developed the disease anew after an interval of from thirteen to thirty-nine days. The first attack had been mild in one but the second proved fatal. In the others the second attack was milder. All those children and three others mentioned had some surgical suppuration, acute articular rheumatism, pleurisy or pneumonia at the onset of the scarlet fever. Analysis of the literature on recurring scarlet fever shows a frequent coincidence of two infections, and experimental research testifies to the derangement of the immunization process by a coincident infection. The practical conclusion seems to be that under such conditions the convalescents from scarlet fever should be kept under supervision longer, but they do not advise prolonging the isolation. The instances of recurrence are too rare to justify this.

Hirschsprung's Disease.—The child in question had been normal and robust until over 3 when he developed typical Hirschsprung's disease, with enormous dilatation of the colon. Under treatment with a purge every morning fasting (sodium sulphate 0.5 gm.; sodium phosphate, 0.2 gm.; sodium bicarbonate, 0.3 gm.), moist heat to the abdomen, and oil enemas, the girth dropped in two weeks from 62 to 48 cm. The remarkable progressive improvement has continued since, but the prognosis is still reserved.

Bulletin Médical, Paris

Aug. 6, 1921, 35, No. 32

*Respiratory Exercises. R. d'Heucqueville.—p. 639.

Training in More Effectual Breathing.—The subject usually has to learn to breathe properly first, before he can be given breathing exercises to increase his chest measure and vital capacity. D'Heucqueville uses a valve and drum apparatus to record the pressure, etc., as he describes, to insure greater precision than is possible with the water-bottle spiroscope. The latter may even do harm, as it is impossible to gage the effort to the individual capacity. He knows of one instance in which a healthy young man had serious symptoms from his heart after excessive work on the spiroscope.

Aug. 13, 1921, 35, No. 33

*Recent Progress in Medicine. G. Lyon.—p. 653.

Recent Progress.—Lyon concludes this survey of recent publications on vaccines, organ extracts, physical agents and drugs, by reviewing the various treatments in vogue for epidemic encephalitis. Pic has found useful an early fixation abscess plus hexamethylenamin by the mouth or vein. He gives epinephrin with insufficiency of the heart or of the centers in the medulla, and in case of meningeal reaction applies ice to the head and gives hot baths at six hour intervals.

Gynécologie et Obstétrique, Paris

August, 1921, 4, No. 2

*Multiple Vaginal Cysts. L. Bérard and C. Dunet.—p. 89.

*Syphilis and Hypertrophy of the Placenta. E. Lévy-Solal.—p. 94.

*Ovarian Lutein Cysts and Mole. J. Cottalorda.—p. 119.

*Metritis of Uterine Cervix. E. Douay.—p. 135.

Multiple Cysts in the Vagina.—The photomicrographs confirm the wolffian origin in the case described.

Hypertrophy of the Placenta.—Lévy-Solal asserts that in inherited syphilis the placenta is liable to be exceptionally large in proportion to the size of the fetus. This disproportion was evident in 176 of the 1,579 deliveries at the Baude-locque Maternity, and syphilis was certain or probable in all but 15 per cent. of the 176. There was also marked disproportion in 57 of 97 women known to have been long syphilitic. Specific treatment during gestation wards off this disproportion, but otherwise it seems to occur in at least 55 per cent. of all cases with a history of syphilis.

Indications for Treatment of Hydatidiform Mole.—Cottalorda has compiled 54 cases since 1913 in which a hydatidiform mole became transformed into a chorio-epithelioma, and 9 in which there were also lutein cell cysts in the ovaries. In 76 cases on record, a mole was known to have preceded the chorio-epithelioma in 50 per cent. Analysis of

these and other data sustains the connection between the mole and bilateral lutein cysts in the ovaries. The latter have been found in 39 per cent. of all the mole cases examined, and in 9.4 per cent. of the chorio-epithelioma cases, and malignant chorio-epithelioma develops from a mole in about 9 per cent. of the cases. In short, he concludes, the discovery of lutein cysts in both ovaries should be regarded as a sign of impending transformation of the mole into a malignant chorio-epithelioma, and hence total hysterectomy with ovariectomy is imperative during the month after expulsion of a mole unless the ovarian cysts show pronounced retrogression. This has been observed in some cases. If the ovaries are free from these cysts, treatment can be restricted to curetting the uterus after expulsion of the mole, keeping the patient under surveillance, ready to remove the uterus at once if there is hemorrhage or if cysts develop in the ovaries.

Metritis of Uterine Cervix.—Douay compares the different methods for treatment of endocervicitis. In the acute and subacute cases it improves under ordinary medical measures but is difficult to cure when chronic. In the early stages, desquamation can be induced by dressing the vagina with an 8 per thousand picric acid solution. The bacteria are expelled mechanically by the desquamation. This procedure is kept up for twenty hours once or twice a week. In the next stage, the aim is to activate glandular secretion by repeated and prolonged hot injections, diathermy, glycerin ovules, a wick dipped in glycerin or vacuum suction applied to the cervix. A wick dipped in a silver nitrate or iodine or zinc chlorid solution can be inserted in the cervix, or one of these fluids instilled. When there is hypertrophy of the mucosa and hyperplasia of glands, the mucosa has to be destroyed, but in such a way as not to set up inflammation in the adnexa. The actual cautery or chemical cauterization or various surgical measures may be selected for this.

Journal de Radiologie et d'Electrologie, Paris

July, 1921, 5, No. 7

*Electric Excitability of Nerves and Muscles. A. Strohl.—p. 289.

Intensity of Diffuse Radiations in Radiography. R. B. Wilsey.—p. 297.

Ionometric Dosage of Roentgen Rays. I. Solomon.—p. 305.

*The Records in Radium Therapy. A. Laborde.—p. 312.

The Egersimeter.—Strohl's electric instrument is designed to test the electric excitability of nerves and muscles in man.

Notation in Radium Treatment.—Laborde summarizes here the discussion and conclusions in regard to the terms, values and estimation of doses in radium therapy as determined at the meeting of the French Cancer Research Society a year ago. Three different systems were advocated.

Paris Médical, Paris

Aug. 20, 1921, 11, No. 34

Chronic Toxemia from Appendicitis. P. Descomps.—p. 145.

*Etiology of Dysentery. W. Janowski.—p. 152.

Etiology of Dysentery.—Janowski's experience at Warsaw has almost convinced him that the large number of "dysentery bacilli" species are in fact merely different varieties of the colon bacillus. Nearly thirty have been described to date, and he recalls that in 1892 he published the necropsy findings in seventeen cases of fulminating dysentery, fatal in a few hours, for which the colon bacillus was unmistakably responsible. He presents a long array of established data to sustain his views and open the way for more effectual serotherapy.

Presse Médicale, Paris

July 20, 1921, 29, No. 58

*Fracture of the Lower Radius. P. Mocquot.—p. 573.

*Gastric Spasm. F. Ramond, C. Jacquelin and Borrien.—p. 574.

Motor Disturbance in Wrist After Fracture of Radius.—Mocquot describes, with five illustrations, how to ward off the otherwise almost inevitable inability for supination as the fractured radius heals.

Spasm of the Stomach.—Ramond and his co-workers state that they have discovered a tendency to a kink in the lower esophagus in certain cadavers, the obstruction being mechanical rather than a spasm in such cases. The liver may cause obstruction by pressing the esophagus against the spine. The symptoms are generally only those from the inability of the air to escape. With spasm of the pylorus, usually a small portion of the contrast meal passes through at first and stays

immovable just beyond. The shadow of the pyloric segment flares upward, with a horizontal top. This is called Brûgel's sign of ulcer, but it indicates spasm at the pylorus whether there is an ulcer or not. Atropin and epinephrin are useful in revealing spasm, but the findings are not always positive. They remark in conclusion that whatever the cause of the spasm, measures to reduce it will benefit, especially food making the least possible demands on the motor function, refraining from boiled and rare meats, fats, alcohol, coffee and tobacco, overexertion and worry. An exploratory laparotomy may reveal a simple spasm with hypertrophy like that in infants, and easily corrected by the surgeon.

Aug. 17, 1921, 29, No. 66

*The Stump After Resection of Intestine. T. de Martel.—p. 653.

*The Heart During Physical Exercise. Boigey.—p. 654.

*Gastrectomy for Cancer. R. Olivier.—p. 656.

Care of Stump After Resection of Intestine.—De Martel protests against the heedless way in which often the tied septic tip of the stump is turned in, and the suture above it leaves a closed septic cavity for proliferation of bacteria. His illustrations show how this can be avoided. He seizes the edges beyond the clamp with a row of four forceps and quilts a suture thread below the clamp, one on each side, the threads sparing the mucosa. The long ends on each side are tied long together and kept taut and spread by the forefinger of the operator and of his assistant. The four forceps held in the other hand are then pushed down, which invaginates the tip, and the threads are drawn tight and tied, the forceps being withdrawn at the last moment. The edges of the invaginated portion thus hang loose, not forming a closed cavity in which infection can simmer till it breaks through. This occurred in 10 per cent. of his resection cases until he adopted this technic.

The Heart During Physical Exercise.—Boigey is the physician in charge of the Ecole d'éducation physique at Joinville. His numerous tests have demonstrated that a phase of relaxation and passive distention follows when the first phase of hypertonicity—which accompanies every physical effort—is past. The exercise should never be allowed to progress as far as this second phase.

Gastrectomy for Cancer.—This is an earnest plea for gastrectomy. Olivier states that there has been no mortality in his last 18 cancer cases and in 18 ulcer cases since local anesthesia has been the rule. The anastomosis is made with a very short loop, directed toward the left, and the anastomosis is fastened firmly to the mesocolon, several stitches fastening the stomach itself, as well as the loop, to the transverse mesocolon. In a total of 66 gastrectomies for cancer since 1895, 41 of the 56 surviving patients died from a few months to twenty years afterward, many from intercurrent disease, and 27 per cent. survived for over three years. Of the 13 known to be still living, the interval has been over six years in 5 and three years in 3. The absolute freedom from symptoms of so many after the gastrectomy and for such long intervals, confirms the superiority of gastrectomy, he reiterates. The earlier diagnosis now possible and regional anesthesia are transforming the indications for operative treatment of gastric cancer.

Aug. 20, 1921, 29, No. 67

Chronic Dilatation of the Esophagus. J. Guisez.—p. 661.

Exophthalmic Goiter and the Suprarenals. H. Swiecicki.—p. 664.

Serotherapy of Mumps. L. Cheinisse.—p. 666.

Dilatation of the Esophagus.—Guisez ascribes to defective masticated food, alcohol, irritating condiments or other irritating substances arriving at the cardia, the irritation of the latter which induces spasmodic closure. Inflammatory tenosis follows the spasm, and if it frequently recurs or becomes chronic, the dilatation of the esophagus may require rigorous measures as the stagnation and irritation in the esophagus invite cancer. He has encountered twenty-six cases of cancer from this sequence. The esophagus and cardia can be stretched sideways without discomfort, so three bougies side by side can be borne better than one large one. His illustrations show the technic for this *dilatation multi-bouginaire*. The bougies can be left in place for ten or fifteen minutes. A narrow one is introduced first, and this serves as a guide for a larger one. With endoscopy and by the

natural routes even the most difficult cases can be conquered at last, if the dilatation is persevered in long enough. One illustration shows the danger of working without direct visual inspection; the lower end of the esophagus sagged down all around below the level of the cardia opening. Any attempt to push the bougie farther when the tip was in this side pocket would have been disastrous.

Exophthalmic Goiter and the Suprarenals.—Swiecicki cites extensive data which he thinks transfer the primary cause of exophthalmic goiter from the thyroid to the suprarenals, as he explains.

Diphtheria Antitoxin in Treatment of Mumps.—Cheinisse remarks that the favorable results reported by certain Italian and French clinicians from treatment of mumps with diphtheria antitoxin sustain the view that serotherapy does not have to be specific. Certain recent experiences suggest that normal serum may prove effectual.

Aug. 24, 1921, 29, No. 68

*Attenuated Forms of Nephritic Retinitis. F. Terrien.—p. 673.

*Rupture of Large Intestine from Compressed Air. G. Jean.—p. 675.

Uremic Retinitis.—Terrien passes in review the various signs and symptoms which reveal in the retina the possibly otherwise unsuspected retention of nitrogenous waste. Treatment should be addressed to the kidneys, a salt-free milk or vegetable diet, with purges and with possibly lumbar puncture if there is headache. The eyes should be rested and slightly tinted glasses worn. He recommends hot applications to the eyes and pilocarpin instillation if the tension seems high. Atropin is liable to induce hypertonia, especially in the elderly, and should be used only exceptionally.

Rupture of Large Intestine from Compressed Air.—Jean reports two cases of this kind with recovery of both patients after resection of the severely damaged and ruptured bowel and the making of a definitive median abdominal anus. The injury was from the bursting of a pipe conveying condensed air or a jet from the nozzle. In both cases the pipe had been 10 or 20 cm. from the skin.

Aug. 27, 1921, 29, No. 69

*Resection of Knee. G. Pascalis.—p. 681.

*Prescurvy State. H. Godlewski.—p. 682.

Origin of Pneumonia and Experimental Pneumonia. P. L. Marie.—p. 683.

Resection of the Knee.—Pascalis has had occasion to reexamine a large number of persons after resection of the knee, and he discusses the factors that favored or militated against the successful ultimate outcome. Among the minor points he emphasizes is the advantage of potassium silicate rather than plaster for the second apparatus. Also the necessity for training to walk without sparing the resected knee too much. Every articulation of the foot should be intentionally brought into play. He also advises not to correct the shortening of the leg too soon. The dipping down of the pelvis on that side tends to minimize or compensate the deformity. He urges the patient to rise on his toes at each step of each foot.

Prescurvy.—Godlewski insists that living foods should form an important part of the daily diet more than is considered necessary now as a rule. He thinks that many persons, young and old, are in a state of prescurvy from partial lack of the accessory food factors. Milk, fresh fruit juices, honey and meat juice should form part of the meals.

Aug. 31, 1921, 29, No. 70

Prevention of Cancer. Laphorn Smith.—p. 693.

*Pathogenesis of General Paresis. L. Marchand.—p. 695.

General Paresis.—Marchand explains that there is much to sustain the assumption that while general paresis develops mainly in the syphilitic, it is due to some other infectious agent than *Spirochaeta pallida*.

Schweizerische medizinische Wochenschrift, Basel

Aug. 11, 1921, 51, No. 32

*Spontaneous Colon Bacillus Prostatitis. F. Suter.—p. 733.

Spirochetes in Erythema Nodosum. R. Massini.—p. 739.

*Localization of Elastic Properties in Lungs. F. Rohrer.—p. 740.

*Localization of Currents of Air in Lungs. F. Rohrer.—p. 741.

Natural Immunity to Tuberculosis. A. Wolff-Eisner.—p. 742.

"Barbed-Wire" Moods in Sanatoriums. J. Kollarits.—p. 744.

Tradition and Observation in Medieval Medicine. Sigerist.—p. 745.

Colon Bacillus Prostatitis.—Suter has witnessed symptoms ranging from mild local to severe febrile general symptoms with spontaneous colon bacillus prostatitis, as he shows by 8 case histories; in 19 further cases the bladder also was involved, and in 5 of these, the kidneys. In only 6 of his 53 cases of spontaneous prostatitis was there a history of some preceding infectious disease. In the 27 spontaneous colon bacillus cases the bladder was never primarily affected; either the kidneys or the prostate were the primary site of the process, and predominantly the prostate.

Topographic Distribution of the Elasticity and of the Air Currents in the Lungs.—Rohrer estimates the elastic property by determining the difference in pressure of the air and the size of the corresponding portion of the lung. He determines the currents mostly by comparison with a model of the lungs, and roentgenoscopy. One practical result of his research is the discovery of extreme overdistention of certain areas during hard coughing. The damage to lung tissue is far greater than generally recognized. In the peripheral regions, the parenchyma is liable to be stretched beyond recuperation, while in the central portions, which are emptied more readily, they are liable to suffer from compression from the distended portions. The conditions in the currents of air during hard coughing throw light on the origin of a number of pathologic conditions in the lungs.

Policlinico, Rome

Aug. 22, 1921, 28, No. 34

*Amusia and Acalculia. G. Mingazzini.—p. 1131.

*Pneumothorax Treatment of Pleurisy. E. Comino.—p. 1135.

*Medical Inspection of Schools. P. Costa.—p. 1137.

Amusia and Inability to Do Calculations.—Mingazzini discusses the form of aphasia that involves music or mathematics, citing extensively from Henschen's work on amusia and acalculia recently published at Stockholm as the fifth part of his clinical and anatomic study of the pathology of the brain. Henschen seeks to locate the center for music, but thinks there is probably no circumscribed area for calculating; this is a more complex function of the brain, based on vision, etc.

Artificial Pneumothorax in Treatment of Pleurisy with Effusion.—Comino emphasizes that the artificial pneumothorax prevents derangement from the upsetting of the balance after withdrawal of the effusion, while it prevents its forming anew, and the formation of cicatricial bands. The amount of gas injected should always be less than the amount of fluid withdrawn. He was warned of the necessity for this caution by two cases in which dyspnea and symptoms from the heart, a chill and fever, followed injection of the nitrogen in an amount to equal that of the fluid siphoned out. The pressure from the gas is exerted in a different direction from that of the preceding effusion, and, as the nitrogen warms up, it expands, both of these factors being liable to induce disturbances unless guarded against. But otherwise he regards therapeutic pneumothorax as a constantly effectual measure in treatment of pleurisy with effusion which, left untreated, may invite tuberculosis.

Medical School Inspection.—Costa reiterates the importance of careful examination of throat, nose and ears, noting what the parents and teacher have to say on the subject.

Aug. 29, 1921, 28, No. 35

*Epidemic Hiccup. T. Pontano and E. Trenti.—p. 1163.

Epidemic Hiccup.—Pontano and Trenti inoculated twelve volunteers with blood, throat rinsings and spinal fluid from four patients with febrile epidemic hiccup, but with constantly negative results. They found nothing to suggest any connection with influenza or epidemic encephalitis.

Aug. 15, 1921, 28, Surgical Section No. 8

*The So-Called Essential Hematuria. G. D'Agata.—p. 325.

*Mesentery Plastic Operations. L. Torracca.—p. 332.

*Unilateral Hematuria. D. Pizzetti.—p. 347.

*Absorption of a Hematoma. A. Albanese.—p. 359.

So-Called Essential Hematuria.—No cause for the recurring hematuria could be discovered in D'Agata's patient, but the losses of blood compelled the removal of the bleeding kidney. This revealed patches of glomerular nephritis and

proliferating pyelitis, enough to explain the hemorrhages, although not enough to induce appreciable symptoms otherwise.

Plastic Operations with Mesentery.—Torracca gives the details of experimental research on 18 dogs. A loop of intestine was separated from its mesentery and in 7 of them it was wrapped around with omentum afterward. Gangrene developed constantly when a segment of the bowel 8 or 9 cm. long had been detached from its mesentery, but when the segment had been wrapped in omentum, the dogs bore it even with a segment 12 or 16 cm. in length. Even at the best, however, the plastic operation induced changes that impeded circulation and modified the innervation, affecting the motor function of the bowel more or less. Only 3 survived of these 7 dogs; the others succumbed to stenosis or gangrene.

Hemorrhagic Pyelonephritis.—Pizzetti cites Taddei's recent experience with six cases of supposed essential hematuria or nephralgia in which not only the kidney but also the pelvis and ureter showed patches of chronic inflammation. Pizzetti then reports two similar cases in men. In one the bleeding kidney had been decapsulated and slit without relief, and was finally removed. Two ureters and a double pelvis were found at the nephrectomy, with a calculus in one. In both cases the interstitial glomerular nephritis with cystic and pseudoglandular pyelitis corresponded to Taddei's cases, but no cause could be discovered in either except the irritation from the one calculus. A scrap removed for biopsy in this case had come from a normal area. The circulation impaired by the decapsulation, four months before, had not recuperated. Although the capsule had healed over, there was no new formation of vessels.

Reabsorption of Extravasated Blood.—Albanese ascertained that there were no protective ferments to be found by Abderhalden's method in rabbits and guinea-pigs for their own extravasated blood. This rendered it possible to trace the absorption of experimental hematomas in them by the proteolysis of the extravasated blood, and demonstrated that these defensive ferments are influential in its absorption.

Riforma Medica, Naples

July 30, 1921, 37, No. 31

*Clinical Medicine in 1920. E. Maragliano.—p. 721.

Vaccine Therapy of Tuberculous Peritonitis. G. Saraceni.—p. 732.

Staining of Sporotrichum in Granulomas. G. Pacinotti.—p. 733.

The Heart Manifestations of Excessive Vagus or Sympathetic Tonus. A. Azzi.—p. 735.

Progress in Internal Medicine.—Maragliano reviews the work of the year in his service and connected institutes where special attention is devoted to the study of immunity: Sivori's research has confirmed that the quantitative and qualitative changes in the leukocytes, and the complement values reflect the defense which the organism is opposing to the infection at the moment. Also that the gravity is due to the rapidity with which the pathogenic elements get into the circulation, as well as to their virulence. When the generic and the specific defensive forces are being overwhelmed by the infection, then a nonspecific stimulation of the generic forces, by parenteral protein injections, may whip up the generic forces to an effort that will insure victory. This may occur even when the specific treatment is unable to stimulate the specific defensive forces to efficient resistance. Muggia found no evidence of demineralization in nineteen tuberculous patients unless they had fever and were losing weight. The Petroff culture medium proved exceptionally favorable for the rapid differentiation of tubercle bacilli. Durand has had encouraging results in pulmonary tuberculosis with an autogenous vaccine made from sputum and germs obtained by puncture of the lung. This proved particularly effectual in the cases of grave secondary infection in which we are powerless. Maragliano says of his method of preventive vaccination against tuberculosis that time alone can establish the value of the suggestive results obtained during the seventeen years to date. Bertolini has demonstrated azotemia in many morbid conditions not connected with kidney disease. It may thus be due to increased production instead of retention of nitrogen. This has been found mostly with liver disease and pneumonia. The enormous importance of the liver as a factor in acidosis has also been sustained.

Tumori, Rome

Aug. 10, 1921, 8, No. 2

- *The So-Called Botryomycosis in Man. G. Romano.—p. 129.
- *Renal Lipoma. V. Cantoni.—p. 152.
- *Caustic Treatment of Superficial Cancer. Citelli and Caliceti.—p. 165.
- Benign Epithelial Tumor. L. Cevario.—p. 171.
- *Cutaneous Manifestations of Hemoblastosis. L. Martinotti.—p. 184. Cont'n.

Alleged Botryomycosis in Man.—Romano's deductions from three cases personally observed and the scanty literature on botryomycomas is that there is no identity between the disease in man and in horses. Even those with the most experience are dubious whether to class the nodule as a neoplasm or a granuloma, and the term "human botryomycosis" is misleading.

Pararenal Lipoma.—The woman of 29 died four hours after removal of the kidney with its totally encircling lipoma, the whole weighing 25 kg. The kidney and ureter though embedded deep in the tumor seemed to be normal.

Caustic Destruction of Cancer.—In the two inoperable cases of cancer of the nose and ear described, the disease retrogressed under local applications for the first four to eight days of sponges impregnated with a mixture of 1 gm. arsenic trioxid, As_2O_3 , in 75 gm. alcohol and 75 gm. distilled water. The application was repeated after the blackish eschar was cast off, but while waiting for this the edges were painted with a little stronger mixture. The clinical cure of the extensive cancerous process (back of the neck and cheek or cheek and nose) was complete in a little over three months. The outcome was equally favorable in four other cases in which operative relief had been possible but had been refused. Involvement of glands is of course a contra-indication for this corrosive treatment.

Manifestations in the Skin of Hemoblastosis.—In this second instalment of his extensive monograph, Martinotti discusses neoplastic and pseudoneoplastic processes, including myelomas, the cutaneous manifestations of lymphosarcomatosis, of granulomatosis in both the mucous membranes and the skin, fungoid mycoses, and leukemoid conditions, comparing the views and cases of different writers.

Gaceta Médica de Mexico, Mexico

August-Dec., 1920, 1, Series 4, No. 7. First half reviewed, p. 897.

- *The Brownian Movement. F. Ocaranza.—p. 510.
- *Serotherapy of Typhus. J. E. Monjaras.—p. 529.
- *What is the Best Treatment for Syphilis? Angel Brioso Vasconcelos.—p. 531.
- *Fish in Extermination of Mosquitoes. M. E. Connor.—p. 543.

The So-Called Biologic Theory of the Brownian Movement.—Ocaranza rejects a biologic explanation for the brownian movement, explaining that it conforms to the laws of physics governing fluids and gases. There are no grounds for the assumption of a brownian micrococcus to explain the movement; it occurs when the physical condition invites it, and otherwise not.

Serotherapy of Typhus.—Monjaras cites some favorable experiences with an antiserum in treatment of typhus, and urges its general application in Mexico. He refers in particular to the work of Nicolle and Blaizot in this line.

What Is the Best Treatment of Syphilis?—The executive committee of the recent Mexican National Medical Congress invited Brioso to address the meeting on this subject. After outlining the treatment preferred by the leading authorities and that had stood the test of his own long and extensive experience, he gives a list of things which should not be done. He warns never to inject a concentrated solution of arsphenamin: if alkaline, it induces painful phlebitis; if acid, it may prove immediately fatal. This has already occurred in Mexico. Never begin with the maximal dose. Never give arsenic and mercury if the elimination through the kidneys is less than normal. Never begin with large doses of mercury or arsenicals by the subdural route. The amount must be increased only slowly and tentatively according to the tolerance. A few years ago, he relates, two patients in a local hospital were given by mistake an intraspinal injection of 1 cg. of HgCy; one of them died, and the other was completely paralyzed. In a case in his own practice,

0.43 mg. of mercuric chlorid induced a condition like status epilepticus in a patient with sclerogummatous meningitis.

Fish as Factor in Extermination of Yellow Fever.—Connor states that by placing fish in the water tanks, cisterns, barrels, etc., at Guayaquil, 30,000 of the water receptacles were freed from the larvae of mosquitoes in a very short time and with very little expense. The stegomyia might be called almost a domestic mosquito, he says, as it breeds in or near human dwellings, scarcely ever in marshes. Experiments with top minnows showed that they eat the larvae only when the water is free from organic matter, which they prefer to the larvae. A kind of sardine, known locally as the *chata*, feeds voraciously on the larvae, and it stands transportation well. It has the further advantage that it keeps close to the surface of the water except when frightened. This fish is not found very numerous, so the choice finally fell on the *chalaco* as the most satisfactory for small receptacles of water. These fishes have been costing half a centavo apiece, but the fish hatcheries now under way will soon provide them in abundance. The fish brought in are placed in a well the conditions of which are like those in the streams from which they were taken. After a few days they are transferred to a second well of the city water, and no further food is given them. Each inspector is then given the number of fish required for the tanks, etc., in his district, and one or more of the fishes is placed in each one, regardless of the presence or absence of larvae in the water at the time. The press and the sanitary inspectors have educated the public to protect the fish, and many families still have the same fish that was given them about eighteen months ago when the antimosquito campaign was begun. The value of the *chalaco* is evident from the fact that the stegomyias have been reduced to less than 2 per cent. which presages the approaching extinction of this species.

Repertorio de Medicina y Cirugía, Bogotá

May, 1921, 12, No. 8

- *The Pan-American Sanitary Conference. P. García Medina.—p. 406.
- Dermatoses of the Legs. Sicilia.—p. 420.
- Biology and General Pathology. R. Martínez Briceño.—p. 429. Cont'd.

The Pan-American Sanitary Conference.—This is the official report on sanitary conditions in Colombia presented at the Sixth International Pan-American Conference held recently at Montevideo. García Medina states that Colombia has escaped bubonic plague, and that there has been no cholera since 1851. There is no focus of yellow fever. Last year there were 1,300 cases of smallpox throughout the country but only 4 deaths, and vaccination is being done actively in all the seaports. Typhus is rare and is scarcely ever observed in the ports, as the climate is not favorable for lice. In 1915 there were 6,570 cases of leprosy known, and 80 per cent. of them are isolated. Notification is compulsory. A leper arriving in any of the ports is sent back or is sent to one of the three leprosariums in the country if he is a native. A hot and dry climate seems to modify the leprosy favorably. A law regulating the importation and sale of habit-forming drugs has been passed this year, and for fifteen years hygiene has been taught in the schools. Death certificates have to be signed by a registered physician. Dispensaries and sanatoriums for venereal diseases have been established at several points.

Revista de la Asoc. Médica Argentina, Buenos Aires

June, 1921, 34, No. 200

- *Biochemical Research on Vitamins. H. Damianovich.—p. 279.
- *Clinical Research on Vitamins. C. Pillado Matheu.—p. 286.
- *Action of Emetin on Heart. J. Guglielmetti and F. Arrillaga.—p. 291.
- *Skin Changes in Hypophysectomized Frogs. L. Giusti and B. A. Houssay.—p. 294.
- Darkfield Study of Blood Plasma. J. Llambias.—p. 299.
- *Biochemical and Clinical Research on Vitamins. C. Pillado Matheu and H. Damianovich.—p. 303.
- *Nonulcerative Hemorrhagic Rectitis. C. Bonorino Udaondo.—p. 393.
- *Wilson's Disease in Adolescent. R. Chiappori.—p. 399.
- Apparatus for Reduction of Fractures and Luxations Under Roentgen Control. G. Zorraquin and J. F. Merlo-Gómez.—p. 409.
- Compass for Locating Foreign Bodies. C. Donovan.—p. 412.
- *Pneumoradiography for Exploring the Kidney. H. H. Carelli and R. Finochietto.—p. 421.
- *Induced Emphysema for Exploring the Kidney. H. H. Carelli and E. Sordelli.—p. 424.
- *Hydatid Cysts of Bones. G. Zorraquin and J. F. Merlo-Gómez.—p. 426.
- *Treatment of Otitis Media and Interna. R. Nicolini and M. Balado.—p. 432.

Biochemical Research on Vitamins.—Damianovich found that all extracts rich in water soluble vitamin, even after boiling, activated the catalase extracted from the liver and also the lipase of the blood. The pancreas, the blood and the mucosa of the small intestine contained large amounts of this vitamin. The proportion grew less on a vitamin-free diet in his experimental research.

Clinical Research on Vitamins.—Pillado Matheu relates that healthy children increased in weight and the number of erythrocytes when fed with vitamin B. The experiences with it in 50 patients of all ages, in various pathologic conditions, confirmed the prompt benefit. Some patients with colitis improved so that they gained 5 kg. in one month. Only 3 of the total 50 failed to show a gain in weight. The erythrocytes ran up sometimes by a million a week until the normal proportion was reached. The beneficial effect on metabolism and nutrition became manifest in one or two days. He adds that the gruels and vegetable soups which have proved so useful for infants with alimentary intoxication are all rich in vitamins. He reiterates in conclusion that vitamins are not foods; they increase the tolerance for foods.

Action of Emetin on the Heart.—The research on dogs and frogs reported warns against the use of emetin by the vein, as it modifies the excitability and conductivity of the heart. It may induce dissociation of the ventricles and auricles and fatal fibrillation of the ventricles.

Hypophysectomy in Frogs.—Giusti and Houssay extirpated the pituitary in sixty frogs. There did not seem to be any disturbances thereafter except in the skin. Some were lively as usual, others more sluggish in their movements, but in all the green parts of the skin turned a dark bronze color and the white became grey or blackish. Normal frogs and trephined, and suprarenalectomized frogs kept in the same cages never showed this pigmentation of the hypophysectomized frogs. The horny layer of the skin in the latter grew much thicker.

Biochemical and Clinical Research on Vitamins.—Damianovich has been conducting extensive research with water soluble vitamin and an extract of liver, etc., the results establishing the energetic action of this vitamin as a catalyzer for the body ferments, especially for catalase and lipase. This biochemical aspect of the vitamins has been comparatively neglected hitherto, he says, while he regards this property of activator or catalyzer for the body ferments as of extreme importance for the welfare of the organism. He had Pillado Matheu carry the research into the clinic, and the detailed case histories confirm the stimulating action on the body ferments exerted by the same preparation of vitamins that he used in his experimental and chemical work. The infants and children had various digestive and nutritional disorders, but the metabolism showed marked improvement and the vital processes in general seemed to be stimulated to a higher plane, as is evident from the detailed case histories given of twenty-five children, including ten nurslings. The vitamin was obtained by autolysis from yeast in both branches of research, and was used in amounts of 0.1 or 0.2 c.c. of the extract obtained directly or by absorption by kaolin or loess sand, or fractioned with alcohol. The activation of the catalase proceeded with even as little as 0.05 c.c. of the extract, containing only 4 per cent. of solid matter, and after it had been boiled for fifteen minutes. Compare with abstracts above.

Nonulcerative Hemorrhagic Rectitis.—Bonorino's three cases of this kind were in two men of 25 and 36 and a woman of 25. Endoscopy showed merely congestion of the rectal mucosa or a few punctiform erosions. Recovery was soon complete under daily local applications of epinephrin, calcium chlorid and basic gallate of bismuth in a mucilaginous vehicle, with laudanum, introduced through a tube and retained as long as possible. The first symptoms had been the sudden onset of profuse bloody diarrhea, some of the stools pure blood, with tenesmus. Transient relief was obtained with opium, but the hemorrhage kept returning. The intervals since the first symptoms were six months, ten days and one month in his cases.

Wilson's Disease.—The first symptoms had been observed in the youth of 17 about a year before necropsy showed pro-

gressive degeneration of the lenticular nucleus with atrophic cirrhosis of the liver.

Pneumoradiography of Kidney Pelvis.—Carelli and Finochietto inject oxygen through the ureter catheter as for pyelography, and state that the results are as striking and instructive as with the best contrast suspension and, so far as calculi are concerned, much better. They give six roentgenograms to demonstrate the advantages of this simple and harmless method. The gas escapes through the bladder or is absorbed. The oxygen should never be drawn directly from the tank, and the flow should be arrested at the first sensation of pain.

Induced Emphysema for Exploring the Kidney.—Reviewed editorially.

Hydatid Cysts in Bones.—The two cases illustrated by Zorraquin and Merlo Gómez confirm the destructive action of a hydatid cyst by direct pressure and by a rarefying osteitis around it. In the cases described, the cyst was in a rib with, in one case, a second cyst in the ninth dorsal vertebra.

Radium Treatment of Otitis.—Nicolini and Balado report great benefit in 2 of 8 cases of sclerous otitis of the middle ear under 30 and 25 exposures to radium bromid; 2 others were improved with 14 and 22 exposures, and 4 other patients showed no improvement under from 9 to 23 applications of the radiotherapy. In a case of bilateral labyrinthitis with pronounced deafness and tinnitus, great improvement was realized under 45 exposures. Very slight improvement was realized in another case by 23 applications. This was a case of probable bilateral hemorrhage in the labyrinth, following chronic suppurative otitis. The results are regarded as very promising on the whole, fully 50 per cent. of the 10 patients having been materially benefited.

Semana Médica, Buenos Aires

June 30, 1921, 28, No. 26

*Centennial of Dr. G. Rawson.—p. 757.

Priority of Large Doses in Intravenous Serotherapy. M. Lubiére.—p. 782.

Vaccine Treatment of Pleurisy with Tachycardia. A. Mut.—p. 783.

The Ten Cancer Commandments. J. Regnault.—p. 785.

Plasmogenesis. A. L. Herrera.—p. 787.

Centennial of Argentine Medical Statesman and Hygienist.—This historical tribute to Dr. G. Rawson was mentioned recently in the news columns. The addresses at the National Academy of Medicine and elsewhere are reproduced here.

July 21, 1921, 28, No. 29

*Training Specialists. E. B. Demaría.—p. 65.

Research on Carbamic Esters. J. A. Sánchez.—p. 72.

*Buttermilk Plus Fat in Infant Feeding. E. Gaing.—p. 75.

Hemoptysis According to Sex. A. Cetrangolo.—p. 83.

Modern Construction of Hospitals. E. Giralt.—p. 85.

Training of Specialists.—Demaría compares the technic of ophthalmology in different countries, and describes the systems in vogue in the United States, and how they can be adapted to Argentina.

Buttermilk Plus Fat in Infant Feeding.—To be more exact, Gaing defines the preparation he uses as an acid hyperfat milk. He mixes 3 parts of separator cream with 7 parts of fresh cow's milk averaging about 3 per cent. fat. One or two spoonfuls of sour milk from the day before are then added and the whole is set aside for twenty-four hours in a warm place, stirring a few times. When soured to 35 degrees Soxhlet it is boiled up, stirring constantly with a cream beater, and it is then kept on ice. This food is proving most excellent to supplement the breast and for beginning artificial feeding early. Many of the 150 young infants fed with this acid, hyperfat milk gained from 50 to 100 gm. a day in some weeks. He gives the details of 100 cases.

Siglo Médico, Madrid

June 4, 1921, 68, No. 3521

*Pains in Posterior Roots. J. M. de Villaverde.—p. 525.

Puerperal Eclampsia. Fernando Villanueva.—p. 528.

Abdominal Hysterectomy. Faure.—p. 530.

Painful Radiculitis.—Villaverde is inclined to accept syphilis as a common cause for pains in the posterior roots. These pains are liable to be ascribed to various organs and,

if the syphilis has escaped recognition, the differential diagnosis may be puzzling, especially when more than one root is involved. In a typical case illustrated, the man of 29 complained of pains in the left shoulder spreading to the hand. They grew constantly more severe and the arm grew weak and thin, with vasomotor disturbances. Lumbar puncture, he says, will distinguish between dorsal radiculitis and intercostal neuralgia. Tabes may develop with monosymptomatic pains. In another class of cases the pains occur at irregular intervals and develop slowly, and no symptoms of any other kind can be discovered. They may be an abortive form of tabes.

Deutsches Archiv für klinische Medizin, Leipzig

Aug. 12, 1921, 137, No. 1-2

- *Origin of Human Speech. B. Naunyn.—p. 1.
- *Meningitis with Tuberculous Choroiditis. W. Gilbert.—p. 21.
- *Pneumonic Form of Paratyphoid. G. Pinesohn.—p. 25.
- *Derangement of Conduction of Impulse. E. Edens.—p. 32.
- *Bilirubin Colorimeter. E. Meulengracht.—p. 38.
- Clinical and Therapeutic Aspect of Influenza. K. Glacssner.—p. 47.
- *Conduction of Impulse Modified by Atropin. E. Weiser.—p. 61.
- *Diagnosis of Latent Edema. F. Kauffmann.—p. 69.
- *Bilirubin in Duodenal Juice, etc. G. Lepehne.—p. 78.
- *Velocity of Pulse Wave. W. Weitz and C. Hartmann.—p. 91.
- *Clinical Electrocardiography. E. W. Taschenberg.—p. 101.

Evolution of Speech.—Naunyn queries why have not the higher animals developed speech? An abyss separates them in this respect from even the lowest grade of human beings. Romanes has suggested that some casual anatomic factor seems to be the only explanation for the fact that the higher animals have not happened to use simple words to communicate simple ideas. The "da-da-da" of the happy babe is like the singing of the birds, and both display a tendency to copy others. One crowing rooster will start all in the neighborhood to crowing, and the babe soon tries to imitate the words it hears spoken. Why does the infant progress beyond this echo-speech to actual speech, while birds never do? Birds and humans have also in common the erect attitude, and they are the only ones that walk erect. Monkeys have four hands and no feet. The arms of the birds developed into wings, and they are used symmetrically. When man began to walk erect and use his hands, the right hand was found more convenient for attack and defense, gestures, and the ordinary uses of life, the left hand being used more for carrying things. This greater use of the right hand—not the more abundant blood supply in the left hemisphere; animals have the latter—was what stimulated the left hemisphere of the brain to higher development. This provided Romanes' "casual anatomic factor" that distinguishes man from animals and made articulate speech possible. It is a consequence of man's walking erect and using his hands as hands. Speaking and the organ of speech developed together. The singing of birds and their balancing power are by-products of the evolution of their organ of hearing, as also music in man, along with rhythm and dancing, although a muscle sense evidently cooperates with the internal ear.

Involvement of Meninges with Tuberculous Choroiditis.—Gilbert noted headache over the entire head for which the meninges were evidently responsible in eight of ten cases of recent tuberculous choroiditis. In some there was also stiff neck. These meningeal symptoms subsided completely in two or three months. Obstinate headache in young persons with negative findings otherwise should suggest the possibility of this benign form of tuberculous meningitis, secondary to choroiditis, even when the latter has not yet made its presence felt.

Pneumonic Paratyphoid.—After a brief period of malaise and diarrhea pleural and pulmonary symptoms predominated, with hemorrhagic sputum. Paratyphoid B bacilli were cultivated from the sputum for several weeks after defervescence the fifth week. The man was still coughing and expectorating a little five months later.

Conduction of Impulse.—The electrocardiograms show a most unusual manner of retarding of the impulse in the previously healthy man of thirty-eight after acute articular rheumatism.

Bilirubin Colorimeter.—Meulengracht uses 0.05 parts of potassium bichromate in 500 parts distilled water with 2

drops of sulphuric acid. The bilirubin content of the blood is shown by the number of 0.5 c.c. of physiologic sodium chlorid solution that have to be added to the plasma to bring the tint to correspond. He expatiates on the simplicity and the importance of the test in revealing the insidious passage of bile into the blood.

Medicinal Influencing of Conduction of Impulse.—Extrasystoles developed without apparent cause in the robust man of 36 and the atypical electrocardiogram was modified by atropin.

Latent Edema.—Kauffmann injected subcutaneously 10 c.c. of saline, and a drum recorded the rise and the fall of the level of the skin. In the healthy, by the end of the hour, the skin had always returned to its former level, showing normal resorption of the fluid. In heart disease resorption was retarded, and this latent tendency to edema was sometimes the only sign of circulatory insufficiency. The significance of this latent edema was emphasized by the increased output of urine that followed when these patients had conditions for the circulation improved in certain regions, as, for example, by raising the foot of the bed after test ingestion of water. This has no effect on diuresis in the normal, nor in persons with pronounced edema. It is therefore a simple means for detecting incipient edema.

Bilirubin in Cadaver Bile and in Duodenal Juice.—The colorimeter findings in bile from 25 cadavers indicated bilirubin content between 100 and 250 units, as a rule, but in jaundice, up to 800 units. In the duodenum contents, after various provocative measures to force out bile from the gall-bladder, the highest bilirubin figure was obtained in hemolytic jaundice and pernicious anemia.

Velocity of Pulse Wave.—The extensive research described seems to justify the assumption that the muscular walls of the arterial system relax as the blood wave enters, and contract behind it to force it along.

Clinical Electrocardiography.—Taschenberg discusses paroxysmal arrhythmia and a case of normal heart beat with auricular fibrillation under the influence of digitalis. He also seeks to explain the mechanism of dissociation and interference of auricles and ventricle with acceleration of the heart beat.

Deutsche medizinische Wochenschrift, Berlin

July 21, 1921, 47, No. 29

- Treatment of Surgical Tuberculosis. E. Lexer.—p. 821.
- Treatment for Callosities. P. G. Unna.—p. 822.
- Permeability of Red Corpuscles. E. Wiechmann.—p. 824.
- Extended Use of "Thick Blood Drop." V. Schilling.—p. 825.
- *Leukocyte Count in Cancer and Achylia Gastrica. Weinberg.—p. 826.
- Ulcers of Vocal Cords in Influenza. J. Wätjen.—p. 829.
- Skin Tuberculin Test in Surgical Tuberculosis. Lotsch and Hübner.—p. 830.
- *Sensitization in Roentgen-Ray Therapy. J. Palugay.—p. 831.
- Immunization with Detoxicated Toxins. E. Löwenstein.—p. 833.
- System for Diphtheria Prophylaxis. K. Kassowitz.—p. 834.
- Modification of Mercury Lamp for Phototherapy. Axmann.—p. 835.
- Absorbent Peat Hospital Bed. E. Winckler.—p. 836.
- Present Status of Psychoanalysis. I. H. Schultz.—p. 836.
- Hemorrhage During the Second Half of Pregnancy and During Labor; Placenta Praevia. L. Blumreich.—p. 837.

Diagnostic Significance of Leukocyte Blood Count for Carcinoma and Achylia Gastrica.—Weinberg recalls the recent statement of C. Moewes that lymphopenia is a symptom that deserves to be accorded the same consideration as the result of the chemical examination of the gastric juice, Moewes having frequently been able to diagnose "carcinoma" solely from the blood findings. Weinberg found, in his 60 cases of carcinoma of the alimentary tract, a normal leukocyte count in 24, or 40 per cent.; leukocytosis in 23, or 38½ per cent., and leukopenia in 13, or 21⅓ per cent. Comparing the conditions in carcinoma and achylia gastrica, he found, in 68 cases of carcinoma, the leukocytes normal in 26, increased in 27 and diminished in 15 cases; in 67 cases of achylia, the leukocytes were normal in 37, increased in 7 and diminished in 23 cases. It will be noted that in achylia there were only 7 cases of leukocytosis as compared with 27 cases associated with carcinoma. Leukocytosis must, therefore, be regarded as indicating carcinoma rather than achylia gastrica. Lymphocytosis, however, was found to indicate rather achylia gastrica, and lymphopenia carcinoma.

Sensitization in Roentgen-Ray Treatment.—Palugyay reports that the infiltration of the tissues with potassium iodid before irradiation does not facilitate the cure to any marked extent, which is in agreement with Lenk's findings in his series of investigations. Aside from the negative results of the method, he opposes the use of potassium iodid most decidedly on account of the danger of formation of fistulas.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, 1921, 165, No. 1-2

*Ameba as Responsible for Gastric Ulcer. E. Birt.—p. 1.

*Results of Herniotomies. Niedlich.—p. 34

*Postoperative Complications in the Lungs. F. Mandl.—p. 67.

*Flail Knee Joint. F. R. Mühlhaus.—p. 86.

*Tuberculosis of Male Genital Organs. L. Sussig.—p. 101.

The Ameba in Relation to Gastric and Duodenal Ulcer.—Birt's eleven years of surgical work at Shanghai have convinced him that the ameba is responsible for a large proportion of typical gastric and duodenal ulcers. He queries whether this may not be the unsuspected cause in other countries in the same way as in China. His retrospective diagnosis in many cases of membranous colitis from his younger days is also ameba infestation, although he never thought of looking for the ameba at the time. In four cases the patients had acquired the amebic dysentery in Europe but it had not been recognized until they arrived in China. Two were from Denmark and one each from Sweden and Germany, and all had had years of gastro-intestinal disturbances, explained by the discovery of the ameba. If the search for the ameba were a routine practice in the temperate zones he is positive that it would clear up many cases of gastric and duodenal ulcer. In his 32 cases of the kind all were operated on but 2, and 21 were completely and 5 partially cured and 3 improved; 3 died. In the 24 cases of pronounced hyperacidity, the results were bad in 5 as also in 3 of the 4 with anacidity. Nothing but an exploratory laparotomy, he says, lifts the veil obscuring this grave and often surprising disease, with its danger of malignant degeneration. This danger is a potent argument against wasting time on internal measures. It is hard to say exactly when malignant degeneration begins; in one case of a four year mastoid fistula, no trace of cancer was discovered, but inoperable cancer was found four months later. He had a similar experience also in a case of appendicitic spontaneous fistula, and one of an osteomyelitic fistula on the leg. In treatment of gastric ulcer from amebiasis, he warns to refrain as much as possible from resection. Emetin has proved its reliability in curing not only dysentery but liver abscess as well.

Results of Herniotomies.—Niedlich has been reexamining recently a number of patients among those operated on years ago for inguinal hernia (911); femoral (152); umbilical (53), and epigastric (32). With the Hackenbruch-Drüner method there was no recurrence in over 92 per cent.; with the Bassini in 91.4 per cent. in the lateral cases and 77 per cent. in the median. The patients were mostly miners, doing hard work.

Postoperative Complications in the Lungs.—Mandl reports from Hochenegg's service at Vienna that he found postoperative complications in only 8 per cent. of 128 cases of major operations preceded by routine intramuscular injection of a digitalis preparation, while they occurred in 27 per cent. of 87 similar cases not given the digitalis. He was surprised to find pulmonary complications so common after local anesthesia: 12.1 per cent. in 189 goiter operations; 26.7 per cent. in 97 under general anesthesia. The corresponding figures in herniotomies were 10.9 local in 227 cases and 9.8 in 415 general. In cancer gastro-enterostomy cases 22.2 per cent. in 54 local and 15.9 per cent. in 44 general. With resection of the stomach, 31 per cent. of 74 local and 48.5 per cent. of 35 general. In the ulcer cases the proportion was respectively 11.8 and 22.5 in the 226 local cases and 16.5 and 28.6 in the 14 general cases. Independent of the mode of anesthesia, the farther from the respiratory portion of the abdomen, the less frequent the lung complications: in 1379 abdominal and hernia operations, the general average was 14.5 per cent.; in 1585 operations on head, limbs, mamma or rectum, only in 8.5 per cent. This suggests the factor retention pneumonia, and the digitalis combats this by its action on the vessels in the lungs as well as in the digestive tract.

Flail Knee Joint.—Mühlhaus presents data to show that muscular insufficiency above is the essential cause of the flail joint in many cases, and that correction of this restores function to the knee.

Genesis of Tuberculosis of Male Genital Organs.—Sussig examined about 6,000 frozen sections of the genital organs in complete series from each of 13 cadavers with recent miliary tuberculosis without appreciable tuberculous changes in these organs. His research included, further, 17 other tuberculous cadavers. One of the practical results is that a tuberculous process in any of the male genital organs has little prospect of being cured by operative measures unless the organ involved is the only seat of the disease in the genitals, and it is removed early. The extreme tendency of tuberculous processes in the testicle and epididymis to break through early into the canaliculi insures the early infection of the secretion from this organ, and hence secondary infection from this secretion. Castration does not insure a radical cure when the prostate or seminal vessels are already involved. Simmonds found this to be the case in 19 and 17 necropsies after castration. A tuberculous process in the prostate or seminal vesicles is liable to persist localized longer than is the case with testicle and epididymis lesions.

Medizinische Klinik, Berlin

July 17, 1921, 17, No. 29

*Epidemic Encephalitis and Influenza. P. Schröder and R. Pophal.—p. 863.

*Improved Darkfield Microscopy. E. Hoffmann.—p. 864.

*Temperature Sense of the Stomach. G. Ganter.—p. 865.

*Rousing of Malaria by Arsphenamin. F. Glaser.—p. 867.

*Hilus Gland Disease in Adults. W. Rüppel.—p. 868.

*Pituitary Extract as Kidney Test. F. Brunn.—p. 871.

*Alcohol Treatment of Trigeminal Neuralgia. H. Kolodziej.—p. 872.

Sublimate Salvarsan. F. Fischl and B. Schnepf.—p. 873.

*Examination of Standing Subject. Krieg.—p. 874.

*Pessary in Prophylaxis of Gonorrhea. I. Saudek.—p. 875.

Theory of Serology of Syphilis. E. Epstein and Paul.—p. 877. Cont'd.

Influenza Encephalitis.—Schröder and Pophal have found records of twelve cases of encephalitis following influenza. They comment on the wide diversity between the pathologic anatomic findings and those of epidemic encephalitis. They insist that this diversity disproves the connection between influenza and epidemic encephalitis, which some have asserted.

Improved Darkfield Microscopy.—Hoffmann's method of darkfield work includes the most brilliant illumination and a somewhat opaque disk, oiled or not, between the lamp and the microscope mirror. The peculiarly vivid appearance of the specimens with this *leuchtfeld* method, as he calls it, justifies the hope that staining methods can be found that will show up the still invisible filtrable viruses by this means. It is odd that the stained specimens show in complementary colors. The finest flagella and most minute spirochetes are plainly visible, as also the parasites in the "thick drop."

Sensitiveness of the Stomach to Temperature.—Ganter's research apparently demonstrates that the stomach wall is sensitive to temperature, but only to a very limited extent.

Arsphenamin Fatality.—Glaser does not know of any other instance than the one he reports of the fatal rousing of a latent tropical malaria by injections of arsphenamin. The man of 28 was supposed to be entirely healthy when he acquired syphilis in January, 1921, and was given a ten weeks' course of neo-arsphenamin and mercury. Two days afterward fulminating malaria developed, fatal in two weeks. During his internment in England he had been in contact with malarial subjects from India, and probably had become an unsuspected carrier of the parasites. There had been some fever after the second injection of the arsenical, compelling suspension and bed rest for a week. This should have warned of the possibility of latent malaria.

Tuberculous Hilus Glands in Adults.—Rüppel has witnessed in a number of cases the final subsidence of what seemed to be tuberculous enlargement of glands at the hilus in both children and adults, showing that this was merely a sequel of influenza. With true tuberculous glandular disease, the paucity of the physical findings is often in direct contrast to the extensive changes shown by the roentgen rays.

Pituitary Extracts as Test for Kidney Functioning.—Brunn has found that after a subcutaneous injection of pituitary

extract, the normal kidneys invariably secrete a highly concentrated urine. With diseased kidneys, the specific gravity does not increase after the test injection of pituitary extract, not even when the intake of fluids is restricted. This test is particularly useful with a tendency to dropsy, as the response is independent of extrarenal influences. A further advantage is that the cooperation of the patient is not required. If the specific gravity increases to 1.020 or 1.022, he thinks that grave kidney disease can be excluded. In three cases of chronic nephritis the specific gravity persisted at 1.012 to 1.015, both with this pituitary test and with test restriction of fluids.

Treatment of Trigeminal Neuralgia.—In the severe case described a complete cure was realized by two injections of 1 c.c. of 70 per cent. alcohol into the gasserian ganglion. The eye on that side was protected with a watch-glass dressing, boricated salve applied to the lower lid, and atropin instilled. In this way the dreaded neuromyolytic keratitis was warded off.

Examination of Standing Patient.—Krieg expatiates on the more instructive findings with the abdomen and heart when the subject stands. For palpation of the abdomen, he should bend forward at an angle of 35 degrees, the arms hanging loose and the chin sunk on the chest. Even the spine can be palpated through the abdomen by this means, and the liver "hefted" in the hand. The examiner stands at the side.

Pessary in Prophylaxis of Gonorrhea in the Male.—Saudek suggests that an occlusive pessary worn by the woman, especially if medicated, might aid in warding off the transmission of infection from a gonococcus cervicitis to the male.

Münchener medizinische Wochenschrift, Munich

July 22, 1921, 68, No. 29

Economic Conditions of Greifswald Students. Friedberger.—p. 901.
Diseases of the Orient. L. R. Müller.—p. 905.
Effect of Exertion on Blood Pressure. O. Bruns.—p. 907.
Observations on Capillary Circulation. G. Magnus.—p. 908.
Irradiation of Experimental Malignant Tumors. Wetzel.—p. 910.
The Skin as an Immunizing Organ. E. F. Müller.—p. 912.
*Predisposition to Epidemic Encephalitis. W. Villinger.—p. 913.
*Demonstration of Integrity of Placenta. P. Ederer.—p. 916.
*High-Percentage Glucose Solution in Eclampsia. Hugel.—p. 916.
Typhoid Bacilli in Gallbladder. E. Metge.—p. 917.
Pylorospasm and Related Conditions. J. K. Friedjung.—p. 919.
Treatment of Rachitic Leg Curvatures. E. Jacobsen.—p. 920.
Infection of Tongue from Vaccination Pustule. Langsch.—p. 920.
Significance of Abnormal Blood Pressure. K. Grassmann.—p. 921.

Predisposition to Epidemic Encephalitis.—From observations that he has been making during the last year or two, Villinger concludes that epidemic encephalitis develops probably only on the basis of a constitutional predisposition, which finds its clinical expression in the manifestations of lymphatism and a hyperexcitability of the vegetative nervous system, and also in more or less marked psychopathic features. Other constitutional factors, though not so fully understood as yet, are doubtless connected with an individual constitutional anomaly of certain parts of the central nervous system, especially of the extrapyramidal motor centers. The onset of the disease is brought about by a specific exogenous injury, which must be connected in some way with the influenza virus.

Demonstration of Integrity of the Placenta.—Ederer has tried out Küster's milk test in 250 cases, and, while not ascribing to it absolute reliability, he found it possessed great diagnostic value. He used commonly human milk, although cows' milk and various white substances may be used. Ordinarily, 200 c.c. of the fluid were injected into the umbilical vein. If at any point the fluid appears, it points to a vascular injury, or possibly a tissue defect. In case of defects of the placenta, Ederer found that the injected milk either spurted in a jet from the torn vessel or flowed out at least profusely. If the test is positive, it does not furnish absolute proof, but rouses to double caution, while a negative result proves almost certainly the integrity of the placenta. It is only fair to add, he says, that Kirstein, after long use, says the test has no practical value.

Treatment of Eclampsia with a High-Percentage Sugar Solution.—Hugel recalls the often stated fact that during the

war eclampsia decreased markedly. He also states that in his province (the Palatinate) eclampsia has always been uncommon, and explains this by the fact that the diet there is rich in vegetables. In two recent cases of eclampsia he used a sugar solution with marked success. Professor Heidenhain also tried it in a severe case with good results. For the infusion he used a 10 per cent. glucose solution. Not less than 500 gm. should be given; 1,000 gm. will be better if the patients are not weakly. The temperature of the solution should be about 36 C. Injection should be done slowly, taking an hour or more. The injections are made into the median vein at the elbow.

Zeitschrift für Kinderheilkunde, Berlin

Aug. 19, 1921, 30, No. 1-2

*Rate of Development. B. Salge.—p. 1.
*The Skin and Sweat Glands in the Newborn. J. Becker.—p. 3.
*Development of Striated Muscle. A. Schmitz.—p. 21.
*State of Nourishment and Body Measurements. A. Huth.—p. 39.
*Acute Suprarenal Insufficiency in Infancy. M. Victor.—p. 44.
*Experimental Digestion of Milk. M. Pfandner and K. Schübel.—p. 55.
*Elimination of Ingested Water by Infants. F. Wengraf.—p. 79.
*Injection of Blood in Infants. Zoltán v. Barabás.—p. 86.
*Convalescents' Serum in Prophylaxis of Measles. P. Kutter.—p. 90.
*Syntropia of Pathologic Conditions. M. Pfandner and L. v. Seht.—p. 100.

Rapidity of Development in Relation to the Constitution.—Salge points out that certain features which we regard as constitutional anomalies are in fact merely exaggerations of normal processes or they develop prematurely or too late. Some different parts may develop in advance of or later than others in individual cases. A series of researches have been undertaken in his service along this line. Two reports of them follow:

The Skin and Sweat Glands in the Fetus and New-Born.—This communication from Becker is the first article in the series outlined in the preceding paragraph. The research confirmed the wide differences in the rate of development of different organs and parts, showing constitutional differences in different individuals.

Development of Striated Muscle.—Schmitz found similar differences in the development of the muscles.

State of Nourishment and Physical Measurements.—Huth applied to 862 Munich children several of the formulas most in vogue as an index of the state of nourishment, but found them all disappointing. In 70 much undernourished children the Rohrer index corresponded to the clinical findings only in 20 per cent. while Huth's "weight quotient" corresponded in 50 per cent. A group of 31 children of the fifth grade were examined with seven index formulas, and the index that harmonized best with the general aspect was the Sinion and Pignet index. That is the chest measure in cm. plus the weight in kg. subtracted from the height. This was the only index that gave a different figure for each child. But even with this, there was no dependable correlation with the actual state of nourishment.

Acute Suprarenal Insufficiency in Infants.—The sudden onset of the severe symptoms in the 14 months male babe suggested poisoning, but necropsy the third day showed almost complete destruction of the suprarenals. A second case came to necropsy two days later, in a 7 months male infant. Victor's retrospective diagnosis by exclusion in the first case is that the suprarenals had been injured during the difficult delivery. They had sufficed during the first months of life, but broke down completely as greater demands were made on them as the child grew, aided perhaps by some infection. In the second case, a fulminating sepsis ran such an acute course that it came to hemorrhages only in the suprarenals and skin. The convulsions in the midst of apparently complete health, the soft irregular pulse and cyanosis, contracted pupils and stupor might suggest the lack of epinephrin in such cases and call for its injection. In both infants the thymus was exceptionally large.

Experimental Research on Digestion of Milk.—The method of research applied is advocated as simple and instructive. In a 6 day old goat kid, through a laparotomy incision, 100 c.c. warm fresh cow's milk was injected into the upper small intestine, and the same amount of fresh goat milk was injected into the lower part, and each 2 m. portion was tied

off separately. The kid was kept in a special cage, and four hours later the kid was bled to death and the two milk segments compared. Similar tests were applied to two other kids, and the findings coincided in all, testifying to the more difficult digestion of the cow's milk and its slower and less complete absorption. The residue found seemed less well digested, there being more residue and it being more acid than the goat milk. The two kinds of milk were poured into the oral or anal segment in turn in the different animals. In all, the albumin and sugar passed in appreciable amounts into the urine.

Elimination of Water by Infants.—Wengraf's tests demonstrated that the water eliminating capacity of the kidneys is fully developed even in the first days of life.

Injection of Blood in Treatment of Infants.—Barabás reports excellent results from injection of from 1 to 15 c.c. of the mother's blood, repeated every three or five days, to a total of six or seven injections and not over 50 c.c. of blood. The eight infants all displayed a pronounced tendency to atrophía, the weight running down or keeping long stationary. One infant had gained only 100 gm. in two months, but under these injections it increased 140 gm. a week, to a total of 1,270 gm. during the course. In four cases with desquamating erythrodermia the skin cleared up at the same time, and he is convinced that the prompt reaction to the injection of blood was responsible for the turn for the better. The amounts of blood were too small to have any direct action; the blood probably contained some enzyme or vitamin that the child organism happened to be needing.

Convalescents' Serum in Prophylaxis of Measles.—Kutter followed Degkwitz' directions in 145 cases, seeking to ward off measles after supposed exposure in various institutions and in the home. The success was complete in 107 instances; notwithstanding close contact none developed the disease. His experience has confirmed the full contagiousness of even an extremely rudimentary form of measles. In 2 cases the serum of children who had been infected but had had the infection stifled by the convalescents' serum, yielded serum which displayed a protecting action when injected into other children. Degkwitz has reported a similar experience in 6 instances. There were only 4 failures in the total 145 experiences, and the cause for these failures is still a mystery. The same serum effectually protected others.

Associated Diseases.—Pfaundler and Seht give a large table showing right and left a vertical list of twenty-seven pathologic conditions, and at the top the same list printed horizontally, the figures in the squares showing the number of cases in which more than one pathologic condition was found. They call this the syntropia of disease conditions, and their table of 28,090 cases shows a number of unexpected coincidences of this kind. They have worked out various charts and formulas to express the findings but add that similar syntropias have long been known or assumed. They express in objective form what has been merely a vague impression hitherto.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 16, 1921, 2, No. 3

- *Serodiagnosis of Carcinoma. N. Waterman.—p. 309.
- *Pathology of the Blood. J. Lankhout.—p. 322.
- *Public Health Service in Netherlands Indies. G. van G. Stort.—p. 328 and p. 331.
- *Gastro-Intestinal Fibromas. J. van Woerden.—p. 336.
- *Steinach's So-Called Puberty Gland. M. W. Woerdeman.—p. 343.
- *Medical Impressions of Brazil. C. D. de Langen.—p. 366.

Serodiagnosis of Cancer.—Waterman describes research with the Abderhalden method of serodiagnosis in ninety-seven tests. His conclusions are that the protective ferment theory is still unproven and that the conditions are much more complex than Abderhalden, Pregl and de Crinis assume.

Pathology of the Blood.—In the first of what Lankhout records as "three remarkable cases" the stormy onset of general infection, with enlargement of glands, was accompanied by extreme lymphocytosis. The diagnosis of acute lymphatic leukemia was disproved by the gradual and complete recovery. In the second case, a healthy middle-aged man developed prurigo and intense eosinophilia, the hair dropping out. Dermatologic treatment failed to benefit but

recovery ensued under arsenical treatment. In the third case paroxysmal hemoglobinuria recurred frequently in the youth of 17. It could not be elicited by chilling, and there has been no return since early in 1920. On the last occasion the hemoglobinuria developed after a fatiguing walk.

The Public Health Service in Netherlands East Indies.—Stort expatiates on the official medical work in the Dutch Indies, its interest and importance and the requirements for the service.

Gastro-Intestinal Fibromas.—The huge fibromyoma removed from the woman of 50 had its pedicle in the mesentery and had grown to the stomach.

The Puberty Gland.—Woerdeman warns that Steinach's conception of the puberty gland is by no means definitely established as yet; he reviews some of the evidence to date.

Medical Impressions of Brazil.—De Langen is chief of the public health service of the Dutch East Indies. He compares the work of the public health service in Brazil at large with that in Java, etc., and remarks that if Rio de Janeiro had the physical features of Batavia, even Oswaldo Cruz could not have exterminated yellow fever in three years.

Ugeskrift for Læger, Copenhagen

July 28, 1921, 83, No. 30

- *Serothrapy of Diphtheria. V. Bie.—p. 983. Con'n No. 32, p. 1052.

Treatment of Diphtheria.—For the last year or two it has been Bie's routine practice to inject antitoxin in doses up to 80,000 or 100,000 units in the severer cases to a total of 160,000 units in the first twenty-four or thirty-six hours in children under 10, or 220,000 units in children older than this. About 20 c.c. of the first dose is given by the vein, all the other injections are given intramuscularly. In the milder cases the first dose is from 4,000 to 40,000, not repeated unless the membranes spread. Since these large doses have been introduced, there have been no deaths from respiratory paralysis, and the mortality in the very gravest cases has been reduced from an average of 52 to 22 per cent. The less severe cases ran a harmless course. The proportion of very severe cases has doubled since 1896, but the total mortality has declined from 2.6 per cent. in 869 cases in 1917 to 0.7 per cent. in 1,341 cases since these large doses have been the rule.

Aug. 11, 1921, 83, No. 32

- Epidemic Encephalitis; Eight Cases. J. E. Holst.—p. 1043.
- Bilateral Anophthalmos. Knud Biering.—p. 1051.

Aug. 18, 1921, 83, No. 33

- *Glycosuria of Mixed Nature. J. E. Holst.—p. 1072.
- Prohibition and Reduction of the Death Rate. M. Hindhede.—p. 1082.

Glycosuria of Mixed Origin.—Holst's patient, a man of 47, had been known to have glycosuria for twenty-three years, but there were no other symptoms of diabetes, and after five years of more or less restriction of the diet he abandoned all restrictions, and felt constantly well until the last six months. He now presents the features of both the renal and the diabetic forms of glycosuria: continual glycosuria with low sugar content of the blood but no signs of diabetes except that the blood sugar curve corresponds to the diabetic type and that the assimilating power is low. Holst compares this case with the few somewhat similar ones on record, explaining that with normal carbohydrate metabolism the threshold may be so low as to allow alimentary glycosuria of the renal type, and, if extremely low, severe renal diabetes. In the class with pathologic but not progressively pathologic carbohydrate metabolism, there is benign alimentary glycosuria of the diabetic type if the threshold is high. If it is low, the alimentary glycosuria is mild but it is of the combined diabetic and renal type, as in the case here described. With extremely low threshold, we encounter the so-called transitional types. If the hypofunction of carbohydrate metabolism is progressive, then there is true diabetes mellitus, or malignant alimentary glycosuria of the diabetic type. A casual coincidence of a low threshold with substandard carbohydrate metabolism thus explains these puzzling stationary cases. They had better be managed, however, he says, as if they were cases of mild diabetes, as there is always a possibility of a transition into the progressive form although there is no record of such to date.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 15

CHICAGO, ILLINOIS

OCTOBER 8, 1921

POSTGRADUATE WORK IN LARYNGOLOGY*

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Prior to 1918, practically no postgraduate teaching on a systematic and comprehensive scale had been successfully carried out in this country. It is true that certain progressive men in one or two of our large cities had formulated and actually presented courses in certain lines of longer or shorter duration; but of necessity these courses were limited in their scope, presenting often a single phase of a wide subject, and although excellent in their concept, could scarcely be termed comprehensive except to the few who had already been favored with a more or less broad aspect of the specialty. It was practically individual instruction in one of the component details rather than on the subject as a whole, it being often assumed that the student already possessed a broad and comprehensive view of otolaryngology. As a consequence of this, the aspiring young laryngologist became of the opinion that once the submucous resection and the enucleation of the tonsil were mastered, he forthwith had become a full fledged and competent specialist.

I fear that we older men are not altogether blameless for the younger man's point of view. His whole hospital experience has shown him that septal deviations and tonsil disease constitute perhaps 90 per cent. of operations occurring in his department; and, seeing the avidity with which they are grabbed after the chief divides the operating, small wonder is it that he comes to believe that these constitute the alpha and omega of otolaryngology.

It is precisely this attitude that we should combat, for as soon as this is universally discountenanced, the six weeks' course will disappear, never to return. Preaching duty is unpleasant, and often ill becomes him who attempts it, but it does seem to me that we, as representative practitioners in our specialty, should spread the propaganda extolling the wideness of the scope of otolaryngology and insist on adequate preparation before being applied by the practitioner. This can in no sense be interpreted as a hardship, but rather as an educational advantage which awakens the student to his possibilities instead of being held down to his limitations (i. e., tonsils and septum) through his

own ignorance. To further and promote this education is now the purpose of the Postgraduate School of the University of Pennsylvania.

As the final amalgamation with the Polyclinic did not occur until toward the close of the war, it was with no little expenditure of energy that comprehensive courses were arranged to meet the needs and requirements of those men just freed from the service and about to reenter private practice. At a meeting of the faculty, it was decided that the so-called six weeks' course would be a thing of the past; and for the session 1919-1920, two courses, each of four months' duration limited to sixteen students, would be offered. Much to our surprise, more applications by one half were received than were places, as some doubt had been expressed that sufficient practitioners would find time or could arrange to devote four months exclusively to postgraduate study. The experience gained by the time the first semester had been completed prompted the faculty to propose that the length of the courses be increased to one full academic year. Briefly, this would include lectures on surgical anatomy of the nose, accessory sinuses and larynx, surgery of nose and sinuses, neurotology, physiology of the ear, surgical anatomy of the ear, surgery of the pharynx and larynx, bacteriology, operations on the cadaver, and broncho-esophagoscopy. These were all given during the morning hours. The afternoons were devoted to clinical work, particularly operative, in which the student took an active part. The course was limited to twenty men and was filled almost before the preliminary announcements were printed.

This brief outline of the experiences of the University of Pennsylvania regarding postgraduate work in otolaryngology is cited merely that we may obtain an insight into the attitude of the general profession to more or less lengthy but thorough courses, in contradistinction to the short and inefficient ones. That this should obtain in Philadelphia is probably a criterion of the attitude of the other large medical centers. It would appear that the problem of education in the specialties for the younger man is in the process of solution.

Another phase of the question is the higher or advanced education of the older man. I speak now of the specialist, possibly from one of the smaller communities, who has little opportunity of frequently visiting the city, and is limited in his observations to his own individual work. Despite his best intentions or his familiarity with current medical literature, unless he is more or less intimately associated with the latest theories and methods, a state of "rusting" must surely develop which, if persisted in, means decay and ulti-

* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

mately to becoming hopelessly out of date. These men were wont at longer or shorter intervals to arrange their work so as to enable them to leave and pursue an intensive course of four to six weeks to brush up, as it were, and thus acquaint themselves more or less intimately with the progress made by that particular specialty since their last appearance. This is about the only opportunity that this class of men have to improve their knowledge and further their skill, and therefore represents an important epoch in their medical careers. On this account, if for no other, their efforts should receive our serious consideration. Just how this eventually will work out at this moment does not appear to be entirely clear. The proposition, as it now stands, is to give one or more individuals certain advanced concentrated work for a few weeks and simultaneously to conduct uniform systematic instruction in organized classes. One can well perceive the incompatibility of these, and the difficulties that would inevitably result. If the private pupil (the short course man) was especially favored, dissatisfaction would manifest itself and rightly so among the regular students; while, on the contrary, unless this concentrated instruction was received, the private pupil would consider his time and money badly spent.

On the face of probabilities, it would appear that private courses sandwiched into the regular curriculum represent an impossibility which brings little knowledge to the student and less honor to the teacher. The demand, however, for this short time work appears (judging from my own observation) to be more insistent than ever. This corresponds very largely to some of the advanced work that was possible in Vienna before the great upheaval. To satisfy this demand might not a solution be arrived at somewhat as follows:

The present course ends in May, at which time the advanced work and final touches, so to speak, are being given. Why could it not be arranged that an intensive course of one month be included for a certain number of advanced students? The men accepted must have shown conclusively their eligibility, first, by the length of time they have been engaged in otolaryngology, and by their knowledge of and skill in the specialty. I appreciate the nicety that might arise in the differentiation of those who may or may not be eligible; but, after all, one can usually procure reliable evidence from their society affiliations.

THE SPECIAL SOCIETIES

This brings up the relations of the embryo specialist to the special societies and our attitude toward both. In the first place, every young specialist should immediately affiliate himself with one of the national organizations, such as the American Medical Association, American Academy of Oto-Laryngology, Triological Society, American Otological and American Laryngological Association, and make it a rule to attend the annual meeting, taking an active part in the proceedings. The American Medical Association, or this section, to be exact, is the great democratic organization where he will be welcomed as he stands without the formalities of an examination, a thesis or be subject to the vagaries of an executive council. This does not, however, mean that the scientific work can be measured accordingly. On the contrary, it is in this section that he will win his spurs, if spurs are

to be his at all, but it will not be done through mediocre work or by bombastic phrases contained in empty discussions.

If he has original thoughts or methods to present, he can be assured that his paper will meet with serious attention and be followed by unprejudiced discussion. After a few years, admittance to fellowship into the Academy of Oto-Laryngology or Triological Society should be his ambition and, as a final goal, the Americal Laryngological or Otological Association, depending on his preferences. Many promising young men have their ambitions killed when chosen early to membership in one of the older and exclusive societies. Such a one is prone to consider membership in an intermediate society as somewhat beneath his dignity, now that he has reached the pinnacle of social activity and, as a consequence, his scientific attainments suffer proportionately. This possibility should not exist. Cooperation between the societies should result in understandings rather than rivalries. Each year discussions arise over the superfluity of societies, urging amalgamation or some form of merger. This is due to the multiplicity of memberships. Many, particularly the younger men, feel it incumbent on themselves to join as many as possible, regardless of their location or interest toward the subject. As an example, the Academy of Oto-Laryngology and the Triological Society have practically the same purpose and ideals, many men holding membership in both. This would appear unnecessary. The Academy of Oto-Laryngology is composed largely of western men, and the Triological Society of eastern. Let them hold to this geographic division and, if thought desirable, hold their annual meetings in a preselected locality on the same days, setting aside one of these days for a joint meeting. In this manner not only would both the eastern and the western men have the benefit of social and scientific intercourse, but they could dispense with the necessity of joining both societies. As our young specialist matures, his interest will be directed more and more toward either the nose and throat, on the one hand, or the ear, on the other. After he becomes a fellow of, we will say, the Triological Society, ample time and opportunity should be afforded him to discover his inclinations and thus aspire to fellowship in either the Laryngological or the Otological Society, as the case may be. This would once and for all end the perennial discussions advocating the merging of these two societies into one large body as, under these circumstances, the component membership of each would give their one specialty their undivided interest.

CONCLUSION

It seems to me that we are now in a position not only to place postgraduate work on a firm foundation, but also to advance our societies to their proper sphere, both of these eventualities to be consummated directly by the education and influence of the young man in otolaryngology.

Vitamins as Important Factor in Treatment of Pulmonary Tuberculosis.—F. Gardey remarks that many symptoms of pulmonary tuberculosis resemble those of deficiency diseases. He pleads to have the dietary in different countries investigated in relation to the prevalence of pulmonary tuberculosis and the influence of food, with and without vitamins, on the course of the disease. The organism of the tuberculous acts as if it were void of vitamins.—*Semana Médica* 27:759, 1920.

CAUSES OF FAILURE IN THE RADICAL
OPERATION ON THE FRONTAL
SINUS *

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NEW YORK

What is the matter with the frontal sinus operation? What is the reason for the widespread dissatisfaction with the results secured? The ablest answer to this question which I know of was given before this section six years ago by Dr. Howard Lothrop¹ of Boston, and later and more at length before the Section of Laryngology of the New York Academy of Medicine, in May, 1917. Indeed, so convincingly has Dr. Lothrop stated the case that I should hesitate to bring up the subject for discussion today, save that it seems to me that in spite of his clear presentation there is still much misunderstanding in regard to it.

It is a common observation that whenever a new idea obtains vogue, whether in politics, economics or what not, the tendency is for enthusiasm to carry its disciples for a time far to the extreme, to be followed later by a return to normal. This is no less true in the field of medicine.

Thirty years ago, when many of us here today were learning our specialty, the field of diseases of the accessory sinuses was just being developed. The monumental work of Zuckerkandl on the anatomy of the sinuses served to give us our first accurate information in regard to them. This was followed by many other careful and exhaustive studies, until a comprehensive understanding of them was obtained, and the importance of relief of diseases present in them was fully grasped. Hand in hand with the enlargement of our knowledge in the anatomy and pathology of these cavities went various measures for their cure, until at one time it looked as if we had at last solved the problem and that it was going to be possible to promise a cure for the pathologic condition present, whatever sinus was affected. This was particularly true of the frontal sinus.

UNSATISFACTORY RESULTS OF OPERATION

In recent years, however, a wave of disappointment at the operative results secured seems to have set in, and today it is generally agreed that the number of radical operations performed is much less than it was formerly. Indeed, some have gone so far as utterly to condemn the radical operation. A well known rhinologist in one of our largest cities has recently stated that since he has become acquainted with the use of suction, he has found no occasion to do any operative work on the nose, even of a minor nature, to relieve sinus disease.

What is the reason for such a change in our attitude in regard to the radical operation? It can only be a result of the failures that occur from it; and yet is it correct to say, as some do, that the operation is followed only by failures? A calm, dispassionate discussion of this important question is in order at the present time. At the outset, I wish to say that I feel that such a statement as the one just quoted is altogether too sweep-

ing, and does not by any means represent the actual facts in the case. The pathologic findings at the time of operation or at postmortem are in themselves sufficient to demonstrate the incorrectness of this assertion. Numerous successful operations at the hands of yourselves and others are sufficient to refute any such sweeping statement.

What is meant, then, by failure in the radical operation? As I understand it, this may be said to be our inability to relieve by an operation the symptom or symptoms of which the patient complains, or the producing of a new symptom or symptoms as a result of the operation. It will be agreed, I assume, that there is no longer any difference of opinion among reputable rhinologists in regard to the indications for the radical operation. No one would presume to do the operation today except in an emergency, until all milder intranasal procedures have been carried out without success. While indications of meningitis, eye symptoms, etc., occasionally arise to call for the operation, the vast majority are performed for the relief of one or of two symptoms, persistent pain or discharge not relieved by intranasal measures. This is not the occasion for a discussion of the relative merits of the intranasal opening of the frontal sinus as compared with the radical external operation, although it may be said here that, in spite of the many severe criticisms, it is a fair question whether the usual objection alone—that it is a dangerous procedure—should bar us from performing it, if the merit of it as urged by Good, Halle, Ingals, Thompson and others is well founded. If it is, then, inability to relieve pain and discharge which is commonly regarded as signifying failure in the radical operation, we are at once confronted with the question, "What is the reason for this?" Such postoperative results as deformity or lacrimal duct trouble cannot be regarded as other than mere complications. To answer this question, it is necessary to recall the steps in the development of the radical operation. The first operations practiced were by the ophthalmologists, who enlarged a fistula present and did little or no curetting, which resulted in prolonged suppuration. It was soon recognized that it was necessary to clean out much more thoroughly the diseased area. Kuhnt was the first to advise removing all of the anterior wall, curetting the sinus contents, introducing a drain, and allowing the wound to close by granulations. The result from this operation was usually good, but deformity was liable to ensue. Ogston and, later, Luc practiced a partial opening of the anterior wall, curetting of the nasofrontal duct, and immediate closure of the wound. All these cases did well, to be often reinfected, however, later. Reidel was the first man to advocate the complete removal of both anterior wall and floor of the sinus. This was an exceedingly radical procedure; the results were good, but the deformity was excessive. It remained for Killian to devise an operation which included the desirable points of the others and tended to avoid to a great degree deformity by the preservation of the orbital arch.

KILLIAN'S OPERATION

When Killian,² in 1903, published his paper, it was felt that the last word had been said on operative measures, and that, properly performed, the Killian operation should cure 100 per cent of the cases. It is

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Lothrop, H. A.: Frontal Sinus Suppuration with Results of New Operative Procedure, J. A. M. A. 65:153 (July 10) 1915.

2. Killian, G.: Archiv. f. Laryngol. 13:59, 1903.

disappointment at the results of this operative procedure, more than any other reason, that is largely responsible for the wave of pessimism which exists at present. Numerous successes have been secured by this operation, and no one can dispute the exceeding merit contained in it. A great number of failures, however, have resulted; too great a number, in fact, to make it possible to charge them all to faulty technic. The cause must be sought deeper. What, then, actually takes place in a case in which operation has been unsuccessful, when the frontal sinus has been widely opened, and its contents entirely removed? As minor causes which interfere with or prevent healing, in addition to incomplete operation which has already been dwelt on, attention should be called to the rôle of "the lowered power of resistance, too long continued dressing, and imprudence in diet," as pointed out by Stucky a number of years ago. Usually, however, what takes place is a reinfection of the sinus, and it is this little word "reinfection" which, in my judgment, will explain the great majority of failures. To understand this more clearly, let us consider for a moment what is sought for in the radical Killian operation.

The aim of Killian in his operation was the obliteration of the sinus. To this end he proposed four main steps:

1. The removal in its entirety of the anterior wall to permit of complete exenteration of all its contents.
2. The preservation of the orbital arch for cosmetic effect.
3. The exenteration from without of all diseased ethmoid cells.
4. The removal of the floor of the sinus to allow of a falling in of the soft tissues of the orbit.

In his original article, Killian clearly states that this obliteration is not immediately secured. It usually takes a number of weeks, or even months, for every vestige of space to be obliterated. Until this is accomplished, the persistence of suppuration is to be expected. When the sinus is a small one, it is not difficult to secure such obliteration. When it is large, it is quite another matter. A reopening of the sinus after a number of months will show, as has been repeatedly pointed out, that most of it is filled with fibrous tissue; but unfilled areas are liable to be discovered. Often a hollow space will be found behind the orbital arch. Lothrop is in error in his statement that the Killian operation seeks to obliterate the sinus and to secure drainage at the same time. His one aim, as was that of Kuhnt and Reidel, was to remove all diseased tissue, in order to bring about obliteration. Unfortunately, in many cases this is not secured. The experience of Mouret,³ is that of many of us, namely, that a wide open nasofrontal canal at time of operation is too often found to contract gradually, until in time a passage even for the introduction of a sound no longer exists. This means the bottling up of bacteria, resulting in evidences of infection in the orbit, such as swellings or abscesses, or by the return of pain and purulent discharge.

Failure, then, in the Killian operation is due to reinfection, the result of incomplete obliteration of the sinus. This is almost without exception dependent on one of two causes: either failure completely to remove the diseased contents of the sinus or of the ethmoid, or the failure of the soft tissues of the orbit completely to fill the sinus cavity as a result of the removal of the orbital roof, which forms in part the floor of the

sinus, as was intended by Killian. A direct consequence of this extensive destruction of the floor is the sinking inward of the outer wall of the nasofrontal canal, resulting in pronounced narrowing, even to atresia, of the passage. Lathrop refers to this serious defect in the Killian operation, and Mouret dwells on it at length. This, in my opinion, is the controlling factor in the failure in a great majority of cases; and it is so important that I wish to emphasize it by quoting Mouret's exact words:

OPINION OF MOURET

Why I do not resect the orbital wall of the sinus and why I preserve the lacrimal bone and the orbital part of the fronto-nasal apophysis when the too great dimensions of the sinus compel making an opening in the orbital wall. I find these objections to such a removal:

1. Falling in of the soft periocular tissues.
2. Primary or secondary and recurring infection of the periorbital tissues.
3. Stenosis of the nasofrontal canal.

1. *Falling in of the Soft Periocular Tissues.*—In the resection of the orbital floor of the frontal sinus Jacques (and Killian) found that the soft tissues fall into the sinus cavity and tend to obliterate it. This advantage can be real for the orbital prolongation of the sinus, but does not suppress the upper frontal portion of the sinus.

2. *Primary or Secondary Infection.*—Inflammatory attacks of the soft tissues at the superior internal angle of the orbit take place several weeks, and even months, after operation, when the patient is considered well. These can keep on recurring. The explanation seems to me to be found in the fact that apart from infection externally due to a cold, the soft subfrontal tissues can contain germs, the remains of the sinus infection. These germs remain for a long time dormant to become active from some undetermined cause. By not uncovering the inferior face of the orbital floor of the frontal sinus, and thus not making a direct communication with the frontal sinus, we avoid these cases of infection.

3. *Contraction of the Fronto-nasal Duct.*—The chief objection which I have to the large orbitonasal resection is not only that the soft tissues fall in toward the sinus and are in direct contact with the sinus cavity and with the germs of infection which it still contains in spite of operation, but that they often lead later to stenosis of the fronto-nasal duct. In a small sinus, the cavity can be filled with fibrous tissue, and disappear. This does not apply to large cavities where the Killian operation is alone indicated. In spite of the operation, hollow spaces persist, especially behind the orbital arch, which serves to maintain communication with the nasal fossa. For some days following the removal of any drain put in, everything is perfect. But when seen some few weeks later, we are surprised to find the nasofrontal duct very much narrowed; at times, it is even impossible to pass a sound. We are inclined to think that this is satisfactory, and that the closure of the channel of communication means that the sinus cavity has itself disappeared by being filled with fibrous tissue. In such cases, however, I have operated a second time, and have found the sinus filled for the most part by fibrous tissue; but on a level with the sinus angle which corresponds to the orbital arch, and with the external frontotemporal angle, there was granulation tissue.

LOTHROP'S DESCRIPTION OF SINUS FLOOR

Clearly, the crux of the whole matter is to be found in the treatment of the floor of the sinus. To understand this it is necessary thoroughly to understand the anatomy of the floor. No one has studied this more carefully than Lothrop, who thus describes it:

The floor of the sinus is of the greatest surgical importance and consists of an outer or orbital portion and an inner or nasal portion. The orbital portion is comparatively thin but dense. The more or less complete removal of the facial and this portion of the floor of the sinus is carried out in some operations directed toward obliteration of the sinus, resulting in deformity according to the size of the sinus and the method

3. Mouret: Rev. de laryngol., Oct. 15, 1920.

adopted. The size and shape of some sinuses preclude obliteration. The nasal portion contains the single ostium leading to the nose and is made up of both very thin and very thick areas of bone. It is bounded externally by the suture between the lacrimal and frontal bones and somewhat by the suture between the nasal process and the frontal bone. Internally, it is bounded by the interfrontal septum, which is the upward projection of the nasal septum. . . . In front the boundary lies roughly behind the upper border of the nasal bone and the nasal process of the superior maxilla. Although these bones do not form part of the wall of the sinus, they bear an important surgical relation to its floor.

Posteriorly, the floor of the nasal portion comes to an angle made by three surfaces—floor of sinus, cerebral portion and interfrontal septum. Toward this angle is situated the ostium. The floor in the vicinity of the ostium is made up of thin bone which forms the walls of some anterior ethmoid cells. External to the ostium are the cells completed by the lacrimal bone. Posteriorly, one meets often an ethmoid cell protruding into the sinus called the frontal bulla and behind this are other anterior and other posterior cells. In front of the ostium one is apt to meet an anterior cell, and still farther in front is the so-called nasal crest of the frontal bone, and still in front, the thick and dense upper ends of the nasal bone and the nasal process of the superior maxilla. Internal to the ostium and below it are thin lamellae of bone of some immaterial variation according to whether the ostium leads to the infundibulum or still farther internal so as to open under the anterior projection of the middle turbinated bone. . . . Hence the ostium is surrounded on all sides by thin bone which may be fractured with comparative ease and thus a large opening made. If this bone is broken away, and this is what is usually accomplished by the majority of operators, what seems to be a reasonably large opening to the sinus is obtained. This may suffice for the cure of many cases, but many failures follow because the opening becomes obstructed later.

From this graphic description, it is easy to understand what parts are wont to be broken down in the attempt to enlarge the nasofrontal canal in the course of the external operation, and why, when both orbital and nasal portions of the floor are destroyed, a subsequent contracting and stenosis is wont to result.

PRINCIPLE INVOLVED IN LOTHROP'S OPERATION

The principle involved in the various intranasal openings of the frontal sinus, and especially in the operation recently devised by Lothrop, is not obliteration of the sinus, but restoration of function by removal of diseased tissue and the establishment of thorough and permanent drainage. This principle of drainage and ventilation, as a means of cure of a bony cavity, is not a new one. Many years ago, Myles recommended it for the treatment of empyema of the maxillary sinus, stating that he had repeatedly seen large polypoid masses within the antrum disappear without curetting, merely by making a wide opening in the nasal wall. The end in view, restoration rather than destruction of function, is an ideal one. The small sinus, and especially the sinus in which disease is not too extensive or too far advanced, is admirably adapted for such a procedure. It is open to grave doubt, however, whether any of the strictly intranasal operations lend themselves to the large sinus extending over to the external angle of the orbit, or to one with pronounced orbital projection. Furthermore, the significant admission of Ingals, in his last article on the subject, that the introduction and maintenance for a shorter or longer period of time of a metal tube is necessary to overcome contracture, shows that the enlargement of the nasofrontal canal from within is wont to be followed by narrowing. The Lothrop operation is in every way a distinct advance on any of the so-called intranasal methods. By means of

an opening in the anterior wall, not large enough to cause deformity, he is able to determine the condition of the sinus contents, curet out diseased tissue, and then, with perfect safety, to enlarge the nasofrontal canal to the fullest extent possible, by means of rasps and burrs introduced from without. Lothrop's report of thirty-three cases which were cured by this method is in itself sufficient to call forth a large degree of favorable comment, and, since his original paper¹ read before this section in California, numerous operators have reported good results by the same method. Much is to be said in favor of it. As just stated, the preservation and restoration of function of the sinus are of the greatest value. Secondly, freedom from all danger is to be emphasized, and, thirdly, the establishment of a permanent large opening. On the other hand, as has already been pointed out, the opening into a sound sinus and the permanent removal of a portion of the bony wall of the septum are more or less serious objections to it. Lothrop's original article recommended the operation for (1) sinuses with fistulas; (2) cases in which previous operations have failed, and (3) those in which the other sinus was diseased.

It is my understanding that he now advocates it for all diseased sinuses, stating that he has seen no trouble result from the opening of a healthy sinus.

CONCLUSIONS

An endeavor to explain the causes of failures in the frontal sinus operation has prompted this paper. How to avoid such failures is not directly a part of the paper, but a brief consideration of it naturally follows.

It goes without saying that the employment of proper technic in the operation will go a long distance toward securing successful results. It is hardly necessary to add that no radical operation on the frontal sinus should be undertaken until satisfactory roentgenograms have been taken and carefully studied.

It is not to be forgotten that in the great majority of small sinuses the pathologic condition resolves itself whatever operation is performed, provided all diseased tissue is removed. The object in any operation should be either the obliteration of the sinus after complete exenteration of its contents or the establishment of permanent drainage and ventilation after removal of all diseased contents. When it has to do with large sinuses, especially with marked orbital projections, it is a question whether complete obliteration by the Killian method is possible.

The importance of giving particular attention to the curetting of the external and internal angles of the sinus is to be borne in mind. The fact that in a great majority of sinuses the diseased condition resolves when the floor of the sinus has not been removed would indicate that removal of the floor, as recommended in the Killian operation, is not necessary. Much is to be said in favor of procedures which tend to secure drainage and ventilation rather than obliteration. While the intranasal method has been much recommended, the fact that it must be performed without ocular inspection, and, further, that the tendency in this type of operation is for the nasofrontal canal to narrow or close up, is sufficient to recommend the combined internal and external method of Lothrop in place of it. The objections to the Lothrop operation would appear to be largely theoretical. The experience of Lothrop and others does not show that the opening of healthy sinuses does harm, or that unpleasant results follow the

establishment of a permanent opening in the septum. Testimony, however, is desirable as to whether all parts of a large sinus can be reached through the opening which he recommends in the anterior wall. Mouret, to whom I have previously referred, recommends in such cases that the orbital portion of the floor be removed, care being taken to leave intact the nasal portion.

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ABSTRACT OF DISCUSSION

DR. JOSEPH A. STUCKY, Lexington, Ky.: The answer to the question, Why is it that the radical opening of the frontal sinus is so frequently a failure?—is that we have destroyed its function. The frontal sinus, like all the accessory sinuses of the nose, is an air chamber. And our surgery must do more than surgery of any other part of the body, in that we must maintain ventilation and drainage or the function of that sinus is destroyed. Aeration is absolutely necessary to its function. I learned after many disappointments that if I treated my patient half as long and half as carefully before operating as I did after operating, frequently operation was not needed. I put the patient to bed, with restricted diet and with quiet, and then do my best to get the internal secretory organs to work, to make the mucous membrane act and bring about release from pressure. The negative pressure is frequently caused by the middle turbinate. Take the pressure off the nasofrontal canal, and do not overtreat the nose or sinus. Relieve the nasal pressure and the nose will take care of the sinus. I question whether it is possible in many cases to exenterate the ethmoid in the complete Killian operation. We cannot find and remove all the ethmoid cells, and I believe that sometimes it is bad surgery to look for them. In my judgment, no portion of the body has greater recuperative or reparative power than the attic of the nose if we would but give it a chance. I believe that a great deal of harm is occasioned by the overtreatment of cases, through interference with the function of the nose. Our efforts should be to keep the frontal sinus drained and ventilated. Of course, we occasionally see cases in which complete obliteration of the sinus is necessary.

DR. JOSEPH C. BECK, Chicago: On opening in the secondary and tertiary operation on the frontal sinus by the Killian or any other method, we all have seen that the posterior surface of the frontal sinus is sequestered and particles come out as sequestrums. That type of disease certainly would account for failures, no matter how extensive the frontal sinus operation of Killian is made, because it does not relieve that condition. Not only that surface, but the interfrontal septum may be of the same character, and the other sinuses also may be infected though not operated on. I have had such cases as that. Since the publication of Dr. Lothrop's operation I have very seldom had recourse to a radical Killian operation, and yet I want to say that the anatomy which has been described failed to bring out the differences in the skulls or heads of people. The space between the internasal crest and the posterior surface, that is, toward the crista or toward the olfactory plate, is very narrow, and sometimes in the operation of Lothrop, no matter how large you make the opening, there is a narrowing and closure will occur. That is a type of bone different from that which we find along the frontal sinus. It is much more productive of osteomyelitis. You should not destroy all the epithelium of the nasofrontal duct when you do not know how large the opening is that is made.

DR. LEE M. HURD, New York: I did not know there was something the matter with the frontal sinus operation. I thought we were making progress on the problem of operation on the frontal sinus; that we were doing fewer radical operations and more work through the nose. As we understand it now, the more familiar we are with the anatomy of the sinuses the more we can do through the nose, with less destruction of normal tissue. If necessary to do a radical operation, you must know the anatomy, go after it and obliterate the sinus trouble.

DR. CULLEN F. WELTY, San Francisco: The Killian operation is one of the most difficult operations to bring to a suc-

cessful issue in the whole field of surgery. In my work I have about 80 per cent. cures. In reoperating in my own cases and also in the cases of others, I find definite lesions that had been overlooked at the primary operation or new bone has grown and become diseased. Referring to my own cases, I cannot understand why I have found such conditions following what I considered a complete operation—why I should find a shelf of bone sticking out into the cavity that I had previously gone over very carefully. Closure of the nasofrontal duct is the problem in question, and I do not know how to keep it open. It seems to me that the harder one tries to keep it open the more readily it closes. I do not have much confidence in the reinfection idea. I believe that the operation is incomplete, or that the nasal duct closes before the sinus is obliterated.

DR. JOHN A. PRATT, Minneapolis: One cause of failure in work on the frontal sinus is that we do not obliterate or make into one cavity all of the anterior ethmoid cells; I mean, the ethmoidal cells proper and the infundibular cells that occupy the nasal floor of the frontal sinus. Enlarging the frontal duct by rasping the tissues and cells anteriorly, we make it sufficiently patulous and still retain the mucous membrane lining the posterior wall of the duct.

DR. G. HENRY MUNDT, Chicago: I am pleased to hear of ventilation in connection with sinus disease. The thing to do before operating is to select the type of operation according to the type of lesion present. If we do that, we shall not need to worry as to whether we should do an intranasal or an external operation. In the presence of a definite osteomyelitis, one can just as well do an external operation and make it complete. In the absence of definite bone involvement, an intranasal operation may be done, and by establishing ventilation and drainage it is possible to clear up the condition. If there is an osteomyelitis, obliterate the entire disease process in the sinus.

DR. HOWARD A. LOTHROP, Boston: Acute frontal sinusitis is due to infection; the chronic frontal sinusitis is the result of acutely infected or chronically infected passages which produce hypertrophy of the soft parts and sooner or later narrow the exit of the frontal sinus more or less. As the opening becomes smaller, the obstruction may increase the changes due to the infection, but the persistence of trouble in the frontal sinus is due to obstruction. Many patients get well without treatment. Another group of patients is improved and cured time and again by minor procedures done within the nose, such as removal of the anterior and middle turbinate and adjoining ethmoidal cells. Another group can be cured entirely by a certain amount of intranasal manipulation as close to the floor of the sinus as you can get. You are working more or less in the dark because you cannot see what you are doing, and there is danger in going beyond a certain point in intranasal operations. The intranasal operation carried to that extent fails time and again. In some cases we must resort to some type of external operation. I feel that it is much better, for cosmetic and other reasons, to do an operation that does not attempt to obliterate the sinus. If it is a small sinus, it may be obliterated anyway, but large sinuses are difficult to obliterate. As to the type of operation: The real trouble is failure to drain. Operations that destroy the anterior wall, and particularly the operation which destroys the lower wall involving the orbital region, will defeat any attempt to get decent drainage. For that reason I have come to the conclusion that we should strive to get as large an opening as nature will allow, even removing the floor of the two sinuses. I have seen cases of recurrence, due to the fact that the operator did not remove enough tissue. It is essential to remove part of the base of the nasal bones, and adjacent bone and the upper end of the septum. All that can be removed without danger and without the least handicap to the patient. The signs and symptoms on which we operate would be pain and too much exudate, both caused by obstruction. The best way to treat the patients that cannot be cured in other ways is by the combined intranasal and extranasal operation, taking away all the anatomy that nature will allow in the individual case.

DR. HOWARD V. DUTROW, Dayton, Ohio: When I read my paper on the treatment of the maxillary sinus, the consensus seemed to be that I was a little too radical in dealing with

sinus conditions in general. I have not seen as many cases of recurring sinusitis as has Dr. Harris, and, as he has stated, the reason for the recurrence is that the operation previously performed was not complete. In dealing with a sinus, three cardinal principles are to be borne in mind: (1) thoroughness of operation; (2) drainage, and (3) ventilation. As has been said, our aim should be to establish as nearly as possible the normal condition of the sinus. I never was converted to the idea of obliteration of the frontal sinus. In the first place, it is practically impossible to do it, and the deformity is very bad. I recently operated in several frontal sinus cases which up to the present time remain absolutely normal—no nasal discharge, the openings remain patulous, and they are entirely satisfactory from every standpoint. But we should bear in mind the three cardinal principles I have mentioned.

DR. WILLIAM MITHOEFER, Cincinnati: In my opinion the chief causes of failure in the frontal sinus operation are anatomic. If we fail to consider the orbital ethmoid cells, and if during the operation we fail to remove every vestige of these cells, we shall certainly fail in our endeavor. The technic of doing the operation externally is dependent on the varying anatomic relations encountered, and in order to get the best results careful roentgen-ray study must be made before the operation. The complete removal of the orbital and infundibular cells is the most important part of the operation. I have had a series of twenty cases in which external operation was done, twelve by the Lothrop method and eight by the Ritter method, which attacks the frontal sinus from the orbital floor. The results have been far better with the Ritter method than with the Lothrop. In 50 per cent. of the cases in which operation has been performed by the Lothrop method, the nasofrontal duct closed within two or three months after operation. With the Ritter operation, we are able to clean out the ethmoid orbital cells thoroughly, and they, in my opinion, are diseased more often than is the frontal sinus. I am surprised that no mention has been made here of the many frontal sinuses which, when opened, are found to be healthy, with all the disease on the floor in the region of the orbito-ethmoid cells. Therefore, it is advisable to attack the frontal sinus from the floor and not from above. There is also another reason for doing this—if the sinus is approached from below, you attack a thin bone; whereas, from above you attack the cortex and very often an osteomyelitis may be the result.

DR. THOMAS J. HARRIS, New York: We are not having 100 per cent. successes in doing the so-called Killian operation, and we are not afraid now to say that the operation is not giving the results that we formerly thought it was giving. We are all agreed on one or two things, namely, that it is essential that a complete operation be done, and that many of our failures are due to incomplete operation. But is not the large question the failure properly to take care of the nasofrontal canal or nasofrontal duct? When it comes to discussing obliteration versus ventilation and drainage, the arguments are strongly in favor of the latter. I stated particularly that there were certain indications that demanded, without any discussion, radical external operative work. I was particularly pleased with what Dr. Stucky said because he brought out much of the milk in the coconut. I hope, then, that we shall be able to get far better results in the future than we have had in the past.

Influence of Tropical Medicine on Medical Science.—H. Ziemann remarks that few physicians realize the huge share of tropical medicine in the progress of the medical sciences in general in recent years. In an article in the *Archiv für Schiffs- und Tropen-Hygiene* 25:14, 1921, he reviews the list of insect hosts and what has been learned of their biology, nearly all in the field of tropical medicine, although the conclusions from them apply to far wider spheres; as also technical bacteriologic and other procedures worked out in tropical medicine. The deficiency diseases were studied first and most in tropical medicine, while comparative pathology and immunology have also been largely built upon it. He adds that millions of lives and dollars would be saved if the world applied in practice the means for prophylaxis to which tropical medicine points the way.

THE VALUE OF DRUGS IN INTERNAL MEDICINE *

LEWELLYS F. BARKER, M.D.

BALTIMORE

We are now witnessing a cautious revival of the use of drugs in the treatment of disease. During the last half of the nineteenth century pharmacotherapy fell more or less into discredit, owing (1) to a reaction against the scandalous abuse of the "shotgun prescription," (2) to the general therapeutic nihilism that followed the rise of studies in pathologic anatomy, and (3) to the growing recognition of the importance of forms of therapy other than treatment by drugs. Though in some quarters the denial of pharmacotherapy was pushed to extremes, it is now generally admitted that the movement against the indiscriminate and noncritical use of drugs, to the relative exclusion of other and often more efficacious methods of therapeutic intervention, was necessary and timely, in order that the more rational therapy of our period might emerge.

In the therapy of today, based on more accurate diagnosis and on enlarged conceptions of pathologic physiology, etiology and pathogenesis, a new hopefulness prevails. We make use now of a host of methods that are found to be trustworthy for healing, for palliating and for preventing. Along with diet, baths, climate, air, light, heat, exercise, massage, electricity, roentgen rays, radium, serums, vaccines, mechanical appliances, surgery, nursing, and psychic and social influences, drugs are gradually finding their proper place in the therapeutic armamentarium of the medical practitioner. For among the drugs of various sorts, including both natural substances and pure chemicals provided by separation or by synthesis, there are agents than can now be employed with great confidence and often with the happiest results.

DUTY OF THE INTERNIST

In the management of patients and in the treatment of their diseases, it is our duty as physicians to see to it that we do not neglect to make application of any of the agents at our disposal that may reasonably be expected to help. Briefly to survey the help offered to the physician in his daily work by modern pharmacotherapy is the object of the present symposium. The time allotted will, of course, not permit of any detailed discussion of the use of single drugs. It is, I take it, the intention of those who planned the symposium that it should deal rather with the general principles that underlie the use of drugs in therapy, and with certain examples of the application of these principles in practice. Others are to speak of the use of drugs by surgeons and by specialists; this paper has to do with their use by the internist.

Man desiring to help his suffering fellow man must not lack—indeed, has never lacked—courage. Think, for example, of the boldness of the surgeon who annihilates the consciousness of his patient and then, without trepidation, cuts into the abdomen, or excises a goiter, or removes a brain tumor! The physician also must have bravery, one might almost say audacity, when he attempts, by the use of a drug, to intervene

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

favorably in the disturbed physical, chemical and biologic processes of the human body in disease.

COMPLEXITY OF CHEMICAL PROCESSES

Man's body is the most marvelous chemical laboratory in the world, a laboratory made up of several thousand billions of separate work rooms, in each of which the amount and kinds of work done differ somewhat from those in each of the others. No two liver cells, probably, are precisely alike in their chemical activities. In a single mucous membrane, the chemistry of the constituent gland cells differs markedly from the chemistry of the constituent nerve cells, connective tissue cells and smooth muscle cells. Within the channels of communication that carry fluids and solids about the great laboratory from work room to work room, chemical changes are constantly going on in the transported materials. Even the walls, the beams and the furniture of the billions of work rooms are themselves constantly undergoing chemical change. We are awed enough by the complexity of the chemical processes that go on in health; but let us not forget that in the diseased body, which is the province of the pharmacotherapist, this complexity becomes manifold. Into this apparently infinite welter of chemical transformations (though, in reality, orderly and ultimately knowable) goes the drug that the physician administers in the hope of curing, regulating or ameliorating. Its administration surely signifies courage on the part of the physician who has such a conception of the body's chemistry. The task he attempts is truly Promethean. Is it not to try "to defy Power, which seems omnipotent?"

THE DEVELOPMENT OF PHARMACOTHERAPY

Man's needs have been so urgent, however, that medical men everywhere, and at all times, have not hesitated to defy powers when they seemed malevolent; and drug therapy has, despite its besetting difficulties, become one of the successful methods by which medicine "folds over the world its healing wings."

The clinical experience of the centuries slowly supplied an important body of facts regarding the nature of disease and man's power to control it, but the formation of true guiding principles for pharmacotherapy had to await the rise of modern science. More of value has been learned regarding rational treatment by the use of drugs in the last fifty years, perhaps, than in all the centuries that preceded; for, during the last fifty years, we have gained entirely new conceptions of the nature and causes of disease.

Through chemical, physiologic, psychologic, pathologic and clinical studies we have learned much regarding pathogenesis, that is to say regarding the chains of changes in the body that follow on injuries of various sorts. Synthetic chemistry has supplied us with a host of new substances for trial as remedies. The new sciences of pharmacology and toxicology have revealed to us the mode of action of drugs and poisons, and medical students are observing for themselves, in our pharmacologic laboratories, the physiologic effects that follow the introduction of foreign substances into the animal body, and they measure some of these effects with instruments of precision. Knowing only too well that, in the diseased body, drugs often act in an unexpected manner, in ways very different from those in which they act in the healthy body, clinicians have wisely seen that the pharmacology of the laboratory, though of great value for the general advance of scien-

tific therapy, cannot take the place of accurate clinical observation. It can do much to guide therapeutic effort and to supply criteria for judging of its effects, but the final and crucial test of the value of any therapy is that of actual clinical experience. The clinic can help the laboratory, and the laboratory the clinic; but each has its independent domain that should be conscientiously worked and zealously safeguarded.

THE NEW EXPERIMENTAL SCIENCES

Recently, laudable attempts partially to bridge the gap between the pharmacologic laboratory and the clinic, in the interests of pharmacotherapy, have been observable in the work of the new sciences of experimental pathology and experimental therapy, especially experimental substitution therapy, and experimental antiparasitic therapy (immunotherapy, serotherapy and chemotherapy).

Workers in these new sciences reproduce certain sharply circumscribed syndromes in experimental animals and then study various forms of treatment experimentally, analyzing the effects of the measures tried. With the advent of experimental pathology and experimental therapy, we can hope for the rapid development of a systematic science of therapy; and though the transfer of results of experiments in treatment of sick animals to treatment of the sick human being will always mean a leap from the known to the unknown, still this transit will from now on be made with ever lessened danger. New drugs and chemicals will in the future be thoroughly and reliably tested, not only in pharmacologic laboratories on healthy animals, but, as far as possible, also in laboratories of experimental pathology and therapy, on animals in which special diseases have been induced, before we shall feel justified in making trial of them in the treatment of sick human beings.

CLASSES OF PHARMACOTHERAPY

Now that physicians generally understand that, in all diseases or pathologic processes, they have to deal with modifications of normal (or physiologic) processes that depend on definite disease causes, modifications, moreover, that are beyond the self-regulating capacity of the organism to keep within those limits of functional activity that we observe in "health," the internist can classify his pharmacotherapeutic efforts according to the kind of effect he desires to produce. Thus, (1) he may try with a drug to remove the cause of the disease or to render it harmless (etiologic pharmacotherapy); or (2) he may use a drug that will help directly to restore a pathologically disturbed function to normal (functional pharmacotherapy); or (3) he may administer substances that will aid the organism in its modes of reaction against the disease-cause (regulatory pharmacotherapy); or, finally, (4) he may employ drugs merely to relieve single troublesome symptoms (symptomatic pharmacotherapy). Internists who, after thorough and complete diagnostic studies, carefully consider these several indications (etiologic, functional, regulatory and symptomatic) should achieve in their pharmacotherapy the highest possible success.

ETIOLOGIC PHARMACOTHERAPY

Pharmacotherapy is seen at its best when, through the use of a drug, the cause of a disease is removed or rendered harmless (etiologic pharmacotherapy) before the patient has sustained irreparable injuries. The organism can then right itself, so that its activities can

resume their normal or physiologic course. As our knowledge of disease causes steadily undergoes increase, ever more maladies will be made accessible to etiologic therapy. Physicians of all times have considered the causal indication when they removed harmful substances from the stomach by emetics, such as mustard or ipecac, or from the intestine by purgatives, such as castor oil, calomel or magnesium sulphate. The greatest successes in causal therapy have, however, been achieved by using drugs that kill living animal or vegetable parasites within the body, or that drive them from the body into the world outside. The use of oleoresin of male fern against tapeworm, of santonin against roundworms, and of oil of chenopodium against hookworms, are paradigms of antiparasitic pharmacotherapy. The parasites of malaria were killed by the quinin contained in cinchona long before we knew that the malarial fevers were parasitic in origin. Pathogenic amebas in the intestine can be killed off by means of emetin hydrochlorid. The fungi that cause blastomycosis and sporotrichosis die when subjected to the influence of the iodids. Noteworthy triumphs have recently been scored also by etiologic chemotherapy directed against certain parasites (trypanosomes, spirochetes and spirilla) that cause African sleeping sickness, syphilis, and relapsing fever. Through prolonged experimental work, parasiticides have been discovered that have a greater affinity for and toxic effect on trypanosomes and spirilla than on the body cells and organs; in other words, poisons that are more parasitotropic than organotropic can now be used to kill certain invading micro-organisms without too much injury to the invaded host. Arsphenamin and neo-arsphenamin help us greatly in the fight against syphilis, and are undoubtedly valuable additions to our pharmacopeia. With further studies of the parasitotropic qualities of various arsenical and antimonial compounds, we can reasonably hope for satisfactory means of control of a series of tropical diseases that up to recent times have defied the efforts of therapists.

In the antiparasitic treatment of diseases of bacterial origin, experimental chemotherapy has thus far been baffled. This does not mean, however, a permanent defeat. There is much to encourage investigators to continue their search for internal disinfectants that may be safely used. The body fluids and the body cells contain, and manufacture, substances that can kill bacteria. The chemical constitution of these bactericidal substances, we can feel sure, will ultimately be discovered; the substances will, later, be made synthetically and utilized in therapy. Moreover, toxic bacteriotropic substances that are foreign to the organism and innocuous for it will also doubtless be found and used. We already know that ethylhydrocuprein will kill pneumococci, though its deleterious effect on the optic nerve makes it unsafe as yet as a therapeutic agent. But who knows how soon some enterprising experimental chemotherapist may find a related pneumococcicidal substance that is less harmful to the body, just as the discovery of the relatively innocuous spirillocidal arsphenamin succeeded that of the blindness-producing atoxyl?

FUNCTIONAL PHARMACOTHERAPY

Though less ideal and important than etiologic therapy, much good can be accomplished by the internist who, making use of a so-called functional pharmacotherapy, tries to restore to normal some function that, through disease, has become disturbed or abolished.

This can easily be made clear by citing a few examples. Thus, a patient with valvular disease of the heart may get on well for years, thanks to the reserve force of his cardiac muscle. But, sooner or later, the function of the heart muscle begins to fail, and breathlessness, tachycardia, arrhythmia, passive congestion and edema appear. In digitalis, the pharmacotherapist possesses a remedy that, properly used, will often slow the heart rate and increase the contractility and tonicity of the muscular walls of the heart so that the circulatory insufficiency will disappear. Or, a patient in whom atrial (auricular) fibrillation exists may have the normal initiation and conduction of atrial stimuli restored by means of a few doses of quinidin. Or, again, a patient whose arteries are becoming sclerotic may have spasms of the coronary vessels and the severe pain of angina pectoris that can be relieved by dissolving a tablet of glyceryl trinitrate under the tongue, which, by dilating the pathologically contracted coronary arteries, removes directly a responsible functional disturbance. Similarly, we can relax the bronchospasm of a typical attack of bronchial asthma by the injection of a few minims of a solution of epinephrin (1:1,000), and we can spur the atonic wall of the intestine to contract in a postoperative case by means of a hypodermic injection of solution of hypophysis (pituitary extract). In all these instances we make use of a functional pharmacotherapy.

Another example may be chosen from the field of metabolism. Thus, in gout, uric acid is not adequately excreted by the kidneys, being retained in the blood or deposited in the tissues about the joints. The function of uric acid excretion by the kidneys can be temporarily increased by the administration of cinchophen or neo-cinchophen, substances that also exert an exceptionally efficient analgesic effect in acute attacks of gout.

What we know as "organ therapy" may also be regarded as one kind of functional pharmacotherapy. If dried thyroids, for example, be given to a patient with myxedema (due to absence or defective function of the thyroid gland), the substance administered is capable of substituting for the function in abeyance and, in turn, of restoring to normal function those distant organs whose activities have undergone change through lack of the thyroid hormone.

REGULATORY PHARMACOTHERAPY

Turning next to regulatory pharmacotherapy, that form of treatment in which we administer remedies with the object of "aiding the body to react against the disease-process or the disease-cause," a good example will be seen in the pharmacotherapy of acute nephritis. In a severe glomerulonephritis, water, salt and urea are no longer adequately excreted by the kidneys, being retained in the body. The body attempts to excrete these vicariously, through the digestive tract and the skin. The physician may aid this natural reaction of the organism by using (1) a drastic purgative, like compound powder of jalap, which produces copious watery evacuations, and (2) a powerful diaphoretic, like pilocarpin nitrate, which causes free sweating. Such purgation and diaphoresis support the activities of the normal regulatory mechanisms of the body and are therefore classed as examples of "regulatory" pharmacotherapy.

In the treatment of diphtheria with antitoxin, we also employ a regulatory therapy, for, on injection of the antitoxic serum, we support the normal reaction

of the organism in its effort to produce chemical substances that neutralize the toxins of the diphtheria bacilli.

The treatment of a posthemorrhagic anemia by preparations of iron may serve as a third example of regulatory pharmacotherapy. The body reacts after severe hemorrhage by increased activity of the red bone marrow, regenerating red blood corpuscles rapidly. More iron may be required for this accelerated erythropoiesis than is available in the ordinary diet. The reactive regenerative process can be strongly favored by administering ferrous carbonate, say in the form of Bland's pills.

SYMPTOMATIC PHARMACOTHERAPY

Symptomatic pharmacotherapy, which neither intervenes in the disease process as such nor attacks its cause, is, however, a form of therapy that is by no means to be despised. Though it is directed only toward single symptoms that injure or torment him, this therapy is highly important for the patient, and, when successful, is the ground for much gratitude on his part. There is scarcely a symptom that is complained of by patients that physicians have not attempted to influence by pharmacotherapeutic methods. And the relief that can be afforded in many instances thoroughly justifies the attention that is given to the *indicatio symptomatica*.

It is above all in the relief of pain and of various forms of mental and bodily discomfort that this is true. We would not willingly neglect the administration of morphin in renal colic; of acetylsalicylic acid in the arthralgias; of wine or beer to paralyze certain pathologic inhibitions and to bring needed relaxation; of heroin and codein in the racking cough of pneumonia; or of the various analgesics that are effective in migraine, in neuralgias, and in the lancinating pains of tabes. Though we may deplore the abuses of alcohol as a beverage, of purgatives in habitual constipation, of sedatives in the neuroses, and of hypnotics in insomnia, we all will admit that after causal, functional and regulatory indications have been as fully met as our science permits of, there will be occasions when the merely symptomatic indication dare not be ignored.

CONCLUSION

It will be clear from what I have said that the internist looks on the use of drugs in therapy more hopefully now, perhaps, than ever before. Available drugs are of real value in curing, in ameliorating and in preventing disease, and new drugs that are useful are steadily being discovered.

Adequately to make use of the pharmacotherapeutic means at his disposal for meeting etiologic, functional, regulatory and symptomatic indications, the internist must, it is true, have mastery over a large body of facts. He must be well trained in normal and pathologic physiology and should have become acquainted with the known facts of etiology and pathogenesis. He should have learned in the pharmacologic laboratory the effects of the more important drugs on the normal animal body; and he should have had opportunity in the hospital wards, and in the laboratory of experimental pathology and therapy, to observe the changes that can be produced by drugs in disease. Very few have as yet had opportunity for the latter, but the medical schools should provide for it in the future.

Our teaching hospitals at present are, perhaps, more diagnostic institutes than institutes of therapy. It might, possibly, be wise to divide our medical clinics

into two parts, patients entering one division for general diagnostic study and emergency measures, to be transferred afterward to the other division for full treatment, the effects of which could be carefully observed by the students.

The internist with such a training in the medical school as I have outlined will be prepared to institute a rational therapy wherever this is possible. He will know how to make a judicious use of empiric therapy when a rational foundation is lacking. As a matter of fact, pathology and therapy have of late years made such rapid strides that the physician can, in the majority of instances, give reasons for the therapeutic faith that is in him. For this we have to thank both the research activity of the scientific laboratories and the keen and critical observations of our better clinics.

The introduction of new therapeutic methods and new drugs can scarcely be expected from now on to be arrived at by accident, or through pure empiricism. Every new therapeutic agent should, as Magnus¹ has emphasized, be thoroughly tested in the laboratories as regards its activity and its dangers and, later, in the organized clinics, before it is introduced into general medical practice. But results in clinical experience must ever remain the final and crucial test of every form of therapy.

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ABSTRACT OF DISCUSSION

DR. HENRY A. CHRISTIAN, Boston: I wish to emphasize two statements Dr. Barker made. The first of these is, "Clinicians have wisely seen that the pharmacology of the laboratory, though of great value for the general advance of scientific therapy, cannot take the place of accurate clinical observation." The second statement is, "The final and crucial test of the value of any therapy is that of actual clinical experience." Mark the words: "accurate clinical observation" and "actual clinical experience." Herein must of necessity lie much of the progress in treatment, if progress we are to have. Let me advise you in treatment to have an intelligent skepticism in regard to treatment. This is very different from therapeutic nihilism. Be wary of the words of the itinerant drug vender and of the literature flooded in on you by the drug houses. This is not to decry the very genuine efforts that the manufacturing pharmaceutical houses are making to improve medicaments and to discover better ones. It is, however, to say: Listen and read in a critical spirit, ready to try the new when evidence is good that it is of value, but realize that much that is printed is not based on what Dr. Barker calls accurate clinical observation, but results from a confusion as to cause and effect by reason of lack of accurate clinical observation and failure to think clearly and critically. Perhaps the best example of the worst that is being done at present lies in the literature and the claims made in so-called studies of endocrinology, and the attempt therein to apply to unknown conditions unknown drugs with poor observation of results. Is it any surprise that the conclusions are far from sound? It is within the power of every practitioner to observe accurately and to record carefully his observations, and to contribute thereby to advance in therapy. And, perhaps, as a corollary to that, it is fair to say that a lack of advance in therapy has come in considerable part from the failure of the practitioners of the country to do these simple things. Continued improvement in medical education must of necessity furnish better practitioners more capable of carrying on these types of observations, and the result can only be improvement in our drug therapy, as well as in other methods of therapy. Finally, let me emphasize the importance of treatment. It does much good in making our patients more comfortable, and

1. Magnus, R.: Allgemeine Pharmakotherapie, in Krause and Garré: Lehrbuch der Therapie der inneren Krankheiten, Jena 1:71-143, 1911.

thereby it must have a very manifest effect on the course of the disease. After all, we deal with many diseases of an acute or chronic nature whose exact cause we do not know, and we are confronted with an extremely large group of patients suffering from those chronic conditions to which we probably can bring only amelioration of suffering and a retardation of the processes, and in that group symptomatic treatment is of great importance.

DR. FRANCIS H. MCCRUDDEN, Boston: One sentence of Dr. Barker's paper, "Our teaching hospitals at present are more diagnostic institutes than institutes of therapy," might well be made the text for many papers. Students go to the medical school to learn how to treat sick patients. In their courses in internal medicine, emphasis is laid on diagnosis, not on treatment. The wrong point of view of their function as physicians which they acquire is likely to affect their activities for a long time even after they leave school. The internist deals largely with chronic disease in which improvement in functional efficiency of the patient, rather than restoration of structural integrity, is the aim of therapeutics. An intelligent understanding of the functional therapeutics of chronic disease is much more difficult than an understanding of the theoretically more ideal direct methods of treatment. The methods of treating chronic diseases should be emphasized in the teaching of therapeutics: first, the importance of functional efficiency and, second, quantitative diagnosis, as distinguished from qualitative. As a rule, we must make the best of the organ which is structurally imperfect, and the first step in improving functional efficiency of such an organ is a recognition of the degree of impairment of function. The term "quantitative diagnosis" should, therefore, be freely employed, and the student be made to understand fully all that it implies. The next step is to improve functional efficiency. When equilibrium between working powers of organs and the work they are called on to do is lost, two groups of therapeutic measures are used to restore equilibrium. First, methods which stimulate organs to do better work, and, second, methods which decrease demands on organs. Rational therapeutics deals largely with questions of how and when to apply such methods. It is largely a branch of applied physiology. This is the broad point of view which should be emphasized in teaching therapeutics to students. Therapeutics should be taught in a clinic as a separate course from pharmacology, and should be the most important course in a medical school.

THE VALUE OF DRUGS IN SURGERY*

GEORGE W. CRILE, M.D.

CLEVELAND

With increasing knowledge of the laws governing the operation of the human organism, surgeons are placing increasing dependence on methods which conserve the organism, and the use of drugs in surgery is becoming limited to those which serve this end.

As the condition of the organism as a whole depends on the state of its ultimate component units, the cells, it follows that the determination of methods of value to the organism depends on the laws which govern the cell.

LAWS GOVERNING THE CELLS

The cells whose condition is of primary importance to the surgeon are the nerve cells, the liver cells, the kidney cells and the heart muscle cells. These cells are all governed by identical laws, which are as exact as the laws of physics. A study of the structure of the cell gives the clue to its prime function and therefore to the methods whereby it may be conserved and repaired. The nucleus is separated from the body of the cell, and the cell is separated from the neighboring

cells by a selective semipermeable membrane. The nucleus and the body of the cell cannot both be best stained by the same medium, but differential stains are required, that is, the nucleus takes an acid stain, and the remainder of the cell takes a basic or alkaline stain.

The cell content consists in the main of colloidal particles suspended in water. Two colloids of different reactions separated by a semipermeable membrane constitute an electric battery. A cell, therefore, is a diminutive electrochemical unit or battery.

It follows that the vitality of the cell must depend on three principal factors: namely, oxidation, the maintenance of the normal state of permeability of the cell membranes, and the maintenance of the normal acid-alkali balance between the body of the cell and the nucleus.

Of these three, the principal source of energy is oxidation. Oxidation produces acids. It follows that the state of the acid-alkali balance in the cell becomes the measure of its vitality. If there has been excessive oxidation, or if the internal respiration of the cell has been minimized or prevented, then the normal acid-alkali balance between the nucleus and the cell body can no longer be differentiated by staining, that is, the cell has lost its difference in potential, which means that it has lost its power of function.

The loss of difference in potential in the cell may be due either to an excessive concentration of alkalis—alkalosis—or to an excessive concentration of acids—acidosis. The former state may be produced experimentally, but is rarely found clinically. Acidosis, on the other hand, is a common condition. It may be due to excessive oxidation, produced by excessive exertion, by fear, worry or anxiety, by trauma, by infection, by ether in the stage of excitation, by the injection of excessive doses of epinephrin, of strychnin, of iodine, by the ingestion of thyroid extract, by hyperthyroidism. That is, an excessive concentration of acids in the cell may result from the excessive production of acids as a result of any one or any combination of the excitants of metabolism. On the other hand, an excessive concentration of acids may result from the retention of acids in the cell as the result of diminished liver function, diminished kidney function, interference with pulmonary activity, or want of sufficient water.

The acid-alkali balance—potential—within the cell may be lost also as the result of a change in the permeability of the cell membranes. One of the common clinical causes of changes in the permeability of the cell membranes is ether anesthesia. In the first stages of ether anesthesia, the permeability of the cell membranes is increased, and excessive oxidation results, which is manifested by the stage of excitement. In this state, the rate of oxidation may even be trebled, causing an accumulation of acids within the cell, and consequent diminution of the difference in potential, with ultimate exhaustion. On the other hand, in deeper or surgical anesthesia, the effect is reversed; that is, the permeability of the cell membranes not only is not increased but is greatly diminished. Consequently, the cell is not only cut off from fresh supplies from without, but the escape of its own waste products is prevented. It follows that the internal respiration of the cells fails, and consequently the difference in potential between the nucleus and the cell body is rapidly lost, producing exhaustion, and ultimately death.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Ether is not the only anesthetic that may destroy the acid alkali balance—the difference of potential—of the cell. Deep nitrous oxid anesthesia also may materially lessen the difference in potential by lessening intracellular oxidation.

Finally, the most inclusive cause of the loss of difference in potential, hence of loss of cell energy, is loss of sleep, therefore the value of hypnotics, narcotics—bromids—opiates. Unbroken loss of sleep leads inevitably to death.

It follows that for the maintenance of its essential difference in potential the cell depends on (a) an abundance of fresh water; (b) oxygen; (c) rhythmic alternations of periods of rest and sleep.

These fundamental requirements are the final guide to the surgeon in his selection of conserving and remedial agents.

VALUABLE AGENTS IN SURGICAL PRACTICE

To assure a sufficient supply of water and oxygen, it is essential to maintain an adequate circulation of blood bearing plenty of red cells, and to supply an abundance of fresh water. In cases of secondary anemia, therefore, a transfusion of blood is prescribed; and from 3,000 to 4,000 c.c. of water to which procain has been added to make a $\frac{1}{32}$ per cent. solution (Bartlett's method) is given subcutaneously every twenty-four hours. To assure that the supply of water and oxygen is carried to every cell with sufficient force and in sufficient volume, the heart muscle must be conserved and if necessary restored. To this end, if the impaired condition of the myocardium demands it, operation is preceded by the administration of the tincture of digitalis, 20 minims every four hours for fifteen doses. After operation, digitalin in $\frac{1}{25}$ grain doses is given hypodermically, every two hours for eight doses or until the tincture of digitalis can be given by mouth in the dosage and frequency noted above. This is continued until the desired effect is secured, unless nausea occurs, when it is discontinued at once.

In brief, therefore, to insure an adequate supply of fresh water and of oxygen to the cells, as may be required in the individual case, we utilize the transfusion of blood and the subcutaneous injection of water, both of which are driven through the organism with increased force and certainty as the result of digitalizing the myocardium.

Excessive activation by fear, worry or anxiety, with the resultant concentration of acids in the cells, is controlled by management, aided, when necessary, by bromids or by morphin; by using the readily taken, comparatively innocuous anesthetic, nitrous oxid oxygen; by administering the anesthetic in the patient's room and taking him to the operating room under anesthesia, and in selected cases, by the preoperative administration of morphin and scopolamin for the purpose of maintaining an even metabolism, that is, an undisturbed internal respiration.

Excessive stimulation of the nerve cells by the trauma of the operation is controlled by local, regional or spinal anesthesia with procain—the safest local anesthetic for general use. Postoperative activation is controlled by the application of heat, by morphin, by blocking the traumatized area with quinin and urea hydrochlorid.

Atropin is used to prevent mucus, especially in operations on the respiratory tract. It is of especial value

in laryngectomies, when it is used to prevent the reflex inhibition of the heart which may result from interference with the superior laryngeal nerves.

For the control of excessive metabolism as in post-operative hyperthyroidism, refrigeration by literally packing the patient in ice is specific. Bromids and morphin lessen the drive and aid in securing the state of negativity essential for restoring the difference in potential in the cells. In certain cases in which morphin acts as a stimulant rather than a narcotic, large doses of bromid given by rectum will quiet the patient.

Thyroid extract and thyroxin are used to supply the physiologic need in cases of thyroid deficiency; calcium lactate and parathyroid extract in cases of parathyroid deficiency.

Epinephrin is employed as an aid in the diagnosis of hyperthyroidism in borderline cases (Goetsch test). It is of value also in asthmatic attacks due to bronchial constriction.

Magnesium sulphate is employed as a diagnostic aid in the detection of gallbladder disease or deficiency (Lyon test).

As we have indicated, oxygen, water, inhalation anesthetics, especially nitrous oxid oxygen, local anesthetics, especially procain, the bromids, morphin, scopolamin, atropin, thyroid product, and epinephrin have a definite value in surgical practice.

In addition to these, it may be well to mention certain other agents which are rarely used and some of which are of doubtful value.

Alcohol and strychnin are rarely used. The former is of value in certain apathetic infections, especially in the aged or in those who have been accustomed to it. In general, with the exception of the employment of digitalis to stimulate a weak myocardium, the use of stimulants is scarcely worth while and may be harmful.

The use of a solution of sodium bicarbonate as an agent for combating shock is of little, if any, more value than water. In both war and civilian practice, it has been found that solutions of gum acacia not only have no value but probably have caused a number of deaths. Glucose solutions are of little value.

ANTISEPSIS AND ASEPSIS

The increasing tendency to consider as the final criterion of a therapeutic measure its value in protecting the working cells of the body against fatigue, as compared with older methods, may be compared to the contrast between antiseptics and asepsis, for the former importance of antiseptics has been largely replaced by the promotion of the natural defenses against infection which are present within the organism itself.

The surgeon today knows that the key to the defense against infection possessed by any part of the organism is its blood supply; that abundant blood and normal blood augmented by physiologic rest supply the natural "asepsis."

Nevertheless, certain antiseptic agents retain a valuable, if comparatively small, place in surgical therapy. Of these, the best is surgical solution of chlorinated soda (Carrel-Dakin solution). Beck's bismuth paste is useful, especially in the treatment of old sinuses. A 5 per cent. solution of picric acid in alcohol and tincture of iodine are about the best skin antiseptics. The tincture of iodine is useful also as an intra-uterine antiseptic application. Iodoform, despite its disagree-

able qualities, still holds an important place as an inhibitor of infection. Surgical experience in the war taught us that contamination of raw tissue can be prevented or minimized (*a*) by preventing pooling of the wound secretions, and (*b*) by preventing the contact of contaminated with uncontaminated raw tissue. The latter requisite can be admirably assured by placing between the tissues a single layer of gauze lightly impregnated with iodoform. The application of this principle has proved of especial value in resections of the rectum and of the large intestine for cancer.

Much might be added regarding many other admirable agents of value in the irrigation of cavities, cleansing the skin, and so forth, but the relative value of any of these as compared with methods which utilize the natural defenses and reparative forces of the patient may be summed up in the subjoined excerpt from a previous paper

Good surgery is the exponent of no single method. It recognizes the anatomical and environmental situations in which chemical and physical agencies are useful. Good surgery exploits physiologic rest and fluids and sleep; it gives little pain. Good surgery evokes confidence; and confidence begets rest; and rest begets restoration. Good surgery, then, makes use of antiseptics and physical forces, just as it uses incisions, counter-drainage, revisions, skin-grafting, blood-transfusion. Good surgery does not substitute an easy formula for its principles; above all, it always is dissatisfied with its work and always is open to suggestion.

Anociation and asepsis leave but little place for the heroic medication of the past.

RESULTS AT LAKESIDE HOSPITAL

By the extension of employment of anociation and asepsis, the mortality in the last 6,261 operations at Lakeside Hospital has been reduced to 1.6 per cent. Our series have included fifty-eight colostomies and resections of the rectum and large intestine for cancer, with one death, and seventy resections of the stomach and gastro-enterostomies for cancer and ulcer of the stomach, with one death. Anociation and asepsis have made possible a series of 227 consecutive thyroidectomies and 180 consecutive ligations, that is, 407 consecutive thyroid operations for hyperthyroidism without a death. These are not selected cases. No patient was rejected and many were dying. Among the last 500 thyroidectomies, there have been five deaths, a mortality rate of 1 per cent., among the last 500 ligations, two deaths.

Worth while medication in surgery is that which is based on the principle of conservation and restoration of the cells, as interpreted by modern conceptions of the laws that govern the human organism.

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ABSTRACT OF DISCUSSION

DR. JOHN J. GILBRIDE, Philadelphia: A recent paper on goiter by Dr. Crile emphasized how important it is for the surgeon to be competent to manage his own cases, for all surgeons are not so fortunate as to have skilled assistants, such as biochemists, physiologists and others, always available. It would be very laudable, of course, and most desirable, for those of us who could, to have associated with us capable men to handle such phases of the subject. However, there is no one who is in a better position to know and to recognize the onset of menacing symptoms than the surgeon, and consequently treat these patients early.

THE USE OF DRUGS IN INFANCY AND CHILDHOOD*

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ROCHESTER, MINN.

In times past, many have considered pediatrics nothing more than the practice of internal medicine, with a formula for the reduction of the dosage of drugs. Within the last twenty-five years, however, there has been a tremendous development in this branch of medicine. A visible manifestation of this development is the establishment of special chairs in universities, both in this country and abroad. Perhaps the most important development of the intensive work in pediatrics has been in the realm of preventive medicine; drug therapy has not kept pace with the progress in other fields of this specialty. The interest which the profession at large has taken in pediatrics is perhaps best illustrated by the establishment of local and regional pediatric societies.

The literature of the last few years on drug therapy in infants and children indicates the slight effort that has been made in recent years in the development of such therapy. The lack of interest in this work during the rapid expansion of pediatrics in general is therefore evident.

RELATIVE DOSAGE

The main point in the administration of drugs to infants and children still is the reduction of the adult's dose. Drug therapy in infants and children, therefore, not only shares all the faults it has in the adult, but since the various formulas for calculating the dosage are based on weight or on age, or on weight and age, a specific error is introduced, for the child is not a pocket edition of the adult, and the two cannot be compared pound by pound. During growth, the relationship of the various organ-systems of the body to one another shifts, and with this process, the relationship of each organ-system to the whole body shifts. For instance, in the new-born infant about 23 per cent. of the total weight is in the muscles; in the adult about 43 per cent. is in the muscles. The relative weight of the infant's liver is about two and one-half times greater than that of the adult. This is of great importance, for a number of drugs do not distribute themselves equally over the body, but have certain affinities for various tissues or constituents of tissue. The affinity of many narcotics for lipoid tissue is well known. Some further factors enter into consideration. The administration of chloroform to an adult dog readily produces necrosis of the liver, but the production of this necrosis of the liver is far more difficult in the pup, where the relatively large amount of glycogen exercises a protective influence.

It is stated that certain drugs are well tolerated by the infant, while others are not. This statement also rests on a comparison with dosages for adults, and emphasizes the necessity of a study of the pharmacologic action of various drugs in the infant. The functional activity of some organs develops in the course of growth, like that of the sexual glands. Their internal secretions exercise an influence on the organism, and, while it is a fact that we know the chemistry

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* From the Section on Pediatrics, Mayo Clinic.

of the secretions of only two glands, the suprarenal and the thyroid glands, we must assume that the activity of the secretions of other glands also depends on one or more chemically well defined substances. These substances, whatever their derivation, may have a decisive influence on the reaction of the organism to drugs. In this connection, the results of Le Heux, from the laboratory of Magnus,¹ are of the greatest importance. They confirm the theory that the sodium salts of acetic acid and pyruvic acid increase the stimulation of the isolated intestine, and supply strong evidence to indicate that this stimulation is due to the formation of ester of acetic acid and pyruvic acid with the cholin normally present in the intestinal walls.

These factors are sufficient to prove that the administration of drugs to infants by formula is very unsatisfactory, and depends entirely on chance. Drug therapy in the infant has suffered, like that in the adult, from a number of mistakes and fallacies. First, only a small number of drugs exercise a rapid and striking effect, either by destroying the main causative agent of a disease or by producing a lasting favorable effect on it. Second, there is therapeutic nihilism, which is both fashionable and convenient; some of its roots strike deep into the quagmire of muddled observations. It is a remarkable phenomenon in the history of medicine that even the keenest observers lose their power of criticism and judgment when discussing therapy. Third, carefully controlled studies of the action of drugs in the infant and in the child exist, if at all, only in limited numbers.

DRUG GROUPS

In order to establish a standardized list of drugs essential to the treatment of the diseases of infancy and childhood, I selected from the pharmacopeia a list of sixty-one drugs. This list I sent to eighty-four men who are limiting their practice to pediatrics, with the request that they check the drugs listed and add to them any drugs which they considered essential in their practice. Of the eighty-four men, sixty-four responded. I wish to thank these gentlemen for giving me the benefit of their experience. A short analysis of the responses is of interest.

Many of the drugs were grouped under special headings, such as antispasmodics, laxatives, cardiac stimulants, and antipyretics. Only mercury in some form and santonin, on the list submitted, are used by all sixty-four men. Besides these, silver, arsenic, iron, sodium bicarbonate, cod liver oil, and at least one representative of the opium series, the antispasmodics, heart and circulatory stimulants, hypnotics, laxatives, antipyretics, anthelmintics, and urinary antiseptics, were used by sixty men of the sixty-four. One half of the men used forty-three of the drugs indicated on the list.

A number of men added drugs to the list. Fourteen added milk of magnesia, and three or more added benzyl benzoate, hyoscyamin, chloroform, agar-agar, creosote, chenopodium, glycerin, and tincture benzoin compound. One man added thirty-eight drugs to the list.

The drugs in this list can be readily divided into four groups. The drugs in the first group have specific indications; for example, mercury, arsenic, quinin, san-

tonin, male fern, etc., act directly in destroying parasites, and the drugs such as silver, hexamethylenamin and the salicylates have definite antiseptic powers for destroying bacteria. The indication for the use of these drugs is usually given with the diagnosis of the disease. The drugs in the second group regulate the function of the different organs; for example, digitalis, the group of laxatives, and the diuretics. The third group is essentially for the symptomatic treatment of disease, as morphin for the relief of pain. The fourth group consists of drugs that are used for a specific purpose, and for practically no other, such as phosphorus in the treatment of rickets and spasmophilia, mustard for counterirritation, and phenol (carbolic acid) for the infections of the middle ear. This classification does not differ greatly from the old pharmacopeial classification of drugs which rested on the *indicatio vitalis, causalis, morbi* and *symptomata*.

It is not my object here to attempt an enumeration of the indications for the use of these various drugs. I merely wished to collect a group of drugs that, in the experience of a large number of pediatricians, cover the needs in the practice of pediatrics.

INDICATIONS FOR DRUG THERAPY

The importance of a definite indication for the use of drugs is even more essential in infants and children than it is in adults. As Dr. Jacobi has said, "Most conditions in childhood right themselves without any medication," and, "I believe we are justified in assuming that the man in general practice uses more medicine, rather than too little, for the welfare of his little patients."

The tendency toward homeopathy, particularly in the treatment of diseases of children, so much in vogue about thirty-five years ago, when adults were treated by regular physicians and children by homeopathic physicians, was the logical outgrowth of too much medication. Today the homeopathist, the indications for drug therapy being much more finely drawn, has almost disappeared from our midst. The public, too, has become educated, so that, as a rule, it appreciates the advice given by the physician more than the prescription he writes.

In infancy, in particular, the use of drugs should be limited to definite indications, and these indications are usually for a single drug. The younger the child, the greater the danger of upsetting its gastro-intestinal functions by medication. Diseases of the infant, of whatever nature, frequently manifest themselves by gastro-intestinal symptoms. Indeed, in many cases they are the only symptoms, and it is very important not to derange the gastro-intestinal tract still more. The treatment of parenteral infections by repeated catharsis is perhaps the best example of the danger of treatment without a diagnosis.

PROBLEMS OF ADMINISTRATION AND DOSAGE

It has been the general experience that the difficulties of administering medicine are not so much those of giving certain medicines to children, as those of giving any medicines to certain children. In this connection two very important points must be emphasized: first, it is usually children who are unwilling to cooperate who are unwilling to take medicine, another example of the spoiled child; and, second, the physician fails to appreciate the importance of his personal relationship with his little patient. The fact that a child

1. Magnus, R.: Cholin als Hormon der Darmbewegung, Die Naturwissenschaften, 1920, No. 20, from a lecture held Feb. 2, 1920, in Bataafsch Genootschap voor proefondervindelyke sysbegeerte, at Rotterdam.

promises to take the medicine is very much better than any assurance on the part of the mother or nurse to administer it.

We are not limited, in our administration of medicine, to the oral route, but, as it is by far the simplest method, it is most frequently used. When a child, either because of mood or as the result of illness, is

unwilling to take medicine by mouth, it can very easily be given with a nasal tube. The rectum, too, can be used as a means of administering drugs, particularly the drugs, such as chloral hydrate, that are likely to irritate the stomach.

The dose of chloral hydrate by rectum as usually given is about twice the dose by mouth. Intravenous injection insures quicker action with a smaller dosage. It must be remembered, however, that, for a drug to develop its pharmacologic action it must be in contact in sufficient concentration with the tissues to be acted on, for a definite length of time. This means, the more rapid the absorption, the lower the dose, but, on the other hand, the shorter the action, the greater is the necessity for repetition of the dose, for constant action. Another factor to be considered in this connection is the rapidity of elimination, as shown by Ramsey and Groebner's² work with mercury.

The treatment by drugs of diseases in infancy is influenced in its effectiveness by the factor of nutrition and growth. This is perhaps best expressed by the statement that as long as a child eats and digests well there is a good chance for recovery. A drug which acts favorably on the disease focus but interferes with the nutrition of the child is harmful. The effect of the so-called tonic treatment during the active stage of disease is another example of the failure to recognize the nutritional factor in disease.

I shall call attention also to the necessity of objective standards for the value of drug therapy. At present almost all our judgment is subjective, and the results of drug therapy depend to a large degree on whether the physician is an optimist or a pessimist. Until we have objective standards, the relative values of various modes of treatment must, of necessity, be difficult to determine. It behooves us all, therefore, to apply objective measurements, wherever possible, in our studies of drug therapy.

My original plan was to include in this paper a table of the doses of drugs for the different age periods. On second thought, however, it seemed too important a matter to be decided arbitrarily by the opinion of any one physician; such a table, dependent as it is on experience rather than experiment, is a problem that calls for cooperative effort. I was strengthened in this belief by looking over Lavialle's tables on the dosage of drugs for the first two years, which appeared in Variot's recent textbook.³ He designates a dose for the first month; for older infants he multiplies the dose by the number of months the child is of age, merely another mode of dosage according to age, without any consideration of the peculiarities of infancy and childhood.

In concluding I wish to propose that the Section on Pharmacology and Therapeutics recommend to the proper authorities the appointment of a committee for the purpose of studying the problem of the therapeutic action of drugs and their dosage in infancy and childhood.

ABSTRACT OF DISCUSSION

DR. F. PAUL GENGEBACH, Denver: When we realize what a large proportion of the acute illness of early childhood

2. Ramsey, W. R., and Groebner, O. A.: Further Progress in the Study of the Relative Efficiency of the Different Mercurial Preparations in the Treatment of Congenital Syphilis in Infants and Children as Determined by a Quantitative Analysis of the Mercury Elimination in the Urine, *Am. J. Dis. Child.* 20:199 (Sept.) 1920.

3. Variot, G.: *La puériculture pratique, ou, l'art d'élever les enfants du premier âge*, Paris, Doin, 1912.

LIST OF DRUGS SUBMITTED TO PEDIATRICIANS

	Recommendations
1. Silver	63
Nitrate	48
Argyrol	58
2. Mercury	64
Blue ointment	52
Calomel	50
Ammoniated mercury	55
Mercuric chlorid	39
3. Arsenic	61
Fowler's solution	49
Sodium cacodylate	24
Arsphenamin	50
4. Iron	60
Syrup of ferric iodid	51
Blaud's pills	35
Ferric citrate	40
5. Phosphorus	42
6. Cod liver oil	63
7. Iodin	50
Potassium iodid	43
8. Turpentine	17
9. Mustard	49
ANTISPASMODICS	
10. Epinephrin	53
11. Atropin	58
Belladonna	43
12. Magnesium sulphate	36
13. Calcium chlorid	49
STIMULANTS (HEART AND CIRCULATORY SYSTEM)	
14. Camphor	52
15. Digitalis	62
16. Strophanthus	25
17. Nitrites	20
RESPIRATION (CENTRAL)	
18. Strychnin (tincture of nux vomica)	40
19. Caffein	50
HYPNOTICS	
20. Alcohol	28
21. Chloral hydrate	55
22. Barbital	17
23. Luminal	36
24. Bromids	61
LOCAL ANESTHETICS	
25. Procain	47
26. Ethyl chlorid	30
27. Orthoform	13
LAXATIVES	
28. Castor oil	55
29. Senna	26
30. Rhubarb	32
31. Jalap	12
32. Aloin	3
33. Cascara sagrada	55
34. White liquid petrolatum	45
35. Sodium sulphate	45
ASTRINGENTS	
36. Tannates	25
37. Bismuth	51
Opium series	62
38. Opium	30
Morphin sulphate	46
Paregoric	47
39. Codein sulphate	54
40. Heroin	20
RESPIRATORY TRACT	
41. Ipecac	48
42. Ammonium carbonate	33
43. Squills	14
ANTIPYRETICS	
44. Quinin	48
45. Antipyrin	49
46. Phenacetin	36
47. Pyramidon	13
48. Acetylsalicylic acid	52
49. Sodium salicylate	49
ANTHELMINTICS	
50. Male fern	62
51. Santonin	64
DIURETICS	
52. Citrates	53
53. Acetates	34
54. Theobromin sodium salicylate	25
ALKALIS	
55. Sodium bicarbonate	62
URINARY ANTISEPTICS	
56. Hexamethylenamin	59
57. Salol	30
MISCELLANEOUS	
58. Menthol	36
59. Phenol	45
60. Sulphur	44
61. Boric acid	56

are due to disturbances in the gastro-intestinal tract, we might say that the first thing for a sick child is not to give it any drugs or any food. Push the water drinking. Let water be the therapeutic agent. Then after you learn just what the nature of the disturbance is, start feeding, gradually increasing the amount to the point of tolerance. Nutrition is the important thing. It is very important not to upset digestion. We can use drugs in different ways. We can use what might be termed an average dose, at average intervals. That is, so much of a drug every two, three or four hours, estimating the dosage by Young's or some other rule. On the other hand, there is something to be said in favor of what might be termed homeopathic dosage. I find frequent use for fractional dosage. I use it in all children that I am seeing for the first time, because I know nothing about their idiosyncrasies or their reactions. In the second place, I use it in consultation practice, because I feel it is safer to prescribe in that way, for the practitioner is going to superintend the case after I leave. And, thirdly, I use fractional doses at frequent intervals when I am anxious to get plenty of water into the child. Another factor is palatability. It is one thing to prescribe a drug, and another to get it down. Another important phase is to give drugs so that they do not upset digestion. In a general way, since the child has a good chance of getting well without medication, it would be safer to look after the child's nutrition and not give any drugs. However, it ought to be possible to do both. In addition to food and drug therapy, the other things we always think of in pediatric practice are mechanotherapy and hydrotherapy, including steam inhalations and counter-irritation and all kinds of baths. I want to second Dr. Helmholz' suggestion that this section appoint some sort of committee or commission, consisting of pharmacologists, therapists and pediatricians, so that this matter may be gone into in a scientific manner, and so that we will have something definite to give to the general practitioner, who, after all, treats the majority of children.

DR. RICHARD M. SMITH, Boston: Children tend, on the whole, to get well. Children have very little chronic disease or very little disease which is evidenced by degeneration of one form or another. We must, in general, consider conditions which represent temporary deviation from a normal healthy condition to which the patient tends to return. Largely, I think, because of this fact, pediatricians and general practitioners dealing with children have become less and less accustomed to the use of drugs. In doing this we have suffered because we have failed frequently to avail ourselves of drugs which are of real value. Therefore, I think Dr. Helmholz' plea is particularly timely, that we shall familiarize ourselves again with the facts we already know with reference to drug therapy as applied to children, and we shall also attempt to increase our knowledge, particularly with reference to the dosage that it is necessary to give to produce satisfactory results. We frequently give up the use of certain drugs because unable to produce satisfactory results, and these results are unsatisfactory because we have used the drug inaccurately, or because we have given a dose which is insufficient to produce the desired results. We should confine ourselves, for the most part, to the use of single drugs, and should familiarize ourselves with those drugs so that we shall actually know when to employ them, and then learn the dosage of these drugs so that we may employ them intelligently.

DR. J. I. DURAND, Seattle: In regard to starvation: If there is an infection outside the intestinal tract, we are not justified in starving the child. Keeping up the child's nutrition is a very important factor in effecting a cure. If the infection is outside the intestinal tract, and if the child is hungry and wants food, it is safe to feed the child a soft diet. That does not necessarily mean a liquid diet. Gruels and vegetables are taken care of just as well as milk. The younger the child, the more danger there is of starvation, and infinite damage has been done to a tiny baby by the barley water feeding continued over a long period. It is never justified. Starving a baby under 6 months for more than twenty-four hours is never justified. Another practical point in the treatment of children is that too many laxatives have been used.

Calomel should not be given to a child under 3 years old. It is a drastic purge, and does much damage. Phosphorus and cod liver oil are specifics in rickets. I use 1 c.c. oil of phosphorus to 100 c.c. of cod liver oil, in rapidly increasing doses up to 2 or 3 drams daily. Chloral is a very valuable drug in infancy, especially in convulsions, and can be given in relatively large doses, 2 grains by mouth, or 4 or 5 grains by rectum, in repeated doses, to a child 1 year old. Pyelitis is extremely common. You can give large doses of hexamethylenamin if you do not continue more than twenty-four hours. Two grains for a baby 6 or 8 months old or even 1 year old, every two hours for twenty-four hours, has never caused damage. Then stop and alkalize the urine with potassium citrate, because the infection is usually due to the colon bacillus, which will not grow in an alkaline solution. Keep this up five days and repeat the hexamethylenamin.

THE OCULAR MENACE OF WOOD ALCOHOL POISONING*

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PHILADELPHIA

The adoption of the national prohibition amendment in the United States, and the possible advent of similar restrictions in Great Britain make the ocular complications of wood alcohol poisoning a live topic for discussion. The more we restrict the use of ethyl alcohol, the greater is the temptation to substitute methyl alcohol, and so long as methyl alcohol remains the most deadly poison of daily commerce, so long will human eyesight, if not life itself, be menaced by ignorant, careless or criminal handling of this toxic product. As ophthalmologists we have a double duty to perform: (1) to make an intensive study of the toxic effects of methyl alcohol on the delicate ocular tissues, and (2) to establish a propaganda in "preventive medicine" that will protect possible victims, whether guilty or innocent.

Three fateful factors have increased the dangers of wood alcohol: (1) its refinement from a nauseous, vile smelling compound, to one as clear and palatable as ethyl alcohol, (2) its fatal cheapness, which has naturally resulted from the increased output and the improved methods of manufacture, and (3) its unusual solvent power which has so greatly encouraged its use in the arts.

In America we have (1) ethyl alcohol, which is either absolute (99 per cent.) or rectified (90 per cent.); (2) methyl alcohol, which may be either the commercially impure liquid or the purified product, and (3) denatured alcohol, which was formerly composed of 10 parts of methyl alcohol and one half part of pyridin bases, added to 100 parts of ethyl alcohol, but since December, 1919, this formula has been modified by a reduction of the methyl alcohol from 10 to 2 per cent. There is a well founded suspicion that in order to evade the prohibition act unscrupulous chemists are submitting this denatured alcohol to fractional distillation so as to remove the benzin and wood alcohol and thus secure an impure ethyl alcohol which can be sold for drinking purposes.

In the United Kingdom, this product is better regulated, and, therefore, the cases of blindness have been fewer, although it is quite possible that many cases have escaped detection and reporting. According to the "Extra Pharmacopeia" of Martindale and West-

* Read at the Oxford Ophthalmological Congress, Oxford, England, July 15, 1920.

cott for 1920, you have: (1) ethyl alcohol of 99 per cent. and 90 per cent. strength; (2) methyl alcohol, pure, which can only be retailed at increased cost, subject to excise duty, and the impure, or commercial, variety which is from 60 to 90 per cent. pure and is sold as "wood naphtha," its use being forbidden in medicines and beverages but permitted in liniments, especially those containing aconite, belladonna, camphor, and the various soap liniments; (3) methylated spirits consisting of (a) mineralized alcohol, which is a denatured product containing wood naphtha 10 per cent., mineral naphtha $\frac{5}{8}$ per cent., methyl violet sufficient to color, in each 100 parts of ethyl alcohol, used chiefly as a burning fluid, and (b) industrial alcohol containing 5 per cent. wood naphtha, used mostly in varnishes. The "color indicator" is a better warning to the eye than a poison label, but both should be used to designate pure methyl alcohol and wood naphtha instead of the less dangerous mineralized alcohol. The use of wood alcohol in liniments and burning fluids should be legally prohibited.

In New York, the late Dr. Gruening, in 1910, showed that wood alcohol was a fairly constant ingredient of the cheaper wines, brandies and whiskies sold in the low resorts of the East Side, in proportions ranging from 24 to 43 per cent. These large percentages proved most disastrous to the victims who drank these liquors. He urged frequent analyses and regulation under the restrictions of the national Food and Drug Act of 1906.

In Pennsylvania, Dr. Edward Martin, commissioner of health, under the state act of July, 1919, requires all manufacturers of drugs and toilet preparations to file an affidavit that the alcoholic content is pure grain alcohol, and that no wood alcohol has been used in the preparation. This has proved to be a great step forward in effective restriction; but at first, there was difficulty in controlling the jobbers in barbers' supplies and the small retailers of toilet articles. The prompt closing of several stores and the confiscation of their adulterated goods soon convinced the dealers that this law would be rigidly enforced.

COMMERCIAL SOURCES OF SUPPLY

The city chemist of Philadelphia found methyl impurities in compound spirit of myrcia (bay rum), lilac and violet waters, quinin and other hair tonics. Chemical analyses have also revealed its presence in commercial products sold directly to the public under such names as witch hazel, balsam of myrrh, camphorated tincture of opium (paregoric), Jamaica ginger, vanilla extract, lemon extract, and the spirit of anise, peppermint, cinnamon, and tincture of capsicum and myrrh—better known as "hot drops." Well known perfumes, foreign wines, and "patent medicines" have also been found to be adulterated with it. In its pure state it is sold under such commercial names as Columbian Spirits, Eagle Spirits, Lion d'Or, Colonial Spirits, Hastings Spirits or Acetone Alcohol.

It has been used to fortify and preserve ginger ale, ginger beer, and bottled cider. I have seen one patient blinded by drinking a single bottle of fortified cider, purchased at a country grocery store. Fourteen cases of blindness from drinking Jamaica ginger were recorded in Baltimore a few years ago. During prosecution for damages, an official of the factory took a large draft to show its harmlessness, but secretly followed this with an emetic. Many Indians from our

reservations while on a spree have been blinded by drinking "lemon extract" that was similarly adulterated. The case of sudden blindness with vomiting after drinking a single bottle of "Wincarnis Quinine Tonic" points more to methyl alcohol than to quinin toxemia, since the whole bottle contains only 12 grains of quinin, but this is dissolved in imported Spanish wine that could easily be adulterated at its source. The victim of this debauch might, however, have indulged in some other potation with methyl alcohol content.

It is the basis of all so-called "burning fluids" which are freely used in the chafing dish, to heat the vapor bath cabinet and to boil water. In rooms with poor ventilation the fumes are always dangerous.

Bathing the hands, face and head with these solutions has also been followed by toxic effects.

The "antifreeze" mixtures which have been sold so freely for use in the engines of motor vehicles are almost wholly composed of wood alcohol. These mixtures have often been stolen by garage employees and recklessly sold to unwary victims. It is easy to understand, therefore, what a terrific toll of sudden blindness and death followed the wood alcohol orgy in the United States during the first year of prohibition.

Many liniments and veterinary preparations have a large methyl alcohol content and may, therefore, prove dangerous. No legal restrictions have as yet been placed on them.

The largest manufacturer of wood alcohol in America has recently designated his product "Methanol," which will at least remove the temptation of alcoholic suggestion to the confirmed drinker. When the morale of the caretaker of an anatomic museum falls to low that he will drink the alcohol off the specimens under his charge, we can understand why the significance of the word "wood" in front of the word alcohol will not impress the toper's vision until after he has taken a lethal dose and blindness has ensued.

We cannot prevent the "confirmed alcoholic" who is ignorant, secretive or reckless from becoming an easy prey to its poisonous effects; but we can legally prevent the ignorant or unscrupulous manufacturer from substituting methyl for grain alcohol in his pharmaceutical products, flavoring extracts and toilet preparations. Furthermore, we can, by pitiless publicity, teach the public the dangers they face in drinking or otherwise using compounds containing this poison.

No restrictions have been placed on the use of wood alcohol in the arts, and no warning has been given as to its dangers. The official reports of Great Britain show that during the year 1914 more than 1,100,000 gallons were used in varnishes. We may reasonably infer that some ocular injury followed the use of such an enormous output.

As to its relative cost, the wholesaler in America buys it by the barrel at about one-eighth the price of grain alcohol. Denatured alcohol is equally cheap; but it does not cut varnish so well, and the disagreeable odor and taste prevent its use in toilet preparations and pharmaceuticals. In Great Britain, most fortunately for you, the relative wholesale prices are reversed because wood alcohol is scarce and consequently dear; hence, pure methyl alcohol costs as much as, or even more than, ethyl alcohol. The temptation to substitute it for ethyl alcohol is, therefore, greatly lessened.

You have, moreover, the distinct advantage of better and more systematic inspection and regulation which prevents the pollution of your products by careless or criminal profiteers. The one great danger to you is the possible importation from other countries of wines, whiskies, toilet articles and "patent medicines" that have been adulterated with wood alcohol at their place of manufacture.

The mere existence of commercial compounds containing wood alcohol constitutes a menace to the eyes and lives of the community; and their manufacture and sale should be strictly prohibited or regulated by law, and violations punished by fine and imprisonment. If their use is permitted, the contents should be colored with methyl violet and a poison label affixed to each container stating that the use of this preparation by "drinking, breathing or rubbing on skin may cause blindness or death." Instructions should also be issued to the trades affected, calling attention to the dangers of using wood alcohol to varnish tanks, closets or rooms where the air is confined, requiring proper ventilation and ordering employees to seek the air at stated intervals of two hours. These public duties would naturally fall to the existing department of health; but it is our plain duty to see that all information as to its manifest danger to vision is properly disseminated to the public. A special revenue tax should be imposed and a record of "poison sales" required for both wholesalers and retailers. The tax on denatured alcohol should be reduced or equalized so that it can be sold cheaper than methyl alcohol, thus removing the temptation to substitute because of cheapness. In addition to this, the law should require that every case of wood alcohol poisoning should be reported and the source of supply revealed. I believe, however, as previously stated, that the only safe plan is to limit the manufacture of wood alcohol and to regulate its sale, legally, since it constitutes the most deadly poison used in daily commerce. Manufacturers who use this product in their business should be the first to seek a substitute and join us in this crusade to abolish its use, since they would be subjected to compensation damages if their employees were injured by its use.

TESTS FOR WOOD ALCOHOL

Mulliken and Scudder's Test.—In order quickly to determine the presence or absence of wood alcohol, the test of Mulliken and Scudder has often been employed, but has not always proved sufficiently dependable. Nevertheless, it is a test that a traveling liquor inspector can quickly utilize. It depends on rapid oxidation by plunging a red hot copper spiral wire into the suspected liquid, or into a distillate made from the same. Formaldehyd is thus formed, and its pungent odor can be recognized by the stinging sensation it produces in the upper part of the nose. This test is useful only when the methyl alcohol strength is more than 10 per cent.

Robinson's Test.—A more practical method, which can be easily applied, has recently been devised by the chemist to the Department of Public Health of Philadelphia, Dr. William C. Robinson. He converts the wood alcohol by oxidation through potassium permanganate into formaldehyd, then adds it to acidulated milk, and gently heats the mixture until a pink color develops. This test is so delicate that 0.01 per cent. of methyl alcohol will be revealed:

Quantitative Test.—This may be performed thus:

1. Take 100 c.c. of the suspected methyl alcohol liquid and add sodium carbonate until it becomes alkaline.
2. Dilute this with an equal volume of water.
3. Then distil the solution.
4. Cool 100 c.c. of the distillate to 60 F., and take the specific gravity.
5. Compare the specific gravity with tables to estimate the percentage of alcohol by weight and volume.
6. Pour the distillate into a Zeiss immersion refractometer and compare the scale reading and reference table to ascertain whether pure ethyl alcohol, pure methyl alcohol or a mixture is present.
7. If both are present, obtain percentages of each by applying an empiric formula.¹

Qualitative Test.—This may be performed thus:

8. Redistil the remaining 100 c.c. of distillate (No. 4 above).
9. Take the first 10 c.c. coming over and add 3 c.c. of 1 per cent. solution of potassium permanganate.
10. Gently heat to 110 F. and constantly agitate the vessel until the odor of ethyl aldehyd is perceptible.
11. If the solution decolorizes, add more permanganate solution, 1 c.c. at a time, until pink color is restored.
12. Add a few drops of commercial hydrochloric acid to precipitate the excess of permanganate (as brown manganese hydroxid) and filter.
13. Pour the colorless filtrate into a porcelain casserole and add 10 c.c. each of water, fresh milk and hydrochloric acid.
14. Heat the mixture to the boiling point with constant agitation until a bright permanent pink develops, which will occur if only 0.01 per cent. of wood alcohol is present in the suspected liquid.

For an emergency inspection, we can modify the quantitative test outlined above by omitting the distillation. The suspected methyl alcohol liquid is thus poured directly into the hygrometer and Zeiss refractometer, and the readings of specific gravity and percentages are compared with the reference table and empiric formula (as in Nos. 5, 6 and 7). This will roughly show the relative amounts of ethyl and methyl alcohol present.

PORT OF ENTRY THROUGH THE MOUTH, NOSE AND SKIN

We should always bear in mind that wood alcohol may develop its lethal action through three different avenues of entrance into the system: (1) by ingestion, (2) by inhalation, and (3) by cutaneous absorption

1. Ingestion is usually the most common method of poisoning. If taken pure, a single teaspoonful has been known to cause blindness, and an ounce to cause death. As different individuals seem to be variously affected, there may be an idiosyncrasy present that increases immunity. Thus, if three persons indulge in a wood alcohol spree, newspaper reports will usually state that "two died and one went blind." Increase of tolerance is also acquired by long exposure to the poison, as in the case of painters.

The acute toxic symptoms that usually follow ingestion are headache, dizziness, nausea, vomiting, abdominal pain, chilliness, leaky skin, cardiac weakness, slow pulse, sighing respiration, marked physical prostration, weakness of the extremities, delirium, convulsions, stupor, and finally death. Blindness is usually noticed by the patient on the second day, when the stupor begins to wear off. Many observers have noted that early and persistent vomiting has been followed

1. Compare Leach: Food Inspection and Analysis, Ed. 4, p. 782.

by clearing vision. In like manner prompt relief of the toxemia may avert blindness. On the other hand, blindness may ensue when acute systemic symptoms have been wholly absent. The symptoms from a single large dose, and those from repeated small doses, may show considerable variation.

2. Inhalation of the fumes of wood alcohol may be followed by blindness. This method of poisoning is more chronic and insidious, and has often been denied; but recorded histories verify the fact.

Loewy and von der Heide, by animal experimentation, determined that 0.2 per cent. of wood alcohol in the inspired air will cause body saturation if continued long enough. They observed further that the fat absorbed less of the poisonous fumes than the lean.

Buller and Wood have recorded eleven cases of poisoning by inhalation, Gruening two, Tyson three, and de Schweinitz one. I have seen two cases of poisoning by inhalation. One patient (Case 3) inhaled the fumes for only one hour a day in a china cement factory. The second patient (Case 6) inhaled the fumes for three days while varnishing the small engine room of a submarine.

The majority of these cases occur from occupational exposure to the fumes. The painter uses it as a cleansing fluid or as a cheap diluent to cut his shellac in order to varnish the interior of large beer vats, closets or closed rooms. Two of Tyson's patients shellacked lead pencils in a fairly large room, but finally succumbed to the slow poisoning. The latter mixes it with shellac to stiffen the nap or straw blanks. The dyer of feathers uses it to dilute the colors; the maker of shoe polish adds it to the paste; the brass finisher uses it in the lacquer, and the maker of rubber tires mixes the mass with it. If ventilation is very free, the danger will be lessened; but open air exercise at frequent intervals should be required for every such employee. Sooner or later, some ocular injury becomes manifest in spite of every precaution.

3. Cutaneous absorption has also been denied; but there are many cases of recorded blindness. These have arisen chiefly from the daily application of compound spirit of myrcia (bay rum), toilet waters and liniments. Some were caused by the washing of the face, head and hands in pure methyl alcohol. Even Turkish bath rubbers are not exempt from toxic absorption, although they apply it only occasionally. Buller and Wood have recorded several cases, and E. V. L. Brown, in discussing Fridenberg's² paper on "Wood Alcohol Amaurosis," relates a typical case of a painter who spilled a gallon of wood alcohol down his leg, soaking his clothes, and filling his shoe. He carelessly allowed this to dry on his skin. Toxemia and blindness resulted in a few days.

SYMPTOMATOLOGY

The ocular symptoms are not pathognomonic, but vary within certain limitations. As a rule, vision is seriously impaired. Blindness may be early, sudden and complete. At the end of a month, there may be marked recovery, which either remains permanent or is followed by gradual failure of vision and ultimate blindness. This history of variable vision associated with gastro-intestinal symptoms is typical enough to make us suspect wood alcohol as the causative factor.

When there is chronic poisoning, the visual loss is more insidious, and the diagnosis is more difficult.

The objective symptoms are a sluggish, well dilated pupil, which may or may not react to light or convergence, scleral congestion, deep pain on rotation of the globe, tenderness on finger pressure and occasionally paresis of one or more of the extra-ocular muscles accompanied by diplopia. Sometimes, the levator of the lid is involved and ptosis results.

The optic nerve-head shows many variations but no characteristic appearance. The conditions most frequently recorded are: (a) papillitis, (b) retrobulbar neuritis and (c) sudden sclerosis.

(a) *Papillitis*.—The swelling of the papilla may reach 2.0 diopters. The edema may spread over the margins on to the retina. The edges may be dusky red, with dark, dilated veins and shrunken arteries. This papillitis generally subsides in from one to two weeks. It somewhat resembles influenzal papillitis; but the latter yields more readily to hot packs or other diaphoresis and the vision recovers more quickly and completely. Associated symptoms of intracranial pressure must, of course, be eliminated in making a diagnosis.

(b) *Retrobulbar Neuritis*.—These cases are more insidious. They are often followed by a decided shrinkage of the nerve-head, sometimes in the form of a sector-like excavation, limited to a quarter or half of the disk, glistening white in appearance, or with bluish tint, revealing the lamina cribrosa in the excavation, but usually free from connective tissue deposit. Fridenberg believes this appearance to be characteristic of this lesion; de Schweinitz and E. V. L. Brown confirm this observation of sector atrophy of the papillomacular bundle, but with certain modifications.

(c) *Sudden Sclerosis*.—This may occur immediately after ingestion, and reveals chalky white pallor of the papilla, without the slightest appearance of shrinkage. I have seen several cases of this kind and they are equally typical.

Whether the ganglion cells of the retina or the fibers of the optic nerve are first attacked has never been decided. Birch-Hirschfeld, Holden and de Schweinitz indorse the former view. Most of the conclusions reached have depended on animal experimentation, but postmortem degeneration of these delicate structures is so rapid that a satisfactory study is difficult to make. As I have elsewhere stated, it is most unfortunate that so much excellent human material has recently gone to waste without a single microscopic report being made. According to Fridenberg, both of these highly energized tissues are seriously injured by contact with the formic acid, which, like its congener, the bee sting, creates strangulation by the sudden tissue swelling or edema which follows exposure to such a corrosive poison. The corrosion does harm and so does the swelling. Whichever tissue is touched first will be injured first. As the serous infiltration subsides and strangulation is removed, the vision improves; but if the nerve fibers are corroded and later undergo shrinkage, vision is finally lost. The injury is modified, therefore, by the degree of concentration of the circulating poison which seems to have a selective affinity for these delicate tissues.

A critical study of the phenomena occurring in cases of wood alcohol poisoning and more especially the characteristic symptoms noted in Case 6, herein reported,

2. Fridenberg, P.: Tr. Am. Ophth. Soc. 12: 513, 1910.

have led me to the conclusion that the primary and fundamental lesion in all cases of methyl alcohol poisoning is a profound injury of the pituitary body. The acute toxic symptoms are typical of such a lesion, while the chronic symptoms are equally significant. A similar lesion of the pituitary may possibly be found in quinin and other toxemias. The tentative diagnosis of epidemic encephalitis in my case is also suggestive, since the symptoms of that disease indicate a pituitary lesion. The changing but steadily contracting fields, the fugitive scotomas, the visual loss and recovery, the sclerosed or atrophic nerve-heads, the fixed and dilated pupils, the temporary paresis of the extra-ocular muscles, the ptosis, the ataxic gait and the mental hebetude are all characteristic of pituitary involvement.

The fields of vision usually reveal a concentric contraction for both form and color. Central scotomas are often present but not always permanent, as many recoveries have been recorded. Tyson noted in his chronic cases multiple scotomas scattered over the fields. Occasionally, both the fields and the central vision are preserved in spite of the apparent sclerosis of the nerve-head.

REPORT OF CASES

CASE 1.—A housewife, aged 49, seen by me ten years ago and whose case was reported before the Pennsylvania State Medical Society in 1910, indulged in a single alcoholic drink on Christmas eve, 1909. Jamaica ginger was suspected. This was followed by sudden and complete blindness the next day. The sclerotics were yellow. She had a spasmodic "stomach" cough for several days. She was blind in both eyes; the pupils were wide and fixed; there was a feeble light reflex in the right eye. The nerve-heads were sclerosed and dull white, but there was no shrinkage. The vessels were attenuated.

Thyroid extract was given and negative galvanism was advised. Acidosis was not tested. Electrical treatment was begun, Jan. 19, 1910. One month later, the right disk became vascularized and the left slightly hyperemic. At the end of the second month, she regained light perception and gradually continued to improve until, Oct. 1, 1910, vision was: right eye, 20/50 J-10; left eye, 20/100 J-14. The fields began with a very small central area and broadened out proportionately. This vision was maintained for several years; but recent reports are not so favorable. If the acidosis had been treated in the early stages and she had persisted with the galvanic treatment, I believe this vision could have been maintained.

CASE 2.—A man, aged 46, seen by me at about the same period, suffered sudden blindness following the drinking of a bottle of fortified cider, bought at a country grocery store. When first examined, the acute symptoms had subsided and vision had returned to about 2/200 in each eye. The nerve-heads were pale, the edges distinct, and there was slight central cupping. The fields were concentrically contracted. A trial of galvanism was made but without improvement in vision.

CASE 3.—A man, aged 40, whose case was previously referred to as resulting from inhalation, was under treatment for several months, with failing vision, slight pallor of disk and contraction of fields without apparent cause. I finally directed him to keep a diary of his daily activities, hoping to discover something definite. One day I noticed the record of a visit to a china cement factory for one hour. He said he went there regularly every day, but he had forgotten to record it previously. On examination of the cement formula, wood alcohol was found to be a constituent. By cessation of his visits to the factory and the application of negative galvanism, he slowly recovered normal vision and fields, which he still retains.

CASE 4.—A marine was seen in June, 1919, by Dr. Connole, of Wilkes-Barre, Pa. (to whom I am indebted for the notes), and by Dr. Daland in consultation. After a debauch on compound spirit of myrcia "two sailors died and one went blind." Thirty-six hours after ingestion, vision was reduced to light

perception and was wholly lost two days later. There was typical papillitis, 1.5 diopters, increasing to 2.0 diopters, and gradually receding.

The patient was immediately placed on alkaline treatment: (1) lime water in milk; (2) enteroclysis of 5 per cent. dextrose containing sodium bicarbonate, 2 drams to the pint; (3) sodium bicarbonate by the mouth, 10 grains every three hours, and (4) strychnin sulphate, $\frac{1}{3}$ grain in twenty-four hours, later $\frac{1}{2}$ grain.

Light perception was regained in two weeks and vision improved to practically normal after two months, at which time the margins of the disk were distinct but reddish on the nasal side; the vessels were contracted, with central cup showing lamina. Color perception was normal. There was concentric contraction of the fields; left, 10 degrees, right 20 degrees. The blind spot was slightly enlarged. The patient was seen in France one year later by Dr. Dunbar, and asserted that his vision was excellent. The present condition is not known.

CASE 5 (Recently reported by Dr. Mongel before the College of Physicians of Philadelphia).—A man, aged 21, had three drinks in a saloon on Christmas eve, 1919, and three the next day. He remembered that the liquor had a rusty, foul, etherlike odor and taste. In forty-eight hours, vision was reduced to light perception. The pupils were slightly dilated and responded feebly to light. The conjunctivae were deeply injected. The anterior scleral vessels were distended. The media was clear. There was severe neuroretinitis. The papillae were swollen and hyperemic; the margins blurred, with edema extending into the retinal tissue. The retinal vessels were dark, engorged and tortuous. The urine was highly acid; the specific gravity was 1.012.

Treatment consisted of (1) gastric lavage; (2) salines through enteroclysis; (3) pilocarpin; (4) hot packs; (5) strychnin sulphate, $\frac{1}{30}$ grain, three times a day, and (6) calcium chlorid, 10 grains four times a day.

Light perception was regained in two weeks, reached 20/50 in one month, and became normal at the end of two months. The fields showed slight concentric contraction with central scotomas. The nerve, retina and blood vessels gradually cleared up. Calcium chlorid and strychnin were continued for three months.

CASE 6.—A painter, aged 20, inhaled fumes while varnishing the engine room of a submarine for three days, in March, 1920. He was dizzy the first day, hilarious the second and nervous the third. He suffered gastric pain and insomnia. Diplopia developed from paresis of the external rectus. Ptosis and blindness soon followed. In three weeks, he began to improve. A diagnosis of epidemic encephalitis was made by the attending physician. Vision at the first test was: right eye, 20/70 J-14; left eye, 5/200 J-20. The pupils were unequally dilated, the left being wider; they reacted to light and accommodation. The nerve-head of the right eye was pale, there was central excavation, venous pulse and fine vascularization of the disk. In the left eye, the nerve pallor was more marked; there was less vascularization; excavation was more extensive; there was venous pulse; the veins were overfull. There were slight nystagmatic movements; exaggerated patellar reflexes; no static ataxia; a curious gait. Lack of coordination suggested pituitary injury. The fields were limited for form and color; there were no central scotomas. There was marked mental hebetude.

Acidosis of the early stages had changed to alkalosis, 113 per cent. This was gradually reduced by treatment to 65 per cent., which is practically a normal balance. There was some backache, but the urine was normal. Engorged nasal tissues interfered with breathing.

With negative galvanism and refraction, central vision has improved to: right eye, 20/15 pt.; left eye, 20/20. Accommodation was paralyzed. Add S + 2.D = O.D. J-2, O.S. J-3. The fields have widened out. There is less pallor of the disk; vascularization has increased. There is less mental hebetude and greater physical agility following the use of pituitary extract.

THE BIOCHEMISTRY OF METHYL ALCOHOL

The biochemistry of methyl alcohol as it passes through the system is somewhat complex. It is essen-

tially a protoplasmic poison. The bulk of this poison is eliminated through the lungs, skin and kidneys, while the alimentary tract gets rid of a large portion. The remainder undergoes oxidation into formaldehyd and formic acid, both of which are corrosive poisons. The latter, however, will not oxidize further, but is slowly eliminated by the kidneys. Pohl, in 1893, showed that after ingestion of wood alcohol the excretion of formic acid was increased in the urine. In wood alcohol workers, this increase is so marked that Fehling's solution is promptly reduced. This chemical fact should always be borne in mind, or sugar will be suspected and a false diagnosis of diabetes made by the inexperienced.

Acidosis seems to be a constant condition in the early stages. Tyson has demonstrated acidity of the aqueous humor in some of his cases. Judging from my experience in Case 6, alkalosis may appear in the later stages. These chemical reactions will be revealed by Van Slyke's test for carbon dioxid in the blood. If the attack of acidosis is acute and of a severe type, it may manifest itself by Kussmaul respiration.

TREATMENT

Acidosis should be overcome by the early administration of alkalis. Harrop reports good results obtained in a case of acute acidosis of great severity treated by him at Johns Hopkins Hospital, in which he made intravenous injections of from 400 to 500 c.c. of a 5 per cent. solution of sodium bicarbonate on succeeding days. He governed his indications by Van Slyke's test. We should always bear in mind, however, that excessive alkalosis may cause grave irritation of the kidney, and that as soon as tests show that the plasma bicarbonate has returned to normal, no more alkali should be given. We already know that the edematous swelling caused by a bee sting can be reduced by alkalis. It will, therefore, be a great advance in the treatment of methyl alcohol poisoning if we can relieve this acute acidosis by the early use of alkalis and thus lessen the destruction of nervous tissue.

Connole's case shows the value of comparatively small doses of sodium bicarbonate, given by the mouth and by enteroclysis. The vision promptly improved and was maintained for at least a year. Mongel secured equally good results with calcium chlorid, which he considers both alkaline and hygroscopic; but not sufficient time has elapsed for us to pass final judgment in his case. It will be interesting to watch whether these results are permanent.

According to Bongers, much of the wood alcohol in the system is returned to the stomach and can be removed by gastric lavage. He recovered, in this way, three times as much on the second and third days as on the first day. He also found that formic acid appeared in the washings as long as twenty-seven hours after the ingestion.

Many observers have noted that those who vomit early and freely are not so seriously injured by the poison and recover with less impairment of vision. It will be necessary to decide, therefore, whether emesis through mustard or apomorphin hydrochlorid is indicated or whether daily lavage will prove of greater utility. The stomach pump should be used early if the patient is seen early and methyl alcohol poisoning is suspected; but most victims are so secretive in the beginning that this is seldom possible.

Diaphoresis through hot packs, vapor baths or pilocarpin has frequently been employed with great success. Hot drinks also encourage this effect. Apomorphin hydrochlorid and pilocarpin are both excellent lymphagogues in small doses. Jalap and saline purgatives have accomplished much good; but an alkaline enteroclysis may prove more useful because the absorbed water helps to dilute the poison and wash it out of the system, while the added alkali will help to neutralize the toxicity.

Oxygen has been used in methyl alcohol toxemia to relieve cyanosis and support the heart, and yet it is an undetermined question whether this oxidation would not increase the virulence of the poison by converting the formaldehyd into formic acid. Harnack in a study of this question concluded that "methyl alcohol by slow oxidation is converted into formic acid, while in rapid oxidation carbon dioxid and water were formed." Rapid oxidation may, therefore, be a valuable suggestion in the chemistry of metabolism. In a former paper on wood alcohol, I recommended the use of potassium permanganate in order rapidly to oxidize the abnormal chemical compounds in the stomach, just as is done in opium poisoning; but I would prefer to have this suggestion tested out by animal experimentation before putting it into practice among human beings.

It has been suggested that since deafness often ensues, and there is uncertainty of gait, together with certain head movements, the middle ear is involved. I would rather believe that the pituitary body had suffered injury, since many of these symptoms point to such an origin. Case 6 is very suggestive of this. In that event, the use of pituitary extract should prove of service, as it did in this case. Thyroid extract, however, was more useful in Case 1.

If marked nervous symptoms develop, the use of scopolamin hydrobromid may be indicated; but it should be used with caution as it will interfere with elimination unless pilocarpin is used to overcome this tendency. While potassium iodid has been freely used to eliminate the toxins during the more chronic stages, I would prefer to use solution of arsenous and mercuric iodid (Donovan's solution) for this purpose. The tonic effect of large doses of strychnin must always be considered, but I have not observed success from the use of this drug.

To revascularize the disk and restore the lost function of the nerve, no measure can equal the stimulating effects of negative galvanism. The patient with partial blindness resulting from inhalation, to whom I have previously referred (Case 3), recovered practically normal fields and vision after prolonged treatment with negative galvanism. The patient with sudden sclerosis (Case 1), who was totally blind for two months, recovered half vision and fields under the use of negative galvanism for one year. Another patient (Case 6) also regained normal central vision from galvanic stimulation, although the accommodation is still paralyzed.

Negative galvanism should be administered with great care, using a high voltage and low amperage. Sixty volts should be passed through the main shunt controller with the amperage reduced to 1 milliamperage by a secondary carbon controller. The current is passed for ten minutes, and then reduced to one-half milliamperage and passed for a second period of ten

minutes. These séances are continued on alternate days, as a rule. I believe that electricity is the most efficient therapeutic measure we have for the milder cases of toxic injury in which there has not been complete destruction of the nerve fibers. If this has already occurred, as in my case of poisoning from bottled cider (Case 2), galvanism will have no effect whatsoever.

CONCLUSIONS

1. Wood alcohol is the most deadly poison used in daily commerce.
2. One teaspoonful has been known to cause blindness and 1 ounce to cause death.
3. The port of entry may be through the mouth, nose or skin.
4. Wood alcohol should be identified by Robinson's test.
5. It is a protoplasmic poison possessing a selective affinity for the delicate nerve tissues of the eye.
6. Its biochemistry is modified by oxidation, first to formaldehyd and then to formic acid, both of which are corrosive poisons.
7. Formic acid is the end-product excreted by the kidneys.
8. If formic acid is present in the urine, it will promptly reduce Fehling's solution, thus suggesting to the inexperienced a false diagnosis of diabetes.
9. Van Slyke's test will reveal acidosis in the early stages and alkalosis later.
10. Sudden blindness with vomiting and abdominal pain should always arouse suspicion of methyl alcohol poisoning; especially if diplopia or ptosis is associated.
11. Papillitis, sector-like atrophy and sudden sclerosis of the nerve-head are equally typical fundus lesions.
12. Symptoms of pituitary injury are most suggestive in pointing to this as the primary and fundamental lesion.
13. Contracted fields and central or paracentral scotomas are usually present.
14. Treatment should include early neutralization by alkalis, and elimination by lavage, emetics, diaphoretics and rapid oxidation, together with stimulation of the optic nerve by negative galvanism applied directly to the eye. Thyroid extract and pituitary extract may be indicated.
15. The manufacture and sale of wood alcohol should be prohibited or regulated by law.
16. If sales are permitted, safeguards and warnings should be required and the public instructed as to the great danger to vision and life.
17. A special revenue tax with registered "poison sales" would regulate and record its distribution and in cases of poisoning reveal the source.
18. This tax should equalize the cost of denatured alcohol and methyl alcohol and thus remove the temptation to adulteration because of cheapness.
19. All wines, whiskies, toilet articles and "patent medicines" imported from foreign countries should be tested for wood alcohol before passing through the customs inspection.
20. The name "methanol" specifically designates this product and yet avoids the tempting suggestiveness of the word "alcohol."

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THE COUNTING OF BLOOD CELLS
AND BACTERIA

A PRECISE AND SIMPLE METHOD WITHOUT A
SPECIAL CHAMBER *

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Methods of counting red cells and bacteria may be classified as direct and indirect: direct, when the cells per unit volume of a suspension are enumerated in a counting chamber; indirect, when a suspension of one variety of cells is mixed with and counted against a suspension of another kind which has already been enumerated in some way or other. The first method of the indirect type to be described was that of Wright ¹ for the counting of bacteria, which is too well known to need description. It enables workers to make approximate counts with ease and rapidity; but, being based on the assumption that the number of red cells in a cubic centimeter of a normal person's blood is constant, whereas it is in fact both individually and diurnally variable, the method has never aspired to be one of precision. Again, the difficulty of obtaining an even distribution of red cells and bacteria in the spread films is by no means inconsiderable. Moreover, the method entails the use of a suspension of human erythrocytes as the standard of comparison, and it is therefore impossible to enumerate other suspensions of human red cells by its means.

DETAILS OF EXPERIMENT

Test-Tube	Final Dilution of Same Original Sample of Human Red Cells	No. of Human Red Cells per C.mm. (Average count of two drops)	
		Differential Method	Bürker Counting Chamber
A	1: 220	5,509,000	5,456,000
B	1: 160	5,366,000	5,326,500
C	1: 240	5,419,000	5,270,500
D	1: 200	5,238,750	5,387,000
E	1: 180	5,401,000	5,546,000
	Average	5,386, 750	5,397,200

None of these difficulties, however, are insurmountable. By substituting hen's erythrocytes, with their distinctive appearance, for human red cells as the standard suspension; by preparing them in such a way that they form a stable, unchanging standard suspension; by enumerating the standard suspension with great precision in an accurate counting chamber; by mixing standard suspension in measured proportion with the suspension to be enumerated, and counting them in the wet state, a very accurate method for the enumeration of human red cells and bacteria is achieved without sacrificing any of the rapidity of Wright's technic.

Before proceeding to describe the details of the procedure, I will give the figures of some comparative blood counts made (a) with first-class Bürker chamber (Zeiss) and (b) by the new method.

A single suspension of human red cells was made by diluting a sample of blood to 1/100. Five c.c. of

* From the Department of Pathology, University of Oxford.
1. Wright, A. E.: *Technique of the Teat and Capillary Glass Tube*, London, Constable & Co., 1912.

this was measured into each of five tubes, with precautions to insure a uniform suspension of the cells during the measurements. To each of the tubes there was then added a different quantity of mercuric chlorid-saline solution (described below), and the following dilutions resulted: Tube A, 1:220; B, 1:160; C, 1:240; D, 1:200; E, 1:180.

I kept myself in ignorance of these figures until all the counts were completed. Of each tube a minimum of two counts by each method was made; the figures given in the accompanying table were obtained.

Analysis of the table shows that the average total numbers of red cells arrived at by the two methods (5,386,750 and 5,397,200) differ only by 0.19 per cent. The percentage deviations from these averages for each dilution are 1.25 in the case of the differential method, and 1.46 for the counting chamber, despite the fact that a greater number of cells were counted each time by the latter method. For by the differential method an average of 550 human and 360 hen cells were counted in each of two counts, whereas in the Bürker chamber the cells counted in each of the two drops averaged 1,030.

The individual counts by the differential method showed a 2.29 per cent. deviation from the mean, and the corresponding figure for the Bürker chamber came out at 2.46.

Whatever differences, therefore, were found between the two procedures spoke in favor of the differential method.

DETAILS OF THE PROCEDURE

The following description of the details of the procedure is taken from the original article.²

PREPARATION OF THE STANDARD SUSPENSION

A solution containing approximately 1.3 per cent. of mercuric chlorid in sterile physiologic (0.85 per cent.) sodium chlorid solution is prepared. The fowl, which should be young and in good health, is bled directly into this solution, approximately 1 c.c. of blood being allowed to each hundred cubic centimeters of the solution. The recipient fluid is agitated gently while the blood is being added, so as to insure a thorough mixture. It is left for one hour, being shaken from time to time to prevent sedimentation of the blood. At the end of the hour it is centrifugalized, just enough to deposit the red cells, the supernatant fluid is poured off, and the original volume made up with a solution of 4 per cent. mercuric chlorid in physiologic sodium chlorid solution. The mixture is allowed to stand for six hours, the flask or bottle being shaken occasionally. At the end of this time the flask is agitated to emulsify the cells, and then centrifugalized. The cells are washed twice with physiologic sodium chlorid solution, being emulsified each time before centrifugalizing. The supernatant fluid is poured off, the original volume made up with physiologic sodium chlorid solution to which has been added a minute amount of mercuric chlorid, i. e., just enough to prevent bacterial infection.

The suspension is now ready for standardization. As the result of a large number of experiments, I have arrived at the conclusion that a convenient suspension to work with is one which contains about 20,000 cells per cubic millimeter. Therefore, the suspension should be brought to this standard in the usual manner, physiologic sodium chlorid solution being employed as the diluting fluid, and at least 1,000 cells in each of ten successive drops, or about 10,000 cells in all, being counted.

Standard suspensions thus made have been kept for eight months at ordinary temperature without showing any change in the number or appearance of the corpuscles.

DETERMINATION OF THE NUMBER OF RED CELLS IN A GIVEN BLOOD BY MEANS OF THE STANDARD SUSPENSION

The blood, taken in the usual manner, is diluted 1:200, with a solution of 1.3 per cent. mercuric chlorid in physiologic sodium chlorid solution. For example, one adds 0.1 c.c. of the blood to 19.9 c.c. of the mercury saline solution, previously measured into a test tube, carefully washing out the blood pipet and thoroughly mixing the resulting dilution. The tube containing the blood dilution is shaken to secure an even distribution of the cells in the suspension, and immediately 1 volume—e. g., 0.1 c.c.—of the fluid is transferred to a dwarf test tube. In the same manner the tube or bottle of standard suspension is shaken and an equal volume of this fluid is measured into the dwarf test tube, which is agitated so as to mix the fluids thoroughly. A drop of the mixture is placed immediately upon a clean slide and covered with a coverslip, care being taken to avoid air bubbles. The drop should be only large enough to form a thin film between the coverslip and the slide, and not so large that the coverslip floats. A coverslip of convenient size is 22 by 22 mm.

For counting, a magnification of about 350 is convenient; for example, one can use a Zeiss D achromatic objective and a Zeiss No. 3 Huyghenian eyepiece. Into the eyepiece is placed a small diaphragm of black paper, in the center of which is an aperture 4 by 4 mm., which gives a field of convenient size. In counting, one should avoid the extreme periphery of the area covered by the coverslip. The number of nucleated red cells and the number of non-nucleated cells in each field are enumerated. It is advisable to count two drops from the same mixture, and not less than 500 cells in each drop.

CALCULATION OF THE NUMBER OF RED CELLS CONTAINED IN EACH CUBIC MILLIMETER OF THE BLOOD EXAMINED

The sum of all the nucleated cells counted and the sum of all the non-nucleated cells is taken. The number of nucleated cells is divided into the number of non-nucleated cells. This factor is multiplied by the number of cells in each cubic millimeter of the standard suspension (20,000) and then by the dilution of the blood (200). The product is the number of red cells per cubic millimeter of the blood examined. It is clear that the method can equally well be applied to the counts of nucleated erythrocytes. In such a case the standard suspension must be made with non-nucleated red cells.

Example.—Suppose the standard suspension contains 21,000 nucleated red cells per cubic millimeter. The blood sample is diluted 1 in 200. A drop of a mixture of equal volumes of these two solutions is prepared for the microscope, and about fifty fields are counted. The sum of the nucleated red cells in the fifty fields is 319. The sum of the human red cells in the fifty fields is 405.

$$\frac{405}{319} \times 21,000 \times 200 = 5,294,000$$

Therefore the blood examined contains 5,294,000 red cells per cubic millimeter.

LEUKOCYTE COUNT

To determine the number of leukocytes in a given blood sample by this method, the procedure is as follows:

Into a dwarf test tube, three volumes of a 0.3 per cent. solution of acetic acid in distilled water, to which has been added 0.6 per cent. of a 1 per cent. solution of methyl violet (6B) is measured. One volume of the blood to be examined is added, mixed carefully, and allowed to stand for a short time until the human red cells are hemolyzed. Then one volume of the standard suspension of nucleated red cells is added and mixed carefully. A drop of the mixture is placed on a clean slide and covered with a coverslip, the same precautions being observed as in the case of the red cell count previously described. For counting, the same objective and ocular are used as for the counting of red cells, but the paper diaphragm previously used in the ocular should be left out, and the nucleated red cells and leukocytes present in the whole field should be counted. The same total number of cells—i. e., about 500—should be counted as in the case of the red cell determination.

2. Dreyer, Georges: A Simple Procedure for the Accurate Enumeration of Blood Cells and Bacteria Without the Use of a Counting Chamber, *Lancet* 1:219 (Jan. 29) 1921.

The calculation of the number of leukocytes per cubic millimeter of blood is performed in the manner already indicated above—namely, by dividing the number of nucleated red cells into the number of the leukocytes, and multiplying this factor by the number of cells in 1 c.mm. of the standard suspension. If dilutions other than those here indicated are used, the calculation will naturally have to be modified accordingly.

Example.—Suppose the standard emulsion contains 21,000 nucleated red cells per cubic millimeter. One volume of the blood to be examined is added to three volumes of the acetic acid-methyl violet solution, and mixed. To this mixture is added one volume of the standard suspension. Seventy fields are counted, giving a total number of 409 nucleated red cells and 145 leukocytes.

$$\frac{145}{409} \times 21,000 = 7,445$$

Therefore the blood examined contains 7,445 leukocytes per cubic millimeter.

ENUMERATION OF BACTERIA

For counting bacteria in a suspension, the following technic has been adopted:

A special standard suspension for this purpose is thus prepared: The mercuric chlorid-fixed nucleated cells are washed several times with physiologic sodium chlorid solution to remove the free mercuric chlorid, and then made up with sterile physiologic sodium chlorid solution to a standard of about 30,000 per cubic millimeter. A minute amount of formaldehyd is added to secure sterility. For the purpose of counting, a mixture of one volume of the standard suspension, one volume of the bacterial suspension suitably diluted and one volume of 0.5 per cent. methylene blue solution is prepared and counted, as in the case of the blood count, enumerating the nucleated cells and the bacteria in each field.

Example.—Suppose the standard suspension contains 30,000 cells. The bacterial suspension is diluted 1:200. Into a dwarf test tube is measured one volume of the standard suspension, one volume of the diluted bacterial suspension and one volume of 0.5 per cent. methylene blue solution, and the test tube is shaken to mix thoroughly the contents. A drop of this mixture is immediately transferred to a slide, covered with a coverslip, and counted as in the case of the white cell count, except that an oil immersion lens is used. Eighty fields are counted, giving a total number of 500 nucleated red cells and 400 bacteria.

$$\frac{400}{500} \times 30,000 \times 200 = 4,800,000$$

Therefore the bacterial emulsion contains 4,800,000 bacteria per cubic millimeter.

SUMMARY AND CONCLUSIONS

The method of counting human red cells and bacteria as described, when carried out carefully according to the directions given, yields results unsurpassed in accuracy by any other available method. Quicker and less fatiguing than the counting chamber, it is equally available for the counting of erythrocytes and leukocytes and bacteria.

Research on Vitamins in Fish Cod Liver Oil.—A German exchange cites a Norwegian journal to the effect that Profs. Axel Holst, Gran, Poulsson and J. Hjorth have been appointed a committee for fat soluble vitamin in cod oil. The Hygiene Institute of the University of Christiania has always devoted much attention to food problems on account of the prevalence of beriberi in the Norwegian merchant ships, and English research workers on rachitis have appealed to the institute to study ways and means for preparing cod liver oil for the market with the least possible injury of the vitamins. The government has appropriated 18,600 crowns for the work. The beriberi vitamin, it is said, is not injured by the heating to 100 C. as in salt fish, but canned fish is subjected to a higher temperature, and this vitamin cannot stand over 110 C.

TREATMENT OF TUBERCULOSIS OF THE ANKLE IN THE ADULT*

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AND

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In considering the treatment of tuberculosis of the ankle joint in the adult, several questions deserve special attention. Among these are:

1. What is the prognosis with conservative treatment?
2. What is the duration of conservative treatment in those terminating favorably, or better still, after what period may we expect the patient to return to work?
3. How long should conservative treatment be tried before resorting to operative measures?
4. In what percentage is amputation finally necessary?

In going over the literature it will be found very difficult to get information on these particular points. To state that a patient made a good ultimate recovery is not sufficient. The time element is a very important factor, and should receive special consideration. Strictly speaking, the title of this paper should limit consideration to the ankle joint proper, i. e., to the astragalotibial articulation; but, for practical reasons, it may be well to include tarsal disease, since the tarsal bones are often involved secondarily.

Tuberculosis of the ankle is said to occupy third place in order of frequency of joints involved in the lower extremity. The bones bearing most weight are especially disposed to invasion. The astragalus, tibia and os calcis, therefore, are more frequently affected than the smaller tarsal bones. The astragalus is the most frequently involved.

The characteristic signs and symptoms of tuberculosis of the ankle and tarsus are so well described in modern textbooks that repetition is unnecessary here.

While writers are not entirely in accord as to the seat of the primary involvement, the idea seems to be gaining ground that the primary seat is more frequently in the synovial membranes than in the bone. In the synovial type, the disease spreads more rapidly over the surface of the bone. In osteal lesions the disease process extends along beneath the cartilage, so that at operation the cartilage is frequently lifted off readily in large pieces. This undermining of the cartilage may account for the fact that when healing follows the conservative treatment, a slight degree of motion usually persists because of the remnant of cartilage interposed between the joint surfaces. The joint with a slight degree of motion is particularly disposed to lighting up under strain of a latent infection, so that in case only a slight and not really serviceable degree of motion persists, firm, bony ankylosis is preferable. In astragalotibial disease, swelling is usually first noticed on the front of the ankle on either side of and along the extensor tendons, because the capsule is thinnest at this point. Fluctuation is most easily elicited during dorsal flexion of the joint. Later, effusion appears also below the malleoli. Extension of the disease to the os calcis and scaphoid is frequent. In

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

walking, there is a tendency to equinovalgus with rotation outward of the leg and foot, the latter thus taking a more passive part in progression.

This position avoids motion at the astragalotibial and astragaloscaphoid joints. In subastragalar disease the swelling is usually noted lower down. With few exceptions, statistics given cover combined adult and childhood cases. In view of the fact that both treatment and prognosis vary so markedly, it is deemed wise always to distinguish the two groups in offering statistics.

It is generally conceded that in childhood the prognosis is very favorable with conservative treatment. This should be carried out rigidly and consistently, paying attention to the usual hygienic measures, and emphasizing heliotherapy and local fixation. Occasionally minor operations, such as the laying open of sinuses or excavation of an isolated focus in a single bone, may be justifiable, but radical operations, removal of entire tarsal bones or excision of joints will rarely be called for. Humphries and Durham¹ reported twenty-nine traced cases, the average age on admission being 5½ years, and the average duration of treatment four and one-sixth years. Of these twenty-nine patients, twenty-three were cured and six died. Of the twenty-three cured, fifteen had normal function and eight various degrees of limitation of motion and deformity.

Gibney² reported thirty cases with "good, practically normal or normal function" in twenty-four, and ankylosis in six. The average duration of treatment was three and one-quarter years. In both of these series many of the cases were in children.

Ohse³ reported on a series of 115 cases of tuberculosis of the ankle at the Strasbourg clinic between the years 1894 and 1906; almost one half of these were in children under 15 years. In his series, 26 per cent. came to secondary amputation. In 19 per cent. of the resected cases, the patients died shortly after operation from other forms of tuberculosis. About 50 per cent. of the cases showed good anatomic results, the others showing various degrees of deformity and shortening from nothing to 11 cm.

Maass⁴ reported 167 cases from the Göttingen clinic. Of thirty-nine cases treated conservatively, twenty-nine came to operation later. He concludes that conservative treatment is contraindicated in all cases in which the roentgen ray reveals foci in bone. This view does not find acceptance so far as it applies to children.

Sever's⁵ series of 213 cases of tuberculosis of the ankle and tarsus includes only children. A comparison of results obtained by conservative and operative means leads him to urge avoidance of all radical operations on bones and joints in children except when all else fails.

Most valuable statistics are those of Rogers,⁶ who traced seventeen cases out of a total of twenty-seven

of tuberculosis of the ankle in adults treated at the Massachusetts General Hospital. This is the only series found in which only adults are considered. Fixation gave good results in only three cases, and the duration of treatment was four years. Of the operative cases, resection was done in nine and amputation in eight. Rogers advises early resection or amputation to save time, believing that the duration of treatment should be cut down to not more than two years if possible. Considering these statistics as a whole, they are far from encouraging, and suggest that radical measures were often too long delayed. We believe that when the diagnosis of tuberculosis of the ankle joint is certain, and the roentgenogram shows definite bony involvement of the astragalus or of both astragalus and tibia in a wage earner, our attitude should be much the same as it is in tuberculosis of the knee. Few surgeons will now hesitate to recommend early resection of the knee. The statistics just quoted show clearly enough that conservative treatment, even if successful, requires too long a healing period; also that amputations are far too frequent to justify delay in resorting to radical measures in the type of cases cited.

Spengler, following a series of cases from Kocher's⁷ clinic, found that 48 per cent. of the patients suffering from ankle tuberculosis had died of some form of tuberculosis within a ten year period. The restriction of normal activity incidental to ankle disease conservatively treated over long periods must be admitted as an important factor in predisposing to pulmonary and other tuberculous lesions. In persons other than laborers with definite tuberculous involvement of ankle joint and component bones, conservative treatment is fully justified for a period of perhaps six months. This will be sufficient to give one some idea as to the virulence of infection and resistance of the individual. If during this time there is no decided improvement, disappearance in whole or at least in large part of swelling, pain and infiltration of soft parts, much time will be gained by radical operative measures.

A good general plan for conservative treatment modified to suit the individual case would involve in active cases rest in bed for two weeks with elevation of the foot, and an elastic compression bandage over cotton, followed by a plaster cast from just below the knee to the toes. If the cast is well molded about the knee, it is not necessary to go above the knee. Beginning deformity can be corrected easily in this early period by gradual molding of the foot and retention in the corrected position by one or more plaster casts. Weight bearing should be avoided by the use of crutches and elevation of the opposite shoe. Later a Thomas splint, also preventing weight bearing, may be substituted. If in six months there is decided improvement, a double bar splint extending from below the knee into the shoe with molded leather ankle support and foot plate may be substituted in the later stages. General constitutional measures, exercises not involving the joint, and heliotherapy, of course, are presupposed here as in the treatment of all joint tuberculosis. The Bier treatment has not been used because it cannot be employed, at the same time maintaining consistent fixation. Attention to proper shoeing, especially to support of the arch, is advisable.

1. Humphries, R. E., and Durham, H. A.: End-Results of the Treatment of Tuberculosis of the Spine, Hip, Knee and Ankle Joints, *J. A. M. A.* **68**: 282 (Jan. 27) 1917.

2. Gibney, V. P.: Tuberculosis of Ankle Primarily Involving the Soft Parts, *Tr. Am. Orthop. A.* **13**: 225-228, 1900.

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6. Rogers, M. H.: Prognosis and Treatment of Tuberculosis of the Ankle in Adults, *Boston M. & S. J.* **164**: 811-813.

7. Kocher: *Arch. f. klin. Chir.* **34**, No. 2, 1883.

As in operative treatment of tuberculosis of the knee, the important point is to eliminate motion. This is perhaps not as easily obtained in the ankle as it is in the knee because it is more difficult to obtain firm and continuous bony contact. In the knee, the broad femoral and tibial surfaces are more readily held by long spikes or other means of fixation.

Of the thirty different approaches to the ankle joint referred to by König,⁸ the Kocher method appears to be the most generally applicable and has been the method employed in the cases to be reported.

TECHNIC OF OPERATION

A vertical incision is made from a point just behind the fibula and about 2 inches above the external malleolus downward, curving forward below the tip of the malleolus and extending forward on the dorsum to the lateral border of the head of the astragalus, followed by division of the peroneal tendons low down below the external malleolus; division of the external lateral ligament of the ankle, and also of the posterior and anterior portions of the capsule as far as necessary in order to dislocate the foot completely inward so that the sole of the foot looks directly upward. This gives

therefore be added. In the cases reported, no special means of fixation was used outside of a snugly fitting plaster cast. Stiles uses a long, square nail introduced through the plantar surface of the heel through the os calcis, astragalus and tibia. He removes the nail in three weeks, when a plaster cast is applied. If the disease is confined to the astragalus and if it cannot be retained with safety without danger of extension of the disease to the joints, it may be removed and the foot displaced backward.

In Stiles' ⁹ series of fifteen traced cases, mixed adult and children, there were two in which ankylosis was not complete, slight flexion and extension being permitted. In one there was a discharging sinus. In every case the patient walked well without support.

In dealing with tuberculosis of the smaller tarsal bones there is no reason why the principle of arthrodesis should not be carried out in a considerable portion of the cases. Certainly in astragaloscaphoid and calcaneocuboid disease there should be no difficulty.

Curettage operations are condemned because one cannot see what is being done, healthy bone on which we must depend for firm bony ankylosis is likely to be removed and diseased bone and cartilage are left

SUMMARY OF CASES

	Age, Years	Duration of Disease When First Seen Months	Conservative Treatment	Operative Treatment	Postoperative Treatment	Time Since Operation	Site of Disease	Return to Work	End-Result	
									Function	Deformity
1 R. B. W..	50	3	Cast, 2 months; Brace, 1 year	Minor	Brace, 2 years	13 years	Subastragalar	3 mos.	Practically Normal Ankylosis	None
2 E. M.....	19	4½	0	Arthrodesis, ankle	Cast, 3 mos.; brace, 1 year	5½ years	Ankle joint	10½ mos.	Fibrous ankylosis	Equinus
3 A. W.....	26	24	4 months	Arthrodesis, ankle	Cast, 3 mos.; brace, 1½ yrs.	2 years	Ankle joint	12 mos.	Ankylosis; sinus	None
4 J. S.....	23	11	None	Astragalectomy, calcaneotibial arthrodesis, ankle	Cast, 6 mos.; brace to date	1¾ years	Amputation refused; ankle and subastragalar	Not returned	Fibrous ankylosis	Shortening 1½ inches
5 J. T.....	45	10	0	Arthrodesis, ankle	Cast, 3 mos.; brace	1¾ years	Ankle joint	Not returned	Still active disease	None
6 H. K.....	30	6	0	Arthrodesis, ankle and subastragalar joint	Cast, 3 mos.; brace	8 months	Ankle joint; subastragalar	Not returned		

an excellent exposure of the interior of the joint, enabling careful inspection and removal of diseased synovial membrane as well as of articulating surfaces of tibia, fibula and astragalus. This entire articulating cartilage is removed without, however, sacrificing any more healthy bone than is necessary. Care is taken to eradicate any diseased tissue between the tibia and fibula. The denuded astragalus is shaped so as to fit accurately into the fork of the malleoli. The foot should be fixed in midposition between valgus and varus and in slight equinus to allow for the usual height of the heel of the shoe. When the astragalus cannot be saved, a tibiocalcaneal arthrodesis is performed by removal of cartilage on the superior portion of the os calcis and the lower portion of the tibia. In this case it is well to set the foot backward on the tibia in order to avoid the unwieldiness of the foot, just as in the Whitman astragalectomy for calcaneo-valgus following infantile paralysis. In one of the modern textbooks it is stated that in case the disease is confined to the ankle joint, astragalectomy may assure removal of the disease with retention of motion. This advice runs counter to the generally accepted principle that elimination of motion is essential in controlling the disease. Calcaneotibial arthrodesis should

be added. In the cases reported, no special means of fixation was used outside of a snugly fitting plaster cast. Stiles uses a long, square nail introduced through the plantar surface of the heel through the os calcis, astragalus and tibia. He removes the nail in three weeks, when a plaster cast is applied. If the disease is confined to the astragalus and if it cannot be retained with safety without danger of extension of the disease to the joints, it may be removed and the foot displaced backward.

In Stiles' ⁹ series of fifteen traced cases, mixed adult and children, there were two in which ankylosis was not complete, slight flexion and extension being permitted. In one there was a discharging sinus. In every case the patient walked well without support.

In dealing with tuberculosis of the smaller tarsal bones there is no reason why the principle of arthrodesis should not be carried out in a considerable portion of the cases. Certainly in astragaloscaphoid and calcaneocuboid disease there should be no difficulty.

8. König: *Specielle Chirurgie* 3:749.
9. Stiles, H. J.: The After-Results of Major Operations for Tuberculous Disease of the Joints, *Brit. M. J.* 2:1361 (Nov. 16) 1912.

In Case 5 the prognosis is good for a functionally seful foot within a two year period.
In Case 6 there is still active disease, and amputation may eventually be necessary.

CONCLUSIONS

- The following statements are offered in answer to he questions propounded in the beginning of this rticle:
1. The prognosis of tuberculosis of the ankle in the dult with conservative treatment is poor. In the present series no case of astragalotibial disease was reated conservatively, the only nonoperative case eported being one of subastragalar disease.
 2. The duration of conservative treatment in the ases terminating favorably, according to the only sta- istics referring to adults, is four years.
 3. A six months period of conservative treatment ill probably be sufficient to determine efficiency of this orm of treatment.
 4. In cases in which operation is performed early t is probably safe to say that the patient will return to ork in between one and two years.
 5. Statistics referred to show that amputation and lso death from other forms of tuberculosis are far too requent because conservative measures are persisted n for too long a period. In further reports, separa- ion of cases into adult and childhood groups is urged.

ABSTRACT OF DISCUSSION

SIR ROBERT JONES, Liverpool, England: In the first place, t is difficult to discuss this paper because I agree fully with he advice it contains. I regard tuberculous joint disease in he young as different from that in the adult. In the adult I attack it by operating as early as possible because ankylosis is all that one can hope to attain by tedious waiting, and the sooner ankylosis is consummated the better. I regard tuber- culous ankle joints in the young as a not very difficult condi- tion to deal with, provided one gives ample and prolonged rest. This rest will need to be of at least three years' duration, and there should be no pressure on the front sur- face. Excision and arthroplasty in ankle joint tuberculosis in the young is not as satisfactory as arthrodesis, which should be performed as soon as the disease is diagnosed. The type of operation is not important, provided the raw surfaces are in good apposition. It has been stated that it is a bad thing to produce a calcaneus deformity; I might also suggest that it is as bad to err on the contrary side because the walking is not so good if you have an ankylosed joint too much in equinus. The more we realize that tuber- culosis of the joint in the adult should be treated early and that we should aim for ankylosis the better, and any attempt to take away bone in the ankle joint for the purpose of pro- ducing mobility in the tuberculous is fundamentally wrong and distinctly dangerous.

Smallpox at Glasgow.—In a report by Dr. A. K. Chalmers, medical officer of health for the city of Glasgow, on the out- break of smallpox, it is stated that since the outbreak began 545 patients have been admitted to hospital up till the end of November. Of these, 137 were children under 15 years of age, of whom 105 were unvaccinated, while the remaining thirty-two had been vaccinated in infancy. None of the chil- dren who had been vaccinated in infancy had died, while thirty-six of the unvaccinated children had died. Among the 408 patients in the group aged 15 and over, twelve were vac- cinated, nine of whom had died. Evidence of previous vacci- nation was doubtful in eight cases, and two of these died. Of the remaining 389 patients vaccinated in infancy, 65 had died.—*Med. Officer*, Dec. 11, 1920.

SENILE CATARACT EXTRACTION

A COMPARATIVE STUDY OF RESULTS OBTAINED IN ONE THOUSAND, FOUR HUNDRED AND TWENTY-ONE OPERATIONS *

WALTER R. PARKER, B.S., M.D.
DETROIT

This report includes the results that I have obtained from operations for the extraction of senile cataracts in my private practice, together with those performed in the ophthalmic clinic of the University of Michigan from October, 1905, until January, 1921.

An attempt will be made to compare the results obtained by the various methods employed; and finally some of the more important features of the operation will be discussed.

In all 1,421 operations were performed. The methods employed, together with the number of operations in each group, were: combined extraction, 1,013; simple extraction, 156; Knapp operation, 49; Indian opera- tion, 91; after trephine operation for glaucoma, 8, and preliminary iridectomy, 104, or a total of 1,421 operations.

TABLE 1.—VISUAL RESULTS OBTAINED WITH VARIOUS OPERATIONS

Combined Operation														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
6/4	6/5	6/6	6/7½	6/9	6/12	6/15	6/20	6/40	6/60	6/60	6/60	6/60	6/60				
4	35	71	92	94	148	99	81	86	87	111	105	109	5		10.7%	0.48%	1,013
Simple Operation														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
1	10	5	12	15	16	10	16	25	12	10	24	10	2				
												6.4%	1.2%				156
Knapp Operation														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
..	1	6	6	8	8	1	4	2	6	6	1	5	0				
												10.2%					49
Indian Operation														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
1	3	6	6	8	14	6	12	9	8	13	5	18	1				
												19.7%	1.1%				91
(A second case of infection occurred on 9th day following by patient)																	
Preliminary Iridectomy														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
0	0	7	5	8	8	8	5	3	7	38	15	10	2				
												9.6%	2.6%				104
After Trephine Operation for Glaucoma														Less Than Re- corded	Loss of Vit- reous	In- fected	Total
..	..	..	..	1	..	1	2	..	..	2	2	0	0				
																	8
Total.....																	1,421

In Table 1 is shown the total number of operations performed by various methods, together with the visual results obtained and the number and percentages of cases of loss of vitreous and the number and percentage of infections. The results are not classified as success, partial success or failure, but by the visual acuity obtained in each case as recorded.

These records of visual acuity are not accurate expressions of the results obtained. Many of them are the initial records made about two weeks after the operation was performed, while others are the final records, which in almost every instance were better than those first made. As the same discrepancy obtained in all the tables, however, a rough comparison may be permissible.

It is to be regretted that such a large number of cases must be tabulated as "not recorded." This is due in part to the fact that patients sometimes leave the hospital without reporting for refraction, and in part to an occasional incomplete record. From a record standpoint, this is especially unfortunate, as only the patients whose cases are most successful leave, while those with postoperative complications always remain.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

It would be much more definite to tabulate results surgically, irrespective of visual results obtained.

LOSS OF VITREOUS

All cases in which there was even a slight loss of vitreous are included in this report. The percentage of cases recorded in each of the various methods of extrac-

TABLE 2.—PERCENTAGE OF CASES RECORDED WITH LOSS OF VITREOUS

Type of Operation	Number of Operations	Number of Cases	Loss of Vitreous, per Cent.
Combined.....	1,013	109	10.7
Simple.....	156	10	6.4
Knapp.....	49	5	10.2
Indian.....	91	18	19.7
Preliminary iridectomy.....	104	10	9.6
After trephine operation for glaucoma....	8	0	0.0

ton in which there was a loss of vitreous is given in Table 2.

It will be noted that loss of vitreous occurred more often in the Indian operation than in any other method of extraction (19.7 per cent.), while the loss in the Knapp operation was slightly less than in the combined, from 10.2 to 10.7 per cent. The number of combined operations was much greater, however, 1,013 to 49 Knapp operations. The percentage of loss of vitreous for the total number operated on was 10.1 per cent.

INFECTIONS

The percentage of cases recorded for each of the various methods of extraction in which infection took place is recorded in Table 3.

The percentage of infection for the total number operated on was 0.7 per cent.

In one of the cases in which a preliminary iridectomy was performed, there was a history of an old iridocy-

TABLE 3.—PERCENTAGE OF CASES IN WHICH INFECTION TOOK PLACE

Operation	Number	Per Cent.
Combined.....	5	0.48
Simple.....	2	1.2
Knapp.....	0	0.0
Indian.....	1	1.1
Preliminary iridectomy.....	2	2.6
After trephine operation for glaucoma.....	0	0.0

clitis. The eye had a subnormal tension, and the iris was bound down. It is possible that as a result of the operation, an old inflammatory process was lighted up and no new infection had occurred. As this could not be definitely determined, the case is included in the report as having been infected at the time of operation.

BACTERIOLOGY

As two of the cases of panophthalmitis occurred before the time when a routine bacteriologic examination was carried out, the records are not complete in this regard. The findings in the cases examined were as follows: *Staphylococcus albus*, 2; staphylococcus and streptococcus, 1; xerosis and streptococcus, 1; pneumococcus, 2; Morax-Axenfeld, 1; reported negative, 1, and not examined, 2.

An effort was made to determine, if possible, the number of cases in which the visual acuity of less than 6/60 was due to postoperative complications, or faulty technic. To determine this, the number of cases in which a known pathologic condition or accident could account for the loss of vision was deducted from the total number recorded as less than 6/60.

Table 4 shows the number of accidents and pathologic conditions to be deducted from the number recorded as "less than 6/60" in each method of extraction.

The number of failures in cases recorded as less than 6/60, due to postoperative complications or faulty technic, is given in Table 5.

It will be noted that in the Indian operation there was the highest percentage of failures, 6.5 per cent., in the Knapp operation the least, 0.2 per cent., and in the combined operation, 2.2 per cent. It must be mentioned that the patients on whom the Knapp operation was performed were all carefully selected, while those subjected to the combined operation included all who were unfit for any other procedure, except perhaps a preliminary iridectomy. The number of failures that resulted from the simple operation and from the preliminary iridectomy was about the same, being 3.2 per cent. in the former, and 3.7 per cent. in the latter.

TABLE 4.—ACCIDENTS AND PATHOLOGIC CONDITIONS TO BE DEDUCTED

	Combined Operation	Simple Operation	Indian Operation	Preliminary Iridectomy	Knapp Operation	After Trephine
Injury by patient.....	11	1	..	..	..	..
Vitreous opacities.....	26	1	1	6	2	..
Retinal detachment.....	6	..	2	1	1	..
Intra-ocular hemorrhage....	4	..	..	..	..	..
Chronic uveitis.....	5	..	..	1	..	..
Chronic glaucoma.....	8	1	..	23	..	2
Corneal opacities.....	11	1	..	..	..	..
Optic atrophy.....	2	..	..	..	..	..
Choroiditis.....	2	1	4	1	2	..
Organized vitreous.....	2	..	..	1	..	..
Hemorrhagic retinitis.....	3	..	..	..	..	..
Atrophic eye.....	..	..	..	1	..	..
Amblyopia.....	4	..	..	..	..	..
Retinitis pigmentosa.....	2	..	..	..	..	..
Intraetable patient.....	2	..	..	..	..	..
Totals.....	88	5	7	34	5	2

A comparison of the various methods of extraction as regards both loss of vitreous and number of failures in cases recorded as less than 6/60, due to postoperative complication or faulty technic, is given in Table 6.

From this comparative study, it appears that in the Indian operation, there was a higher percentage of loss of vitreous and of failures due to accident and postoperative complications than was shown in any of the other methods employed. In the combined operation, there was the least percentage of failure due to accident or postoperative complications, while in the simple operation there was the smallest number of

TABLE 5.—FAILURES DUE TO POSTOPERATIVE COMPLICATIONS OR FAULTY TECHNIC

Operation	Vision Less Than 6/60	Accidents Known Pathologic Condition	Failure in Cases Recorded as Less Than 6/60 Due to Postoperative Complications or Faulty Technic	
			Number	Per Cent.
Combined.....	111	88	23	2.2
Simple.....	10	5	5	3.2
Knapp.....	6	5	1	2.1
Indian.....	13	7	6	6.5
Preliminary iridectomy.....	38	34	4	3.7
After trephine operation for glaucoma.....	2	2	0	0.0

cases of vitreous prolapse. These percentages refer only to cases recorded as visual acuity less than 6/60, and not to the total number in which operation was performed.

While no attempt will be made to give all the complications that were encountered in this series of cases, a few of the more unusual ones will be mentioned, simply as a matter of record.

EXPULSIVE HEMORRHAGE

There were three cases of expulsive hemorrhage, 0.21 per cent. This complication occurred in patients with advanced arteriosclerosis with high blood pressure. But there was no indication that a hemorrhage was more likely to occur than in any one of a large number of patients with equally severe symptoms on whom a similar operation was successfully performed. Whether or not hemorrhagic retinitis existed at the time of operation could not be determined.

TABLE 6.—COMPARISON OF VARIOUS METHODS OF EXTRACTION

Operation	Loss of Vitreous		Failure in Cases Recorded as Less Than 6/60 Due to Postoperative Complications or Faulty Technique	
	Number	Per Cent.	Number	Per Cent.
Combined.....	109	10.7	23	2.2
Simple.....	10	6.4	5	3.2
Knapp.....	5	10.2	1	2.0
Indian.....	18	19.7	6	6.5
Preliminary iridectomy	10	9.6	4	3.7

CATARACT DELIRIUM

Thirty-three cases of cataract delirium occurred in 1,421 extractions, 2.3 per cent. Of this number twenty-seven were males, and six were females. The average age for both sexes was 72. The youngest male was 51, and the oldest 81; the youngest female, 62, the oldest, 82. A history of alcoholic excess was given in eleven cases, 33.3 per cent.

DETACHMENT OF THE CHOROID

Detachment of the choroid was noted in six cases, but as no careful study was made of the interior of the operated eye until the time of discharge from the hospital, this number does not in any way indicate the frequency of this complication. In all the cases noted, with one exception, spontaneous reattachment took place. One patient was lost to observation before reattachment occurred.

COMMENT

The combined operation with a conjunctival flap was performed more than twice as many times as were all the other operations taken together, and I regard it as the most satisfactory method of procedure in all but specially selected cases.

Unfortunately, the records were not complete as regards the number of times the iris prolapsed in cases of simple extraction.

TABLE 7.—FREQUENCY OF PROLAPSE IN CASES OF SIMPLE EXTRACTION

Number of Cases	Without Atropin		Number of Cases	With Atropin	
	Number	Per Cent.		Number	Per Cent.
47	5	10.8	48	2	4.1

A special study of a series of cases was made to determine the relative frequency of prolapse, with or without the use of atropin, before the time of operation. The results are given in Table 7.

Since making this test, atropin is instilled routinely the night before the day of operation and repeated after the operation is completed, unless there exists some contraindication for its use.

The simple extraction was performed in young patients and in selected senile cases, in which the cornea was large and the iris well dilated.

The patients in whom the iris was left intact were examined on the day following the operation, and if a prolapse was present, an iridectomy was performed at once, no attempt being made to replace the iris.

That the Indian operation can be successfully performed in certain cases there can be no doubt. But when complications arise, they are often of such a serious nature as to force many to the conclusion that the combined operation is a safer procedure to follow. I fully agree with Knapp, who came to the conclusion that "the lens cannot be dislocated by external manipulation alone, without in many instances subjecting the eye to greater pressure than seems wise."

After an experience comprising ninety-one extractions by the Indian method, I am convinced that in my hands the older operation, as a routine procedure, gives better results.

The traction method of extraction as described by Knapp and Török seems to offer the best method of extracting the lens in its capsule. It is safer than the Indian method, in that if the capsule is ruptured, the lens can be delivered in the ordinary way. The risk of loss of vitreous is less, and a distorted pupil or disturbance of the anterior vitreous rarely occurs. Thus the three cardinal complications of the Indian operation are minimized.

In this series, an attempt was made seventy-seven times to deliver the lens in its capsule by traction, and was successfully accomplished forty-eight times, 62.3 per cent. Vitreous was lost five times, 10.2 per cent. In six cases the resulting vision was below 6/60. In five of these cases there was a pathologic explanation, while in one case the failure was due to postoperative iridocyclitis. Of the five cases, two patients had dense vitreous opacities, one detachment of the retina, and two showed an advanced choroiditis. The iridocyclitis occurred in a patient, aged 51. This was the only attempt made to extract the lens in its capsule by traction in a patient below 60 years of age.

In order to make a comparative study of the visual results obtained in cases of extraction after the Knapp method, an equal number of consecutive cases in which operation was performed by the combined method was taken for comparison. A second refraction was made in every case, and a secondary operation was performed if necessary. It was somewhat surprising to find that the average vision in each series was practically the same, about 6/10. In both groups, cases with any pathologic changes that could account for the diminution of vision were eliminated. There were thirty-nine cases of intracapsular extraction, and forty-one after the combined method, used for comparison. The exact visual acuity in each group was: Knapp operation, 19/30; combined operation, 21/35.

Whether or not it is wise to attempt to deliver the lens in its capsule as a routine procedure has not been fully established. Perhaps the posterior capsule has a protecting function not to be neglected. Certain it is that the fear of complications arising from performing a secondary operation after the Ziegler method is no argument in favor of resorting to any procedure that is more hazardous than the extraction with capsulectomy.

In this series of cataract extractions, a secondary operation after the Ziegler method was performed more than 200 times. While a perfect opening in the capsule was not always obtained, in not a single case, as far as could be determined, did there occur a serious

reaction or after-result that made the case more complicated than it was before the operation was performed.

PRELIMINARY IRIDECTOMY

A preliminary iridectomy was performed in cases in which the cataracts were developing equally in both eyes and when a useful vision could be obtained by the use of a mydriatic, also in cases known to have fluid vitreous, or in which the operation on the fellow eye had been followed by serious inflammatory reaction, and in all cases with even suggestive symptoms of glaucoma.

I fully appreciate that the many elements which enter into the successful management of cataract cases from an operative standpoint make it difficult to record results or draw accurate conclusions. It is possible, however, that as our knowledge increases, we may be able to make a choice of procedure that will lead to better average results. But it would seem for the present, at least, that any procedure must stand the test of comparison with the combined operation performed on patients selected with equal care.

The presentation of this series has been made possible through the cooperation of the various members of the ophthalmologic staff at the University of Michigan during my entire service, and I wish to express my sincere appreciation for their valuable assistance.

David Whitney Building.

ABSTRACT OF DISCUSSION

DR. HENRY SMITH, London: Dr. Parker admits that in 10.7 per cent. of cases in which the combined method of operation was used there was an escape of vitreous, in some cases more and in some less. I am sure that Dr. Parker will admit that if we can do the intercapsular operation without an undue escape of vitreous, it is the preferable proceeding. And I think we should be able to do it within that limit. Many of the men who have tried to perform this operation have been hampered by not taking care to train the assistant beforehand. If you succeed in having your assistant carefully trained beforehand so that the patient has no control over the eyeball through the orbicularis muscle, and you commence by selecting patients over 60, I see no reason why men with a little manipulative experience should not be able to perform the operation with escape of vitreous in not more than from 5 to 10 per cent. of the cases. The difficulty of dislocating a lens depends on two factors. After about 60 years the suspensory ligament is the only thing you have to overcome. Between 40 and 30, a great deal of the difficulty is in dislocating the lens from its attachments to the hyaloid as well. Under 30, it takes a clever man to dislocate it at all for that reason. Occasionally, in doing the old operation, the moment I make the incision in patients over 60, the lens is dislocated and the wound in the vitreous disappears. One should make the incision 180 degrees; so the lens can be delivered entire. If you go on crushing, it is necessary either to close up that eye or with a two-fifths incision to make a mess of it. If you scratch the capsule, before you are done you will have mixed up a lot of lens matter and the vitreous material will escape and cause complication. If we could devise some means of paralyzing the orbicularis say, for one day, there would be no reason why there should be any escape of vitreous at all. I have seen the Knapp operation performed, and it seemed to me that it would have been much simpler to have touched the cornea on the outside and driven the lens out. With reference to the Indian operation, Dr. Parker's figures, showing 19.7 per cent. of cases in which escape of vitreous occurred, we may regard as a little high. I am making no sinister comment on Dr. Parker's work, but I might say that he is a novice in the procedure. Probably he did not have a good assistant and the circumstances were unfavorable.

DR. VARD H. HULEN, Berkeley, Calif.: No criticism can be made of Dr. Parker's eminently practical paper, but it is unfortunate that he was not able to include in his 1,421 cases some experience with the vacuum extraction operation. Dr. Barraquer, of Barcelona, a Spanish cataract operator, has already reported more than a thousand extractions by the vacuum method. The priority in the vacuum operation belongs to the United States. I published a paper in December, 1910, describing in detail my operation for extraction in capsule by vacuum fixation of the cataract successfully used a number of times, and I demonstrated the method before this section six years before Barraquer's first publication in July, 1917. Many inquiries were made about my apparatus, and, on request of an ophthalmic operator of international reputation, I sent my instruments to him in India. Many months later they were returned with a courteous letter containing the significant statement that it was "a wonderful apparatus for sucking up vitreous." His evident experience discouraged me from putting my apparatus in the hands of others until I had perfected it. Undoubtedly this operator, of great experience with the usual cataract operation, had found that the instrument with a dangling rubber tube interfered with his usual delicacy of manipulation and in introducing the cup had slightly displaced the lens, thus allowing the vitreous to present, so that naturally the globe was emptied when he applied the vacuum. If the cup is properly introduced and placed, the hard lens is between the vacuum and the vitreous and no damage can be done no matter how strong the vacuum may be. The principle of Barraquer's operation which he calls "phakoersis" is identical with that I described several years before, and I can see only unimportant improvements made on my rather crude apparatus. I would advise those interested to be careful in choosing their apparatus and be patient but cautious in its use. From my experience I am convinced that the vacuum method, when the instruments have been perfected, will be the one of choice.

DR. LUCIEN HOWE, Buffalo: The suction method has been tried a number of times, and the principle of it is undoubtedly a very excellent one. Fifteen or twenty years ago an instrument was devised, which I found very imperfect, in that it was nothing more than a pipet in principle. It was made in France. Its curve did not fit the curve of the lens; I had disastrous results and gave it up.

DR. ALLEN GREENWOOD, Boston: This paper is the most complete report on the final result of cataract operation that has been made to the Association, and we all owe Dr. Parker a debt of gratitude for presenting it. Any ophthalmologist in the world would be proud of his record and his ability to present final results, which so few of us do.

DR. WALTER EYRE LAMBERT, New York: Dr. Parker spoke of using atropin before the operation. I wish to ask whether he uses it after the operation as well. We frequently use physostigmin (eserin), but the use of atropin before the operation is a happy suggestion.

DR. AARON S. GREEN, San Francisco: The intracapsular operation has recently assumed such an extraordinary prominence that I think a word of caution will not be out of place. One thing must be borne in mind: Every eye is not suited for the intracapsular operation, whether by the method of Smith, Barraquer or Hulen. If you select patients beyond the age of 60, with deep-set eyes and lax lids, who are not nervous, you will get a good result. But if you pick eyes that look easy because they are prominent, you may have loss of vitreous with possibly a choroidal hemorrhage.

DR. WALTER B. LANCASTER, Boston: Ten years hence we shall find the combined operation in the hands of average operators showing better results than any other method. Consider, for instance, how the combined operation would take us by storm if it were now published for the first time; how, with it, we avoid the difficulties that are being apologized for in these other operations, and in particular how we avoid the trauma, the rough handling of the eye, which is inevitable with most intracapsular methods.

DR. WILLIAM H. WILDER, Chicago: I am not a particular advocate of preliminary iridectomy, but a sort of tradition obtains in our profession that this method of operating in any case is one of the safest procedures, and it is, therefore,

often practiced before cataract extraction in those cases in which we know there is some complication or in which an accident has happened to the other eye. So it was with no little surprise that I noticed in Dr. Parker's list of cases such a poor showing for preliminary iridectomy. It simply illustrates that statistics may be misleading, and I think they may be in this case, if we endeavor to form any conclusion from them in regard to the value of preliminary iridectomy in the extraction of cataract. Referring to Table , under the heading, "Preliminary Iridectomy," we find that forty-five of the 104 patients operated on in this way recovered a vision of only 6/60 or less. I think we would all like to know more specifically what the conditions were, in this group of patients operated on by the preliminary method, that made the showing so unfavorable for this particular method of operation, which tradition has told us is a very safe procedure. For example, the number of infections following in the case of 104 patients so operated on is two, a percentage of 2.6—twice as high as any other operation. One of these, however, was a case of badly diseased eye. The assumption that this group was largely composed of cases of the most desperate character would be justified, 2.6 per cent. of infections in a group of 104 cases being rather striking. Then again, the tables show loss of vitreous in 9.6 per cent. of the cases in which preliminary iridectomy was done, approximately $3\frac{1}{2}$ per cent. more of accidents of this character than we have in simple extraction, which some of us do not do as frequently as formerly, feeling that it is a more dangerous operation. Here, again, the probability is that there were complicating conditions present which made it advisable to do a preliminary iridectomy. It would, therefore, be unwise to form any conclusion from this series in regard to the value of preliminary iridectomy. I do not wish to appear to criticize the excellent report, but rather to voice the opinion that we must be extremely cautious in the matter of drawing too general conclusions from any number of statistics, particularly in regard to methods of operative technique. Valuable as they may be to the individual who makes them and knows all the conditions pertaining to them, they may be misleading as far as general conclusions are concerned. It is difficult to get a series of exactly similar cases on which to make comparisons.

DR. FREDERICK H. VERHOEFF, Boston: In his statistics, Dr. Parker makes no distinction between one type of cataract and another, and none of those who have discussed his paper have apparently attempted to determine the types of cataract best suited to the intracapsular method. This is an essential point. About six years ago I started doing the intracapsular operation by means of forceps, and I have done it ever since in certain types of cataract. At first I tried it in all sorts of cataracts and gradually found that in certain types of cases it was very successful, and that in others the capsule was liable to rupture. According to my experience, in mature cataracts the capsule ruptures so often, and the results of the ordinary method are so good that in most of these cases it is better to do the usual combined operation. In cases of immature cataracts it is more hazardous to use the capsulotomy operation and it is particularly advisable, if possible, to remove the lens in capsule. Fortunately, I have found that with the exception of cases of hypermature cataract, they are the most suitable for the intracapsular operation, especially when the anterior cortex beneath the capsule is perfectly clear. Of course, the patient sometimes, by making a sudden jerk of the eye, ruptures the capsule. But I expect in all cases of immature cataract to remove the lens in capsule. The hypermature cataracts are the easiest ones of all to remove in capsule, and in many of these cases it is perfectly safe to remove them without an iridectomy. In a few of these cases, it is difficult to grasp the capsule because the lens is so like a bag that you cannot pinch up a fold. Cases of sclerosed lenses are not suitable for my method of operation, for if the lens is thoroughly sclerosed the capsule will rupture every time. Moreover, sclerosed lenses are especially suitable for the capsulotomy method. I advise every one to retain the method he is accustomed to for mature cataracts and sclerosed lenses, but to employ some method of intracapsular extraction for immature and hypermature cataracts.

DR. HAROLD BAILEY, Springfield, Mo.: Dr. Parker's statistics are honest. Honest statistics are rather unusual, in fact, quite rare. Quite often we are served with statistics that are overdone and so highly flavored that it is very difficult for us to digest them. As I read these statistics, I thought they were just about right, a trifle underdone, if anything, and the more to be relished for that reason. I have always been in favor of a preliminary iridectomy, and in Dr. Parker's statistics I was surprised that this procedure presented so bad an appearance, so far as results were concerned. Out of seventy-nine recorded cases in which preliminary iridectomy was done, thirty-eight patients, or nearly 50 per cent., obtained less than 20/200 vision. I wondered whether this apparently unfavorable showing might not be due to the fact that a preliminary iridectomy was done only in complicated cases, on eyes in which the hazards of an operation were greater. On the other hand, if preliminary iridectomy is safer in a complicated cataract, then would it not also be safer in an uncomplicated one? I hope Dr. Parker will tell us in what class of cases he selected preliminary iridectomy.

DR. WALTER R. PARKER, Detroit: As Dr. Smith was talking, I could not but wonder what the results in this series of cases would show if the operations had been performed in visiting clinics, with unfamiliar surroundings and inexperienced assistants. I think it is only fair not to judge the relative merits of the Indian operation by the work done under these circumstances. As to the vacuum method of extraction, I have had no experience with it. No matter what method of procedure we employ, I feel that in this country, at least, the results obtained by the combined operation should be the standard by which all other procedures are to be compared. The individual operator should be sure that he is getting better results than he himself could get by the use of the combined operation, before advocating any new method of procedure. Dr. Smith's point is well taken in that I am a novice in the Indian operation. I performed my first Indian operation in the spring of 1906, and reported my first case in the April number of the *Ophthalmic Record* of that year. As far as I know, this was the first case published in this country. After reading Smith's report, which, as I remember, covered 17,000 cases, I went to the clinic at the university the next day and did an extraction in the capsule, using an ordinary squint hook and lid elevator, following the directions given by Smith as nearly as possible. The lens was delivered without difficulty and with no accident, and convalescence was uncomplicated. The result was perfect. To prove that the patient was satisfied, exactly seven years from that date he appeared at the clinic and requested that the same type of operation be done on the other eye. I had then in my possession Smith's special instruments with which I performed the operation. The result was equally good. As I increased the number of operations, however, the complications began to increase, and the query arose as to whether I was giving my patients the best service I could if I continued this method of procedure. I was encouraged at times to renew my efforts, as enthusiastic reports of the results obtained by others appeared in the literature. I have tried to show in this report, that, in my hands, the results in ninety-one extractions have not been as satisfactory, on the whole, as in cases in which the combined operation was performed. In regard to Dr. Wilder's question as to the preliminary iridectomy: Only in special cases was this procedure followed. Answering Dr. Lambert's question, atropin was instilled both before and after the time of operation when a simple operation was performed. I was trained to use physostigmin in every case of simple extraction. By accident, atropin was instilled in one of my cases before the operation, and at the subsequent dressing. The patient did so well that I was encouraged to make a comparative study. The point made by Dr. Verhoeff is a most important one. The character of the cataract should determine the method of extraction, rather than our enthusiasm for any one method of procedure. In regard to the extraction of immature lenses by the combined method, I see no difference in the final results so long as the cortical matter is removed. There is, however, this difficulty: it is not so easy to tell when the clear cortical matter is all removed, because of our inability to see it.

ASEPTIC NEPHRO-URETERECTOMY

TECHNIC AND INDICATIONS *

EDWIN BEER, M.D.

NEW YORK

There are a number of pathologic conditions of the ureter and kidney in which it is advisable to remove the kidney and ureter at the same sitting. The two essential desiderata in developing an operative technic for such a removal are: first, that the operative risk should not be materially increased by the addition of the ureterectomy to the nephrectomy; and, second, that every means should be employed to avoid opening the channels involved so as not to infect the extensive retroperitoneal wound. In other words, an aseptic nephro-ureterectomy must be done. It is perfectly feasible to do the latter by the usual technic of a very long incision beginning at the last rib and extending obliquely forward in front of the anterior superior spine and thence downward toward the external ring. This gives the necessary exposure for a complete and aseptic operation, but it is much too extensive an operation and fails to meet the first desideratum.

Years ago this method, with a large incision, either alone or combined, in the female, with a vaginal incision, received considerable support from such men as Howard Kelly. An improved method, involving a much less formidable incision, was described by Howard Lilienthal¹ some years ago. In this procedure, he first disposed of the vascular pedicle of the kidney through the lumbar incision and removed the kidney. He opened the ureter (or pelvis) in the lumbar wound and introduced a silk bougie into the ureter, pushing it well down toward the bladder end. He next freed the ureter by blunt dissection through the lumbar incision as far as his hand could reach. Then, through a small extraperitoneal second incision, to the outer side of the rectus muscle low down in the iliac fossa, he exposed the easily recognized ureter containing the silk bougie. This part of the ureter was then freed down to the bladder where, between two ligatures, the ureter was cut across (after the withdrawal of the bougie) and the whole ureter was delivered through this small incision. To avoid a marked contamination of the wound, Dr. Lilienthal tied the lumbar ureter to the bougie. The kidney and ureter would, in this wise, be completely removed in two pieces with, however, some risk of infection of the retroperitoneal spaces. This improvement over the earlier operation, through one long incision, failed, however, to meet the second desideratum referred to above: It opened the infected channels to allow the introduction of the silk bougie, and for that reason did not meet the demands of an aseptic nephro-ureterectomy technic; moreover, owing to stenosis or ureter tumors, the bougie might not pass through the length of the ureter, and its assistance would, therefore, in such a case, be reduced to a minimum.

The method about to be described is somewhat similar to that of Dr. Lilienthal and was developed as the result of meeting the same problems some ten years ago. As it meets the two essential desiderata,

though it has been described by me on several other occasions, I feel that it should be more fully described so that others may avail themselves of the experience that my associates and I have had with this technic. I myself have done the operation eleven times for a variety of conditions, with no mortality.

TECHNIC

The patient is placed in the usual lateral position and the kidney is exposed as in an ordinary nephrectomy. The ureter and pelvis are carefully freed from the vascular pedicle, which is securely tied. Then the ureter is bluntly freed (care being taken to avoid tearing the peritoneum) as far down as the fingers can reach. This is usually possible as far as the level of the crossing of the large iliac vessels; at times the dissection may reach even lower. In this dissection, the kidney may be dislocated to the upper recess in the depth of the wound, or it may be brought out of the wound altogether, to produce tension on the ureter and facilitate the dissection. The level of the iliac vessels having been reached, a long and heavy silk traction ligature is placed on the exposed lower ureter in the depth of the wound. If the kidney has been delivered, it is replaced in the wound and the wound is protected with pads while the patient is lowered from the kidney bridge, the silk traction ligature being brought out over the patient's abdomen so that, during the next step of the operation, it is ready to serve the operator in the rapid identification of the pelvic ureter. Then the patient is turned almost on his back, and a small incision, along the outer border of the rectus muscle through its sheath, as for an extraperitoneal ureterolithotomy, is made. By intermittent traction on the heavy silk ligature, the ureter is rapidly recognized and freed from its extraperitoneal bed down to the bladder, where, between two ligatures, it is severed either with a cautery or with a phenolized knife; then, by further traction on the silk ligature, the freed ureter is delivered from the lumbar wound with the kidney attached, the upper ureteral channels remaining completely closed throughout the operation. The small anterior incision is rapidly closed in layers with a small rubber dam drain in the lower angle. Having protected this second incision with gauze dressings, the patient is again rolled on his side, the kidney wound inspected to be sure that there is no oozing, and the lumbar wound closed in layers with tube or dam drainage, as indications suggest.

COMMENT

This whole procedure is remarkably simple. The ease with which the ureter is located in the lower incision by intermittent traction on the heavy silk ligature applied through the lumbar wound allows the operator to execute this additional step of the operation with rapidity and without any great difficulty, so that practically no additional risk is run by the patient. The extraperitoneal anterior incision, along the outer border of the rectus through its sheath, is a practically bloodless approach and is very quickly executed. By the technic described, the whole supravescical tract is removed unopened, and no chance of contamination of the retroperitoneal spaces is possible; in a word, it meets completely the desiderata mentioned above.

CASE GROUPS

Though the indications for this operation are not frequently encountered, there are very definite groups of cases in which operation should be performed in this way. To date, I have performed this operation in three pathologic conditions, but I believe there are other conditions in which this procedure is indicated. In my series of cases, I have performed aseptic nephro-ureterectomy for: (1) neoplasm of the ureter (or of the kidney) especially papillary growths (one case);

* From the Surgical Service, Mount Sinai Hospital.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Lilienthal, Howard: *Ann. Surg.* 53: 541 (April) 1911.

(2) tuberculous kidney with marked stricture formation in lower ureter with or without empyema of the ureter (nine cases), and (3) impacted stone in the lower ureter associated with extensive hydronephrosis and hydro-ureter, with or without secondary infection (one case).

In addition to these three conditions, I believe this operation will be indicated in those unusual cases of unilateral extensive, probably posttraumatic but possibly congenital hydro-ureter and hydronephrosis cases in which the kidney is converted into a useless sac, as well as in cases of stricture of the lower ureter which have led to the pathologic changes mentioned above.

In brief, I should like to describe three cases, illustrative of the types of patients whom I have operated on with this technic:

REPORT OF CASES

CASE 1.—*Aseptic nephro-ureterectomy for primary papilloma of the ureter.* S. H., a man, aged 61, first seen, Feb. 4, 1920, had had four attacks of hematuria, the first attack occurring twelve months ago, then following every three to four months thereafter. There was no pain with the bleeding. The blood was bright red and clotted. There was no obstruction to the outflow from the bladder. The frequency was practically normal; at night, there was one urination. There was a past history of ulcer of the stomach and chronic bronchitis and emphysema. There had been no recent loss of weight.

February 4, a cystoscopy, made while there was no bleeding, revealed: stricture of the deep urethra which bled on stretching; intra-urethral and vesical adenoma formation in the prostate which bled readily; a fair-sized diverticulum in the anterior bladder wall whose interior could not be completely inspected (hidden tumor?); a good indigo output from the left kidney, but none seen coming from the right; specimen from the left full of blood cells, probably traumatic, with no obstruction on this side; obstruction on the right side at 8 cm. and no specimen obtained. After the withdrawal of the catheter from the right ureter, there was a continuous flow of blood from this side. Palpation suggested an enlarged right kidney.

A diagnosis of stone in the right ureter or tuberculous stricture or tumor of the ureter was made. A roentgenogram was negative for stone, and no tubercle bacilli could be recovered. To determine accurately the source of hematuria, the patient was instructed to return during an attack. After several attacks he came in with his bladder full of clots which he could not express.

October 18, after emptying his bladder, it was evident that the blood came from the right ureter, which was obstructed at 7 cm. On the strength of these findings, the diagnosis of tumor of the right ureter was made, and it seemed probable that the original growth was in the pelvis. Therefore, a nephro-ureterectomy without opening the urinary channels was advised. Owing to the patient's poor general condition, there was some hesitation as to the advisability of going ahead. Finally, however, the operation was decided on, not only to get rid of the source of bleeding but also to obviate the possibility of being forced at some future time to do a palliative cystostomy to empty his bladder of clots, which he might be unable to void because of his considerably enlarged prostate.

November 1, under gas-oxygen, the kidney was exposed and found to be markedly hydronephrotic, with a dilated ureter. The vascular pedicle was tied and the large ureter was freed well down across the pelvic brim, a silk ligature being applied

to it for the purpose of identification. Then the patient was rolled partly on his back and the pelvic ureter was exposed through a pararectus extraperitoneal incision and ligated well below the tumor, which could be distinctly felt in the lower ureter. At the site of the growth, the ureter was firmly adherent to the pelvic wall. After being doubly ligated near the bladder, the ureter was cut between and, by traction on the silk ligature, placed on the ureter through the lumbar wound. The whole ureter and hydronephrotic kidney were withdrawn in one piece and unopened. The patient made a rapid convalescence.

The specimen, an illustration of which is reproduced herewith, showed a fair sized hydronephrosis and hydro-ureter with a papillary growth near the lower end. The microscopic report by Dr. Mandlebaum stated that the growth was benign.

CASE 2.—*Aseptic nephro-ureterectomy for tuberculosis of the right kidney, with marked stricture formation at the lower end of right ureter.* I. K., a man, aged 38, gave a typical history of renal tuberculosis with involvement of the right half of the bladder, with tuberculous ulcers, and marked inflammation; the left half of the bladder was normal; fair indigocarmine excretion; and stenosis of the right ureter at 4 cm. from the bladder, which did not allow various size catheters in the ureter. No specimen from the right side could be obtained by ureteral catheterization; the specimen from the left side showed normal urine.

March 24, 1920, an aseptic nephro-ureterectomy was performed at a clinic given at the Mount Sinai Hospital before the American Urological Association. The kidney showed multiple papillary and cortical tuberculous areas. The ureter was extensively thickened and contained several strictured areas—the lowest and most marked stricture being near the bladder. The patient made an uneventful recovery; the urine immediately after the operation became clear; his bladder symptoms rapidly disappeared, and he gained, within a year, from 15 to 20 pounds.

CASE 3.—*Aseptic nephro-ureterectomy for stones in the kidney and lower ureter, with complete obstruction of the ureter, hydro-ureter and hydronephrosis.* S. B., a woman, aged 34, had been sick two years. Four days before she was admitted to the hospital, she had several attacks of pain with a rise in temperature. Roentgen-ray examination revealed a stone in the kidney, and low down in the right ureter a stone about 1 cm. in diameter.

Oct. 18, 1916, a cystoscopy revealed good indigocarmine concentration from the left kidney, but no indigocarmine from the right side. The right ureter obstructed at 6 cm. No specimen from the right kidney could be obtained.

October 18, through a typical lumbar incision, the kidney was exposed and found to be small and atrophic, with a dilated pelvis and no functional parenchyma left. The ureter was found dilated, and a typical nephro-ureterectomy was performed, the ureter being severed close to the bladder below the obstructing calculus. Examination of the specimen revealed a typical infected hydro-ureter and hydronephrosis, with atrophy of the parenchyma behind the ureter stone, and a second stone situated within the kidney pelvis. The patient made an uneventful recovery.

CONCLUSION

With increasing experience in doing this operation, and in view of the excellent results obtained, I feel that I am fully justified in recommending aseptic nephro-ureterectomy to meet the indications herewith enumerated.

11 East Forty-Eighth Street.



Aseptic nephro-ureterectomy for primary benign papilloma of the lower ureter producing hydro-ureter and hydronephrosis.

ABSTRACT OF DISCUSSION

DR. JOHN R. CAULK, St. Louis: There is no doubt that Dr. Beer's technic has its indications for tumors in the renal pelvis and ureter. I have never done a complete ureteronephrectomy because the part we leave behind is liable to be involved and if we try to remove it a fistula may result. I believe that, instead of the persistent fistulas resulting from the lower end of the ureter, they come from the infected perirenal fat, and in following a number of these cases I found, in making roentgenograms after injecting material, that most of the injected material goes to the kidney pedicle rather than to the ureter. I have tried all sorts of things with the ureter, but all the cases have closed in about the same way. Many of them have closed primarily, but most have opened, to close later. Certainly this technic simplifies this type of operation.

DR. RICHARD F. O'NEIL, Boston: In regard to the indications for this operation in a certain number of cases they are very clear. I have in mind a private case in which I performed a nephrectomy for congenital hydronephrosis. At the time I did not realize the amount of dilatation of the lower end of the ureter and did not remove it. Since then the patient has, at times, had a colon bacillus infection of the urine from the stump of the ureter which fills up occasionally and is relieved by lavage. The injected roentgenogram shows a sausage-like shadow about 4 inches long at the lower end of the ureter. This patient would undoubtedly have been better off had I performed the complete operation.

DR. EDWIN BEER, New York: The experience Dr. O'Neil spoke of in connection with the stump of the ureter is not uncommon. I have seen the same thing where these infected stumps have caused trouble and practically chronic invalidism. Naturally, this would have been prevented if the ureter had been removed down to the bladder. In connection with the frequency of this operation in tuberculous cases, I did not wish to give the impression that it is always done. I was asked by Dr. Braasch last year how often I performed a complete nephro-ureterectomy. It was in only 10 per cent. of the cases. The indications are definite, and it is very striking how quickly the patient improves following operation. The urine clears up and the patient does so much better than those in whom a long ureter is left, so that I am coming more and more to the opinion that, perhaps, we are leaving too much ureter in in many cases, allowing Nature to take care of that ureter—which she usually does, but she does it rather slowly. The strange thing in these cases is that the anterior incision regularly heals by primary union. There is never a tuberculous sinus in that wound. My opinion is that the fistulas that develop are due to one of two causes: either perirenal fat tuberculosis or, more likely, the traumatism of the operation; and that bacilli have been swept by the trauma of the operation into the blood stream and subsequently deposited in the musculature of the wound. The tuberculosis that develops is in the lumbar muscular and vascular wound, whereas no tuberculous fistulas develop in the anterior vascular wound which leads to the stump of the ureter. It is evident, therefore, that the term ureter fistulas in operated cases of renal tuberculosis is not appropriate.

PROGNOSIS OF FOREIGN BODY IN THE LUNG*

CHEVALIER JACKSON, M.D.

PHILADELPHIA

All the textbooks on medicine and surgery consider the prognosis of foreign bodies in the lung on the basis of cases observed before the development of bronchoscopy. All the older textbooks stated, in effect, that, if the intruder were not expelled by cough, death usually resulted from phthisis pulmonalis. This statement was based on clinical observations made before the day when the bacillary nature of tuberculosis was known. In no case of foreign body in the Bronchoscopic Clinic have tubercle bacilli been found. That the prolonged sojourn of a foreign body, if unremoved, will give a complete clinical picture of pulmonary tuberculosis, even to hemoptysis or to fatal hemorrhage,

is only too true, as elsewhere recorded.¹ We are here concerned only with prognosis. Prognostically, the essential difference is that patients with chills, fever, sweats, emaciation, clubbed fingers, copious and foul expectoration and hemoptysis due to advanced pulmonary tuberculosis usually die; whereas, patients with pulmonary sepsis due to the prolonged sojourn of a foreign body, and presenting identically the same symptoms, almost invariably recover perfect health after the bronchoscopic removal of the foreign body. The foreign body itself is the chief obstruction; its removal permits the free drainage and aeration necessary for recovery. For the foregoing

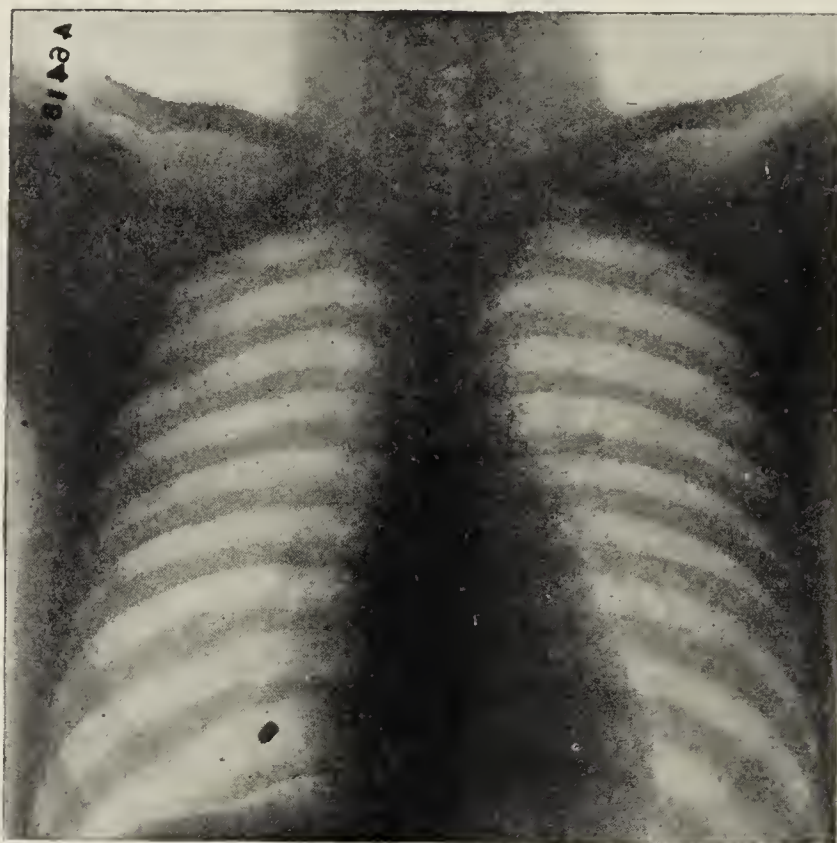


Fig. 1.—Roentgenogram showing a bullet that penetrated the lung through the chest wall. Bullet removed from lung tissue by bronchoscopy through the mouth, under local anesthesia, in thirty-five minutes.

reasons, a revision of the paragraphs on the prognosis of foreign bodies in the lungs, in our textbooks, is necessary. The records of the Bronchoscopic Clinic furnish clinical data as a basis for such a revision.

The subject of prognosis in cases of foreign bodies in the lungs naturally divides itself into two classes of cases: (1) those in which the foreign body is removed or expelled, and (2) those in which the intruder remains in the lungs. As more than 98 per cent. of the foreign bodies have been removed from the patients, my statistics are numerically deficient on the unremoved phases of the subject.

THE CHARACTER OF THE FOREIGN BODY

The character and properties, physical and chemical, of the foreign body constitute the most important fac-

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Jackson, Chevalier: Symptomatology and Diagnosis of Foreign Bodies in the Air and Food Passages, *Am. J. M. Sc.* 161:625 (May) 1921.

tor in the prognosis. The clinical data affording the pathologic basis for this and other phases of the subject have appeared in a previous publication² and will not be repeated here. As therein shown, both the rapidity and the extent of the pathologic condition are dependent on (a) the degree of the obstruction to drainage and aeration of the tributary lung tissue, and (b) the reaction the tissues manifest to the presence of the particular foreign body. These factors vary widely with the nature of the intruder. For instance, peanut kernels are very irritating, while metallic bodies cause little specific reaction; indeed, there is some basis for assuming that they give off germicidal agents that lessen suppurative activity. Next in importance, prognostically, is the physical character of the foreign body with reference to its power to cause trauma of the invaded bronchi. A very smooth, dense, insoluble, inorganic substance causes no trauma and little reaction for a long time, if, as before stated, drainage and aeration are not interfered with. On the other hand, a sharp, ragged fragment of such form as to cause continual trauma may be followed by such serious consequences as to make the prognosis grave, if the intruder be not removed within a few weeks.

PROGNOSIS IN CASES OF PENETRATING PRO- JECTILES IN THE LUNG

The general surgical phases of this subject are not within the scope of this paper. In the only case that has come to the Bronchoscopic Clinic, the projectile, a bullet, was removed by bronchoscopy through the mouth in thirty-five minutes, under local anesthesia, without hemorrhage and without any reaction, the patient being discharged as well the third day after operation.

REPORT OF CASE

History.—A boy (Case Fbdy. 876), aged 17, was referred to the Bronchoscopic Clinic by Dr. Frederick Heyer for the removal of a 0.22 caliber bullet in the right lung. Fifteen months before admission, the patient had been shot in the back, the wound of entrance being between the seventh and eighth right ribs, 8 cm. to the right of the spine. Profuse hemorrhage had followed the penetration of the bullet, but it ceased under rest in bed. The patient was in the state hospital at Nanticoke for two weeks; since his discharge from there, the only symptom had been pain in the left chest.

Examination.—On admission to the Bronchoscopic Clinic, Dr. Thomas McCrae reported negatively on physical signs of a pathologic condition secondary to a foreign body. A stereo-roentgenographic study by Dr. Willis F. Manges showed that the bullet had lodged in the pulmonary tissue, not in a

bronchus (Fig. 1), there being evidences of only slight pathologic changes in the region of the bullet.

Preliminary Procedure.—Dr. J. Chalmers DaCosta, who saw the patient with me, expressed the opinion that thoracotomy was not justifiable in view of the absence of abscess formation. I had no doubt as to the feasibility of peroral bronchoscopic removal; the only question was as to the hemorrhagic risks. To determine this point, it was necessary to know the location and extent of the pulmonary and, so far as possible, the vascular tissue intervening between the bullet and the nearest bronchoscopically available bronchus. This was accomplished by three procedures: 1. The bronchi in the neighborhood were "mapped" in two planes (Fig. 2) by my method of lung-mapping.³ 2. The bronchoscope was introduced through the mouth under local anesthesia, and roentgenograms (Fig. 3) were taken in two planes with forceps in a subsequently findable position in the branch bronchus nearest the bullet. 3. In consultation with Dr. J. P. Schaeffer on a transversely sectioned thorax (Fig. 4), it was determined that the very large vessels were grouped in a roughly crescentic arrangement posteriorly around the nearest available bronchus,

whereas in the direction of the bullet, anteriorly and slightly externally, there were no large vessels. It was therefore decided that bronchoscopy was justifiable, provided I could limit the peroral instrumental invasion to the zone of relative safety, anteriorly and outwardly from the nearest branch bronchus. This I felt sure that I could do. Provisions for hemostasis were three: 1. I asked Dr. Elmer H. Funk to be present with his equipment for the arrest of tuberculous pulmonary hemorrhage in readiness for collapsing the lung, which it was decided would be efficient in spite of the one pleural adhesion at the site of the wound of entrance. 2. Tampon tapes (Fig. 5) were provided for bronchoscopically packing the lower lobe bronchus. Mechanically, bronchial tamponade is quite feasible, respiration from the middle and upper lobes and the other lung being uninterfered with. 3. I planned at

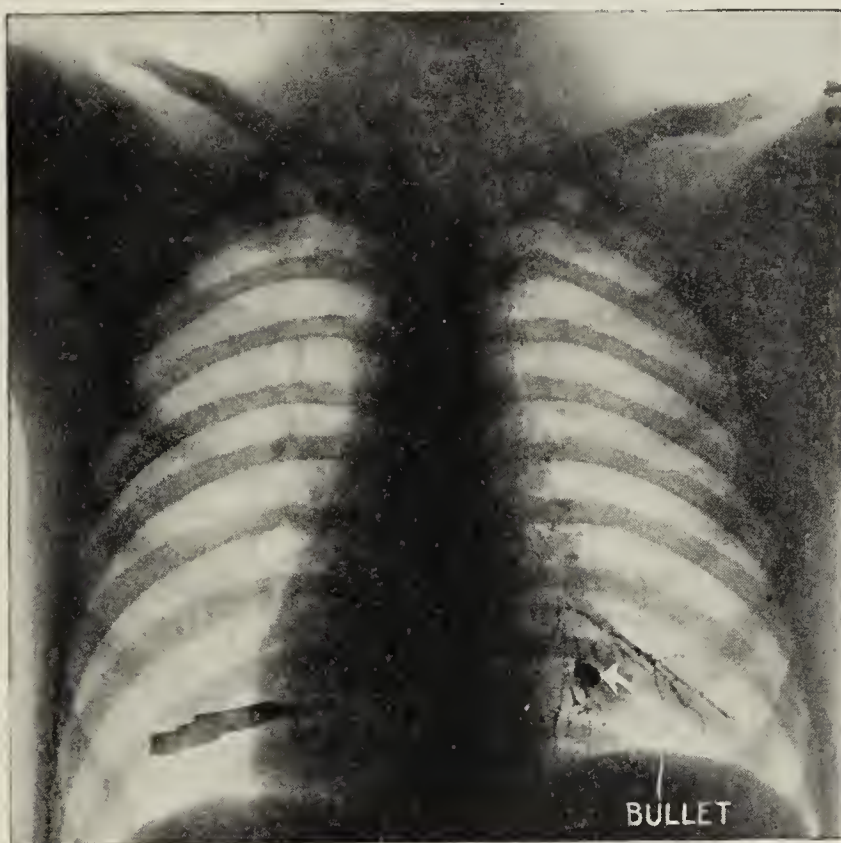


Fig. 2.—The leading bronchi of the lower lobe bronchi mapped in two planes with bronchoscopically insufflated bismuth subnitrate, showing the location and amount of intervening pulmonary tissue that would have to be traversed to reach the bullet. The stereo-roentgenograms by Dr. Manges of the bismuth-dusted bronchi showed the bronchial tree of this lobe in accurate relation to the bullet.

the preliminary bronchoscopy to pinch with forceps the tissues to be traversed at the subsequent bronchoscopic removal. By this means, I expected to obtain clotting and obliteration of the smaller vessels. The bloodlessness of the subsequent removal proved this last measure alone so efficient that the other two were not required. Had large vessels intervened, probably the obliterative pinching would not have been so successful.

Bronchoscopic Removal.—Applying a little 10 per cent. cocain solution, I passed the bronchoscope through the mouth into the right inferior lobe bronchus to a distance of 2 cm. below the orifice of the middle lobe bronchus. The forceps were then inserted into the branch nearest the bullet. Dr. Willis F. Manges, with his double-plane fluoroscope, giving me directions, I reached the bullet, detached it from the fibrous tissue, and removed it, along with the bronchoscope, through the mouth. There was no bleeding more than a streaking of the expectorated mucus. The time of bronchoscopy was thirty-five minutes.

2. Jackson, Chevalier: Observations on the Pathology of Foreign Bodies in the Air and Food Passages, Surg., Gynec. & Obst. 28: 201 (March) 1919.

3. Jackson, Chevalier: The Bronchial Tree, Its Study by Insufflation of Opaque Substances in the Living. Am. J. Roentgenol. 3: 454 (Oct.) 1918; Proc. Am. Laryngol., Rhinol. & Otol. Soc., 1918.

Progress.—The temperature, pulse and respirations did not go above normal (Fig. 6). The patient was out of bed the next day and walked to the roentgen-ray room for a final roentgenogram. On the third day, there being no cough, no expectoration, and no abnormal physical signs, the patient dressed and left for his home, unaccompanied. Subsequent reports showed that he remained free from symptoms. He is now, two months after operation, putting in full time at his work as a coal miner.

COMMENT

In view of this case, I think the prognosis in cases of penetrating foreign body in the lung must be revised. True, it is but one case; but the facility with

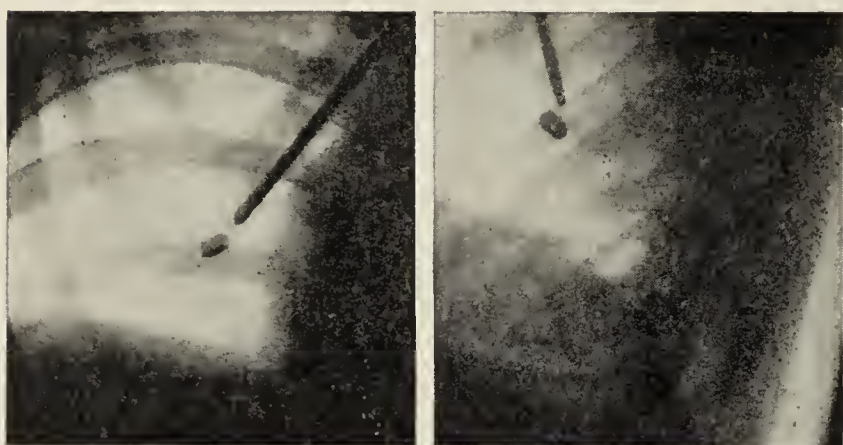


Fig. 3.—Roentgenograms in two planes, coronal and sagittal, with forceps in a subsequently findable position in the branch bronchus nearest the bullet. The intervening space showed the extent and position of the lung tissue to be penetrated to reach the bullet. Plates made by Willis F. Manges.

which the bullet was extracted, and the absence of bleeding and reaction, all warrant a more favorable prognosis than is possible under the general surgical rule to wait for pulmonary abscess, a condition that, whatever its cause, is always of grave prognosis. The prognosis of peroral bronchoscopic removal is certainly much less serious than thoracotomy, either with or without waiting for abscess formation. Therefore, the removal is indicated in many cases in which, as in this case, the conscientious surgeon would consider thoracotomy unwarranted. Projectiles in the lung are much more likely to give rise to suppuration than those in other tissues, because of the probability of air-borne infection reaching them through one of the thousands of tiny bronchi. Obviously, the limitation of the method is the size of the foreign body. As has been pointed out,⁴ it is probably impossible to bring up through the main bronchi any penetrating foreign body that is larger in its least dimension than the diameter of the main bronchus of the invaded lung. There is no limit as to the length of the foreign body, because the long axis can be brought to correspond with the long axis of the bronchus, as is frequently being done in cases of aspirated foreign body; for instance, in my collection there are nails and pins up to 3 inches in length. In my opinion, there is no need of waiting for years under a constant menace of pulmonary abscess, and under the depressing stigma of rejection by life insurance companies, nor of taking the risk of thoracotomy in cases of penetrating projectiles not of very large size.

In passing, it may be mentioned that experience in the bronchoscopic removal of aspirated foreign bodies of long sojourn warrants the statement that, had the bullet been surrounded by an abscess secondary to its

presence, the removal would have been relatively very easy. In reporting this case, my only regret is that it may lead to reckless, probably fatal, and quite unnecessary penetration of lung tissue for aspirated foreign bodies, because the successful outcome may throw some one off his guard. It cannot be too strongly emphasized that while endoscopy of the bronchi is perfectly safe when carefully done, an enormous element of risk arises as soon as a bronchial wall is broken through. It is only in certain locations that the wall may be penetrated without unjustifiable risks, and these locations cannot be broadly indicated. Each case of penetrating projectile must be studied separately, the projectile located with reference to the nearest bronchoscopically available bronchus by lung mapping, and the probabilities of the hemorrhagic risks determined. Even if there is little probability of hemorrhage, proper provision for collapsing the lung and for bronchial tamponade must be made beforehand. As to bronchoscopic penetration of the bronchial wall in case of an aspirated foreign body, it is not only dangerous but entirely unnecessary. Any foreign body that has gone down the natural passages can be brought up the same way without traumatizing the bronchial wall.

Prognosis in cases of spontaneously expelled foreign bodies is good; in practically all such cases, the patients have recovered. This riddance of the foreign body is, however, so rare (about 2 per cent.) that it is not to be waited for in any given case.

As to the prognosis of thoracotomy for foreign body in the lung, Powers⁵ states that "pneumobronchotomy for the removal of foreign bodies . . . is an operation of marked severity and one which has generally resulted fatally." He could find no record of a successful case. Lord,⁶ referring to aspirated foreign bodies, stated that "if bronchoscopy fails, such other procedure as intrathoracic tracheotomy, bronchotomy by way of the posterior mediastinum, or pneumobron-

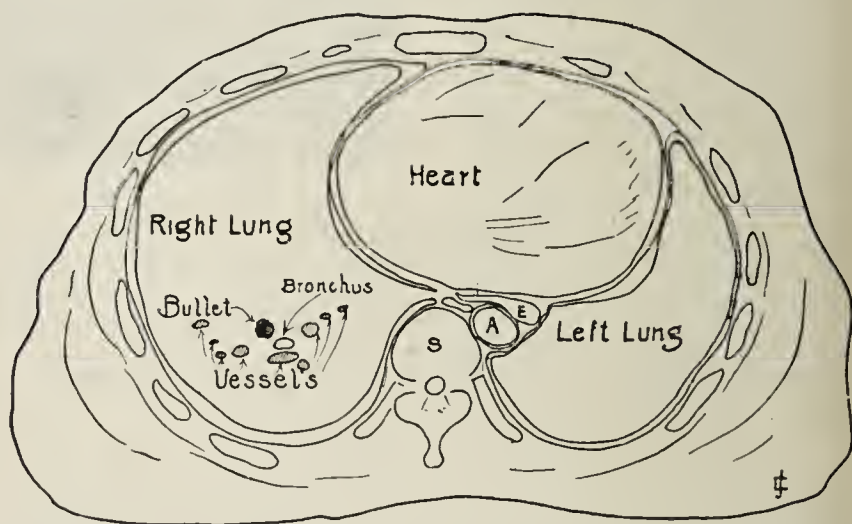


Fig. 4.—Drawing showing the view, from below, of a cadaveric thorax transversely sectioned at the level corresponding to that of the bullet in the living patient. It is seen that the large vessels of the right lung are all posterior to the line through the tissues to be traversed in the bronchoscopic removal of the bullet. A very large vessel is seen close to the bronchus posteriorly; but there are no large vessels anteriorly and outwardly. Cadaveric section made by Dr. J. P. Schaeffer.

chotomy . . . may be considered, but as yet have only rarely proved successful." The attitude of most surgeons is to wait for abscess formation before advising thoracotomy. Statistics limited to thoracotomy for pulmonary abscess resulting from foreign body are not obtainable; but Lord reports three deaths following

5. Powers, in Ochsner, A. J.: *Surgical Diagnosis and Treatment*, Philadelphia, Lea & Febiger, 1920, p. 279.

6. Lord, F. T.: *Diseases of the Bronchi, Lungs and Pleura*, Philadelphia, Lea & Febiger, 1915, p. 38.

4. Keen's *Surgery*, Philadelphia, W. B. Saunders Company, 8: 322, 1921.

operation (60 per cent.), one case cured and one unrelieved after repeated operations, in a series of five cases of chronic pulmonary abscess at the Massachusetts General Hospital.

CONCLUSIONS

1. The prognosis of unremoved foreign body in the lung is grave.
2. About 2 per cent. of foreign bodies are coughed up, and in these cases the prognosis is good; but this fortunate termination is too rare to justify waiting, in view of the fact that bronchoscopy is 98 per cent. successful. As between thoracotomy and waiting for spontaneous expulsion that may never happen, the prognosis of the latter course is less serious.
3. The prognosis of thoracotomy for removal of aspirated foreign bodies, so far as can be determined, is extremely grave. For penetrating foreign bodies, it is so grave as to be inadvisable unless suppuration has intervened.
4. The prognosis as to bronchoscopic removal of aspirated foreign bodies is very good (98 per cent. removals). It may be said that almost any localizable foreign body that has gone down the natural passages can be brought up the same way. The prognosis as to recovery after removal is excellent (98.3 per cent. recoveries). Of forty-four cases complicated by



Fig. 5.—Tampon-tapes for bronchoscopic hemostasis, prepared for the bronchoscopic packing of the lower lobe bronchus in case of hemorrhage; which, however, was avoided by other means. The folded gauze is 10 cm. long; the braided silk cord, 60 cm. long.

abscess or bronchiectasis, in forty-two (94.4 per cent.) the patients recovered good health. The risks of a very brief and careful bronchoscopy without general anesthesia are almost nil.

5. The prognosis in case of a penetrating foreign body removed from the lung by bronchoscopy through the mouth, based on the only case so far thus dealt with, is good. The patient had no hemorrhage, no rise of temperature, was discharged cured three days after the bronchoscopy, and is still in perfect health. A large series of cases will be required to determine the prognosis. The method is necessarily limited to foreign bodies whose smallest diameter is less than that of the main bronchus of the invaded lung. It can be considered justifiable only after careful localization studies by lung-mapping in the particular case; otherwise fatal hemorrhage may be encountered.

128 South Tenth Street.

ABSTRACT OF DISCUSSION

DR. HENRY L. LYNAN, New York: In regard to prognosis of foreign bodies in the lung, it is good in the case of metallic foreign bodies, but not so good in food foreign bodies. Often when the foreign body is successfully extracted, edema of the bronchus may continue and cause ballooning of the lung, and the patient succumbs later. The localization procedure which Dr. Jackson illustrated is excellent. But when there is excessive secretion, as in lung abscess cases, with which I have been dealing so extensively, the bismuth powder is washed out immediately by the thick secretion, whereas we

may secure better localization in these cases by the injection of the bismuth and olive oil mixture. Pneumothorax is an interesting and important point. As Dr. Jackson demonstrated in the bullet case, you can enter lung structure provided you rupture the lung well down toward the diaphragm. This is not the same as when you rupture at the hilum. Rupture in this locality may cause bilateral pneumothorax and instant death. However, if the lung is ruptured at a lower level, the leak is slow and the patient will recover.

DR. D. CROSBY GREENE, Boston:

In considering the prognosis in cases of recovered foreign bodies from the lung, and especially the conclusions reached by Dr. Jackson, those of us who are more or less laymen in this branch are possibly not sufficiently impressed with the importance of the element of technic. It is a common error for an inexperienced operator to go ahead on the basis of such results as Dr. Jackson has obtained and expect to get similar results without the same technic. The excellence of Dr. Jackson's results is due to the fact that he does not traumatize his patients. I can do bronchoscopy with less trauma under general than under local anesthesia. The question of a general anesthetic is one in regard to which differences of opinion are admissible, and I take exception to Dr. Jackson's dogmatic assertions on this point. For the last two years nearly all my general anesthetics in these cases have been by rectum, and I am positive that in children I can perform bronchoscopy with less trauma in this way than under local anesthesia. Another equally important point which Dr. Jackson has so often brought out is the time limit for operating in these cases. When hunting for a foreign body the temptation is to keep on until you get it, and that has been a cause of disaster in many cases.

DR. ROY P. SCHOLZ, St. Louis: A girl, aged 9, inspired a nail 1 inch in length with a large head. Little attention was given this fact for about three years. When the child's health began to fail, she was treated for pulmonary tuberculosis, even being kept in a tuberculosis sanatorium for

JEFFERSON HOSPITAL

Name Case No. Fbdy. 876 Age 17 yrs.
Date April 5, 1921 Register No. J-6091

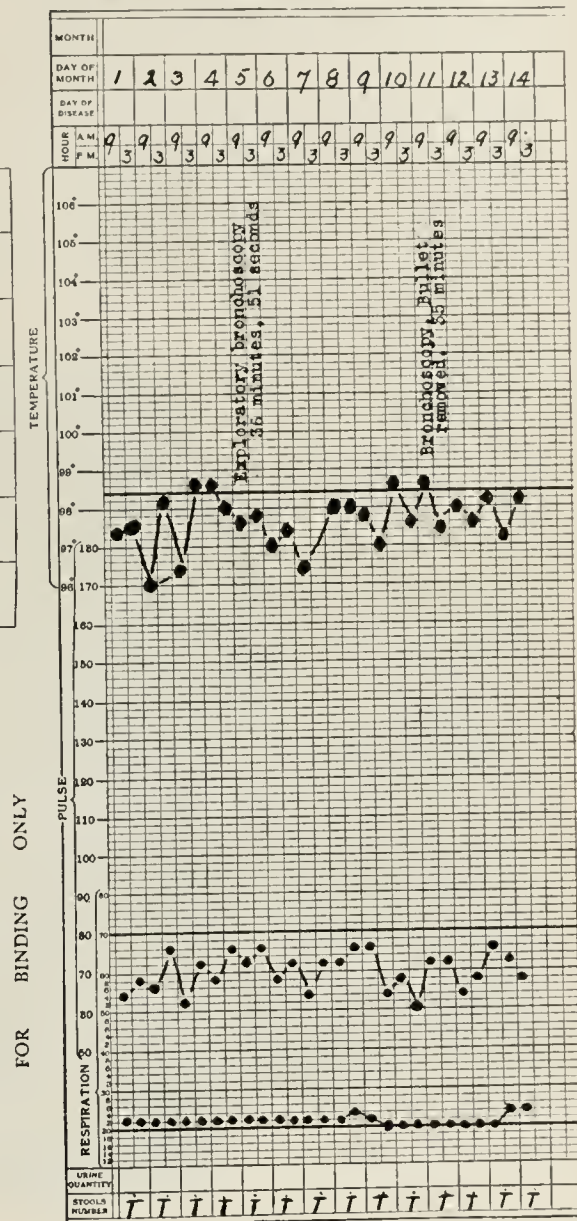


Fig. 6.—Temperature chart of patient from whose lung tissue a penetrating bullet was removed through the mouth by bronchoscopy under local anesthesia.

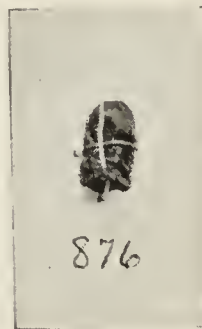


Fig. 7.—Bullet that penetrated the chest wall and was removed through the mouth by bronchoscopy under local anesthesia.

a year. For a time she went without treatment. The roentgen ray revealed a nail in the left fifth intercostal space, lying more or less horizontally. It was supposed that the foreign body was in the right bronchus. Both bronchi were explored and found free from a foreign body. With the bronchoscope in place, a fluoroscopic examination was made. The nail was found to be an inch above the tip of the instrument. The child withstood this manipulation fairly well, although the following night she had a terrific coughing spell, followed by very marked dyspnea and expectoration of a large quantity of thick yellow and offensive pus. A physical examination failed to reveal a definite abscess cavity. Not until after the abscess apparently emptied itself and the plate had been restudied was an indistinct triangular area noted, extending from the nail upward along the vertebral column to the apex of the lung. Another roentgenogram showed that the nail had definitely changed position. It was decided that this nail must be in a cavity of greater lumen than a subbronchus, and that it was lodged in the outlet of an abscess cavity, acting as a ball valve. It was decided to perform another bronchoscopy, and pass an iron staff into the left bronchus, getting as close to the nail as possible, and then use Luedde's giant magnet. The child was slowly led up to the magnet for the purpose of seeing what symptoms would be produced by being brought within the magnet's radius. No symptoms were produced. The bronchoscope was passed and through this the iron staff was introduced with the aid of the fluoroscope. The magnet seemed to have no influence on the nail. At last reports the nail was still in place.

DR. CHEVALIER JACKSON. Philadelphia: I was pleased to have Dr. Greene corroborate the importance of avoidance of trauma in bronchoscopy. I try to do all my traumatization on a rubber tube manikin on which I preliminarily study the particular problem involved. When I get ready to work on the patient I know how to avoid trauma. I think that perhaps Dr. Greene misconstrued my attitude on the subject of general anesthesia. I have always advocated that each operator ought to do whatever he thinks is best for his patient. I prefer an anesthetic in children and local anesthesia in adults. Others should follow their personal preference, except in case of dyspnea, in which general anesthesia is very dangerous. Direct laryngoscopy for diagnosis in children must be done without anesthesia, general or local. Dr. Scholz raises the question of the use of the magnet in a case of a nail in the lung. I do not like to discourage any one from experimenting with magnets. It is a law in physics that the attraction of the magnet for the armature is no greater than that of the armature for the magnet. Therefore, if the foreign body is small, no matter how large the magnet may be, the pull is weak. If the foreign body contained as much iron as an operating table and it were possible for it to be in the lung, it could be pulled out through the chest wall by a magnet. All large foreign bodies in the larger bronchi are easily and quickly removed by peroral bronchoscopy. The only case in which a magnet would be desirable is that of a tiny foreign body in a tiny bronchus. In these cases a magnet is useless.

Clinical Notes, Suggestions, and New Instruments

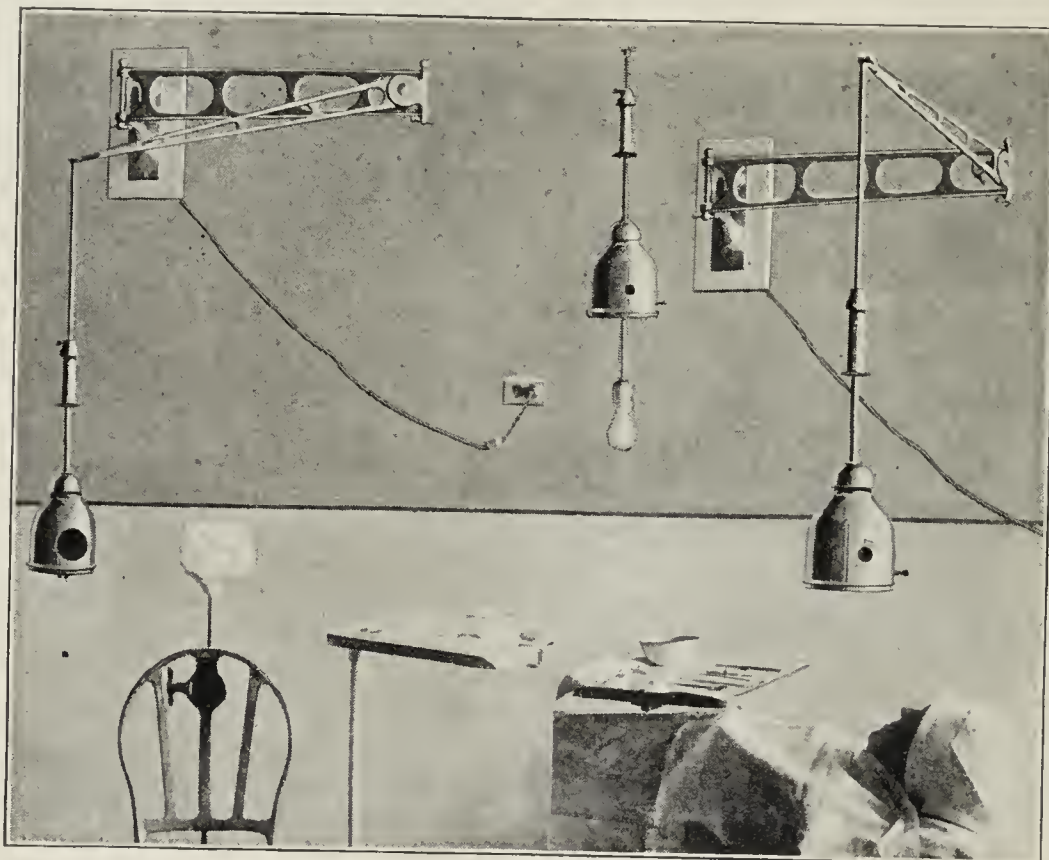
AN INSTANTANEOUS BRILLIANT ILLUMINATOR FOR SURGEONS

JOHN HINCKLEY MORSE, A.B., M.D., MINNEAPOLIS

Often during an operation the surgeon needs a brilliant illumination for a deep wound. We have all felt the inadequacy of the apparatus furnished us by our hospitals. Some years ago I got from Dr. M. Russell Wilcox of Minneapolis the idea of an overhead lamp, from which the perfected model, as illustrated, has grown.

It is the purpose of this light to be overhead and clear of all attendants, yet within easy reach of the surgeon, his assistant or a nurse. By means of a specially designed handle about which is a sterile towel, the operator may reach the lamp and place it instantly anywhere in midair. This eliminates an extra attendant coming into the field of operation, and does away with risk of contamination, etc.

The main bracket is bolted securely to a white enameled panel. It is cast in solid aluminum, and buffed. Wires are concealed in the casting. The extreme length of the horizontal arm may be varied according to need. It swings horizontally within an angle of 180 degrees to any point within the length of the radius, and by a specially designed hinged joint, the vertical position is obtained at any level. No adjustments are necessary. The handle is grasped by the operator, the lamp is moved to the position desired, released, and it stays in position. The bell



Brilliant and instantly adjusted illuminator.

shade is particularly designed for diagnostic and operative work of eye, ear, nose and throat men. The illumination is projected downward, for table operations, and laterally through different sized apertures for nasal operations, ophthalmoscopy, retinoscopy and otoscopy. In case the shade is not needed it may be instantly raised on the vertical rod to any position higher up. When the lateral projection is being used, the base of the bell is covered. Only one lateral aperture is open at a time. These openings measure 3 inches, 1 inch, and one-half inch, respectively. A revolving outer sleeve on the bell with handle attached allows the diagnostician to pick quickly the desired aperture.

This light fulfils all of the wants for which it has been constructed, namely, it is instantly ready, always works, is noncontaminating, eliminates an extra attendant, gives brilliant illumination where it is needed, cannot get out of order and does not wear out.

503 Donaldson Building.

A Suggestion Regarding the Stethoscope.—DR. ELLIOTT C. PRENTISS, El Paso, Texas, writes: Frequently in examining the heart or chest the rubber tubes touch each other and interfere with the sounds heard. This may be overcome by tying a rather long safety pin between the rubber tubes at the middle, thus holding the tubes apart. Another one may be tied nearer the bell or phonendoscope.

INTERNAL NOSE MODEL

W. A. FISHER, M.D., CHICAGO

It is difficult to teach nasal surgery without a good understanding of the anatomy, and the subject is not an easy one to teach from drawings.

Wet specimens are ideal for teaching, but they are not readily obtained.



Fig. 1.—Model "A": a, superior turbinate; b, agger nasi; c, depression above c, superior meatus; d, middle turbinate; e, depression above e, middle meatus; f, inferior turbinate; g, depression above g, inferior meatus; h, frontal sinus; i, ethmoidal cell; j, eustachian orifice; k, sphenoidal sinus.



Fig. 2.—Model "B": a, a, anterior ethmoidal cells; b, b, b, posterior ethmoidal cells; c, sphenoidal sinus; d, superior turbinate; e, depression above e, recessus sphenoidalis; f, middle turbinate; g, space above g, middle meatus; h, inferior turbinate; i, inferior meatus; j, lacrimal duct; k, depression below k, maxillary ostium; l, bulla ethmoidalis; m, opening posterior to m, ostium of bulla ethmoidalis; n, depression below n, hiatus semilunaris; o, ring vicous circle; p, depression posterior to p, frontonasal duct; q, frontal sinus; r, eustachian orifice; s, ridge posterior to s, processus uncinatus.

The models are suggested to replace wet specimens and can be used for study with any text on the subject. They are made of rubber, natural in size, practically indestructible, not

unsightly, and can be used for study in the physician's office or for demonstration in the operating room.

For the general practitioner and rhinologist, the model is suggested as an aid in diagnosis and treating focal infections of nasal origin, as well as laying the foundation for nasal surgery.

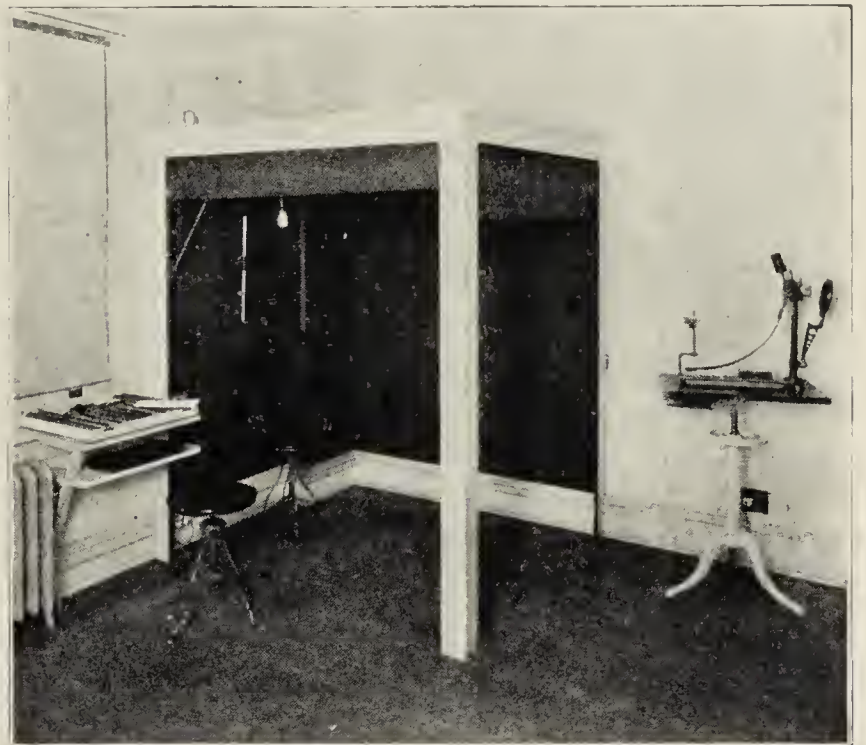
31 North State Street.

AN EFFECTIVE DARK ROOM

SIDNEY L. OLSHO, M.D., PHILADELPHIA

The accompanying illustration shows an easily constructed dark room. The roof is compo or bristol board painted dead black. The shades are heavy, opaque, black cambric on steel rollers.

The room should be at least 5 by 6 feet. If it is placed favorably, history taking, ophthalmology, retinoscopy, refraction and transillumination can be done without moving the patient. One's office space seems not to be diminished. Dis-



Easily constructed dark room.

turbing side and rear reflections are under control. Darkness is restricted to the treatment area.

If necessary, three or all four walls may be roller shades. The structure may readily be adapted for otolaryngology.

235 South Fifteenth Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

CALCIUM CASEINATE (See THE JOURNAL A. M. A., Sept. 24, 1921, p. 1023).

Protolac.—A brand of calcium caseinate, N. N. R.

Manufactured by the Dry Milk Company, New York. No U. S. patent. U. S. trademark No. 145077.

BENZYL SUCCINATE (See THE JOURNAL A. M. A., Sept. 24, 1921, p. 1023).

Benzyl Succinate-Seydel.—A brand of benzyl succinate, N. N. R.

Manufactured by the Seydel Manufacturing Co., Jersey City, N. J. No U. S. patent or trademark.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 8, 1921

PLEOMORPHISM AMONG BACTERIA

For many years subsequent to their discovery, the classification of bacteria was based primarily on considerations of their morphologic characters. Largely owing to the influence of the German school of bacteriologists, notably Ferdinand Cohn, Robert Koch and their pupils, constancy of form and action came to be regarded as typical of the different species described. Variability was accepted as a certain sign of difference in species or genera. With the prevalence of this monomorphistic view and the consequent tendency to recognize even small departures from familiar structural standards as evidences of the presence of new forms, it is evident why the tendency to multiply the number of bacterial categories on the basis of morphologic variations has increased until at length considerable criticism has been leveled against this "reckless species making." Until recently there were few American textbooks that did not adhere to the rigid monomorphism that had been taught in Germany.

Latterly, however, there has come a growing recognition that a species of bacteria may exhibit morphologic variations, the changes in form being associated frequently with alterations in the cultural conditions or, as has further been suggested, representing different stages of a life cycle. Micro-organisms may change their physiologic properties quite readily with altered environment, and the new variety may retain the acquired peculiarities for some time even if brought back to the original conditions. Scientific study has been directed of late more to the physiologic than to the morphologic problems of bacteriology; but the subject of pleomorphism is at length attracting renewed consideration. In his elaborate monograph on the life cycles of the bacteria, Löhnis¹ insists that all well studied species have shown themselves to be able to grow in various round, straight and curved, small and large, regular and irregular cell forms. Budding, branching and apical growth are common with all bacteria.

Contrary to the monomorphistic theory, which knows only of one constant type of vegetative cell for every species, and of not more than one type of reproductive organ, the endospore, for merely one group of bacteria, Löhnis defends the thesis, now supported by numerous independent investigations, that in reality all bacteria are not only distinctly pleomorphic in their vegetative growth, but also able to produce various organs of reproduction. These are: gonidia, regenerative bodies, exospores, endospores, arthrospores and microcysts. All are made up of nuclear substances, reinforced by smaller or larger amounts of reserve material and protected by a more or less resistant membrane. Gonidia and regenerative bodies participate actively in the process of multiplication, whereas the other reproductive organs are in the first place resting forms. Gonidia, regenerative bodies and probably microcysts, too, are produced by all bacteria, while arthrospores, exospores and endospores are less common; though there are indications that they will be discovered in many more cases, as soon as these problems are more thoroughly investigated. Just as slight variations in the morphology of bacteria were once used unwisely as the pretext for describing new species, so today the phenomena of pleomorphism are called on to explain the contradictions between different investigators in the search for the pathogenic etiologic agencies in certain as yet unexplained diseases. It may at times be as foolish to appeal to undemonstrated variations as it has been incorrect to deny variability. Perhaps it is timely to assert with Löhnis, however, that it is a mistake to believe that the acknowledgment of the pleomorphism of the bacteria is equivalent to a negation of the existence and constancy of bacterial species. Just as all studies on the pleomorphism of the fungi, algae and protozoa did not minimize, but have increased the accuracy in distinguishing between the various genera and species, he concludes, so also systematic bacteriology will win considerably by every thorough investigation on the life cycles of the different species.

POSSIBLE NEW LIGHT ON THE NATURE OF EXOPHTHALMIC GOITER

The interesting symposium on basal metabolism, a noteworthy feature of the Boston meeting of the American Medical Association,¹ emphasized the important but as yet inadequately realized fact that sustained elevations of the metabolic rate are by no means always attributable to a common cause. As Boothby pointed out, until recently adenoma with hyperthyroidism has been confused with exophthalmic goiter, which is

1. Löhnis, F.: Studies upon the Life Cycles of the Bacteria, *Memoirs National Acad. Sc.* **16**, Second Memoir, 1921.

1. Plummer, H. S.: Interrelationship of Function of the Thyroid Gland, *J. A. M. A.* **77**: 244 (July 23) 1921. Benedict, F. G.: The Measurement and Standards of Basal Metabolism, p. 247. Lusk, Graham: Fundamental Ideas Regarding Basal Metabolism, p. 250. Boothby, W. M.: The Basal Metabolic Rate in Hyperthyroidism, p. 252. Means, J. H.: Determination of the Basal Metabolism, *ibid.* **77**: 347 (July 30) 1921. Du Bois, E. F.: The Basal Metabolism in Fever, p. 352.

another pathologic condition of the thyroid gland, consisting of diffuse parenchymatous hypertrophy, symmetrically involving the entire gland. Clinically, exophthalmic goiter, like adenoma with hyperthyroidism, is characterized by an increased basal metabolic rate and, therefore, the two diseases have in common the symptoms due to the increased rate. However, exophthalmic goiter has a different clinical course from adenoma with hyperthyroidism, and, in addition, certain peculiar and characteristic symptoms, one or more of which are present in varying degrees, such as exophthalmos, thrills and bruit, tendency to gastrointestinal crises, and a peculiar type of nervousness. That we are dealing with two entirely distinct diseases in exophthalmic goiter and in adenoma with hyperthyroidism has been proved beyond reasonable doubt by Plummer,² who pointed to the difference in the mode of onset of the two diseases, the clinical course and duration of the symptoms, the physical findings, and, finally, the difference in the pathologic conditions of the thyroid gland.

The Mayo Clinic school at present inclines to the possibility that exophthalmic goiter, the status of which cannot be accounted for by a pure hyperthyroidism, may be associated with some abnormality in the chemical structure of thyroxin, the effective hormone of the thyroid, which has been described as "an agent hastening the rate of formation of a quantum of potential energy available for transformation on excitation of the cell." This suggestion can scarcely yet be regarded as having acquired the dignity of a defensible hypothesis; at any rate, the prominence of its sponsors should not be permitted to overshadow the possibilities of other explanations of the genesis of exophthalmic goiter. Marine and Baumann³ of the Montefiore Hospital, New York, have recently shown that removing or crippling (by freezing) the suprarenal glands in rabbits causes a disturbance in metabolism, usually characterized by increased heat production and carbon dioxide output. This disturbance appears definitely related to the completeness of removal of the cortical function. The experimenters add, furthermore, that there are many points of similarity between the syndrome that results from such suprarenal injury in rabbits and exophthalmic goiter in man.

The once attractive hypothesis of the indispensable functioning of the suprarenal glands through the intermediation of the hormone epinephrin has been combated in previous issues of *THE JOURNAL*. It is worth noting here that whereas this potent chemical compound is found in the medulla of the gland, it is in reality the cortical layers of the suprarenal structures that represent the portions essential to survival

of the organism. Evidently, too, the cortex is more intimately related to increase in heat production, when this occurs in the body, than is the suprarenal medulla. Although Marine and Baumann disclaim that they have reached conclusions regarding the mechanism of the rise in the metabolic rate following suprarenal injury, their "working hypothesis" is not without interest to students of endocrinology. Supposing the intact thyroid gland to be the major factor in the maintenance of a given metabolic rate and that this function is controlled by some regulatory mechanism, they have argued that possibly this control might be exercised by a restraining influence, a major factor in which was the normal function of the suprarenal glands. If such should be the case, they add, the removal or crippling of this restraining or inhibitory influence would allow the thyroid to increase its activity. The frequency with which thyroid and thymus hypertrophy occurs after suprarenalectomy in animals is additional evidence of the possibility of increased thyroid activity. This is not the first time that a regulatory function has been assigned to the suprarenal glands. It will be interesting to learn further analogies between experimental conditions developed by suprarenal damage and exophthalmic goiter in man, publication of which has been promised.

THE SPIRIT OF REVOLT

Psychologists today are more concerned with the changing spirit of mankind than with any other psychologic problem. The literature on the spirit of revolt, of restlessness, of lawlessness and of radicalism is daily becoming greater. The subject is engaging the attention of our greatest minds. Thus, James M. Beck,¹ Solicitor-General of the United States, devoted the presidential address before the annual meeting of the American Bar Association, held recently at Cincinnati, to this subject. There is throughout the world today, he pointed out, a revolt against the spirit of authority. Pending criminal indictments in federal courts have increased from 10,000 in 1912 to more than 70,000 in 1921. The losses from burglaries repaid by casualty companies have grown in amount from \$886,000 in 1914 to over \$10,000,000 in 1920. The streets of our cities are as unsafe as were the country roads in the days of Dick Turpin and Jack Sheppard, and murder, the most serious of all crimes, is so frequent as to excite hardly passing attention. In New York, according to Mr. Beck, there were, in 1917, 236 murders with only sixty-seven convictions and, in 1912, 221 murders and seventy-seven convictions; and in Chicago, in 1919, there were 336 murders and only forty-four convictions. If these factors so near home arouse pessimism, how much more serious is the worldwide prevalence of political revolts, enormous uprisings against constituted authority in numerous countries.

2. Plummer, H. S.: The Clinical and Pathologic Relationship of Simple and Exophthalmic Goiter, *Am. J. M. Sc.* **146**: 790, 1913.

3. Marine, David, and Baumann, E. J.: Influence of Glands with Internal Secretion on the Respiratory Exchange; II, Effect of Suprarenal Insufficiency (by Removal or by Freezing) in Rabbits, *Am. J. Physiol.* **57**: 135 (Aug.) 1921.

1. Beck, J. M.: The Spirit of Lawlessness, American Bar Association Journal **7**: 441 (Sept.) 1921.

strikes involving hundreds of thousands of men, and vast fortunes wasted in the pursuit of pleasure. In searching for the cause of the situation, Mr. Beck traces it not only to the rise of individualism which began in the eighteenth century and which had steadily grown with the advance of democratic institutions, but also to the prodigious development in invention and mechanical aids to human achievement so that everything points to quantity of production rather than quality. Man has become a tender of machines rather than a constructive thinker. The increase in potential of human power has not been accompanied by a corresponding increase in the potential of human character.

Quite similar is the analysis of the psychology of the radical presented by the well known psychologist, Stewart Paton.² In a recent consideration of the subject he states his thesis: "Although a large part of the world since 1914 has shown signs of insanity, so far as we know, the signs of sanity and the methods available for promoting sound thinking and acting have not been discussed by any peace commission or conference, organized with the express purpose of assisting to restore peace and sanity throughout the world." Dr. Paton argues that we are returning to an archaic form of cerebration in endeavoring to arrive at decisions on the great questions of our civilization. Radicals are advocating methods of government that are the expressions of primitive emotional and mental processes. Such habits of thought prevent the advantageous utilization of brain power acquired after millions of years of evolution. Prejudices, fixed ideas, suspiciousness, sentimentality and outbursts of passion are making more difficult the task of establishing law and order. To Dr. Paton, the remedy seems to lie in recognizing what constitutes sanity, and in diverting attention from hair splitting arguments to the improvement of mental processes. We must cultivate emotional and mental dispositions favorable for rational adjustment of social difficulties. In simple words, it is more important for human progress how a man thinks than what he thinks.

These are the views of an eminent lawyer and an eminent psychologist as to what's wrong with the times. Men are engaged in a mad race, but they know not whither. The craze for speed dominates everything, speed in transportation, speed in thinking, speed in living and, as revealed in the war, speed in killing. As pointed out by Le Bon,³ author of the most important discussion of the psychology of the crowd, mob spirit governs and the urge is uncontrolled. Whether human protoplasm and the sensitive cells of the human brain will be competent to withstand the strain is a serious question. The simple life has lost its fascination for the mob but not for the thinking human individual; the latter looks vainly about and wonders where he can find it.

CARBON MONOXID POISONING IN CLOSED GARAGES

With the onset of cold weather comes the open season for fatalities resulting from carbon monoxid poisoning by inhalation of the exhaust gas of automobile engines running in small, closed garages.¹ The last few years have seen a gradual increase in deaths resulting from this peculiar combination of circumstances. Cases have been reported which involve inhalation of gas from bath room heaters as well as from both gasoline launches and automobile engines.² In fact, cases have even been reported in which the matter of ventilation had been given some attention but not sufficient to prevent fatalities.

The gas responsible, carbon monoxid, is one which quickly overcomes persons exposed to it above certain concentrations, so that it has been important to determine the limits necessary to cause fatality. In an endeavor to determine this necessary concentration and exposure, Prof. Yandell Henderson,³ with the aid of a number of colleagues, carried on some studies preliminary to the problems of ventilation involved in the proposed vehicular tunnel under the Hudson River. It appears that, when a man begins breathing in a low concentration of carbon monoxid mixed with air, absorption occurs at the rate of 1 per cent. every ten minutes per part of carbon monoxid in the air; but if the exposure is prolonged, carbon monoxid merely displaces oxygen from the blood up to a point of equilibrium, depending on the relative amounts of carbon monoxid and oxygen in the air breathed, and on the intensity of the affinities of the two gases for hemoglobin. Carbon monoxid, it has been shown, is attracted by hemoglobin 300 times as strongly as is oxygen. With these factors as a basis, the investigators worked out a formula which indicated that a man breathing ten parts of carbon monoxid would inhale enough of the gas to become 66.6 per cent. saturated in 66.6 minutes. But since the more carbon monoxid the blood contains, the greater becomes the tendency with which this gas tends to diffuse out again into the air, a complete blood equilibrium would not be attained without the passing of many hours. The practical application of this is that the time for attainment of half equilibrium for persons sitting at rest and breathing concentrations of carbon monoxid up to seven parts is never considerably less than one hour.

Among other conclusions reached by the experimenters, the most important was the determination that, when the time of exposure in hours multiplied by the concentration of carbon monoxid in parts per

1. Carbon Monoxid Poisoning in Closed Garages, Pub. Health Rep. 36:2215 (Sept. 9) 1921.

2. Briggs, J. E.: Gangrene Following Carbon Monoxid Poisoning, J. A. M. A. 73:678 (Aug. 30) 1919. Darling, H. C. R.: Carbon Monoxid Poisoning from Bath Heater, M. J. Australia 2:181 (Aug. 31) 1918.

3. Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, Ruth M.: Physiological Effects of Automobile Exhaust Gas and Standards of Ventilation for Brief Exposures, J. Indust. Hyg. 3:79 (July), 137 (Aug.) 1921.

2. Paton, Stewart: The Psychology of the Radical, Yale Review 11:89 (Oct.) 1921.

3. Le Bon, Gustave: The World in Revolt, New York, the Macmillan Company, 1921.

10,000 of air equals three, there is no perceptible physiologic effect. When it equals six, there is a just perceptible effect; when it equals nine, headache and nausea are induced; when it equals fifteen or more, the conditions are dangerous to life. If a motor car should give off one cubic foot of carbon monoxid per minute in a closed room 10 by 10 by 20 feet, the atmosphere would reach the dangerous concentration of fifteen parts in 10,000 in three minutes.

Experience has shown that the running of a motor car in a closed garage for testing or warming up is a dangerous procedure. Scientific evidence reveals the reason for the danger and the narrow limits of safety surrounding the inexperienced motorist who indulges in this hazardous performance.

Current Comment

MORE BOTULISM

The classic source of botulism is sausage; hence the name "botulism," from the term "botulus," a sausage. The first epidemic studied by von Ermengem in 1895 in which fifty persons were affected was definitely traced to spoiled ham, and subsequent epidemics to the blood and liver sausages prepared in Wurttemberg and Baden. Quite recently infection of six men of the Twentieth Aero Squadron located at Kelly Field, Texas, was reported by Lieut.-Col. E. B. Vedder.¹ The classical syndrome of difficult swallowing, blurred vision, diplopia, dizziness and weakness of the legs appeared in all of the patients. All stated that they had eaten sausage a few days previously, and it was ascertained that the men who were infected had eaten the sausage raw, whereas most of the members of the squadron had eaten the sausage only after it was boiled. The sausage in question had been purchased on Saturday and kept in an icebox until the following Monday, and it was known that the allowance of ice was insufficient to preserve meat satisfactorily. Studies are still being made in an endeavor to prove absolutely the source of the epidemic through isolation of the bacillus, but the results are not yet available. The suggestion to eat such products only when thoroughly cooked cannot be reiterated too frequently.

FORDNEY TARIFF BILL TAXES KNOWLEDGE

In his brilliant history of the reign of Ferdinand and Isabella, Prescott records, as one of the signs of development of civilization in Spain under these monarchs, the fact that they issued a decree admitting all books from foreign countries to Spain, free of duty. Apparently, the United States is about to revert to a stage of civilization lower in this respect than that of Spain five hundred years ago. The Fordney Tariff Bill (H. R. 7456), now before Congress, provides for an increased duty on all books imported from other countries, the duty to be based on the American rather

than the foreign valuation. This provision, if adopted, will tax all books, with minor exceptions, of foreign origin, regardless of the language in which they are printed. Previous tariff laws exempted all foreign books except those printed in English and published within twenty years of importation. The proposed bill would levy a duty on all books regardless of their character or the use to which they are to be put. Libraries, by making affidavit, can get their books free of duty, but the number allowed is reduced. Libraries and books of immigrants, which heretofore have been exempt, are subject to duty when exceeding two hundred and fifty dollars in value. These provisions, as the *Library Journal* well says, constitute a tax on knowledge and will prove a serious embarrassment to libraries, scientific organizations and workers, and all others interested in securing books at reasonable prices. Necessarily, the duty will be added to the price, and the purchaser, who, in the case of scientific, historical and technical volumes, is generally a worker on a salary or a professional man on a limited income, will be forced to pay the increased prices. Such a tax cannot yield any large revenue, nor will its adoption protect any domestic industry, either infant or full grown. The executive board of the American Library Association has protested against the provisions of the Fordney Bill on this subject and has asked the Senate committee to modify the bill so as to retain the tariff provisions now in force. In this protest, THE JOURNAL, on behalf of the medical profession of the United States, heartily joins.

LOCATION OF PARASITIC INVADERS IN THE BODY

Although all sorts of degenerative changes of parenchymatous tissues, such as those of the kidney, heart and liver, frequently occur in the course of infection, a brief consideration will suffice to bring the conviction that typical, characteristic recurring infectious or parasitic diseases affecting the central nervous system, the ductless glands, the liver and kidneys, the muscular system and the joints do not occur excepting as secondary localizations of diseases involving the more external tissues. In an exceptionally thoughtful address on parasitism as a factor in disease, before the Association of American Physicians, Theobald Smith¹ has elucidated the reasons for the comparative freedom of the organs cited from frequent parasitism. The biologic requisite to be fulfilled by the parasite in its multiplication is that the latter process should take place in such a way that escape in large numbers from the host after the parasites have assumed a more or less resistant form becomes possible. This is best accomplished when parasites settle down and multiply near some portal of exit, first the skin or subcutis, second the respiratory tract, third the digestive, and fourth the genital tract. As an explanatory illustration, Smith cites this hypothetical possibility: If it should happen that a race of *Spirochaeta pallida* arose which promptly and exclusively localized in the central nervous system, it would die out for want of an exit to another host. The tendency to locate and multiply

1. Medico-Military Review, 5: 66 (Sept. 15) 1921.

1. Smith, Theobald: Parasitism as a Factor in Disease, Science 54: 99 (Aug. 5) 1921.

in tissues of lower vital dignity, i. e., near the surface of the body or the mucous membranes, safeguards the host as well as the parasite. Hence, in fact, localization of disease agents or parasites in tissues or organs except those from which ready escape to the exterior is possible is, in Smith's judgment, abnormal and unnecessary, so far as the infective agent is concerned.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Chiropractors Found Guilty of Illegal Practice.—It is reported that the following chiropractors were recently found guilty of practicing medicine without licenses: Shah Za De, Oakland; Linden D. McCash, Berkeley; A. B. Black, Riverside, and Mary Mitchell, Whittier. The three first named chose to serve jail sentences rather than pay the fines imposed.

Healer Arrested When Patient Dies.—Isaiah Cudney, reported as being formerly of New Orleans, and operating recently in Los Angeles as a "faith healer," is said to have been arrested in the latter city on a charge of manslaughter in connection with the death of a patient whom he had treated. The patient had suffered from rheumatism for eleven years, and the coroner's jury decided that she died as the result of manipulations by Cudney which fractured her limbs.

DELAWARE

Medical Society Meeting.—At the monthly meeting of the Newcastle County Medical Society, held, September 20, at Wilmington, Dr. James M. H. Rowland, dean of the University of Maryland School of Medicine, Baltimore, spoke on "Conduct of Labor in the Cases with Slight Degree of Dystocia of the Pelvis."

DISTRICT OF COLUMBIA

Personal.—It has been announced that Dr. James A. Gannon has been appointed associate professor of surgery, and Dr. James A. Cahill, clinical professor of surgery at the Georgetown University School of Medicine, Washington.

ILLINOIS

Hospital News.—Work has been started on the addition to the West Suburban Hospital, Oak Park, at a cost of approximately \$180,000.

District Medical Meeting.—A meeting of the sixth councilor district was held, September 29, at Alton. Papers were read by Dr. George W. Crile, Cleveland; Dr. Charles E. Humiston, Chicago, president of the Illinois State Medical Society; Dr. Edwin P. Sloan; Dr. Leon Bloch, Rush Medical College, Chicago, and Dr. John L. Tierney, St. Louis.

State Directory of Physicians.—The director of the Department of Public Health of Illinois is compiling information for an up-to-date directory of the physicians of the state. The last official register of legally qualified physicians in Illinois was issued in 1915. Each district councilor will be asked to help in sending in the names, and the director of the department of registration and education will undertake the publication of the list.

Personal.—At the regular meeting of the Peoria County Medical Society, held, September 20, at Bloomington, Dr. Edwin P. Sloan, president elect of the Illinois State Medical Society, discussed "Conditions of the Medical Science in Europe." Dr. Sloan has recently returned from an extended trip abroad, having visited clinics in Paris, Berne, Naples, Rome, Berlin and London.—Dr. John W. H. Pollard was recently appointed full-time health commissioner of Quincy. Dr. Pollard formerly occupied the chair of hygiene and physical education at Washington and Lee University, Lexington, Va.—Governor Small has appointed Dr. Thomas H.

Leonard, Lincoln, as assistant director of the department of public health to succeed Dr. George Thomas Palmer.—Dr. Isaac D. Rawlings, director of public health, Illinois, recently addressed the Adams County Medical Society and a meeting of Adams County dairymen. He gave figures showing how the death rate among children has been cut down by the pasteurization of milk.

Revised Regulations of Health Department.—The rules and regulations of the state department of public health governing the quarantine and control of various communicable diseases have been revised and are now ready for distribution. Several important changes in reference to the length of quarantine in certain cases and a number of minor changes have been made. Under the title "Minor Communicable Diseases," the rules concerning chickenpox, measles, German measles, mumps and whooping cough are given. Special pamphlets are devoted to diphtheria, scarlet fever, smallpox and typhoid fever. In addition to these complete sets, a synopsis of all the rules is issued in a separate leaflet, of which copies may be secured on application to the department. Under the civil administrative code, provision is made for the appointment of a board to act in an advisory capacity with the director of the state department of public health. Governor Small, September 22, appointed the first board of the kind that has ever been selected, consisting of: Dr. William A. Evans, Chicago; Dr. John Dill Robertson, Chicago; Dr. Edwin P. Sloan, Bloomington; Dr. Charles W. Lillie, East St. Louis, and Mrs. E. N. Monroe, Quincy.

Chicago

Dr. Bevan an Officer of the Legion of Honor.—Dr. A. D. Bevan, past President of the American Medical Association, has had conferred on him the title of Officer of the Legion of Honor for services rendered to medical science and education and as President of the American Medical Association during the war. Dr. Bevan regards this, not so much a personal honor, as recognition by the French government of the war service rendered by the American Medical Association.

Diphtheria Prevention.—At the meeting of the special diphtheria commission, appointed by Commissioner of Health Robertson to inaugurate a system of education, which will free Chicago and its surroundings from diphtheria, which takes the lives of hundreds of children annually, Dr. Robertson urged the universal use of diphtheria toxin-antitoxin as a diphtheria preventive. He announced that the value of this toxin has been demonstrated beyond question and that immunity resulted in 98 per cent. of the cases in which the preventive was used among children from 6 to 10 years of age.

INDIANA

Personal.—At the meeting of the Muncie Academy of Medicine, held, September 27, at Muncie, Dr. Irving W. Potter, Buffalo, gave an address on "Versions."

Epidemic Closes Schools.—It is reported that an epidemic of diphtheria and scarlet fever has resulted in the closing of all schools at Monon, and the placing of a ban on public meetings. No child under 16 years of age is allowed on the streets.

Hospital News.—It has been announced that an appropriation of \$5,000 has been made by the LaGrange County Council for a hospital at the county infirmary.—A new addition has been added to the Indiana State Soldiers' Home, Lafayette, with seventy beds, making a total of 250 beds. The addition will include a kitchen, roentgen-ray department and nurses' cafeteria. The building will be completed in 1922, at a cost of \$175,000.

State Medical Meeting.—At the annual session of the Indiana State Medical Association, held, September 28-30, at Indianapolis, the following officers were elected for the ensuing year: president, Dr. William R. Davidson, Evansville; first vice president, Dr. Thomas M. Jones, Anderson; second vice president, Dr. John R. Reed, Logansport; third vice president, Dr. Eli S. Jones, Hammond, and secretary-treasurer, Dr. Charles N. Combs, Terre Haute (reelected). Muncie was chosen as the meeting place for 1922.

IOWA

Conference on Community Health.—In connection with the annual meeting of the Iowa State Conference of Social Work, a conference on community health was held, September 27. The program was devoted to the general topic of team work for health in Iowa, and the program included representatives

of the Red Cross, department of public instruction, board of control of state institutions, the state board of health, the U. S. Veterans' Bureau, the Iowa State Medical Society, the American Legion, the Federation of Women's Clubs, the Parent-Teachers' Association, the W. C. T. U. and other women's organizations, the foreign bureaus and the state home demonstration agents. The meeting was also featured by an address delivered by Dr. Frank Billings on progress of medicine and the "Community Plan." The following officers were elected: president, Dr. F. E. Sampson, Creston; vice presidents, Mrs. I. B. Wise, Cedar Rapids, and Dr. George Mobridge, Glenwood, and secretary-treasurer, Miss L. Cottrell, Iowa City.

KENTUCKY

State Medical Meeting.—The seventy-first annual meeting of the Kentucky State Medical Association was held September 20-22, at Louisville, under the presidency of Dr. Joseph H. Stucky, Lexington. The following officers were elected for the ensuing year: president, Dr. Louis Frank, Frankfort; first vice president, Dr. David W. Gaddie, Hodgenville; second vice president, Dr. Juanita Jennings, Harlan County; third vice president, Dr. Clarence W. Rogers, Rinneyville. Paducah was chosen as the city for next year's meeting.

LOUISIANA

Hospital News.—The Franciscan Sisters, who have a hospital at present in Monroe, are endeavoring to raise \$30,000 for the erection and establishment of a hospital in Baton Rouge.

Personal.—Dr. John Signorelli has been made head of the new department of the city board of health that will work in close alliance with the Child Welfare Association to bring about a reduction in infant mortality in New Orleans.—Dr. William H. Wood, recently commissioned as surgeon with the rank of major in the Medical Reserve Corps, has been assigned to the U. S. Marine Hospital 14, and reported, September 15, at the former Algiers Naval Station Hospital.

MAINE

New Appointments on Board.—Governor Baxter has recently appointed as members of the board of registration of medicine Dr. Mary F. Cushman, Farmington, and Dr. Alan Woodcock, Bangor, to take the places, respectively, of Dr. Austin I. Harvey, deceased, and Dr. Eugene H. Andrews, whose term of office had expired. Dr. Adam P. Leighton, Jr., was reappointed on the board.

MARYLAND

Personal.—Dr. Frederick H. Baetjer, Baltimore, was given a signal tribute during the recent sessions of the American Roentgen Ray Society, held at Washington, when a dinner was given by the Society in his honor. At its conclusion, Dr. Baetjer was presented with a handsomely bound volume in which were several hundred personal messages of admiration from men in all parts of the world with whom he has been in contact since his student days. Dr. Baetjer is described as one of the heroes of science. In the study and use of the roentgen ray, he has been one of the leaders, and now is called by his associates in the work the last of the old guard. He has undergone repeated operations to correct ills suffered in the course of his work.—Dr. Frederick Reinhard, one of the medical inspectors of the Baltimore public schools, has resigned and has sailed for Czechoslovakia to take up the child welfare work with the American Red Cross. He will work with Dr. James H. Mason Knox, Jr., who left Baltimore, September 3. Dr. Reinhard's headquarters will be at Prague, and he expects to spend a year in Europe. He assisted in the antityphoid campaign in Serbia with the Red Cross in 1915.

MASSACHUSETTS

Hospital News.—The Forest Hills Hospital, with a present capacity of sixty beds, is constructing a new building of 135 beds. The building is to be completely equipped and is of modern, fireproof construction.—The trustees announce that the seventy-fifth anniversary of Ether Day and the exercises in celebration of the centennial of the opening of the Massachusetts General Hospital, Boston, will be held, October 18, in the Moseley Memorial Building. Addresses will be given by Drs. Henry P. Walcott, Frederick C. Shattuck, Harvey Cushing, D. Macfie Campbell, and Major-Gen. Merritte W. Ireland, U. S. Army.

MICHIGAN

Resigns from Medical School.—Dr. Charles W. Edmunds has resigned as assistant dean and secretary of the University of Michigan Medical School and will hereafter devote his entire time to teaching and research work in pharmacology.

MINNESOTA

Hospital News.—It has been announced that contracts have been awarded by the state board of control for a nurses' home to be erected at Puposky, for the Tuberculosis Sanatorium of Beltrami, Koochiching and Hubbard counties.—The work of construction on the new modern sanatorium at Minneapolis is being rushed to permit occupancy in October. The total cost of the building is \$300,000.

Personal.—The mayor of St. Paul has appointed Dr. Francis E. Harrington, Minneapolis health commissioner, chairman of the public health committee of the League of Minnesota Municipalities.—Dr. Thomas S. Roberts, professor of ornithology and associate curator of the Zoological Museum of the University of Minnesota, presented a lecture on Itasca Park, September 23, at the Mayo Clinic, Rochester. The lecture was under the auspices of the Mayo Foundation Chapter of Sigma XI and the Rochester Unit of the Minnesota General Alumni Association.

MISSOURI

Personal.—Dr. James A. Waterman, Breckenridge, a member of Caldwell County Medical Society, has been appointed physician at the state penitentiary, Jefferson City. Dr. Waterman served in this position during the administration of Governor Hadley.—Dr. Edward H. Clark, Kansas City, has accepted the position of medical referee in the Veterans Bureau at Washington, D. C., and will act as diagnostician for the government.—Dr. Tyrrel S. Bruton, Seymour, has accepted the position of assistant physician at the State Sanatorium for Tuberculosis, Mount Vernon.

University of Missouri to Establish Four Year Course.—The board of curators of the University of Missouri has voted to establish a four year course in medicine as soon as hospital facilities can be provided for clinical instruction. For a number of years the medical course at the state university has consisted of two years. The extra session of the legislature, recently adjourned, appropriated \$250,000 for the erection of a state hospital at Columbia for the purpose of providing clinical material for the medical students. It is expected that a similar sum will be appropriated at each session of the legislature until \$1,000,000 has been appropriated for hospital facilities. The legislature also appropriated \$200,000 for the erection of a new building for State Hospital No. 2 at St. Joseph.

NEW JERSEY

Health Promotion Week.—Twenty-three local organizations, including the board of health, board of education, child welfare society and the tuberculosis association, cooperated in an exhibition of various welfare organizations, lectures and films relating to tuberculosis, child welfare, venereal disease work and general public health problems, held, October 3, in Montclair.

NEW YORK

Katonah Sanitarium Burns.—The Hilbourne Club, a sanatorium conducted by Dr. Samuel T. Armstrong, a short distance from Katonah, was totally destroyed by fire on the night of September 26. The loss is estimated at \$60,000.

Binghamton Academy of Medicine.—At a meeting of the academy, held, September 20, at Johnson City, the following officers were elected: Dr. John H. Martin, president; Dr. Sylvanus J. Nunn, vice president; Dr. Hubert B. Marvin, secretary, and Dr. Lester H. Quackenbush, treasurer.

New York City

Personal.—Dr. John W. Churchman has been awarded the Alvarenga prize, by the College of Physicians of Philadelphia, for his work on "Selective Bacteriostatic Action of Gentian Violet."—Dr. Russell F. Maddren, Brooklyn, sailed recently for China, where he will occupy the chair of ophthalmology in the Yale Medical School at Changsha in the province of Hunan.—Dr. Harry M. Archer, honorary deputy chief of the New York fire department, was recently the recipient of a gold watch and chain, a replica of his fire badge, and an embossed testimonial script, in recognition

of his surgical and medical work in the interest of the men in the department. The presentation was made by Commissioner Thomas J. Drennan.

College of Physicians and Surgeons Begins New Era.—The opening exercises of the College of Physicians and Surgeons of Columbia University were held, September 28, when Dr. Butler outlined the plans for the upbuilding of the new \$15,000,000 medical center made possible by the alliance between Columbia University and the Presbyterian Hospital. Dr. Walter W. Palmer, who enters on his new duties as Bard professor of the practice of medicine, delivered the main address on "The Trend and Scope of Modern Medical Education." He referred to the controversies arising from the establishment of the clinical branches on a university basis, and expressed the opinion that this trend, though vigorously debated, appears to be in the right direction.

NORTH CAROLINA

Hospital News.—Drs. James P. Matheson, Clarence N. Peeler and Henry Lee Sloan recently purchased a site from Dr. John R. Irwin, Charlotte, and will erect a modern hospital for the exclusive treatment of diseases of the eye, ear, nose and throat. The land was purchased for \$60,000, and the building will cost approximately \$125,000; it will be four stories high, with one floor devoted to the private offices of the above named physicians.

Ten Cents for Diphtheria Preventive.—The quarantine officer, Lexington, announces that the state board of health wishes the attention of the parents called to the aiding of diphtheria prevention. The Davidson County Department of Health has given up to date toxin-antitoxin to 323 children, free, but from this time on, because of the expense, the department will be compelled to charge 10 cents for the complete treatment, which consists of three treatments given one week apart. This is the actual cost of the toxin-antitoxin that is furnished by the North Carolina State Board of Health.

OHIO

Personal.—Dr. Herman J. Bollinger has resigned from the staff of the Toledo Municipal Hospital, effective October 1. He will be succeeded by Dr. L. Rosenberg.

Hospital News.—Ground has been broken for an addition to the Columbus Radium Hospital, at a cost of \$25,000, which will increase the capacity from thirty to fifty-five beds.—Through the efforts of local physicians and the Exchange Club, the Defiance Hospital, which was closed in the spring at the expiration of the lease on the building, has been reopened.

PENNSYLVANIA

Personal.—Governor Sproul has appointed Dr. Walter E. Lee a member of the bureau of medical education and licensure of the department of education, Philadelphia, to succeed Dr. John M. Baldy, resigned to become commissioner in the newly created department of public welfare. Dr. Verne G. Burden, chief resident physician of the Hospital of the University of Pennsylvania, Philadelphia, has resigned to join the staff of the St. Mary's Hospital (Mayo Clinic), Rochester, Minn.

Lackawanna County Society.—The monthly session of the society was held at Hillside Home, Clark Summit, September 17. Dr. Herman O. Mosenthal, New York Post-Graduate School, read a paper on "Blood and Urine Examination in Ambulatory Cases of Kidney Diseases"; Dr. Thomas Turner Thomas, Philadelphia, on "Nonoperative Fractures," and Dr. Edward Graham, Philadelphia, on "Vitamins." The society were guests of Dr. Thomas Rutherford, superintendent of the home.

Museum of Ophthalmic and Otolaryngologic Pathology.—At the meeting of the Council of the American Academy of Ophthalmology and Oto-Laryngology, held in June, it was decided to establish a museum, the collection to be located in the Army Medical Museum at Washington, D. C., and conducted by the curator, the expenses to be borne by the American Academy of Ophthalmology and Oto-Laryngology. Under the regulations of the Army Medical Museum, the pathologic material is open for study to any qualified person, and a laboratory and microscopes are available.

PHILIPPINE ISLANDS

Expedition to Leprous Islands.—Dr. Ildefonso Tobillo, accompanied by a bacteriologist, has visited several islands

of the Philippine Archipelago in a campaign to segregate lepers, with the cooperation of the Philippine health authorities. Two hundred and seventy-one lepers were collected and taken to the leprosarium at Culion for isolation and treatment.

SOUTH CAROLINA

Personal.—Dr. Vance W. Brabham has resigned as chairman of the Orangeburg city board of health, to take effect in October.

Free Clinic.—A diagnostic clinic which will be free for the public of Columbia and South Carolina was opened at the Baptist Hospital, Columbia, in September. Six rooms have been fitted up in the basement of the hospital, with the use of the laboratory and the roentgen-ray room.

TENNESSEE

Personal.—Dr. August Hermeier Wittenborg, professor of anatomy in the medical department of the University of Tennessee, has been refused citizenship in the United States. Failure to register for service in the war was given as the reason for the withdrawal of Dr. Wittenborg's petition for naturalization. Dr. Wittenborg is a German by birth, but has resided in this country for several years.

TEXAS

Personal.—Dr. Frau R. S. White, Dallas, has been appointed superintendent of the Hospital for the Insane, Wichita Falls, and will take up his duties there as soon as the building is completed.

Hospital News.—It has been reported that the contract has been awarded for the construction of the new unit (for negroes) at the Houston Tuberculosis Hospital, at a cost of \$10,000, one half of which is to be contributed by the county.

Mental Hygiene Clinic.—Plans have been outlined by the Houston city health officer and the director of the social service bureau for the establishment of a mental hygiene clinic to devote special attention to abnormal children and to be operated in connection with the health department.

VIRGINIA

Walter Reed Medical Society.—A newly organized medical society, consisting of physicians of Gloucester and surrounding counties, formed in memory of Walter Reed of Gloucester County, held its first session at Newport, September 14-16. General Hugh Cumming addressed the meeting.

State Medical Meeting.—The Medical Society of Virginia will hold its annual meeting at Lynchburg, October 18-21, under the presidency of Dr. Alfred L. Gray, Richmond. Dr. Alfred Stengel, Philadelphia, will deliver an address on medicine, and Dr. William J. Mayo, Rochester, Minn., on surgery. Dr. John Lovett Morse, Harvard University, Boston, will present a paper dealing with the pediatric problem.

CANADA

New Medical Building for the University of Alberta.—A new building for the medical school of the University of Alberta has just been completed and the teaching equipment is now being transferred to it.

Public Health News.—Recently at Oshawa, Ont., a campaign was launched to raise money for the National Sanitarium million dollar emergency fund. The district between Whitby and Napanee will be canvassed by prominent men interested in this movement. Among the speakers at the meeting were Dr. Kendall, superintendent of Muskoka Free Hospital, and Dr. Thomas W. G. McKay, Oshawa.—Dr. Franklin S. Ruttan, medical officer of health, Woodstock, Ont., has appealed to the county judge to increase his annual salary by \$1,000 under the statute which empowers a county judge to set the salary of a medical officer of health, when the council and the medical officer of health disagree. Dr. Ruttan applied to the city council some time ago for an increase, but his request was refused.

Hospital News.—A by-law is to be submitted to the electors of St. Thomas, Ont., on armistice day, November 11, for the issuing of \$100,000 debentures for the erection of the proposed memorial hospital on the site of the present nurses' home, in connection with the Amasa Wood Hospital. The estimated cost is \$160,000, of which \$60,000 will be raised by private subscription. The memorial feature will be the providing of free hospital accommodation and medical attention to returned soldiers.—It is proposed to establish a new hos-

pital on the site of the Del Monte Hotel at Preston, Ont. When plans are carried out it will mean that Preston will have a sanatorium that eclipses any other in the country, rivaling that of Clifton Springs and other famous health resorts in the United States. One of the features contemplated is an inclined railway to the top of the hill, where the hospital will command a magnificent view of the town and surrounding country.

Personal.—Dr. Warren E. Gallie, Toronto, has recently been appointed head of the surgical staff of the Hospital for Sick Children, Toronto, Ont. He succeeds Dr. C. L. Starr, whose resignation follows his appointment as professor of surgery at the University of Toronto.—At the July examinations of the Royal College of Physicians, London, England, Dr. Donald Kilgour, Toronto, Ont., was admitted as a member of the college.—Dr. Joseph A. Baudouin, assistant secretary of the Superior Board of Health of the Province of Quebec, and professor of hygiene in the University of Montreal, has been awarded one of the fellowships for the study of medicine and public health in the United States granted by the Rockefeller Foundation. Dr. Baudouin has been head of the municipal board of health of Lachine, Quebec, since 1909, and is the author of several books and articles on medical and sanitary subjects.—Dr. Hubert D. Kitchen, Souris, Manitoba, has also been granted a fellowship from the Rockefeller Foundation for graduate study of internal medicine.

GENERAL

Meeting of Ex-Service Men.—The first annual reunion of the ex-members of Evacuation Hospital No. 2, who trained at Indianapolis and Fort Benjamin Harrison, was held, September 15-17, at Indianapolis. Dr. James N. Vanderveer, Albany, first commanding officer of the organization, exhibited lantern slides of scenes they had visited overseas.

Mississippi Valley Medical Association.—At the meeting of the association to be held at St. Louis, October 13-15, the following physicians have accepted invitations to give scientific addresses: Drs. Llewellys F. Barker, Baltimore; Charles H. Frazier, Philadelphia; John de J. Pemberton, Rochester, Minn.; Isaac A. Abt, Chicago, and C. Jefferson Miller, New Orleans.

New England Surgical Society.—At the fourth annual meeting of the society, held, September 21-22, at Worcester, the following officers were elected for the ensuing year: president, Dr. Charles A. Porter, Boston; vice president, Dr. Herbert L. Smith, Nashua, N. H.; secretary, Dr. Philemon E. Truesdale, Fall River, Mass., and treasurer, Dr. Peer P. Johnson, Beverly, Mass. The society is limited to 100 members.

Commission of Serbian Physicians.—Dr. Georges J. Nikolitch, undersecretary and first medical officer of the Serbian ministry of health, Dr. Georges Joannovitch, professor of pathologic anatomy, and Dr. Radenko Stankovic, professor of internal medicine, Medical School, University of Belgrade, have recently arrived in the United States to study the public health administration, medical education and hospital organization in the United States, as guests of the Rockefeller Foundation, and will visit the principal cities of the country for the purpose of observing what American states and cities are doing in the fields of child welfare, preventable diseases, tuberculosis, cancer research, pathology, serology and venereal disease control.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Hospital of Philadelphia, \$25,000, for erection of a wing or separate building for crippled children, to be called the Thomas H. Powers Memorial; Pennsylvania Hospital, \$8,000; Home for Incurables, \$8,000, for endowing a room; Home of the Merciful Saviour for Crippled Children, \$5,000; Chestnut Hill Hospital, \$5,000; Orthopedic Hospital, \$5,000, for endowing a bed, by the will of Mary Powers Harris, Philadelphia.

Riverside Community Hospital, Riverside, Calif., land to the value of \$15,000, for a new institution, by Mrs. Florence Barton Loring.

Children's Hospital School, Baltimore, \$2,000; the Home for Incurables, Baltimore, \$2,000; the Maryland School for the Blind, \$2,000; the Eudowood Sanatorium, \$2,000, each free of taxes, by the will of Mrs. Laura V. Robinson, Baltimore.

Jefferson Medical College, Philadelphia, a fund for students who are unable to pay their tuition and board, at a maximum of \$300 for each student, as a memorial to Dr. John V. Shoemaker, by the will of his widow, Mrs. Jennie M. Shoemaker, Philadelphia.

Lenox Hill Hospital, New York, \$25,000; Monmouth Memorial Hospital, Spring Lake, N. Y., \$5,000, by the will of Mrs. Bertha Franzisca Achelis.

American Public Health Association.—The fiftieth annual meeting of the American Public Health Association will be the occasion of a health fortnight, which will include three major divisions—a health institute, November 8-11; a health

exposition, November 14-19, and the fiftieth annual meeting of the American Public Health Association, November 14-19. Representatives from virtually every state in the Union and from many foreign countries will participate in the program. November 13 will be observed as health Sunday in many New York churches, in the synagogues and by numerous business and social organizations. The New York County chapter of the American Red Cross is cooperating with the general committee in the arrangement for this service. The public health exposition will be the largest affair of its kind ever held in New York City. It will be conducted under the joint auspices of the Department of Health of the City of New York and the American Public Health Association. Two floors of the Grand Central Palace will be occupied by educational and philanthropic and commercial exhibits. The profits from the exposition will be devoted to establishing nutritional clinics. The health institute, November 8-11, will present established methods of public health work. About forty demonstrations have been planned. The American Public Health Association, the health department of the city of New York, the New York State Department of Health, the U. S. Public Health Service, the National Health Council, and the Committee on Public Health of the New York Academy of Medicine are cooperating. The chairman of the committee in charge is Dr. W. A. Evans. The director of the institute is Dr. D. B. Armstrong of the National Health Council. The American Public Health Association sessions will begin on November 14. Headquarters will be at the Hotel Astor, Broadway and Forty-Fourth Street. A Jubilee historical volume, entitled "Fifty Years of Public Health," will be ready for distribution during health fortnight.

LATIN AMERICA

S. Paulo Medical School Officially Accepted.—The diplomas of the Faculdade de Medicina e Cirurgia of S. Paulo, Brazil, have now been officially accepted by the federal authorities, and there is much rejoicing in medical circles.

Congress of the Medical Press of Cuba.—In connection with the Fifth Cuban Medical Congress to be held at Havana, December 11-17, there will be held the Fourth Congress of the Medical Press of Cuba, December 9-10. This congress will be presided over by Dr. Jorge LeRoy, the secretary being Dr. Octavio Montoro. Both meetings will be held in the building of the Academia de Ciencias Médicas, Físicas y Naturales of Havana.

Chagas Returns to Brazil.—On his return to Brazil Dr. Chagas, the director general of public health, expressed his gratification at the welcome he had received in the United States. He stated that he intends now to put to practical use the observations he made in the United States and especially to insist on the extension of public health teaching and rural health organization. He praised very highly the progress made in this country in infant hygiene, industrial sanitation, medical teaching, nursing service and hospital organization.

Personal.—Prof. Alfredo de Andrade has had to resign his charge of the Bromatologic Laboratory of the Brazil Public Health Service on account of other duties. The personnel of the laboratory presented him with a bronze souvenir plate inscribed "Homenagem dos Chimicos do Laboratorio Bromatologico ao Prof. Andrade, seu organizador."—Dr. Benigno Souza, a prominent surgeon of Havana, Cuba, is now in Washington, D. C., after visiting some of the most important clinics in the East. He expects to return in the near future with his family to Cuba.—Dr. I. González Martínez, a prominent roentgenologist and bacteriologist of San Juan, Porto Rico, attended the recent roentgen-ray meeting held in Washington, D. C.—Dr. A. Córdova, a Cuban alienist, is now in California accompanied by his wife and daughter.—Dr. Paulina Luisi has returned to Montevideo, Uruguay, after a prolonged stay in Europe, where she delivered a number of lectures.

FOREIGN

Personal.—Dr. Charles Edward Amory Winslow, Yale University, medical director of the Red Cross, is in Geneva attending the meeting of the League of Nations.

German Medicolegal Society.—The recent annual meeting of this society was held at Erlangen, and the speakers emphasized anew the imperative necessity for official and police necropsies. The president and vice president elected were Professor Reuter of Graz and Professor Merkel of Munich.

Research on Extermination of Vermin.—The *Münchener medizinische Wochenschrift* mentions the organization at Mannheim of a central office for coordination of research on

the scientific extermination of vermin and combating the spread of epidemics. E. Nägelstein, a chemist of Mannheim, is at the head of the scientific testing and investigating bureau, and J. Brech is president of the organization and has charge of the literary and statistical work. His address is Mannheim-Neckarau.

Congress for Medical Radiology.—The second congress of the organized radiologists of the Scandinavian countries was held recently at Copenhagen. The three topics on the order of the day were the radiologic diagnosis of disease in appendix and cecum; roentgen-ray treatment of the thyroid, and radium treatment of the thyroid. Twenty-five other communications were also announced on the program, discussing radiology in relation to internal medicine, surgery and dermatology in addition to gynecology.

The Brisseau Cataract Memorial.—September 25 was the date appointed for the unveiling of the memorial to Brisseau of Tournai, Belgium, who published in 1705 the first account of the nature of cataract. The committee in charge of the memorial has republished his account in a pamphlet as a souvenir and bibliophile curiosity. For information address Dr. A. de Mets, 29 avenue Van Eyke, Antwerp. The ancients explained cataract as the pouring out of some substance on the lens from above, and hence the name "cataract."

Benoist Prize Awarded.—The prize founded by a sum bequeathed to the Swiss government for the purpose by a Paris lawyer, M. Benoist, amounts to 20,000 Swiss francs. It is to be awarded annually for the most useful discovery, invention or research made in science during the year by a Swiss scientist or one who has resided in Switzerland for at least five years. The first award was made recently, the prize being conferred on Dr. Arthus, formerly assistant director of the Pasteur Institute at Lille and of late years professor of physiology at the University of Lausanne. The prize was awarded as a tribute to his recent work "De l'Anaphylaxie à l'Immunité" which is said to represent a lifetime of original research.

The American Medical Association of Vienna.—The revival of this association, an organization of American physicians residing or studying in Vienna, was recently mentioned in these columns. The Vienna *Klinisch-Therapeutische Wochenschrift*, in its issue of Sept. 1, 1921, gives the list of officers and the aims of the association which are said to include the restoration of scientific and social relations between American physicians and the Vienna medical faculty; exchange of medical journals between Germany, Austria and America; the wiping out of the prejudice against German science and thereby preventing such happenings as the exclusion of German surgeons from the International Surgical Congress; keeping up a regular special correspondence with THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION to report the achievements of the Vienna medical school; keeping up propaganda to attract American physicians to study in Vienna and supplying information as to courses in English, prices, board, lodging, etc. The officers include Drs. Gustav Baar, Portland, Ore., president; Capt. W. K. Turner, M. C., U. S. Army, vice president, and A. G. Reinfeld, Newark, N. J., secretary.

Deaths in Other Countries

Sir P. Freyer of London, one of the first to operate successfully on the bladder, kidneys and prostate gland, aged 68. —J. W. Haward, former demonstrator of anatomy, St. George's Hospital, London, among the first to describe the bony metastases of primary carcinoma of the thyroid, aged 80. —Dr. Yu Shufen, from pneumonic plague, while combating the epidemic in Shantung, August 24. —Dr. François-Franck, professor of physiology at the Collège de France, Paris, and author of works on the motor functions of the brain, epilepsy, etc., aged 72. —Dr. J. Nogier, medical inspector of the army, retired, formerly director of the army medical school. —Dr. Nicolás Roveda, professor of histology at the University of La Plata. —Dr. E. Ausset, lecturer at the University of Lille. —Dr. R. Hantsch, assistant at the Pathology Institute at Jena, killed in mountain climbing. —Dr. E. Schneider, an ophthalmologist of Copenhagen, whose ophthalmologic table made up from frozen sections of a normal eye is well known.

CORRECTION

Appointment at Albany Medical College.—In THE JOURNAL for October 1 it was reported that E. C. Jacobson had been appointed as instructor in pathology at Albany Medical College. The report should have read "professor of pathology and bacteriology."

Government Services

Surgeon at Galveston Resigns

Passed Asst. Surg. Warren F. Fox, in charge of the U. S. quarantine station, Galveston, has announced his intention to resign from the U. S. Public Health Service. Passed Asst. Surg. Paul D. Mossman, Angel Island, Calif., will assume charge of the station.

Colonel Forbes Advises on Proposed Hospital for Mental Disorders

The introduction, by Senator A. O. Stanley of Kentucky, of a bill in Congress appropriating \$5,000,000 for the construction of a hospital, to be used in the treatment of disabled soldiers suffering with mental disorders, has resulted in a statement issued by Col. Charles R. Forbes of the Veterans' Bureau urging that this new institution, if constructed, be located at Washington, D. C. The Stanley measure has no provision naming the site for the location of hospital with the exception of a clause stating that it may be located in the District of Columbia or some other place. In his statement, Colonel Forbes said:

Since the government has the land in Washington and since Washington is the ideal place for such a hospital, I believe that the proposed building should be erected where the center of all activities relating to soldier relief is located. On more than one occasion Gen. Charles E. Sawyer, the president's private physician, who has made an intensive study in this phase of soldier relief work, stated that Washington, because of its climatic and other conditions, is the proper place for locating a great hospital. Now that the bill has been introduced in Congress, which, if enacted into law, will provide the necessary funds for such an undertaking, the general's observations should not be overlooked. I believe with him and others who have given the subject much thought and deliberation that Washington is the city where such a hospital should be placed.

With the construction of this hospital as provided in the Stanley measure, Colonel Forbes believes that many of the difficulties besetting the Veterans' Bureau will be overcome.

Medical Naval Reserve Abolished

With the exception of Class 1, all classes of the medical naval reserve have been abolished as a result of an order issued by Secretary of the Navy Denby this week. The members of the reserve included in this order, however, are given the option of being disenrolled and transferred without pay to Class 6, which represents the volunteer section. The number of officers in the medical naval reserves, including warrant officers, totaled 1,543, who ranked from commander to lieutenant junior grade. They drew from the government two months' base pay every year plus 20 per cent. increase after four years' service in the reserve. All members of Class 1, medical naval reserves, are retained and will continue receiving their compensation. They are about 156, of whom thirty-four are now on active duty drawing full pay.

Nursing Force for Veterans' Bureau

At present there are 214 registered nurses employed by the Veterans' Bureau in special follow-up work for ex-service men throughout the United States. There are approximately 3,000 additional nurses engaged in the care of ex-service men. Of this number, 1,500 are employed in government hospitals under the direct jurisdiction of the U. S. Public Health Service, although the Veterans' Bureau, under the Sweet law, has advisory supervision over them. There are approximately 1,500 additional nurses employed in contract institutions.

Air Service Officer Receives Commendation

General Order No. 17, issued, September 20, by Headquarters, First Provisional Air Brigade, contained a letter of commendation from the chief of the air service to Major Samuel Meredith Strong, M. C., Hampton, Va., commending him for services rendered in connection with the search for the Martin bomber which recently fell in Nicholas County, W. Va., and for medical aid, intelligence and efficiency in connection with the care and transportation of the injured.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 12, 1921.

The British Association for the Advancement of Science

The annual meeting of the British Association for the Advancement of Science took place at Edinburgh. Some of the papers were of medical interest:

THE NATURE OF THE ELEMENTS

In his presidential address, Sir T. Edward Thorpe said that though Dalton's atomic theory has been generally accepted for nearly a century, only within the last few years had physicists arrived at a conception of the structure of the atom sufficiently precise to be of service to chemists. Investigation of the "superlatively grand question—the inner mechanism of the atom"—has profoundly modified the basic conceptions of chemistry. It has led to a great extension of our views concerning the real nature of the chemical elements. The discovery of the electron, the production of helium in the radioactive disintegration of atoms, the recognition of the existence of isotopes, the possibility that all elementary atoms are composed either of helium atoms or of atoms of hydrogen and helium, and that these atoms, in their turn, are built up of two constituents, one of which is the electron, a particle of negative electricity whose mass is only $\frac{1}{1800}$ of that of an atom of hydrogen, and the other a particle of positive electricity whose mass is practically identical with that of the same atom, have completely altered the fundamental aspects of the science. The idea of a primordial hyle, or of the essential unity of matter, has persisted throughout the ages. The more exact study within recent years of the methods of determining atomic weights, the great improvement in experimental appliances and technic, combined with a more rigorous standard of accuracy, have confirmed the belief that some natural law must be at the basis of the fact that so many of the most carefully determined atomic weights on the oxygen standard are whole numbers. Nevertheless, there were well-authenticated exceptions. The fact that a so-called element may be a mixture of isotopes—substances of the same chemical attributes but of varying atomic weight—has thrown new light on the question. It is now recognized that the fractional values independently established in the case of any one element by the most accurate experimental work of various investigators are, in effect, "statistical quantities" dependent on a mixture of isotopes. This result, indeed, is a necessary corollary of modern conceptions of the inner mechanism of the atom. The hydrogen isotope first detected by J. J. Thomson seems to be an integral part of atomic structure. Rutherford, by the disruption of oxygen and nitrogen, has also isolated a substance of mass 3 which enters into the structure of atomic nuclei, but which he regards as an isotope of helium, which itself is built up of four hydrogen nuclei together with two cementing electrons. The atomic nuclei of elements of even atomic number appear to be composed of helium nuclei only, or of helium nuclei with cementing electrons; whereas those of elements of odd atomic number are made up of helium and hydrogen nuclei together with cementing electrons. In the case of the lighter elements of the latter class the number of hydrogen nuclei associated with the helium nuclei is invariably three, except in that of nitrogen, in which it is two. The frequent occurrence of this group of three hydrogen nuclei indicates that it is structurally an isotope of hydrogen with an atomic weight of three and a nuclear charge of one. It is surmised that it is identical with the hypothetical "nebulium" from which our "elements" are held by astrophysicists to be originally produced in the stars through hydrogen and helium.

METEOROLOGY IN MEDICINE

In a paper on this meteorology in medicine, Dr. Angus Macdonald said that temperature was a fundamental factor influencing biologic reactions. As an illustration, he took the part played by temperature in the production of diseases due to protozoa. Scottish records showed that outbreaks of malaria coincided with abnormal high temperature over several months in consecutive years. Wars had been the main factor in the introduction of malaria infection, but the disease could not become endemic in Scotland, and an outbreak occurred only when importation in large volume coincided with a mean temperature of 60 Fahrenheit over a period, which was an event of rare occurrence in Scotland. The high temperature was necessary to the sexual phase of the malaria parasite in the *Anopheles mosquito*.

Trypanosomiasis: Mission to Tropical Africa

The Colonial Office has approved proposals made by the Tropical Disease Prevention Association for further investigation in Africa in regard to the serum treatment of trypanosomiasis. These proposals provide for a program of systematic work extending over about two years, to be carried out by a special mission. The mission will include animals as well as men in their investigations. It is estimated that the cost of the work will be \$250,000, and a fund to meet it is being raised by the association. The mission, it was suggested, should consist of Dr. Marshall and Dr. Vassalo of the Uganda Medical Service, to whom the new treatment is owing, two assistant medical officers, two veterinary surgeons, and a secretary. The scope of their work is defined under four heads: (1) To carry out treatment of infected cases by the serum method, and to experiment as to technic and general principles of such treatment. (2) To make observations as regards prevention and immunization from the disease on human beings. (3) To carry out observations on animals to the same end. (4) To report on the present and future conditions as regards trypanosomiasis in Uganda, Nigeria and such other areas as may be approved by the Colonial Office.

A Plague of Insects

The prolonged drought, which has lasted the whole summer, has had a marked effect on insect life with certain consequences to man. Professor Lefroy, the entomologist of the Imperial College of Science and Technology, in a statement to the *Times* says that certain classes of insects have bred more extensively than usual this summer. Where there are lakes or other large supplies of water the mosquito has become exceedingly abundant, owing to the fact that it has had more generations than ordinary. The same with flies. The house fly, which breeds in manure, has also been able to breed more rapidly, and is therefore more abundant than in a normal year. During this year there have been quite an abnormal number of deaths from either wasp stings or the bites of the brown mosquito (which does not convey malaria) or from the bites of flies which have not been identified. To some extent this has been due to the fact that the heat and dry conditions have led these insects to attack man more freely; but we are ignorant of the reason why the bite of a harmless brown mosquito can cause death within two or three days, when we know that no specific disease, such as malaria, has been introduced.

The Use of Students for Blood Transfusion

Guy's Hospital Gazette says that the practice of allowing students, even of encouraging them, to give blood for transfusion is far too prevalent in the hospital. A patient is admitted in a very collapsed condition and blood transfusion is decided on. Even if any of his relatives are available, there is no time to treat their blood groupings. So the house surgeon goes off to the college to find a Group IV

donor. It speaks well of the men that he rarely has difficulty in finding a willing donor; for although the day is past when any one who gave a pint of blood became automatically a hero with his photograph in all the illustrated papers, yet the giving of this amount of blood does lay some strain on the donor's metabolism. It has been estimated that it takes, roughly, three weeks for the normal man completely to recover from the loss of a pint of blood. This was recognized by the army authorities during the war, who gave three weeks or a month's sick leave to donors of blood for transfusion. So that for three weeks after he has so altruistically obliged his friend the house surgeon, the donor's activities remain below par and the efficiency of the unit, and indirectly, of the hospital, is lessened. For these reasons alone the *Gazette* thinks that the practice ought to be discouraged or even prohibited, and suggests that it would not be difficult to follow the American plan of having professional donors.

A New Theory of Color Vision

It is generally supposed that a gradual transition from one color to another can be seen in the spectrum, corresponding to the gradual increase or diminution in the frequency of the waves of light on which the sensation of color depends. But Edridge-Green has shown that the eye is incapable of perceiving an indefinite number of spectral colors. By the use of a shutter, any part of the spectrum can be isolated, when it is found that a certain breadth appears all of the same color. Normal persons break up the whole spectrum into from sixteen to twenty uniform bands of color. Persons with abnormal sight divide it into a smaller number of areas varying with the nature of their color-blindness. Prof. J. Joly of the University of Dublin has recently proposed this theory to explain these peculiarities of color vision: When a ray of light reaches the retina, it sets free "photo-electrons." Each of these contains a known quantum of energy determined by the frequency or wave length of the kind of light to which its liberation is due. The electrons discharged by the red end, where the waves are long, have a small quantum of energy. There is a continuous increase in the quantum toward the violet end, where the short waves liberate more energetic electrons. These electrons have an action like the pulling of a trigger on the rods and cones of the retina, releasing a store of energy sufficient to send a stimulus up to the brain. But trigger action is a hit or miss; the energy of the propelled bullet depends on the explosive charge, not on the pull. The rods and cones of the retina are known to be the receptor cells which receive the stimulation of light, and pass it on as a relayed message to the brain. Joly suggests a function for a known difference in their structure. Each rod is the starting point of an extremely delicate thread which must be the channel of communication to the brain. Each cone has a stouter link with the brain, possibly consisting of a bundle of threads. He suggests that whatsoever be the quantum of energy in the electron which enters a rod, it can send only one kind of message to the brain. He supposes, therefore, that the rods are the apparatus by which messages of the presence or absence of light are received and transmitted, without distinction as to "color." But electrons entering the cones can ring up two, three or four of the fibers, according to their quantum of energy, and so send different kinds of messages corresponding with different kinds of light. By an elaborate physical argument he shows that quanta of energy would be excited in these proportions by the parts of the spectrum representing the three primary colors, red, green, and blue-violet, of the Young-Helmholtz theory. If he is right, the physical structure of the eye would thus account for the manner in which the sense of vision interprets external objects as displaying sharply marked colors.

Plan to Attract Young Physicians to the Navy

By a new regulation, physicians can join the navy as surgeon lieutenants for short periods of service in the fleet, the number of junior medical officers being at present insufficient. The period of engagement is to be three years, with the option of continuing for twelve months more if required. After the first six months a temporary surgeon lieutenant will, at the discretion of the admiralty, be eligible for transfer to the permanent list of medical officers of the navy. The full pay is to be \$6 a day, but no unemployed or half pay is offered. Gratuities on discharge are provided for, and in case of wounds, injury or death on duty there may be pensions or gratuities or compassionate allowances for officers or their dependents.

PARIS

(From Our Regular Correspondent)

Sept. 9, 1921.

The Microscope as an Aid in the Expert Examination of Handwriting

Writing in the *Revue scientifique*, Dr. Lefrou draws attention to the advantages (apparently neglected) that may be derived from the use of the microscope in the examination of handwriting. In the last analysis, writing must be regarded as a movement controlled by anatomic, physiologic and psychic factors, whereby every handwriting acquires characteristics in keeping with the personality of the writer. While it is true that the personal characteristics of handwriting are always observable with the naked eye, it is much more striking to note the microscopic differences. Just as two chemical substances of similar macroscopic appearance may have a different microscopic structure, so two handwritings of similar aspect may present a different microscopic image. Thus, the microscope will bring out the infinitesimal details that go to make up graphic identity. If we take a microscope of low magnification (for example, with a 2 objective and a No. 4 eyepiece, without a condenser) and lay a written sheet of paper on the stage, the transparency will usually be sufficient to cause the image to show up. It is also easy to make a sheet of paper temporarily translucent, by moistening it with a few drops of benzene or xylene, which will evaporate without injuring the document. Thus seen under the microscope, the handwriting stands out with peculiar modeling; it becomes a real picture, with inequalities in the width of the strokes and flourishes. The broad and the fine strokes, as well as the beginnings of strokes, all have their peculiar characteristics. All these peculiarities combined give to handwriting its individuality. It is easy, therefore, to understand that when dealing with false handwriting, no matter how great the skill and facility of the writer may be, he will betray his real identity by infinitesimal differences. The careful attention given to the shape of the letters will be revealed by a variation in the modeling as brought out by the microscope. If we consider, in addition, the accessory factors: the shape of the pen, the manner in which it is held, etc., we can readily imagine that all these factors will produce a different microscopic image than that of the forgery. The same argument applies to the disguising of writing. A systematic study of the modeling of the microscopic image will lead to the discovery of peculiarities, in the genuine type, of such a character that by careful inspection it will always be easy to find traces of them in the disguised writing. It should be noted that, in comparing letters, the chief attention should be directed to the most commonly used letters in the text. Some may be surprised to learn, however, that vowels are not the most commonly used letters but rather A, E, R, S, N, as can be easily verified by any text or by the excessive wear of these characters in a typewriter. The microscope discloses also erasures through the difference in tint, owing to the presence

of a faint circle around the letter. A character written over another will show an uneven breadth or an irregular tinting of the strokes, as will be readily perceived by comparing such letters with others in the text. As is known, also photography has been employed to solve the last two problems. Dr. Lefrou believes that better results could be secured by the use of photomicrography, as the photomicrographic plate would facilitate the comparison of images and would render more tangible the data revealed by expert inspection. The study of the microscopic image of handwriting is, to be sure, a rather delicate matter, but, as Lefrou rightly states, the study of cellular morphology is even more delicate, and yet what wonderful precision we have reached in the field of histopathology. Be that as it may, it is evident from this study that the expert scrutiny of handwriting should again be classed under legal medicine, as was formerly the case. A further argument lies in the fact that the inspection of handwriting constitutes a part of the regular diagnosis in psychiatry.

Medical Fees and Successful Treatment

A physician having charged his patient 600 francs for sixty domiciliary visits, the patient offered him 100 francs in liquidation of the debt, asserting that the treatment given him had been absolutely ineffectual. The matter was brought before the civil court of the department of the Seine, which decided that a patient cannot base the remuneration to be paid a physician on the degree of success of the treatment he has received, "as it is impossible for a physician to be positive that any given treatment will bring about a given result, and that, to a certain extent, the effects of a specific medication will vary with the subjects to whom it is applied."

Death of Ernest Dupré

Dr. Ernest Dupré, professor of clinical mental and cerebral diseases in the medical department of the University of Paris, died recently in Deauville at the age of 59. He was born in Marseilles in 1862, and was appointed associate professor in 1898 and physician to the Paris hospitals in 1899. He performed also the functions of chief physician of the special infirmary connected with the prefecture of police and served as an expert to the courts. Having specialized, at the beginning of his career, in neurology and psychiatry, he succeeded Gilbert Ballet to the chair of clinical mental diseases. He had been a member of the Academy of Medicine since 1898. Besides his researches on organic psychopathy and general paresis, he studied also mental delusions, puerilism, mythomania, the emotions and their rôle in disease, the emotive constitution, etc. He also figured as an expert in many famous judicial proceedings.

VIENNA

(From Our Regular Correspondent)

Sept. 15, 1921.

The Convention of Ophthalmologists in Vienna

For the first time in seven years, an international scientific congress took place in Vienna when the ophthalmologists of nearly all civilized countries met here, August 4. Partly to celebrate the seventieth birthday of the veteran of ophthalmology, Professor Fuchs, partly to revive the international relations between scientific corporations, the Vienna Ophthalmologic Society invited the colleagues of all the world to Vienna, and countries other than England, France and Belgium sent eminent representatives. The modest means at the disposal of the inviting corporation were no obstacle to the complete success of the meeting. Forty-three extensive papers and twenty demonstrations were on the program of the convention calculated to last three days. The discussions were most enthusiastic and of a very dignified and interesting character, and the audience was always numerous.

Among the topics of the transactions, the following may be mentioned. The discussion on the problem of glaucoma on the first day proved that the old Graefe method of iridectomy is still regarded as the best treatment, while the opinions as regards the substituting methods of the last few years are rather divergent. Treatment with thyroid extract seems to be on a sound basis. Hertel of Leipzig has obtained very good results with the combination of pilocarpin externally and thyroid extract internally, while pilocarpin alone had hardly any effect in a number of cases.

Zurnedden of Düsseldorf, in his treatment of infection or of hemorrhage into the corpus vitreum by means of suction, has opened a new era in the therapy of these severe conditions. His favorable results were corroborated by the experiences of numerous other surgeons. Dr. Barraquer of Spain demonstrated his method for extracting the cataracts, which means a remarkable improvement over the routine operation. He employs an electric suction pump to remove the diseased lens. The postoperative treatment is thus materially simplified. An interesting discussion followed this paper. Drs. Gilbert of Munich and Hertel of Leipzig discussed the methods of removing iron particles from within the bulbus by introducing a strong magnet into the eye itself, thus obtaining good results, whenever the giant magnets were of no use in external application. Much interest was aroused by Dr. Larsen of Copenhagen, who is the first man to give histologic findings of the color-blind eye. He proved that the color-blind retina does not lack rods, as hitherto supposed.

Still more interest centered around a communication that was delivered by Schanz of Dresden on a new theory of vision. He was interested in the process of fluorescence of the lens and could prove that, like all other kinds of protein, also the lens is influenced by the light. The peculiar rôle of the sensitizers (chlorophyll) in the biology of light is explained by the new theory, so far as they emit electrons charged negatively whenever they absorb light. These electrons are absorbed by the proteins and produce in them definite changes. The act of vision is simply a function of such electrons. The rods in the retina cannot absorb the visible rays of light; only the pigment epithelium is able to do so. This emits under such conditions negative electrons which irritate the rods. This irritation is then transmitted to the central nervous organ. Cosmetic operations on the eye were discussed by Drs. Axenfeldt of Freiburg and Sattler of Königsberg. The first named pointed out that the colored tattooing of the transparent cornea is at times most useful, and very easy if instead of a needle a fine knife is used for that purpose; the latter has implanted fat tissue after removing the eyeball, in order to give the artificial (glass) eye a solid base and keep it at the normal level.

Syphilis of the rabbit's eye was studied by Igersheimer, who found that the spirochete is mostly located in the posterior layers of the cornea and the deposits at the back of it. Therefore he injected a new arsphenamin preparation into the anterior chamber with excellent results. He also read a paper on atrophy of the optic nerve in paresis. He could not find the spirochete in the substance of the nerve, a statement which was corroborated by Cords of Cologne, Koppányi of Budapest and Kolmer of Vienna, who have cooperated in transplanting eyes in rats. They report that their experiments were successful in obtaining good function of the transplanted eye. The paper aroused much interest and the results were much doubted, but the method will be put to an extensive test. It is expected that it will be soon settled whether the operation can be performed with as good results as the originators state. Roentgen-ray treatment of acromegaly and papillitis caused by tumors of the hypophysis or of the chiasm was strongly recommended by Müller and Czepa instead of operative interference. They have obtained disappearance of the headache after the first dose, and the

symptoms soon disappeared also. Seven cases have been treated by them in that way. Combination with iodine was advised by Szilyi, while Schüller would not dispense with operation in all cases in which vision is severely affected. Other interesting papers were read by Gopin of Lausanne, Hagen of Norway, Maggiore of Rome and Marquez of Spain, partly topics of general interest, partly special subjects. The after-care of the war blind and their reeducation was dealt with in a number of papers. It was pointed out that the mentality of many of these unhappy victims seems to have suffered both from the shock of the injury and the psychic effects of blindness. Cooperation of the state and scientific circles is necessary to alleviate the situation of these numerous patients and to regain them for useful work in human society. The members of the congress were, of course, the objects of numerous attentions and honors. Apart from social entertainments by the municipality and the state, many corporations and health resorts in the vicinity of the capital invited the doctors to visit their institutions. Thus an excursion to the Semmering and to Baden was arranged, where the hydrotherapy and the sulphur springs were much admired by the visitors. In the toasts and speeches, representatives of the foreign learned societies laid stress on the fact that the interrupted international scientific relations must be restored to their former strength as soon as possible for the mutual benefit of all concerned.

Retirement of Professor Chvostek

To the great surprise of the medical circles, Professor Chvostek, the neurologist and professor of medical pathology, has announced his intention to retire from clinical life, and his clinic is not to have any successor. The reasons for this decision remain a mystery. The government seems to have wronged the scientist in some way and seizes the opportunity to reduce expenses by closing the clinic and thus reducing the number of internal clinics to two (Ortner's and Wenckebach's clinics). Attempts are being made to dissuade him, and the government is being urged to use its influence in the same direction. Chvostek is an excellent teacher, much beloved by students and patients, and his retirement would mean a real loss to the university, especially as he is still a vigorous man with a speculative turn of mind, walking untrodden paths which still hold out a promise for unexpected discoveries in medicine.

Marriages

RICHARD OWEN O'DELL, South Charleston, W. Va., to Miss Edna M. Spath of York, Pa., at Wheeling, W. Va., September 1.

GEORGE ARMADALE TOWNSEND, Chico, Mont., to Miss Huldah Nordstrom of Sacred Heart, Minn., September 24.

REUBEN J. ERICKSON, Cincinnati, to Miss Dorothy Dohme of Baltimore, at Blue Hill, Maine, September 17.

MANLEY BRONSON ROOT, Utica, N. Y., to Miss Dorothy Grace Hammond of Elmira, N. Y., September 23.

FRANCIS CARILLO TYNG, Capt., M. C., U. S. Army, to Lillian, Baroness of Rohden, at Luxembourg, August 27.

HARRY A. JOHNSON, Las Vegas, Nev., to Miss Maude L. Morrissey of Alta, Iowa, September 17.

A. GRAHAM BIDDLE, New York, to Miss Charlotte A. Meier of Philadelphia, September 19.

ELWOOD BEST LYNCH to Miss Lurah M. Wynkoop, both of Leadville, Colo., August 31.

DAVID KAPLAN, Chicago, to Miss Fara F. Seewald of Terre Haute, Ind., September 21.

JOSEPH M. KNOCH, Lincoln, Ill., to Miss Loretta Springer of Chicago, in September.

EDWARD KUCK, Cincinnati, to Miss Marghareta Wuenker in Cincinnati, September 14.

Deaths

Pierre Isadore Leonard ♂ St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1884; Bellevue Hospital Medical College, New York, 1885; postgraduate course, University of Vienna, 1890; Capt., M. C., U. S. Army, during the World War, discharged, November 30, 1918; for twenty years professor of ophthalmology, otology and pathology, Ensworth Medical College; editor of the Ensworth Medical Herald; served as councilman for St. Joseph, 1906-1908; former president of the Buchanan County Medical Society; died, September 12, following a long illness, aged 59.

Walter Douglas Hoskins, Indianapolis; Medical College of Indiana, Indianapolis, 1894; member of the Indiana State Medical Association; member of the Central States Pediatric Society; lecturer on diseases of children at his alma mater; associate in pediatrics, Indiana University School of Medicine, Indianapolis; died recently at the Methodist Hospital, Indianapolis, aged 50.

John C. Kendall, Norfolk, Conn.; College of Physicians and Surgeons (Columbia University), New York, 1875; member of the Connecticut State Medical Society; also a dentist; formerly on the staff of the Bellevue Hospital, New York; died, September 17, at the Litchfield County Hospital, Winsted, Conn., following a short illness, aged 74.

Pierre A. Hilbert ♂ Melrose, Minn.; University of Minnesota, Minneapolis, 1893; member of the State Board of Control; member of the state legislature, 1914; former member of the state board of medical examiners; head of the Melrose Hospital; died, September 23, at the Miller Hospital, St. Paul, after a short illness, aged 56.

Henry Herbert Thompson ♂ Noblesville, Ind.; Medical Department of Washington University, St. Louis, 1905; specialized in surgery; former health officer of the city; served as major during the late war, and in France as sanitary inspector; died, September 21, from pleuropneumonia, aged 43.

Flavius J. Groner, Grand Rapids, Mich.; University of Michigan, Ann Arbor, 1880; for ten years surgeon at the former Mercy Hospital, Big Rapids; consulting surgeon at St. Mary's Hospital, Grand Rapids; member of the Grand Rapids Academy of Medicine; died, September 13, aged 72.

Vivian Russell Pennock ♂ Longmont, Colo.; University of Colorado, Denver, 1894; vice president of the Longmont Hospital; at one time member of the state board of health; served, M. C., U. S. Army, during the World War; died, August 19, from carcinoma of the stomach, aged 51.

William James Conklin ♂ Fishkill, N. Y.; Medical Department of the City of New York, 1870; formerly consulting physician to the Highland Hospital, Matteawan; head of the Public Service Corporation of Beacon, N. Y.; died, September 27, from heart disease, aged 75.

Benjamin F. Milington, South Londonderry, Vt.; University of Vermont, College of Medicine, Burlington, 1886; died suddenly, September 21, following an operation for the relief of intestinal obstruction, at the Memorial Hospital, Brattleboro, Vt., aged 61.

Silas Dinsmoor, Pittsburgh, Pa.; Kentucky University, Medical Department, Louisville, 1906; for ten years member of the faculty of the University of Missouri, Columbia; died, September 18, in a local sanatorium, from injuries received in a fall, aged 69.

William George Carleton, Dadeville, Ala.; Vanderbilt University, Nashville, Tenn., 1882; member of the Medical Association of the state of Alabama; probate judge of Tallapoosa County; died, September 18, following a long illness, aged 63.

William H. Axline, Fairfield, Iowa; College of Physicians and Surgeons, Keokuk, 1869; practitioner for over half a century; veteran of the Civil War; died suddenly, September 12, at Attica, Iowa, from cerebral hemorrhage, aged 75.

Waldo B. Merriman, Centerburg, Ohio; Long Island College Hospital, Brooklyn, 1878; professor of physiology, Ohio State University, Columbus, September 14, at the Grant Hospital, Columbus, following an operation, aged 65.

Joseph August O'Leary ♂ Wakefield, Mass.; Boston University, School of Medicine, 1887; postgraduate course at Harvard University, Boston; member of the board of health, 1889-1895; died, September 21, aged 60.

♂ Indicates "Fellow" of the American Medical Association.

John Augustus Sanders, Herndon, W. Va.; Medical College of Virginia, Richmond, 1917; was instantly killed, when the automobile in which he was riding skidded down an embankment at Huntington, aged 32.

Charles Babson Hopkins, Kansas City, Mo.; Rush Medical College, Chicago, 1900; Captain, M. C., U. S. Army, during the World War, discharged, April, 1919; died, September 13, at Monrovia, Calif., aged 45.

Robert Ewing McKenzie ♂ Gilman, Ill.; Washington University Medical College, St. Louis, 1899; died, September 15, at the Brokaw Hospital, Bloomington, Ill., from chronic nephritis, aged 44.

Edward Leander Hills, Center, N. D.; Rush Medical College, Chicago, 1879; died, September 19, from chronic nephritis, at the Mandan Deaconess Hospital, Mandan, N. D., aged 67.

George Wallace Bell, Chico, Calif.; American Medical College, St. Louis, 1892; formerly a physician of Okmulgee, Okla.; died, September 16, at the Enloe Hospital, Chico, aged 62.

George W. Kirkpatrick, Lafayette, Ind. (licensed, Indiana, 1897); served as surgeon in the Civil War; practitioner for over half a century; died, September 22, from heart disease, aged 86.

Alfred J. Dake, Viola, Wis.; Hahnemann Medical College and Hospital of Chicago, 1894; village president, and for nine years member of the school board; died, September 16, aged 52.

William Wycoff Stevenson, Trenton, N. J.; University of Pennsylvania, Philadelphia, 1912; formerly on the staff of the New Jersey State Hospital, Trenton; died, July 18, aged 31.

Lester Cross Pratt ♂ Bellefontaine, Ohio; Jefferson Medical College, Philadelphia, 1883; died, September 19, in a local hospital, from obstruction of the gallbladder, aged 61.

H. G. Monk, Trenton, N. C.; Medical College of Virginia, Richmond, 1896; member of the Medical Society of the State of North Carolina; died in July, from mitral disease, aged 50.

Ivan J. Siekmann ♂ New Orleans; Tulane University of Louisiana, School of Medicine, New Orleans, 1892; also a druggist; died, September 10, from heart disease, aged 59.

James P. Hayes, Baker, Ore.; University of Louisiana, New Orleans, 1878; died in the Sacred Heart Hospital, Medford, Ore., September 11, from spinal thrombosis, aged 71.

Willard G. Piersol, Lee, Ill.; University of Wooster, Medical Department, Cleveland, 1877; died, September 16, at the home of his sister, from cerebral hemorrhage, aged 72.

Thomas Chalmers Johnson, Florence, S. C.; Medical College of the State of South Carolina, Charleston, 1904; died, September 18, from heart disease, aged 42.

Charles A. Casgrain, Fall River, Mass.; Laval University, Faculty of Medicine, Quebec, 1874; practitioner for nearly fifty years; died, September 12, aged 72.

John Milton Gambill ♂ Centralia, Ill.; University of Michigan, Ann Arbor, 1912; specialized in pediatrics; died, September 13, from arteriosclerosis, aged 46.

William James Crosland ♂ Bennetsville, S. C.; Medical College of the State of South Carolina, 1898; died in September, from lymphosarcoma, aged 48.

Burton Hodges, Detroit; Michigan College of Medicine and Surgery, Detroit, 1894; member of the Michigan State Medical Society; died, September 2.

August V. de Bacher, St. Mary's, Kan.; John A. Creighton Medical College, Omaha, 1896; died, July 22, from cerebral hemorrhage, aged 60.

Wilfred Bernard Cunningham ♂ Mamaroneck, N. Y.; Medical School of Harvard University, Boston, 1903; died, September 12, aged 42.

Aaron Tilzer ♂ Portland, Ore.; University of Oregon, Portland, 1897; specialized in dermatology; died in September, aged 56.

William L. Fitts ♂ Carrollton, Ga.; Atlanta Medical College, 1883; died, September 8, at an Atlanta sanatorium, aged 58.

Sarah H. Perry ♂ Rochester, N. Y.; University of Buffalo, 1882; died, September 9, following a lingering illness, aged 74.

Willis Lee Herrod, Cabot, Ark.; University of Arkansas, Little Rock, 1891; died, August 28, aged 58.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

TOXICIDE

Report of the Council on Pharmacy and Chemistry

The Council has authorized the publication of the following report.
W. A. PUCKNER, Secretary.

Toxicide (Toxicide Laboratories, Chicago) is alleged to be a remedy which "increases systemic resistance," is "used for immunizing against septic infections" and "is indicated in any case of septic infection, capable of inducing inflammation and pus formation, regardless of location or kind of tissue involved." The following statements bearing on the composition of the preparation are furnished by the manufacturers:

"Toxicide contains Lachesis 12X, Tarantula 6X, Psorinum (special) 15X, Silicia 6X and Excipient q. s. (the excipient is sweet milk).

"These remedies are combined in the sweet milk and put through a process of development, which produces the curative agent which we call 'Toxicide' . . .

"Put up in tablet form, sugar coated and colored red."

**If You Are Sick
and Discouraged**

*and have about given up all hope of ever being well again,
come and tell me about it.*

30 Years of Careful Practical Experience

I have taught me how to treat you and if you follow my advice you will not be disappointed in any promise I make you. No matter what your complaint may be, come and tell me about it confidentially and your confidence will be respected. If I cannot help you I will not take your money.

Office Hours: 9 to 12 a. m., 1:30 to 5 and 7 to 8:30 p. m. Sunday by appointment.

J. F. RUCKEL, M. D.
Tel. Normal 4901 6306 Halsted Street

Photographic reproduction (reduced) of an advertisement of the "originator" of Toxicide; it ran for many months in the program of a burlesque theater located in Ruckel's neighborhood.

No information is given as to the proportions, either relative or actual, of the ingredients. Neither is any information given regarding the "process of development" to which the mixture is subjected, nor the amount of the finished mixture which is contained in Toxicide tablets.

The Toxicide Laboratories present the following "theory":

"In combining these remedies and processing with milk, we develop a latent immunizing active principle, which usually controls the most virulently, active, septic infections promptly."

There is no evidence, however, that any effort has been made to demonstrate the presence of a "latent immunizing active principle" by scientific methods of modern immunology. The following claims for the use of Toxicide appear on the label:

"Acne, boils, carbuncles, furuncles and abscesses of the most virulent types usually begin to show improvement within 4 to 12 hours after beginning administration.

"In badly infected wounds, Toxicide will check the further destruction of live tissue and should always be given for a few days before and after operations on pus cases.

"For gunshot wounds and other conditions difficult to sterilize or drain, Toxicide is the ideal remedy.

"For abscesses existing or threatened in any obscure location, the middle ear, the mastoid, the frontal or any accessory sinuses, Toxicide is of inestimable value.

"If administered early, in fractures, compound or simple, or for laceration and other injuries, inflammation, swelling, soreness and destruction of tissue will be greatly mitigated."

In support of these claims there are offered letters from physicians who have used Toxicide with good results. None of these testimonials present evidence that the reported effects were due to Toxicide. The asserted—and highly improbable—action of Toxicide could be determined only by an extensive series of carefully controlled clinical trials—and such

evidence is entirely lacking. In fact, the claims appear to have no better basis than the coincidence which is stated to have led to the discovery of the "remedy"; namely, that a boil on the neck disappeared shortly after the administration of Toxicide!

The Council finds Toxicide inadmissible to New and Non-official Remedies because (1) the identity and amount of the potent constituent or constituents have not been furnished; (2) the preparation is advertised indirectly to the public; (3) the name "Toxicide" is therapeutically suggestive, and (4) the therapeutic claims, being unsubstantiated by evidence, are unwarranted.

[EDITORIAL COMMENT.—It seems rather preposterous that a scientific body, such as the Council on Pharmacy and Chemistry, should have to waste its time in investigating and reporting on such an obviously unscientific product as "Toxicide." So long, however, as there are physicians who will take preparations of this sort seriously, the Council feels that it is its duty to report on such products. The problem, in

TOXICIDE

The Remedy that saves Life and Limb

The principal action of Toxicide is to immunize man or beast against the toxic and irritant properties of decomposing organic matter, which it seems to do almost perfectly, even though sepsis has become well established. It also prevents inflammation, tenderness and death of bruised and lacerated tissues, whether infected or not.

If administered early in case of fractures, compound or simple, including severe bruises, lacerations or other injuries, but little inflammation, pain or swelling will develop and no infection will take place.

In case of badly infected wounds with or without sloughing, it will stop the further destruction of live tissue so quickly that you cannot believe without a demonstration. All dead matter will slough away or be absorbed but no more will die.

Many injured arms and legs that are now being sacrificed could easily be saved if Toxicide were administered, as it precludes all danger from infection and prevents breaking down of the bruised and lacerated tissues.

Toxicide should always be given for a few days before and after operating on pus cases. It also does much toward preventing shock and sepsis in major operations. You need not be so particular about drainage if Toxicide is used for the reason that the discharge will promptly lose its virulent nature besides all the live tissue will be practically immune to infection.

Toxicide has no action on the gonococci but is helpful in mixed infection where there is much pain and swelling. Has not been used for cancer but probably will be useful. Would suggest a trial.

Gunshot wounds and other conditions difficult to sterilize or drain, offer a field of great importance.

For an abscess existing or threatened in the frontal sinuses or in the ear or any other obscure or dangerous location it is of inestimable value. If Toxicide is administered within a reasonable time there will be no need for a mastoid operation, but if late after an operation has become necessary the opening need not be extensive for the discharge will cease very soon.

Toxicide has been used with remarkable results in hip joint disease and in tubercular conditions of the bones. In fact it is useful wherever there is a tendency to pus formation regardless of the kind of tissue involved.

If possible administer early in appendicitis, it will often prevent the necessity for an operation. In case the operation becomes necessary Toxicide lessens the tendency to shock and peritonitis.

Boils, pimples, carbuncles, and abscesses are controlled so promptly and positively that neither you or I would believe without seeing.

Toxicide has produced wonderfully beneficial results in purpural peritonitis, also in peritonitis from appendicitis or following abdominal operations; it also does much to prevent shock following major operations.

DOSE

One tablet every hour until improvement sets in, then gradually reduce the frequency of the dose.

CAUTION: When Toxicide has accomplished its work, discontinue, otherwise it will so thoroughly destroy all irritants that granulating and healing of the wound will be retarded. (Do not use in Syphilitic Bubo before opening for it has no action on Syphilis but will retard suppuration.)

For further particulars, address

DR. J. F. RUCKEL

Phone Normal 4901 6306 South Halsted Street, Chicago, Ill.

Who originated the remedy sixteen years ago and has since used it in more than 1,000 cases with marvelous results.

Photographic reproduction (greatly reduced) of an advertising circular used some time ago describing the marvels (alleged) of Toxicide.

fact, was well stated in a letter addressed to the editor some months ago by the secretary of a county medical society who had just received a visit from a representative of the Toxicide Laboratories and who sent to THE JOURNAL some of the advertising matter that he had received from the same source. This physician wrote:

"I do not wish to trouble you with this kind of material, usually deposited safely in my waste paper basket, but the enclosed was handed to me today by a 'bird' who is calling on all the doctors and making strong statements. When he claimed that 'Toxicide' is being used in the Presbyterian Hospital, Chicago, and that the Council on Pharmacy is considering it seriously, etc., etc., I wish to know whether I am missing any real good thing. If it has any real virtue, I would like to know about it, but if it has not, it seems to me that something ought to be done to head him off as some doctors are sure to fall for some of it."

The Toxicide Laboratories is, apparently, merely a trade name used by the alleged originator of "Toxicide," J. F. Ruckel, M.D. According to our records, Ruckel was born in 1860 and was graduated by the Chicago Homeopathic

Medical College in 1886. He claims to have originated Toxicide about twenty years ago and to have prescribed it "in over 3,000 cases." In addition to Toxicide, the Toxicide Laboratories also put out "Dianasiac for Nymphomania and Satyriasis" and "Somnosine for Insomnia."]

Correspondence

THE GENERAL HOSPITAL AND ITS NECROPSY PERCENTAGE

To the Editor:—It is interesting as well as encouraging to note that, included in the standards promulgated by the American College of Surgeons and the American Hospital Association, there is a requirement that hospitals, to receive a creditable grade, must show that the resident staff has opportunity to follow to the postmortem room a fair percentage of the patients dying in their wards.

A study of the postmortem percentage from many of the large public or semipublic hospitals reveals many pitifully low averages. To me there appears but little excuse for such a condition, which, when present, usually signifies that either the medical administrator does not deem the question of attempting to make clinical studies more nearly conform with postmortem findings one of importance, or that he is not using the proper methods in obtaining postmortem examinations.

There is no type of hospital in which it is more difficult to secure a large postmortem percentage than in a municipal institution. Nor is it fair to compare the percentage of a private or semiprivate hospital, which can require a signed postmortem permission before admitting its patients, with that of a large municipal institution, where admissions cannot, or should not, be refused.

The association of undertakers, in almost every community, is the chief stumbling block in the path of the routine procuring of permissions for necropsies. I was recently requested to address such an association, and found the members surprisingly reasonable and willing to cooperate. At this meeting it was requested that:

1. The pathologist should leave the vessels, which are usually used by the embalmer, long, wherever possible, especially the vessels of the neck and the upper extremities, and, if possible, should not sever them completely from a portion of the arch of the aorta, to prevent retraction. The iliac vessels should preferably be left long, but, if this is not possible a long ligature should be attached, so that these vessels could be easily located.

2. At death the nurse should be instructed to lift the head, so that proper drainage can be secured.

3. Reasonable care should be taken to prevent leakage, when an examination of the brain and cord is included in the postmortem permission.

It would seem desirable that a conference between physicians of the hospital, interested in securing postmortems, and the undertakers' association, be arranged in every community. A spirit of cooperation with the undertakers, on the part of the hospital, will go far toward lessening the antagonism which exists everywhere. The hospital is frequently to blame for much of this feeling, because of the careless and inefficient way in which bodies are prepared for delivery to the undertaker. It seems that every hospital should show the same attention to detail in the care of the deceased as they showed to the patient prior to death.

There are many other means which the hospital administrator may adopt in procuring postmortem permissions. In the laboratories of the Philadelphia General Hospital a room has been set aside, which may be used by the undertaker in embalming a body which is to be shipped some distance, or

any other special case where the time of the undertaker can be saved by preparing the body at the hospital. There is also a room which can be used for funeral services, provided the family or the undertaker so request. Each incoming intern at the Philadelphia General Hospital is carefully told of the various arguments to be used in procuring necropsies. Not only are these arguments mentioned, but the specific cases in which each individual argument is indicated are set forth. A competitive necropsy percentage list not only of interns, but also of departments and visiting chiefs, is published each month.

Below is given a monthly statement of the postmortem percentages from July, 1920, to July, 1921, inclusive, showing what can be done in securing postmortem permissions in a hospital of 2,000 beds, if time and energy are given to it:

	Necropsies	Percentage
July, 1920	40	32.26
August, 1920	46	32.62
September, 1920	36	31.30
October, 1920	40	33.90
November, 1920	41	30.36
December, 1920	41	26.97
January, 1921	66	38.15
February, 1921	62	41.89
March, 1921	55	31.97
April, 1921	61	42.07
May, 1921	54	36.73
June, 1921	59	40.97
July, 1921	52	42.62
General average for the thirteen months,		35.47 per cent.

It does not appear that a hospital has any right to receive interns for training unless there are adequate opportunities for these physicians to make clinical-pathologic studies on at least 25 per cent. of the patients dying in their wards.

J. C. DOANE, M.D., Philadelphia.
Medical Director, Philadelphia
General Hospital

“PROBLEM OF THE NARCOTIC ADDICT”

To the Editor:—In THE JOURNAL, June 4, 1921, p. 1551, there is an article entitled “The Problem of the Narcotic Drug Addict,” by Alfred C. Prentice, A.M., M.D.

On page 1553 the author goes out of his way to attack a certain number of journals, among which is the *American Journal of Public Health*, charging them with publishing significant articles of a sensational character . . . etc.

I have delayed calling your attention to this article until I could correspond with Dr. Prentice and obtain from him, as far as the *American Journal of Public Health* is concerned, references to the articles which he so characterized.

I have carefully read all the articles in the *American Journal of Public Health* referred to, and for it alone I am speaking. I wish emphatically to deny the truth of Dr. Prentice’s statements as far as this journal is concerned. It is perfectly true that the committee reports on this question, as well as articles which have been published, have taken a different point of view from that held by Dr. Prentice.

In broadness of view, in consideration of the opinions of others, and in fair mindedness they present a contrast to the article of Dr. Prentice, which is as marked as it is pleasing. There is no trace of sensationalism in any article published in the *American Journal of Public Health*.

MAZYCK P. RAVENEL, M.D., Columbia, Mo.
[President, American Public Health Association.]

Typhoid Is Disappearing.—No human disease offers greater promise of eventual complete disappearance than does typhoid fever, and this disappearance is taking place through the application of the knowledge which we are so rapidly gaining as to the mechanism of this disease, or, more important, as to the life cycle of its parasitic agent within and without the body.—*Bull. Mass. Dept. Ment. Dis.* 4:7 (Oct.) 1920.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer’s name and address, but these will be omitted, on request.

DETECTION OF METHYL ALCOHOL

To the Editor:—Kindly publish methods to detect methyl alcohol in any mixture for drinking purpose. Also best references on that subject. Please do not publish my name.

P. S., Dixmont, Pa.

ANSWER.—There are a number of tests for methyl alcohol (“methanol”). Many are not reliable for relatively small amounts of the substance. A qualitative test which can be applied quickly is that of Mullikin and Scudder, slightly modified, which, however, is accurate only for liquids containing 10 per cent. or more of methyl alcohol:

Oxidize 10 c.c. of the liquid (diluted to contain not over 12 per cent. alcohol) in a test tube as follows: Wind copper wire 1 mm. thick upon a rod or pencil to form a closed coil 3.5 cm. long, with a stem about 20 cm. long. Heat the coil in the upper or oxidizing flame of a Bunsen burner. Plunge the hot coil to the bottom of the test tube containing the alcohol in order to oxidize any methyl alcohol to formaldehyd. Repeat the operation from three to five times (at this point formaldehyd may be detected by the odor if in sufficient quantity). Cool the test tube and test contents for formaldehyd as follows:

Pour the colorless filtrate into a porcelain casserole, and add 10 c.c. each of water, fresh milk and commercial hydrochloric acid solution (so-called “muriatic acid,” which contains ferric chlorid as an impurity). Heat the mixture to boiling, with constant agitation. A bright permanent pink color will occur if formaldehyd is present, indicating the presence of methyl alcohol in the original solution.

For accurate determinations, it is necessary to purify the liquid first in order to remove substances which might interfere. The usual procedure is to add solid sodium carbonate or sodium hydroxid until distinctly alkaline, then distil over about one half or three fourths of the original volume of the liquid. The distillate can then be used for testing, though it is better for delicate work to redistil without addition of alkali, employing the second distillate. Then the Denigé test, as improved by Elvove, and by Chapin (*J. Indust. & Engin. Chem.* 13:543 [June] 1921) may be applied as follows:

Dilute the liquid so that it will not contain more than 5 per cent. of alcohol (ethyl and methyl). Transfer 5 c.c. of the purified liquid to a test tube; add 0.3 c.c. of phosphoric acid U. S. P.; mix; add 2 c.c. of potassium permanganate solution, 3 per cent., mix and allow to stand for about ten minutes. Then add 1 c.c. of oxalic acid solution, 10 per cent., and allow the mixture to stand until it assumes a clear brown coloration (about two minutes). Add 1 c.c. of sulphuric acid U. S. P., agitate, then pour in the tube 5 c.c. of the fuchsin-sulphurous acid test solution or, better, the Schiff-Elvove reagent (described by Elvove, Elias: *Detection and Estimation of Small Amounts of Methyl Alcohol, J. Indust. & Engin. Chem.* 9:295 [March] 1917) and immediately mix well. After standing ten minutes, the solution should show no distinct blue or violet coloration, but should be colorless or a pale greenish tint; this shows the absence of more than 0.2 per cent. methyl alcohol.

Other tests of a satisfactory nature appear in the article by Ziegler in this issue of THE JOURNAL, p. 1160. A comprehensive review of tests for methyl alcohol was published by A. O. Gettler in the *Journal of Biological Chemistry* 42: 311 [June] 1920.

CHOCOLATE DIPPERS’ DERMATITIS

To the Editor:—Please inform me of the proper treatment for the dermatitis developing on the fingers of persons employed as chocolate dippers in a candy factory. It is a papulovincular rash limited to the exposed parts, and appears in practically all of those thus employed. Please omit my name.

J. S.

ANSWER.—Chocolate dippers’ dermatitis is referred to by many writers on industrial dermatoses. Sometimes it is merely a sugar dermatitis, and at other times it is apparently due to a susceptibility to chocolate itself so that there is a specific irritation. The only successful way of getting rid of it is to avoid the irritant.

PREVENTIVE OF COLD FINGERS IN DRIVING

To the Editor:—The suggestion of Dr. Harry W. Davis, Plains, Kansas, in THE JOURNAL last week for preventing cold fingers in driving by placing fur on the steering wheel is an excellent one. I have used a three-inch strip of sheepskin with the wool out wrapped around the wheel for the past ten years. May I also suggest that a sheep pelt on the seat with the wool up will be appreciated during cold weather.

W. C. HANSON, M.D., Racine, Wis.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

FLORIDA: Tallahassee, Oct. 11. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 11. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.

ILLINOIS: Chicago, Oct. 19-22. Director, Mr. W. H. H. Miller, Springfield.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

MISSOURI: Kansas City, Oct. 10-12. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

NEBRASKA: Lincoln, Nov. 9. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lec, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.

PHILIPPINE ISLANDS: Manila, Oct. 11. Sec., Dr. Fortunato Pineda, 612 Rizal Ave., Manila.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

WEST VIRGINIA: Clarksburg, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.

New York January Examination

Mr. Herbert J. Hamilton, assistant, professional examinations, New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, Jan. 24-27, 1921. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 155 candidates examined, 113 passed and 42 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
University of Colorado.....	(1919)		1
Yale University	(1919), (1920)		2
Georgetown University	(1920)		1
Howard University	(1920)		1
Rush Medical College	(1917)		1
University of Illinois.....	(1920)		1
Tulane University	(1916)		1
Johns Hopkins University.....	(1918)		1
University of Maryland.....	(1915), (1920, 2)		3
Boston University	(1920)		1
Harvard University	(1914), (1916), (1917), (1919, 2)		5
Tufts College Medical School.....	(1913), (1917)		2
Albany Medical College.....	(1914), (1918)		2
Columbia University (1915), (1917), (1918), (1919, 2) (1920, 14)			19
Cornell University	(1920)		2
Fordham University	(1918), (1920, 7)		8
Long Island College Hospital.....	(1919, 2) (1920, 7)		9
New York Homoeopathic Medical College and Flower Hospital	(1915), (1916), (1918, 3) (1919), (1920, 6)		12
Syracuse University	(1920)		2
Univ. and Bellevue Hospital Med. College.....	(1920)		7
University of Buffalo	(1920)		3
Eclectic Medical College, Cincinnati.....	(1920)		2
Hahnemann Med. Coll. and Hospital of Philadelphia.....	(1920)		2
Jefferson Medical College.....	(1915), (1919, 2), (1920, 2)		5
University of Pittsburgh.....	(1916), (1919)		2
Woman's Medical College of Pennsylvania.....	(1917), (1918)		2
University of Vermont.....	(1911), (1916), (1918), (1919)		4
McGill University	(1915), (1917), (1918)		3
Queens University	(1913)		1
University of Toronto.....	(1910), (1917)		2
Royal College of Surgeons, England.....	(1918)		1
University of Budapest.....	(1911),* (1913)*		2
Medical School of American University of Beirut	(1907),* (1912)*		2
University of Vienna.....	(1907)*		1

FAILED

University of Alabama.....	(1911)	1
College of Physicians and Surgeons, Chicago.....	(1902)	1
University of Louisville.....	(1914)	1
Boston University	(1906)	1
Tufts College Medical School.....	(1914), (1916), (1919)	3
Detroit College of Medicine and Surgery.....	(1919)	1
University of Michigan Medical School.....	(1918)	2
John A. Creighton Medical College.....	(1916)	1
University of Nebraska.....	(1918)	1
Albany Medical College.....	(1916)	1
Columbia University.....	(1919), (1920)	2
Fordham University	(1920)	1
New York Homeopathic Medical College and Flower Hospital	(1916, 2), (1918, 2)	4
University and Bellevue Hosp. Med. College.....	(1908), (1920, 2)	3
University of Buffalo.....	(1920)	2
Hahnemann Medical Coll. and Hosp. of Philadelphia.....	(1920)	1
Jefferson Medical College.....	(1913)	1
Medico-Chirurgical College of Philadelphia.....	(1916)	1
University of Pennsylvania.....	(1919), (1920)	2
Vanderbilt University	(1913)	1
Baylor University	(1920)	1
University of Vermont.....	(1916)	1
Queens University	(1920)	1
University of Toronto.....	(1919)	1
Bohemian University of Prague.....	(1898)*	1
University of Munich.....	(1911)*	1
University of Budapest.....	(1909),* (1915)*	2
University of Naples.....	(1906)*	1
University of Bogota.....	(1909)*	1
Osteopath		1

Mr. Herbert J. Hamilton also reports that from March 16, 1921, to July 20, 1921, 18 candidates were licensed by endorsement of credentials, and 15 candidates' licenses were endorsed on account of eminence and authority in the profession. The following colleges were represented:

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Chicago College of Medicine and Surgery.....	(1911)		Illinois
Bennett Medical College.....	(1913)		Illinois
Northwestern University	(1920)		Illinois
Rush Medical College.....	(1910)		Illinois
University of Illinois.....	(1915)		Illinois
Indiana University School of Medicine.....	(1918)		Indiana
Harvard University	(1894)		California
University of Michigan Medical School.....	(1915)		Indiana
St. Louis University School of Medicine.....	(1908)		Illinois
Ohio State University College of Medicine	(1918, 2)		Ohio
Jefferson Medical College.....	(1914) California; (1918)		New Jersey
Medico-Chirurgical College of Philadelphia.....	(1916)		New Jersey
University of Virginia.....	(1919)		Virginia
University College of Medicine.....	(1903)		Virginia
Medical College of Virginia.....	(1918)		Virginia
University of Toronto.....	(1911)		Indiana

ENDORSEMENT OF LICENSES

University of Alabama.....	(1914)	Georgia
George Washington University.....	(1906)	N. Carolina
State University of Iowa College of Medicine.....	(1915)	Iowa
Johns Hopkins University.....	(1904)	Maryland
(1912) Maryland, Massachusetts		
University of Maryland.....	(1903)	Montana
Boston University	(1906)	Mass.
University of Michigan Medical School.....	(1904), (1906), (1908), (1915)	Michigan
Hahnemann Med. College and Hosp. of Philadelphia.....	(1901)	Penna.
McGill University	(1895)	Canada
School of Medicine of Caracas.....	(1895)*	Porto Rico

* Graduation not verified.

New Mexico July Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 7 candidates were licensed by reciprocity at the meeting held at Santa Fe, July 11-12, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital of Chicago.....	(1914)		Iowa
Indiana University School of Medicine.....	(1920)		Indiana
Kansas Medical College, Topeka.....	(1904)		Kansas
Kansas City Medical College.....	(1902)		Kansas
Western Reserve University.....	(1888)		Ohio
Jefferson Medical College.....	(1896)		Iowa
University of Tennessee.....	(1905)		Kentucky

Hawaii July Examination

Dr. Guy C. Milnor, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, July 11-14, 1921. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists.....	(1916)		76, 79
St. Louis University School of Medicine.....	(1920)		76
Medical College of the State of South Carolina.....	(1916)		85
FAILED			
Jefferson Medical College.....	(1893)		47

Book Notices

CLINICAL METHODS. A Guide to the Practical Study of Medicine. By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital, and Harry Rainy, M.D., F.R.C.P., F.R.S.E., Physician to the Royal Infirmary, Edinburgh. Seventh edition. Cloth. Price, \$4.50. Pp. 685, with 173 illustrations. New York: Paul B. Hoeber, 1921.

That there is need of such a book is shown by the fact that the book has gone through several editions. Among the more important additions made in this edition are: the examination of the heart, especially by the electrocardiograph; examination of the urine in kidney functional tests, and plates showing changes in the fundus of the eye and changes in the tympanic membrane of the ear. The purpose of the book as given by the authors is to provide the answer to the question: How shall I investigate this case? The first chapter deals with case taking, and includes a general scheme for the investigation of any case. This seems especially adapted to the beginner by giving a concise and logical procedure which insures that no points of importance in the case are overlooked. The remainder of the book applies this method to the various systems of the body. The chapter on the clinical examination of children contains some valuable suggestions on methods of procedure. The method of estimating and calculating the number of cells in the blood is not given in the simplest manner. Such types of streptococci as *Streptococcus erysipelatosus* and *Streptococcus rheumaticus* are described, while it is suggested that there may be types of pneumococci. The style is clear and concise, and the various tests are generally accepted ones. The book seems especially adapted for those who have no system of examination and those who wish to make use of the more recent laboratory tests.

HANDBUCH DER SEXUALWISSENSCHAFTEN MIT BESONDERER BERÜCKSICHTIGUNG DER KULTURGESCHICHTLICHEN BEZIEHUNGEN. Unter Mitwirkung von Dr. Med. et Phil. G. Buschan, Havelock Ellis, Professor Dr. Seved Ribbing, Dr. R. Weissenberg, und Professor Dr. K. Zieler. Herausgegeben von Dr. Albert Moll, Geh. Sanitätsrat. Paper. Price, 120 marks. Pp. 1046, with 429 illustrations. Leipzig: F. C. W. Vogel, 1921.

The first edition of this encyclopedia of sexual knowledge was issued in 1911. Dr. Moll indicates in the new edition that it is merely a reprinting of the old one. The conditions during the last few years have not permitted any complete revision, nor has this been necessitated by any change in the point of view concerning any of the problems discussed. There have been added, however, sections relating to statistics regarding the employment of women physicians, police regulations for the control of prostitution, and a discussion of so-called "puberty glands." The original volume includes 1,000 pages covering every aspect of sex, the contributors including, among others, Havelock Ellis, Weissenberg, Buschan, Seved Ribbing and Albert Moll. The illustrations are unusual and profuse, but the paper and typography so poor as to minimize greatly their value.

CANCER AND ITS NON-SURGICAL TREATMENT. By L. Duncan Bulkley, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital. Cloth. Price, \$6. Pp. 457. New York: William Wood and Company, 1921.

This is an unsound and unpropitious book. It claims that cancer is the result of "constitutional factors" and can be influenced favorably by diet. The teachings are against the early and radical surgical treatment of cancer, but not a shred of scientific proof is presented to show that cancer can be cured by diet. It is a pity that such medical heresy should be advanced by a member of the American Association for Cancer Research, especially since it will counteract the splendid work which that association is trying to do; and it is surprising that such a book should be issued under the authority of a well established medical publisher.

THE HORSE-STEALERS, AND OTHER STORIES. By Anton Chekhov. From the Russian by Constance Garnett. Cloth. Price, \$2.25. Pp. 312. New York: Macmillan Company, 1921.

Among the great medical authors of our time, Chekhov is prominent as the greatest of the Russian short story writers. All of his work is marked by the medical point of view and the professional atmosphere. Already ten volumes of his

writings have been translated into English. In the present book there are several stories almost wholly medical in character. Particular interest attaches to "Ward No. 6," a story of the life of a physician who has charge of the hospital in a poor rural district. In Ward No. 6, the psychopathic ward, there are several inmates who have been greatly neglected. Suddenly the physician begins to take an interest in this group. The gradual development of insanity in the physician is carefully traced to the moment when he, too, is confined in Ward No. 6. The story is one which only a physician could have written. It is a psychologic study of depth and power. Many of the twenty-two sketches in this volume are mere pen portraits and anecdotes. Practically all, however, are real and worth while.

A TEXT BOOK OF MATERIA MEDICA, BEING AN ACCOUNT OF THE MORE IMPORTANT CRUDE DRUGS OF VEGETABLE AND ANIMAL ORIGIN, DESIGNED FOR STUDENTS OF PHARMACY AND MEDICINE. By Henry G. Greenish, F.I.C., F.L.S., Professor of Pharmaceutics to the Pharmaceutical Society of Great Britain. Third edition. Cloth. Price, \$7. Pp. 568, with 250 illustrations. London: J. & A. Churchill, 1920.

An advantage which this book has over many of its American competitors is conciseness. Many drugs commonly believed to be worthless or of small value are discussed briefly or are not mentioned. The student is thus saved much time by not being compelled to learn a great mass of useless or unpractical information. In studying each drug, the order followed is, in general: source, habitat, description of drug, microscopic character, identification factors to be noted by the student, constituents, assay method if practicable, description of adulterants likely to be present, and medicinal uses. Doses are not stated. The drugs are studied in sections, such as leaves, flowers, fruits, seeds, herbs and entire plants, wood, barks and subterranean organs. Also sections are devoted to the plant products and educts used in pharmacy, such as starches, dried juices, dried latex, gums, resins, oils, empyreumatic oils and animal extracts. The book will prove useful to medical and pharmaceutical students, teachers of materia medica, and to physicians who wish a brief reference work on materia medica.

Medicolegal

Privilege Not Waived as to Physician as Witness

(*Walmer-Roberts v. Hennessey (Iowa)*, 181 N. W. R. 798)

The Supreme Court of Iowa says that, immediately after the plaintiff in this personal injury case was injured by being struck by the defendant's automobile, the defendant and a traffic officer conducted her to the office of a physician, who made an examination of her. His first was a "surface examination" in the presence of the defendant, the traffic officers, and the physician's office girl. The physician shortly afterward, on the same visit, made a roentgenoscopy of the plaintiff's arm. Questions propounded to the physician in regard to complaints made to him at said time by the plaintiff and as to the result of the examination so made were objected to as being privileged, and the objection was sustained. It was argued that the testimony was not privileged, because what was said and done between the physician and the plaintiff was in the presence of the traffic officer and of the defendant, and because the physician was employed by the defendant, and not by the plaintiff, as also because by offering the testimony of the traffic officer and herself in regard to the fact of going to the physician's office the privilege was waived. But the fact that the physician was one employed by the defendant, and that the plaintiff had not called or employed him as her own physician made no difference so far as the question of privilege was concerned in this case, for it appeared that the physician not only examined the plaintiff in his office, but called on her afterward in her home and advised her as to a course of treatment. Under the Iowa statute the prohibition does not apply to cases in which the party in whose favor it is made waives the rights conferred, and it was contended that the plaintiff did so in this case by offering her own testimony and that of the traffic officer; but neither of them testified regarding

the examination made by the physician, or to any communication, except that the plaintiff said that her ankle hurt. The physician called at her house twice after that, and told her to bathe her arm in hot water. The physician was offered as a witness for the defendant, and was asked to state what he found in connection with the plaintiff's claim as to personal injuries at that time, and whether from the complaint made by the plaintiff at that time and from his examination of her he found any evidence of any injury to either her ankle or her foot. Under the record, there was no error in the ruling that the testimony was privileged. The physician was within the prohibition of the statute as to any matters which he learned by observation and examination, as well as by a verbal communication. The basis of the alleged waiver was wholly testimony elicited from the plaintiff and the traffic officer on cross-examination. The plaintiff did not waive her right to object to the testimony of the physician as to the result of the examination made by him at the time referred to. Her admission on cross-examination, so far as it went, in regard to having told the physician about her suffering pain, would not open the door to permit the testimony of the physician as to the results of his examination, nor would the mere fact that under these circumstances she was taken to the physician's office, and in the presence of the officer and the defendant submitted to a "surface examination," waive her rights to object to the testimony of the physician.

Guide for Determining Necessity for Operation

(*Kelly v. Hollingsworth* (S. D.), 181 N. W. R. 959)

The Supreme Court of South Dakota, in reversing a judgment that was rendered in favor of the plaintiff, says that the action was brought on behalf of the parents of a child to recover damages for alleged malpractice resulting in her death. The child, a little girl 18 months old, had attempted to eat some peanuts, shells and all. She choked and was thereafter unable to speak above a whisper. This condition continuing, her parents took her to the defendant, who, after an examination and after being unable to locate and dislodge the foreign substance that was causing the condition from which the child was suffering, advised that she be taken to a hospital, and at the end of three days he performed an operation, opening up and exploring the trachea to try to locate and remove the foreign substance supposed to be lodged therein. The child died in about twenty-four hours. It was the plaintiff's theory that the operation was unnecessary and unjustified; that the defendant was negligent and careless in advising it, and that he so negligently and unskillfully performed the operation as to cause the death of the child.

As a part of his case, the plaintiff offered the testimony of a medical expert to whom a hypothetical question was propounded to which the defendant objected because, for the determination of whether the operation was justified, it was immaterial as to whether or not any such foreign substance was found; that the question should have been asked as to what was indicated rather than what was actually found. This exception was clearly well taken. A surgeon, in determining whether an operation is necessary, can be guided by only such information as he can gain without the operation. The question in this case was: If the defendant sought for and procured all the information which proper practice and investigation would disclose, was he justified in determining that an operation was necessary? If a surgeon, under information so gained, was justified in operating, he cannot be holden merely because, on the performance of the operation, it shall develop that he had erred in his conclusion as to the necessity thereof.

The defendant sought an instruction, a part of which was to the effect that, where a surgeon possesses the requisite qualifications and applies his skill and judgment with ordinary care and diligence to the diagnosis and treatment of a patient, he is not liable for an honest mistake or for an error of judgment in making a diagnosis or in prescribing a mode of treatment, when there is ground for reasonable doubt as to the practice to be pursued. That this instruction correctly stated the law cannot be disputed. An instruction proposed by the trial judge that it is the law that a physician

or surgeon is not an insurer of the success of his professional treatments or operations; the law holds him only to the exercise of perfect good faith and to the possession and exercise of such reasonable care and professional knowledge and skill as exists at that time, was clearly a correct statement of law so far as it went, but the instruction was faulty in failing to advise the jury that the defendant could not be made responsible for error in judgment or mistakes in matters of doubt or uncertainty.

It was error to leave the jury at liberty to find that the operation itself was unskillfully performed, when there was absolutely no evidence from which it would have a right to so find. The evidence as to the operation merely disclosed that an incision was made in the trachea; that the defendant, by means of the insertion of his little finger and a small probe, attempted to ascertain whether there was, above the incision, any foreign substance in the trachea or windpipe; and that the defendant made an examination of such windpipe downward and to the first branches thereof. It needs no argument to demonstrate that whether what was thus done by the defendant was skillfully done could not be determined by a jury without the assistance of some surgical expert.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Fourth Annual Meeting, held at St. Louis, Sept. 20-22, 1921

The President, DR. HENRY SCHWARZ, St. Louis, in the Chair

Diabetes and Pregnancy

DR. JOHN N. BELL, Detroit: A more careful prenatal history should be taken of all obstetric patients. A blood sugar estimation should be made in all cases in which symptoms of diabetes are present, regardless of the presence or absence of glycosuria. A fair trial of the newer forms of treatment of diabetes should be instituted before terminating the pregnancy.

Heart Disease in Pregnancy

DR. W. G. DICE, Toledo, Ohio: During pregnancy, no cardiac murmur or irregularity is of itself an evidence of heart disease. Pregnancy lessens the life expectancy of any woman with a chronic valvular or myocardial lesion. Valve lesions of themselves do not constitute a bar to pregnancy, but the manner in which the heart does its work is all important. Every cardiopath is a cripple, and her treatment throughout pregnancy and labor must be such as to spare the heart in every way. Cesarean section gives the best results in uncompensated cases and in cases in which heart failure threatens during labor.

Action of the Commoner Ecboics in the First Stage of Labor

DR. M. PIERCE RUCKER, Richmond, Va.: The patient with a Voorhees bag in her cervix offers an excellent opportunity to observe the action on the uterus of the drugs commonly used in obstetrics. Scopolamin (hyoscin) has a moderate

but rather constant ecboic action in the first stage of labor. The action of quinin is more variable. Sometimes it markedly strengthens the normal rhythmic contractions, and sometimes it shows no action whatever. The possibility of an inert preparation of ergotol and the fluidextract of ergot is a real one. In three cases in which pituitary extract was used, even in minute doses, there was a continued contraction of the uterus that varied from nine to thirty-five minutes. This is probably the explanation of the many disasters that have followed its use.

Method of Delivery in Normal Cases

DR. MAGNUS A. TATE, Cincinnati: The steps of the method I use are: (1) The patient must be in labor with the os dilated to at least the size of half a dollar, and an effacement of the cervical canal; (2) surgical anesthesia is administered; (3) bladder is catheterized; (4) complete manual dilation of the vagina and cervix is performed; (5) the patient is allowed to regain partial consciousness; (6) pituitary extract, 0.5 c.c., is given, and repeated once if the pains are not efficient in half an hour; (7) the membranes are ruptured; (8) management of the delivery of the child is undertaken as in usual cases.

Analysis of the Potter Version

DR. EDWARD SPEIDEL, Louisville, Ky.: This method is such a decided improvement over all the old established methods that it should supplant all other means of performing podalic version. The delivery of the child after the version has been performed is such a marked advance over the old methods of breech delivery that it should displace those practices at once. The effective treatment of the child at birth by gentle rational manipulations is so superior to the many rough treatments that the asphyxiated baby has been subjected to heretofore, that it should induce every obstetrician to employ it.

Origin of Bleeding in Ectopic Pregnancy

DRS. JOHN OSBORN POLAK and THURSTON S. WELTON, Brooklyn: A decidual reaction may be found at several points in the tube in ectopic points often far remote from the seat of implantation. Coincident with the separation or death of the ovum by hemorrhage into the decidua, there is bleeding from the uterus and also bleeding from the several points of decidual reaction in the tube. Tubal peristalsis and the vis a tergo of the clot in the tube expel blood from the abdominal ostium into the peritoneum, which gravitates into the culdesac. The same factors contribute a portion of the blood, making up the bloody discharge from the uterus, which signifies the separation or death of the embryo.

Treatment of Cancer of the Cervix

DR. ROLAND E. SKEEL, Los Angeles: Panhysterectomy should be reserved for cases in which a positive diagnosis can be made only with the microscope. The parametrium being free, so far as digital examination can determine, but the case far enough advanced to be diagnosable clinically, a high cautery amputation of the cervix followed by radium treatment offers the greatest hope of cure. The advanced, surgically hopeless case should be treated by radium rather than with the knife, curet and cautery, chemical caustics or Percy cauterization, unless profound toxemia or serious infection contraindicates local interference of any kind.

Valuable Methods Used to Extend Operability in Advanced Cancer of the Cervix

DR. GEORGE VAN AMBER BROWN, Detroit: The use of the starvation ligature mechanically accomplishes instantly in the blood supply what a study of a microscopic specimen of carcinoma shows nature is endeavoring to accomplish. The vessels should be tied at two points with either kangaroo tendon or heavy cutgut ligature, as finer cutgut may cut the vessel wall and precipitate a hemorrhage. Between the ties the arteries are crushed to a ribbon. Absorbable suture is used to avoid as far as possible the irritation factor that will undoubtedly arise from the use of the nonabsorbable material. In applying the heat the temperature is kept at from 122 to 140 F. and the abdomen should always be opened so that the heating iron can be guided properly from the vagina through the cervix to the fundus. Should one

not care to depend on the heat and starvation ligature, and extirpation of the uterus is to follow, it should be done as a thermocauterectomy between the second and fourth week before the sickened cells have recuperated and before the deposit of scar tissue is sufficient to interfere seriously with operative procedures. After surgical procedures have been completed, the roentgen ray or radium, or both, may be employed to advantage. Postoperatively, to pursue a set course without variations is hazardous. Along with the details mentioned, attention should be given to diet, fresh air and other measures that will raise the general resistance of the individual. In advanced carcinoma of the cervix, heat and starvation ligature are methods that should precede a contemplated panhysterectomy. While roentgen rays and radium are useful postoperative adjuvants, they should never be used as preoperative measures.

Control of Mortality of Abdominal Operations for Cancer

DR. GEORGE W. CRILE, Cleveland: Every case is individualized. The type of operation and of postoperative care follows the anatomic and pathologic indication. Nitrous oxid-oxygen analgesia is used in grave risks, anesthesia being secured mainly by local anesthesia. Fear and anxiety are controlled by management, and, when necessary, morphin. An ample incision, feather-edge technic, minimum exposure of raw tissue to the air, prevention of loss of blood, conservation of body heat, all help to secure the utmost protection of the patient. Blood transfusion is performed before, during or after operation, and is repeated according to the state of the patient. A dietetic and hygienic regimen—forced feeding and fresh air in abundance—is established. By the use of these general measures and a technic adapted to the extent of involvement in the individual case, the mortality of resections of abdominal viscera for cancer has been progressively decreased and the range of operability extended, and the postoperative morbidity minimized.

Teratomas of Ovary

DR. MILES F. PORTER, Fort Wayne, Ind.: A primipara gave birth to a dead baby, normally a few days past term. The tumor was first discovered after delivery, and removed five days after labor. Her recovery was complicated by paratyphoid infection. The tumor contained 9 quarts of fluid.

New Trend in Gynecologic Therapy

DR. GEORGE GELLHORN, St. Louis: Just at the time when the general surgeons are claiming gynecology for their own, there is a marked tendency in gynecology to resort to non-operative methods. The results accomplished with radium and roentgen rays in the treatment of cancer and certain forms of fibroids in the uterus surpass the achievements of the strictly surgical era. While results are not yet conclusive, they hold out promise for the future. Certain diseases of the external genitals which heretofore have been entirely within the domain of gynecologic surgery are cured more readily by nonsurgical means.

Gynecologic Operations Under Local Anesthesia

DR. ROBERT EMMET FARR, Minneapolis: The most ideal condition for the performance of surgical operations has been brought about by the preliminary use of morphin, combined with magnesium sulphate, and the establishment of perfect local anesthesia. It offers special advantages over other forms of anesthesia now in use.

Suppurating Uterine Myomas

DR. WILLIAM EDGAR DARNALL, Atlantic City, N. J.: Necrosis of myoma is fairly common; much more so than suppuration. Suppuration of myoma as shown by statistics is rare, and yet I cannot but feel that if every tumor removed in every hospital were cut open and examined, we would find it much more common than we think.

Atresia and Stricture of Vagina

DR. JAMES E. KING, Buffalo: In the cases of atresia resulting from infantile vaginal infections, it is often impossible to obtain a history of the vaginal discharge, and it may thus be difficult to establish the real cause of an atresia discovered in adult life. Undoubtedly by far the most com-

mon cause of an atresia developing during childhood is infantile vaginitis. The atresia due to stricture seems to present greater difficulties than the atresia due to vaginal adhesions. As a rule, the scar of these strictures is deep and its base broad. Before proceeding with the operation itself, the strictures should be most thoroughly stretched with dilators and fingers, until sufficient dilatation is obtained to permit one to determine the limits of the scar.

Ureteral Obstruction

DR. K. I. SANES, Pittsburgh: The failure to recognize ureteral obstruction is a frequent cause of unnecessary operations. Good histories and careful physical examinations can be relied on to give the indications for investigation of the urinary tract. Such investigations require a great deal of effort. It demands a carefully taken history, a complete urinalysis, an examination of the abdominal and pelvic organs, a cystoscopic examination, a catheterization of one or both kidneys, a roentgen-ray study of the urinary tract, and, not infrequently, of the gallbladder, colon, stomach and duodenum. Such a study is time consuming and requires close cooperation.

Plea for Routine Examination on the Operating Table as a Preliminary to Abdominal Operations

DR. JOHN W. KEEFE, Providence, R. I.: I would emphasize (1) the value of routine examinations under anesthesia on the operating table preliminary to abdominal operations; (2) the necessity of a period to be spent in the general practice of medicine previous to becoming a specialist; (3) that we consider the human body as a living unitary organism, and (4) the desirability of the masters in medicine becoming peripatetic and lecturing as exchange professors in the various universities.

Transperitoneal Nephropexy

DR. THOMAS B. NOBLE, Indianapolis: This operation establishes regional and general abdominal diagnosis; through its primary incision much other work can be done on other abdominal viscera, if necessary; it permits the operator to put the kidney where it should be put, and the lapse of time since its inauguration has been sufficient to prove the virtue of its characters.

Spinal Anesthesia in Obstetrics, Gynecology and Abdominal Surgery

DR. R. R. HUGGINS, Pittsburgh: The freedom from nausea, abdominal distention, postoperative weakness and other disturbances so common with other forms of anesthesia recommend it as an improved method for cases when given under proper supervision and with full knowledge of its danger. Spinal anesthesia is the best anesthetic known today for certain operations in the lower abdomen. It should be resorted to only after careful study of the patient. If it is not properly employed by one possessing sufficient skill, it may have a large mortality.

Transuterine Insufflation, a Diagnostic Aid in Sterility

DR. A. J. RONGY, New York: This procedure has been used in a sufficiently large number of cases by three or more investigators to warrant its universal adoption as a routine method in the diagnosis of and treatment of sterility. This procedure has been found to be safe, and we utilize it in every case in which we think it is indicated.

The Doctor's Fee.—"So of doctors. They like fees no doubt, —ought to like them; yet if they are brave and well educated, the entire object of their lives is not fees. They, on the whole, desire to cure the sick; and,—if they are good doctors, and the choice were fairly put to them,—would rather cure their patient, and lose their fee, than kill him, and get it. And so with all other brave and rightly trained men; their work is first, their fee second—very important always, but still *second*. But in every nation, as I said, there are a vast class who are ill-educated, cowardly, and more or less stupid. And with these people, just as certainly the fee is first, and the work second, as with brave people the work is first and the fee second. And this is no small distinction."—John Ruskin: *The Crown of Wild Olive* (Essay on Work), 1866.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

Sept. 15, 1921, 28, No. 3

- *Epitheliomas of Thymic Origin. D. Symmers and B. M. Vance, New York.—p. 239.
- *Betelnut Chewing and Its Effects, Including Cancer of Mouth. A. G. Ellis, Bangkok, Siam.—p. 252.
- *Carotinemia, Report of Case in Adult. G. D. Head and R. A. Johnson, Minneapolis.—p. 268.
- *Focal Infection and Elective Localization in Etiology of Myositis. E. C. Rosenow and W. Ashby, Rochester, Minn.—p. 274.
- *Causes of Variations in Sedimentation of Corpuscles and Formation of Crusta Phlogistica ("Size," "Buffy Coat") on Blood. H. C. Gram, Copenhagen, Denmark.—p. 312.
- *Relation of Urea to Uremia. L. Leiter, Chicago.—p. 331.
- *Metabolic Studies on Case of Diabetes Insipidus. I. M. Rabinowitch, Montreal.—p. 355.

Epitheliomas of Thymic Origin.—Symmers and Vance found only three examples of primary thymic epithelioma in the literature. A fourth case is recorded by them. The patient, a man, 56 years of age, complained of retrosternal pains, dyspnea and loss of weight and strength. The total duration of illness was two years. At necropsy, a tumor was found occupying the thymic area. The growth was roughly triangular in shape with the base upward and was described as about the size of an adult head. It was whitish in color and of cartilaginous consistence, infiltrated the upper borders of the lungs and sternum, and was adherent to the trachea, the pericardium and auricles of the heart, and to the large vessels and nerves of the vicinity. No metastases were found. Microscopic examination showed that the tumor cells were from 5 to 30 micromillimeters in size, polyhedral in outline, many of them hyperchromatic. They were arranged in solid cords, showing in places attempts to form concentric bodies with central areas of keratinization. The tumor belongs in the group of epitheliomas.

Cancer of Mouth from Chewing Betelnut.—Betelnut chewing is a well-nigh universal habit of the Siamese people. Decay of the teeth is prevented almost completely, apparently by the deposit of concretions. Neither antiseptic nor bacterial action on the flora of the mouth is exerted by the substances chewed. Contrary to general belief, Ellis says, direct constitutional effects of the habit appear to be negligible. Betelnut chewing leads to chronic changes in the mucous membrane of the mouth, recession of the gums, pyorrhea alveolaris, deposit of lime concretions on the teeth, atrophy of alveolar processes and loosening and loss of teeth. As the loss of teeth appears to be the most serious result of betelnut chewing, a thorough study of its mechanism and prevention is eminently desirable. Betelnut chewing does not frequently cause cancer of the mouth, but there are reasons for believing that, in an as yet undetermined percentage of cases, it does lead to this result.

Carotinemia in Adult.—Head and Johnson report a case of marked orange yellow skin pigmentation, most intense in the palms of the hands, without involvement of the sclerae, in an adult with moderately severe diabetes. Carrots had formed a heavy component of the previous diet. The blood serum showed a bright golden yellow color which was chemically demonstrated to be due to carotin. The urine showed no bile pigments, and withdrawal of the carrots from the diet caused a disappearance of the pigmentation.

Etiology of Myositis.—Localized infections around teeth and in tonsils were demonstrably present in nearly all of the twenty-eight patients studied by Rosenow and Ashby. Improvement in symptoms, often striking, occurred in all but one of the twenty-five patients from whom foci were removed. In the twenty-four patients in whom improvement did occur the focus was shown to contain bacteria which tended to produce lesions in the muscles of animals, while in the one patient in whom improvement did not occur the bacteria failed to produce lesions. In some patients recurrence of myositis or only partial recovery was found to be due to defective tonsillectomies, to inadequate dental operations, to failure in recognizing the existence of foci in teeth, or to the

development of new localized areas of infection. Therefore, localized infections in tonsils, teeth and elsewhere, in the patients studied appeared to play an important part not only in the etiology of pure myositis, but also in associated conditions, such as myositis and arthritis, myositis and neuritis, nontraumatic lumbago and myocardial degeneration. In the light of these facts, foci of infection apparently not only make a forced relationship between the bacteria and their products and the mechanism of resistance of the host, but, it would seem, afford the conditions favorable for the micro-organism to acquire peculiar infecting powers. The elective affinity of the streptococci from these localized infections was so marked, that the organisms not only tended to localize and produce lesions in muscles, but the location of the lesions often approximated that noted in the patient. When the affection of other structures, such as joints and nerves, appeared as a secondary factor in the patient's symptomatology, lesions were also found in these structures in the injected animals, and the percentage of animals showing them was proportionately less than the percentage of animals showing muscle lesions. In pregnant rabbits localization occurred not only in the muscles of the parent rabbit, but also in the fetuses. The streptococcus from myositis did not differ greatly in morphology, cultural character, and staining reactions from those isolated in other diseases studied, and the reasons for the myositis strains possessing affinity for muscles, and the other strains for the respective other tissues or organs are still obscure. The fact, however, that the killed streptococci from myositis localized in muscles, as did the live organism, indicates that the property (chemical structure, electrical charge, perhaps) on which this depends resides within the bacterial cell. From the microscopic study of sections of muscles in chronic myositis and arthritis deformans, and of those in animals following repeated injections of these strains, evidence has been obtained as to why cure in these chronic affections is so difficult, and the reason massage and applications of heat are such valuable agents in their treatment. The reactions in these very chronic conditions is not leukocytic, but mainly mononuclear and endothelial. The endothelial cells lining the small blood vessels become extremely swollen, proliferate, and, in consequence, the lumen of vessels, including arterioles, becomes partially or completely obstructed. The supply of available oxygen is thus lowered and the growth of the organisms favored, for it has been found that the streptococci from the lesions in muscles are very sensitive to oxygen. The common occurrence of spontaneous and experimental lesions in flat muscles or in the tendinous ends where the normal blood supply, and, consequently, the supply of available oxygen in response to insult are relatively low would seem to be due to the same cause.

Crusta Phlogistica on Blood.—From clinical and experimental observations, Gram concludes that the formation of crusta phlogistica is a pathologic phenomenon which depends on an accelerated sedimentation or a lengthened clotting time. The sedimentation of the corpuscles depends on: (1) the fibrin (fibrinogen) percentage in the plasma, the sedimentation being accelerated by a rise in this value, and vice versa. The fibrinogen brings this about by causing an agglutination of the corpuscles, which facilitates their sedimentation; (2) the cell volume percentage, the sedimentation being accelerated by a drop in this value, and vice versa; (3) the temperature, the sedimentation being accelerated when the temperature is higher, and vice versa. The first two factors may counteract or assist one another, so that a knowledge of one of these, together with a determination of the velocity of sedimentation, allows an estimate of the other factor, that is, if the temperature of the surroundings is constant. The coagulation time of the blood is found lengthened in hemophilia, and diseases which cause a thrombopenia, i. e., pernicious anemia, lymphatic leukemia, influenzal pneumonia, etc.

Relation of Urea to Uremia.—According to Leiter, the injection of urea, intravenously, in dogs produces a train of symptoms entirely analogous to that found in the convulsive or true uremia in man. Lesions are produced in the alimentary mucosa that may be related to uremic colitis. There seems to be a rather definite correlation between the severity

of the symptoms and the concentration of urea in the blood. Evidence was obtained that there is an active excretion of urea by the stomach, bile and intestine when excessive amounts are present in the blood.

Metabolism in Diabetes Insipidus.—In a case of diabetes insipidus studied by Rabinowitch there was no one specific cause for the polyuria. An endocrine and a renal factor were found. Since the administration of pituitary extract improved not only the concentration but also the rate of excretion, it is suggested that the theory advanced that diabetes insipidus is produced by a lack of some internal secretion which normally regulates and moderates diuresis by acting on the renal cells holds in this case.

Archives of Ophthalmology, New Rochelle

September, 1921, 50, No. 5

- Ophthalmologic Findings in Traumatic Asphyxia; Report of Case. P. D. Berrisford, St. Paul.—p. 411.
Ophthalmologic Conditions. H. Smith, London, Eng.—p. 422.
Report of Second Hundred Successive Extractions of Cataract in Capsule After Preliminary Subluxation with Capsule Forceps. A. Knapp, New York.—p. 426.
Melanosarcoma of Choroid Occurring in Brothers. A. O. Pfingst, and S. Graves, Louisville, Ky.—p. 431.
Practical Points in Cataract Extraction Emphasized in Col. Henry Smith's Technic for Intracapsular Extraction. C. King, Cincinnati.—p. 440.
Treatment After Cataract Operations. J. W. Millette, Dayton, Ohio.—p. 446.
Glioma Retinae Treated by Roentgen Rays with Apparent Destruction of Tumor and Preservation of Normal Vision. F. H. Verhoeff, Boston.—p. 450.
Spontaneous Hypotonus in Juvenile Glaucoma. A. H. Riedel, New York.—p. 457.

Arkansas Medical Society Journal, Little Rock

September, 1921, 17, No. 4

- Glioma of Retina: Report of Case. H. Moulton, Fort Smith.—p. 79.
Industrial Medical Department of Future. A. E. Chace, Texarkana.—p. 81.

Boston Medical and Surgical Journal

Sept. 22, 1921, 185, No. 12

- *Nomographic Charts for Calculation of Metabolic Rate by Gasometer Method. W. M. Boothby and R. B. Sandiford, Rochester, Minn.—p. 337.
*Hospital as Diagnostic Center. E. L. Hunt, Worcester.—p. 354.
Resident Surgeon and Hospital. D. S. Adams, Worcester.—p. 356.

Gasometer Method for Metabolism Calculation.—Boothby and Sandiford present abridged tables and a series of nomographic charts by which the metabolic rate can be calculated by a graphic method in less than five minutes. An abridged logarithmic factor table for reducing gas volumes to standard temperature and pressure dry is also included so that, if preferred, the calculation may be carried out first by logarithms and the result checked by the graphic charts. The authors prefer the combined method, since checking the results by a method entirely different from the original computation precludes the possibility of an error in calculation. For this purpose they have arranged a "calculation form" adapted for rapid checking of each step of the mathematical calculation by the charts. The condensed tables and calculation form are given, as well as the reasons for the preference of the gasometer method to indirect calorimetry.

Hospital as Diagnostic Center.—Hunt urges that all public hospitals in Massachusetts adopt a system whereby their diagnostic facilities shall become available for all classes of citizens to the end that greater service shall be rendered and the trend toward greater socialization in medicine shall be guided by the trained intellects in the profession rather than thrust on it by those unfamiliar with and without sympathy for the best developments of medical practice.

Canadian Medical Association Journal, Toronto

June, 1921, 11, No. 6

- Importance of Precise Anatomical Knowledge in Surgery of Peripheral Nerves. A. Gibson.—p. 401.
Surgical Treatment of Chronic Infected Open Pneumothorax. F. H. Gurd.—p. 408.
Injuries of Spine. G. E. Wilson.—p. 415.
Dental Infection and Internal Medicine. S. J. S. Peirce.—p. 423.
Nature of Acidosis in Nephritis. E. H. Mason.—p. 424.
Fragilitas Ossium. H. P. Wright.—p. 427.

- Novocain in Surgical Operations. H. S. Sharpe.—p. 430.
 Chronic Infections of Nasal Accessory Sinuses with Toxic Absorption. L. DeV. Chipman.—p. 434.
 Causation of Psychoneuroses. G. Howland.—p. 437.
 Appendicitis; High Mortality in Perforated Cases. E. M. Eberts and L. H. McKim.—p. 443.
 Future Function of Modern Medicine. H. W. Hill.—p. 444.
 *Two Rare Abnormalities Occurring in Same Subject: Partial Absence of Corpus Callosum and Stomach Situated Entirely Within Thorax. J. Cameron and A. G. Nichols.—p. 448.
 Some Results of Protective Inoculation Against Epidemic Influenza. G. B. Reed.—p. 545.
 Treatment of Anemia by Drugs. R. D. Rudolf.—p. 457.
 Spontaneous Rupture of Bladder in Parturition. C. B. Keenan.—p. 459.
 Postmortem Delivery. F. J. O'Connor.—p. 460.

Partial Absence of Corpus Callosum.—These anomalies were discovered in a girl, 15 years of age, who had been an idiot from birth; never developed mentally from childhood, but was fairly well developed physically. Conversation showed a childish type of mind. She answered questions in monosyllables, followed by a childish grin. Her habits were dirty. She was always a heavy eater. She never showed any dyspnea. Menstruation occurred every two or three months, and was very profuse, simulating a hemorrhage and lasting a week. She was in good health until three weeks before her death. She complained first of headache, then of pain in the abdomen, which became greatly distended with gas. At first, there was diarrhea, later constipation developed. The temperature was variable, reaching at times 103 F. She appeared to be improving, but died suddenly while being bathed. Unlike children of her age she did not enter into conversation with other persons, but her remarks were chiefly restricted to answering "yes" or "no" to questions asked her. She had a doll which she sang to—chiefly ragtime songs, which she had picked up, and familiar hymns, but the hymns were all mixed up, and she never sang a hymn through. She would talk a little when a conversation was begun by some one else. She had little reasoning power, and was quite excitable, laughing and calling at the boys playing on the lawn. She was impulsive, rather than lethargic; not quarrelsome, timid, and afraid of the water and of strangers. The body was sent to the medical school for dissection. Exploration disclosed the fact that the duodenum, when traced upward, disappeared into the thorax through what ought to have been the esophageal opening of the diaphragm. On opening the thorax the stomach was seen forcibly doubled on itself, lying within a peritoneal sac situated between the heart and the inner surface of the right lung and between the pericardial sac and the mediastinal pleura. This sac displaced the heart slightly to the left, and also gave rise to a deep permanent indentation on the inner aspect of the right lung below and behind its root. On opening the dura mater it was noted that the falx cereberi existed at its anterior and posterior ends. It was of crista galli, while its posterior end was merely 1½ inches wide. On removal of the brain, it was observed that the arachnoid bridged across the longitudinal fissure throughout almost its whole extent giving the impression that the mesial surfaces of the hemispheres were fused together. The anterior end of the corpus callosum immediately behind the genu was of normal thickness. About half an inch behind this point however, it faded away as a definite structure and was replaced by a lamina of gray matter at the bottom of the longitudinal fissure supported underneath by a thin layer of white matter and ependyma. Other evidences of the hydrocephalic condition usually associated with deficiency of the corpus callosum were found. A complete necropsy report of the case is given.

Colorado Medicine, Denver

September, 1921, 18, No. 9

- Future for Research in Climatology. C. E. Edson, Denver.—p. 190.
 Hernia. B. B. Blotz, Rocky Ford.—p. 194.
 Vitamins and Their Relation to Deficiency Diseases. E. B. Queal, Boulder.—p. 195.

Georgia Medical Association Journal, Atlanta

September, 1921, 10, No. 16

- Plan for More Thorough Examinations Before Operations are Performed. E. C. Davis, Atlanta.—p. 653.
 Review of 1,000 Cases from Department of Diagnosis of Harbin Hospital. W. H. Lewis, Rome.—p. 657.
 Physicians of Georgia. W. A. Davis, Atlanta.—p. 662.

- Radical Versus Conservative Operation on Uterine Appendages. M. T. Benson, Atlanta.—p. 667.
 Interesting Obstetric Experience. J. G. Earnest, Atlanta.—p. 670.
 Pelvic Infection in Female. L. J. Johns, Tallapoosa.—p. 672.
 Recent Improvements in Dietetic Treatment of Diabetes Mellitus. J. E. Paullin and H. M. Bowcock, Atlanta.—p. 676.
 Use of Vaccines in Chronic Bronchitis. G. F. Klugh, Atlanta.—p. 678.
 Role of Tooth and Tonsil in Systemic Infections. E. S. Osborne, Savannah.—p. 680.

Indiana State Medical Association Journal, Fort Wayne

June 15, 1921, 14, No. 6

- Cancer of Breast. M. F. Porter, Fort Wayne.—p. 175.
 Pernicious Anemia and Its Treatment by Homohemotherapy. B. M. Edlavitch, Fort Wayne.—p. 177.
 Infections of Hand. F. G. Jackson, Muncie.—p. 180.
 Fracture of Base of Skull with Concussion of Brain. R. E. Whitehead, Indianapolis.—p. 185.
 Physician. F. B. Wynn, Indianapolis.—p. 186.

Kentucky Medical Journal, Bowling Green

July, 1921, 19, No. 7

- Infant Feeding. J. H. Pritchett, Louisville.—p. 375.
 Diagnosis and Management of Hyperthyroidism. C. W. Dowden, Louisville.—p. 380.
 Goiter. B. F. Van Meter, Lexington.—p. 385.
 Control of Milk Supply. J. D. Maguire, Lexington.—p. 391.
 Significance of Elevation of Temperature. R. J. Estill, Lexington.—p. 394.
 Venereal Prophylaxis. W. E. McWilliams, Stanford.—p. 397.
 Nonsurgical Drainage of Gallbladder. C. G. Lucas, Louisville.—p. 398.
 Treatment of Eclampsia. E. Speidel, Louisville.—p. 408.
 Cesarean Section; Indications; Report of Cases. J. H. Peak, Louisville.—p. 410.
 Chronic Parenchymatous Nephritis. H. A. Gilliam, Bardwell.—p. 422.
 Multiple Osteochondromas in Mother and Son. J. D. Trawick, Louisville.—p. 424.
 Syphilis. B. C. Rose, Bryantsville.—p. 426.
 Significance of Acidosis in Children. T. M. Marks, Lexington.—p. 428.
 Foreign Body Removed from Nasopharynx. J. R. Peabody, Louisville.—p. 433.
 Syphilis of Rectum. G. S. Haynes, Louisville.—p. 434.
 Case of Meningitis. I. A. Ledermann, Louisville.—p. 436.
 Encephalitis; Case Report. W. A. Jenkins, Louisville.—p. 437.

Laryngoscope, St. Louis

August, 1921, 31, No. 8

- Accessory Sinus Blindness; Differential Diagnosis and Operative Technique. L. E. White, Boston.—p. 579.
 Case of Air Embolus by Way of Lateral Sinus; Reaction and Untoward Recovery. S. S. Quittner, Cleveland.—p. 603.
 Double Sigmoid Portion of Lateral Sinus. J. M. Brown, Los Angeles.—p. 605.
 Lung Abscesses Following Tonsillectomy. Report of Case with Bronchoscopic and Roentgen-Ray Findings. I. W. Voorhees, New York.—p. 609.
 Laryngologic Aspect of Incipient Hyperthyroidism. L. Hubert, New York.—p. 616.
 Reduction of Old Fractures of Nose. J. D. Whitham, New York.—p. 620.
 Need for More Thorough Training in Otology for Undergraduates in Medicine. H. Newhart, Minneapolis.—p. 622.
 Use of Scarlet Red Emulsion in Atrophic Rhinitis (Ozena); (A Preliminary Report). J. C. Scal, New York.—p. 628.
 Unusual Case of Bilateral Abductor Laryngeal Paresis. G. B. New, Rochester, Minn.—p. 630.
 New Intranasal Suture Set. S. Israel, Houston, Texas.—p. 633.
 Deformity of Nasal Bones Following Chronic Nasal Suppuration in Rabbit. W. V. Mullin and C. T. Ryder, Colorado Springs, Colo.—p. 634.
 Surgery of Tonsils: Hemostatic Tonsillectome. C. G. Crane, Brooklyn.—p. 636.

Medical Record, New York

Sept. 17, 1921, 100, No. 12

- Pathogenesis of Dupuytren's Contraction of Palmar Fascia. W. H. Byford, Chicago.—p. 487.
 Postsomatic Psychosis. B. Lemchen, Chicago.—p. 491.
 B. Acidophilus: Bacteriological Characteristics and Possible Therapeutic Significance. L. M. Gompertz, New Haven, Conn., and M. G. Vorhaus, New York.—p. 497.
 What State Demands of Its Sentinels of Mental Health. D. A. Laird, Iowa City.—p. 500.
 Sixty-Five Cases of Cervical Ribs. I. S. Trostler, Chicago.—p. 504.
 Lacerations of Cervix. I. W. Kahn, New York.—p. 506.

Sept. 24, 1921, 100, No. 13

- Present Status of Nonspecific Protein Therapy. H. S. Williams, New York.—p. 529.
 Present Opinion on Intraspinal Therapy in Neurosyphilis. E. N. Boudreau, Syracuse.—p. 535.
 *Use of Thick Cereal Mixtures in Difficult Feeding Cases. H. D. Chapin, New York.—p. 539.

Hemorrhages in New-Born. J. R. Losee, New York.—p. 541.
Postpartum Hemorrhage (Cervical). H. D. Fair, Muncie, Ind.—p. 544.
Oral Feciphobia. J. J. A. O'Reilly, Brooklyn.—p. 545.
Tonsil Hemorrhage; with New Procedure for Control Thereof. A. Kahn, New York.—p. 547.
Therapeutic Application of Galvanopalpation and Faradopalpation. M. Kahane, Vienna.—p. 548.

Digestible Mixtures for Malnourished Infants.—Three mixtures have been employed by Chapin in the feeding of infants who were suffering from obstinate indigestion which resulted in distinct malnutrition: (1) Skim milk, 11 ounces; water, 7 ounces; farina, 3 level tablespoonfuls; boil these three one-half hour; remove top 4 ounces from 1 quart of milk; add granulated sugar, 1 level tablespoonful. Feed 3 ounces every four hours, and water every four hours, alternating. (2) Skim milk, 15 ounces; water, 6 ounces; farina, 3 level tablespoonfuls; boil these three one-half hour; remove top 4 ounces from 1 quart of milk; add granulated sugar, 1 level tablespoonful. Feed 3½ ounces every four hours, and water every four hours, alternating. (3) Skim milk, 28 ounces; water, 9 ounces; farina, 4½ level tablespoonfuls; boil these three one-half hour; remove top 4 ounces from 1 quart of milk; add granulated sugar, 1 level tablespoonful, and malt sugar, 1 level tablespoonful. Feed from 4 to 6 ounces every four hours, and water every four hours, alternating. The effects of this feeding were occasionally uncertain, usually good, and sometimes remarkable. The babies seemed to like the taste afforded by the cane sugar, and the gelatinized starch appeared to prevent a laxative or fermentative effect from the sugar. Since starch is a complex carbohydrate, it is slowly converted and thus affords less opportunity for fermentation. The gelatinized starch also carries a high protein content for the age into the digestive tract in colloidal form. The mechanical splitting up of the coagulated protein and the ballast to the bowel afforded by mere bulk also seems to have a stabilizing influence. As starches and sugars are carriers of energized carbon and water, the gain in tissue may thus be explained. A study of the cases reported confirms the view that thick cereal mixtures form a valuable resource in certain cases of persistent vomiting and will check wasting in some infants that fail to hold their weight on ordinary food formulas.

Michigan State Medical Society Journal, Grand Rapids

July, 1921, 20, No. 7

Attainment of Certain Ideals in Obstetrics. A. M. Campbell, Grand Rapids.—p. 263.
Digitalis Therapy. J. B. Whinery, Grand Rapids.—p. 266.
Peripheral Nerve Injuries. W. T. Dodge, Big Rapids.—p. 268.

New York Medical Journal

Sept. 21, 1921, 114, No. 6

*Pseudotabes and Their Reeducational Treatment. P. Kouindjy, Paris.—p. 317.
*Protein Sensitization with Special Reference to Bronchial Asthma, Hay Fever and Eczema. M. A. Ramirez, New York.—p. 320.
Protein Desensitization from Point of View of General Practitioner. J. F. Ward, Brooklyn.—p. 325.
Pollen Protein Intoxication in Nonseasonal Bronchial Asthma. A. Sterling, Philadelphia.—p. 328.
*Endobronchial Treatment of Bronchial Asthma and Asthmatic Bronchitis. M. J. Gottlieb, New York.—p. 333.
Pollinosis, or Hay Fever. B. C. Gile, Philadelphia.—p. 337.
Few Meteorotelluric Observations. G. N. Jack, Buffalo.—p. 338.
Causes of Internal Hemorrhoids. C. J. Drucek, Chicago.—p. 340.
Acute Appendicitis in Inguinal Hernia. A. Wildman, Brooklyn.—p. 341.
Combined Right Inguinal Hernia Appendix Operation. H. Cohen, New York.—p. 343.
Strangulated Inguinal Hernia Reduced En Bloc. M. W. Dyer, Syracuse, N. Y.—p. 344.
Unusual Foreign Body (Full Sized Drinking Glass) in Rectum. J. F. W. Meagher, Brooklyn.—p. 346.
Traumatic Injuries of Abdomen. F. W. McGuire, Buffalo.—p. 348.
*Abdominal Contraction Method of Diagnosis. L. W. Kohn, New York.—p. 350.
Infectious Diseases Interesting Medical Profession at Present Time. J. R. Graham, New York.—p. 351.
*Crime and Drug Habit. J. A. Hamilton, New York.—p. 355.

Treatment of Pseudotabes.—It is often simple enough says Kouindjy to mistake a pseudotabetic for a genuine case of tabes, for the symptomatology in both instances is frequently very similar. Occasionally, this similarity extends even to a confusion in the findings of morbid anatomy. In

spite of this, pseudotabes is a pathologic entity easily distinguished from true tabes on account of its etiology and, especially, of its course. Pseudotabetics are characterized by their tendency to complete cure, by tenderness on pressure of muscles, and by the absence of the Argyll Robertson pupil. Further, they can be distinguished by the different topographic distribution of anesthetics, which here diminish from the distal end toward the root of a limb, whereas in tabes they always show a radicular distribution. The treatment of election of pseudotabes must comprise treatment of the etiologic cause and also symptomatic treatment. Physiotherapeutic treatment occupies a predominant place in the second instance. Reeducation must be considered the most rational measure, being calculated to combat at the same time both the motor disturbances of progression and the psychic state of pseudotabetics.

Protein Sensitization in Treatment of Bronchial Asthma.—The prognosis of asthma with proper treatment Ramirez asserts is excellent in the sensitive cases, provided the patient has not chronic bronchitis or marked emphysema. The severity of bronchitis, the degree of emphysema, and the resistance of the individual to bacteria modify the prognosis in the nonsensitive type. Cases are cited.

Endobronchial Treatment of Bronchial Asthma.—Endobronchial treatment in Gottlieb's opinion is the most valuable procedure for treating cases of asthmatic bronchitis and bronchial asthma, where the elimination of the allergic substances and vaccine therapy, combined with the other measures suggested, have failed to produce the results desired. Astringents, such as silver nitrate and tannic acid, have not only the property of temporarily dilating the lumen of the bronchial tree but also, when applied often enough and at short intervals, say weekly, have the effect of rendering the mucous membrane less susceptible to infection.

Value of Abdominal Contraction Method in Diagnosis.—Maintained voluntary abdominal contraction has been used by Kohn as a routine aid in diagnosis in a great number of cases. The method is based on the principle of increased intra-abdominal tension and the pressure is exerted in a downward direction. It consists simply in having the patient institute the bearing down act of defecation after having first taken a deep inspiration. The patient is instructed, while in a recumbent position, to take a deep breath and then bear down on the abdomen while holding the breath. As a result, the diaphragm is prevented from moving upward by the closure of the glottis and the abdominal muscles are contracted down while the muscles of the perineum are relaxed, in consequence of which the visceral organs of the abdomen and pelvis are forced downward. Inspection, percussion, auscultation, deep pressure, and other palpatory methods may be practiced while the abdomen is thus contracted.

Crime and Drug Habit.—Hamilton analyzes 914 cases of drug addiction which were received at the Workhouse, Blackwell's Island, during 1920 for treatment. The treatment employed by the resident physician, Dr. Stuart MacVean, is described.

Oklahoma State Medical Assn. Journal, Muskogee

April, 1921, 14, No. 4

Interpretation of Bladder Symptoms in Female. J. C. Mraz, Oklahoma City.—p. 77.
Hematuria of Genito-Urinary Tract. W. J. Wallace, Oklahoma City.—p. 81.
Diagnosis and Treatment of Stricture of Urethra. C. B. Taylor, Oklahoma City.—p. 85.
Diagnostic Value of Blood Chemistry. W. H. Bailey, Oklahoma City.—p. 89.
Tumors of Breasts Disappearing Under Roentgen-Ray Treatment. A. R. Wiley, Tulsa.—p. 96.

May, 1921, 14, No. 5

Antepartum Obstetric Examination. R. E. Looney, Oklahoma City.—p. 103.
Prophylaxis in Obstetrics. J. W. Brown, Tulsa.—p. 106.
Colon Bacillus as Factor in Diseases of Infancy and Childhood. T. C. Sanders, Shawnee.—p. 109.
Chaneroidal Infections: Diagnosis and Treatment. E. L. Cohenour, Tulsa.—p. 111.
Brain Tumor in Boy Four Years of Age. W. M. Taylor, Oklahoma City.—p. 115.
Stone in Kidney: Removal by Pylotomy. A. D. Bevan, Chicago.—p. 116.

Pennsylvania Medical Journal, Harrisburg.

May, 1921, 24, No. 8

- Practice of Medicine Worth While? E. O'N. Kane, Kane.—p. 531.
 End Results in 608 Cases of Peripheral Nerve Injury. W. W. Babcock and J. O. Bower, Philadelphia.—p. 533.
 Pericarditis. G. E. Holzapfel, York.—p. 540.
 Treatment of Hyperthyroidism. F. B. Utley, Pittsburgh.—p. 544.
 Ovarian Pregnancy; Report of Case. S. A. Chalfant, Pittsburgh.—p. 548.
 Phase of Accessory Sinus Disease. B. M. Dickinson, Pittsburgh.—p. 551.
 Feeding During First Two Years. E. E. Graham, Philadelphia.—p. 555.
 Origin of Pennsylvania Medical Journal. C. L. Stevens, Athens.—p. 560.
 Prevention of Syphilis and Its Sanitary Management. W. M. Baker, Warren.—p. 564.

Tennessee State Medical Association Journal, Nashville

July, 1921, 14, No. 2

- Trachoma and Folliculosis. E. C. Ellett, Memphis.—p. 83.
 Radium in Nonmalignant Uterine Bleeding. W. S. Anderson, Memphis.—p. 88.
 Radium in Gynecology. S. Abernathy, Memphis.—p. 91.
 Blood Transfusion: Therapeutic Uses. H. Q. Fletcher, Chattanooga.—p. 98.
 Raynaud's Disease. J. Witherspoon, Nashville.—p. 102.
 Septic Infection of Urinary Passages in Children. R. H. Perry and S. P. Bailey, Nashville.—p. 104.

Virginia Medical Monthly, Richmond

September, 1921, 48, No. 6

- Aterial Hypertension and Hypotension. J. W. Preston, Roanoke.—p. 293.
 Management of Broken Compensation. F. H. Smith, Abingdon.—p. 296.
 Surgical Side of Cardiovascular-Renal Diseases. A. P. Jones, Roanoke.—p. 301.
 Neurosyphilis. G. A. Wright, Marion.—p. 302.
 Treatment of Syphilis. P. S. Smith, Abingdon.—p. 305.
 Differential Diagnosis of Pulmonary Disease. E. E. Watson, Salem.—p. 309.
 Plea for Physical Examination of School Children. C. E. Dyer, Pulaski.—p. 310.
 Roentgenologic and Cystoscopic Examination of Certain Abdominal Diseases at first Diagnosed Appendicitis. B. E. Rhudy, Abingdon.—p. 312.
 Three thousand Cases of Vaccination in Past Year. C. Moore, Roanoke.—p. 317.
 Eye Conditions in Connection with General Diseases. E. L. Sutherland, Roanoke.—p. 318.
 Nursing Situation in Virginia, and Necessity for Revision of Training Course, from Viewpoint of Physician. J. A. Hodges, Richmond.—p. 322.
 Early Recognition of Syphilis. S. H. Graves, Norfolk.—p. 328.
 Diagnosis of Focal Infection. B. M. Randolph, Washington, D. C.—p. 330.
 Diagnosis of Common Stomach Diseases. A. G. Brown, Jr., Richmond.—p. 334.
 One Hundred Prostatectomies. R. C. Bryan, Richmond.—p. 338.
 Posture in Relation to Medical and Surgical Problems. J. A. Talbott, Washington, D. C.—p. 343.
 *Unusual Relapse in Typhoid Fever. W. H. Higgins, Richmond.—p. 347.

Typhoid Fever Relapse After Forty-Three Days.—In 1901, Higgins' patient had a clearly defined attack of typhoid fever lasting for four weeks. In 1911 he received institutional treatment for pulmonary tuberculosis with apparently satisfactory results. In August, 1917, he was given three injections of typhoid vaccines. He remained in good health until January, 1921, when he developed a typhoid infection. His blood culture was positive for typhoid bacilli, and he ran a typical fever for two weeks, during which time rose spots appeared, and there were the usual clinical signs of an average typhoid fever without complications. After two weeks of convalescence, he returned to his work and remained well until March 23, when he had a chill followed by a temperature of 103 F. Blood culture and Widal reaction were negative. Leukocytes numbered 7,000, with normal differential count. Aside from slight headache, there were no subjective symptoms, and the fever persisted for twelve days with the usual typhoid variations. During this period, successive crops of rose spots appeared over his abdomen and, for the first time, his spleen became palpable. The diagnosis of a true relapse was made in accordance with the well-known dictum of Osler, to the effect that a relapse must be characterized by at least two or three important features of the disease; namely, a characteristic fever curve, enlargement of the spleen and rose spots. A fairly complete survey of the literature showed that Higgins' patient had next to the longest interval between attacks on record.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 3, 1921, No. 3166

Educational Number.

Sept. 10, 1921, 2, No. 3167

- *Acute Pleural Empyema. H. Wade.—p. 385.
 *Intussusception: An Analysis of Thirty-Six Cases. G. H. Edington.—p. 391.
 *Best Method Operative Approach in Cases of Acute Appendicitis. H. Ballance.—p. 394.
 Early Diagnosis and Treatment of Meningitis Occurring in Aural Cases. C. Ballance.—p. 399.
 Otitis Media. W. Sallisbury-Sharpe.—p. 403.
 Zinc Ionization in Treatment of Suppuration in Maxillary Frontal, and Sphenoidal Sinuses. A. R. Friel.—p. 404.
 Harelip and Cleft Palate: War Influence. J. L. Aymard.—p. 405.
 Case of Delayed Chloroform Poisoning. A. Merrin.—p. 405.
 Nerve Cell Degeneration. H. W. Eddison.—p. 406.

Acute Pleural Empyema.—Wade urges that a combined cytologic and bacteriologic examination of the fluid withdrawn should be employed more widely, as offering the prospects of affording fuller and more accurate data on which to found operative treatment. Suppuration within the pleural cavity is especially suitable for treatment by methods which obviate the necessity for opening the chest, or by methods where an immediate or early closure after it has been opened are carried out. The value of the treatment by aspiration alone should be reviewed. The value of methods where, after aspirating the content, an antiseptic is introduced, should be considered further. Where simple drainage is practiced the ideal opening is not only one which allows free escape of the purulent content at the time, as when a rib is resected, but it should also be such as will readily seal itself off when the tube is withdrawn, as when minor intercostal thoracotomy is performed. The benefits to be derived from a free opening of the pleural cavity by major intercostal thoracotomy warrant its employment in cases which give promise of developing into chronic and persistent cases. The value of disinfection and immediate closure in these cases should be tested more fully. Wade considers the Rutherford Morison technic the best at present available for carrying out the same.

Analysis of Cases of Intussusception.—Edington has operated on thirty-six patients in the last eleven years. In thirty-five cases in which the result was recorded there were twenty-one recoveries and fourteen deaths. Of twenty-four patients operated on the first day, sixteen recovered; of nine patients operated on after the first day three recovered. The period after operation in recovery cases varied from two and a half hours to five days. These figures support the general view as to the value of the time element in estimating results; but they also show that time is not all important. In three cases death occurred within a few hours after operation, and apparently resulted from shock. One patient died on the twenty-second day from gastroenteritis. In the remainder death occurred from twelve to fifty-five hours. Death was usually preceded by a rapid rise of temperature and the facies was that of toxemia. The relationship of death to anatomic type was: ileocecal, 7 cases, 2 deaths; ceco-ileocecal, 6 cases, 2 deaths; colocolic, 5 cases, no deaths (result in one case not recorded); ileocolic, 4 cases, 2 deaths; ileo-ileal, 4 cases, 4 deaths; ileocolic ileocecal, 3 cases, 2 deaths; ileo-ileal, ileocolic, 3 cases, 2 deaths; ileo-ileal, ileocolic, 3 cases, no deaths; type not recorded, 1 case, no death. Visible proof of etiology was not found at operation in any case. Resection gave invariably fatal results.

Best Incision in Acute Appendicitis.—In cases of acute appendicitis in the first few days of the illness, Ballance makes what is virtually a McBurney incision and divides all the muscle layers of the abdominal wall because this operation meets all indications. An appendix in any position can be removed through the incision. By an extension of the wound down and in, the appendix hanging down into Douglas' pouch can be sought for and removed and the pelvis drained. By an extension up and out the appendix can be exposed when it is lying just below the liver, and through the middle of the incision the appendix in intermediate positions can be dealt with.

Indian Journal of Medical Research, Calcutta

April, 1921, 8, No. 4

- Flagellates of Genera *Herpetomonas*, *Crithidia* and *Rhynchomonas*.
II. *Crithidia Ctenocephali* Sp. Nov., Parasitic in Alimentary Tract of *Ctenocephalus Canis* Curtice. W. S. Patton and S. Rao.—p. 593.
Id. III. *Rhynchomonas Siphunculinae* Sp. Nov., Parasitic in Malpighian Tubes of *Siphunculina Funicola* de Meijere. W. S. Patton.—p. 603.
Id. IV. *Herpetomonas Siphunculinae* Sp. Nov., Parasitic in Alimentary Tract of *Siphunculina Funicola* de Meijere. W. S. Patton.—p. 613.
Id. V. *Herpetomonas Pulicis* Sp. Nov., Parasitic in Alimentary Tract and Malpighian Tubes of *Pulex Irritans* L. W. S. Patton and S. S. Rao.—p. 621.
Id. VI. Behavior of *Herpetomonas Pulicis* Patton and Sundara Rao, *Crithidia Ctenocephali* Patton and Sundara Rao and *Herpetomonas Muscae Domesticae* Burnett in Bed Bug, *Cimex Hemiptera* Fabr. W. A. Patton, H. M. La Frenais and S. Rao.—p. 629.
*Rôle of Meteorology in Malaria. C. A. Gill.—p. 633.
Naga Sore: Cachar Boil. E. C. R. Fox.—p. 694.
Peculiarity in Spleen Rate Observed in District of Chittagong Hill Tracts. S. L. Sarkar.—p. 700.
Influence of Age and Temperature on Bacterial Vaccines. W. F. Harvey, K. R. K. Iyengar and S. R. Christophers.—p. 715.
Viability of Bacterial Cultures. N. Lal.—p. 728.
Re-Use of Culture Mediums. N. Lal.—p. 731.
Preservation of High Titer Agglutinating Serum and Corresponding Antigen. G. Mackey.—p. 733.
*Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. J. F. Caius and K. S. Mhaskar.—p. 737.
*Value of Quinin Prophylaxis. H. W. Acton.—p. 741.
Diagnosis and Treatment of Benign Tertian and Malignant Tertian Fevers. I, II and III. H. W. Acton, D. F. Curjel and J. O. Dewey.—p. 750.
Id. IV. What Constitutes a Cure. H. W. Acton.—p. 774.
Id. V. Effect of Quinin on Benign Tertian Infection. P. M. Rennie, H. W. Acton, D. F. Curjel and J. O. Dewey.—p. 787.
Id. VI. Effect of Repeated Courses of Quinin on Benign and Malignant Tertian Parasites. H. W. Acton, D. F. Curjel and J. O. Dewey.—p. 853.
Id. VII. Curative Value of Total Alkaloids (*Cinchona Febrifuge*) of *Cinchona* Bark on Benign Tertian Infections. H. W. Acton, D. F. Curjel and J. O. Dewey.—p. 861.

Rôle of Meteorology in Malaria.—The conclusions reached by Gill appear to warrant the statement that great importance attaches to the influence of meteorology in malaria. It has been shown that meteorologic factors, through their influence on the malaria parasite and on its insect host, exercise an important influence on the transmission of infection and consequently on the incidence of the disease. It seems justifiable to Gill to conclude that the science of meteorology, which fulfils such important functions in connection with many human activities, may justly claim recognition as an important ancillary to medical science.

Composition and Therapeutic Value of Anthelmintics.—The results obtained by Caius and Mhaskar have shown that: (1) hydrocarbons, polyhalides, alcohols, aldehydes, ketones and alkaloids have failed to exhibit anthelmintic properties; (2) narcotics, associated with a purgative, may prove efficient drugs for the expulsion of hookworms; (3) anthelmintic properties have been met with in oxids, peroxids, and phenols; (4) oxids have weak vermifugal, but no vermifugal properties; (5) peroxids are potent vermicides, but have no vermifugal action; (6) phenols have both vermifugal and vermifugal properties; (7) the anthelmintic power associated with the phenolic group may be partially or wholly inhibited by the presence of substituting radicals in the benzenoid nucleus; (8) the highest anthelmintic power has been found in monophenols of disubstituted benzene compounds.

Value of Quinin Prophylaxis.—Acton endorses the value of quinin as a prophylactic measure in malarial fevers. Prophylaxis should be commenced when the minimum wet bulb temperature is approximately between 18 and 22 C., and ended when the temperature for some days exceeds or is lower than this optimum flagellation temperature. The administration of quinin should be continuous, i. e., every day or, at the most, every other day. The dose should be a curative one, i. e., from 10 to 15 grains.

Japan Medical World, Tokyo

Aug. 15, 1921, 1, No. 4

- *Pulmonary Distomiasis which Caused Brain Symptoms in Children. R. Kawamura and M. Yamaguchi.—p. 1.
First Intermediate Host of *Echinochasmus Perfoliatus* Var. *Japonicus*. M. Muto, Nagoya.—p. 7.
Substance in Blood Essential for Culture of Influenza Bacillus. M. Terada.—p. 8.
Supernumerary Breasts, with Report of Case. M. Thorck.—p. 10.

Brain Symptoms Caused by Pulmonary Distomiasis.—Thirty-six cases with brain complications are reported by Kawamura and Yamaguchi. The distoma egg was found in the sputum in eight cases. A part of the infection is caused by drinking fresh water, but the majority of infection takes place by eating raw or half broiled crabs which are infected with cercariae. These cases had been diagnosed variously by local physicians as cerebral infantile paralysis, encephalitis or acute meningitis. The disease begins with sudden severe headaches, vomiting and dizziness. In many cases there are epileptic attacks with loss of consciousness and at times with delirium. At times there are also tonic or clonic spasms with aphasia or motor paralysis. These attacks are repeated several times and may last even ten or fifteen days. Some of the epileptic attacks are distinctly jacksonian in type. Various symptoms at the time of the onset disappear gradually, but some of the cases may retain disturbances of sensations or movements of extremities. In rare cases aphasia may develop or disturbances or loss of sight. Mentality is weakened in some cases and in the worst cases the patients become idiotic. During the period of these attacks not a few die. More than half of the patients have physical signs in the chest and distoma eggs in the sputum.

Lancet, London

Sept. 10, 1921, 2, No. 11

- *Aims and Boundaries of Physiology. W. M. Fletcher.—p. 541.
Re-Education of Blinded, with Special Reference to Blinded Sailor and Soldier. A. Lawson.—p. 544.
*Significance of Some Early Symptoms of Nervous Disease. J. S. Bury.—p. 549.
*Studies from St. Andrews Institute of Clinical Research. I. Present State of Medical Knowledge Regarding Diseases Common Among People. A. Rowand.—p. 551.
Psychopathology of Pulmonary Tuberculosis, with Special Reference to Treatment. D. G. Macleod.—p. 556.
*Use of Luminal Sodium in Epilepsy. J. T. Fox.—p. 558.
Purulent Pericarditis Simulating Angina Pectoris. M. A. Cassidy, R. O. Moon and F. Le Q. Pelly.—p. 559.
*Early Progress of an Infant of Abnormally Small Weight. F. C. Davidson.—p. 559.
Case of Bullous Eruption Caused by May Weed. J. H. Sequeira.—p. 560.
Case of Congenital Absence of Right Pectoralis Major. A. G. M. Severn.—p. 560.

Aims of Physiology.—In the rapid growth of medical schools throughout the English-speaking world Fletcher says there are distinct signs that the essential part which physiology plays in medical education and study may wrongly masquerade as the only service physiology has to give to man, and may appear to fill the measure of her rightful status. In more than one of the great American universities physiology is treated either in theory or in practice as a subject within the medical faculty to be housed within the medical school, yet at the same time not as a subject in the faculty of arts or of science, nor to be studied alone or with other sciences as part of a liberal and nonprofessional education. It is rare in the United States for physiology to be studied by any but professed medical students, and there is some reason to think that it is becoming rarer in Great Britain than it was a few years ago. Men coming to physiology as a "preliminary subject" and nothing more are not likely to think of it as their life work, but will pass through it not to return.

Early Symptoms of Nervous Diseases.—Pain, numbness, motor disability and the plantar reflex are discussed by Bury in their bearing on an early diagnosis of nervous diseases. He is of the opinion that not enough consideration is given to the analysis of subjective symptoms.

Percentage of Error in Diagnosis.—Rowand reports on an inquiry made as to what proportion of cases met with in general practice are diagnosed correctly. It is shown that in not more than 38 per cent. is the condition recognized. In institutional practice the percentage is higher than in private practice. In 374 institutional cases a correct diagnosis was made in 38.21 per cent.; whereas in 660 private cases a correct diagnosis was made in 23.48 per cent.

Luminal Sodium in Epilepsy.—Sixteen cases of ordinary epilepsy in children or adolescents were chosen by Fox for an investigation of the value of luminal sodium in epilepsy. The patients were all liable to major attacks at fairly regular intervals, and none showed signs of marked mental defect or deterioration. Most of the patients were taking bromid when the luminal was started, and the daily dose, which in no cases

exceeded 30 grains, was continued. The luminal sodium was given in 1 and 2 grain doses once daily usually at bedtime. In five cases the general mental condition of the patients was apparently unchanged; three patients were reported as being rather more irritable than formerly, while four were evidently more cheerful and alert. One patient, a girl of 15, has become distinctly more dull since taking luminal sodium. Her fit record shows less improvement than that of any of the other patients, and her increase in weight is correspondingly small. Two boys, aged 13 and 11, respectively, became sleepy after taking the drug for a few days. In both cases the dose was too large, and improvement followed on its reduction.

Rapid Growth of Abnormally Small Child.—The child described by Davidson weighed 1 pound 6 ounces at birth. The pregnancy was of about thirty-two weeks duration. For the first forty-eight hours the child was fed hourly with small quantities of a whey and cream mixture (3 ounces in twenty-four hours) and on third day feeding with breast milk was commenced. The child was laid to breast at feed times from birth as a routine although too weak to suckle. Immediately after the establishment of lactation on third day breast pump was used and breast milk so withdrawn was given to child by pipette or spoon 1 dram, every two hours, for first few days—increased in three weeks to 6 drams, every three hours. At the end of the second week, the child weighed 1 pound 14 ounces; end of third week, 2 pounds 10 ounces; end of fourth week, 3 pounds $\frac{1}{2}$ ounce.

Medical Journal of Australia, Sydney

Aug. 6, 1921, 2, No. 6

*Clinical Significance of Absent Hydrochloric Acid in Gastric Contents. J. F. Wilkinson.—p. 93.

*Anesthetics and Their Administration. M. K. Moss.—p. 96.
Heat Losses of Body Connected with Surgical Operations Under Ether Anesthesia. C. E. Corlette.—p. 98.

Extroversion of Bladder. A. A. Lendon and H. S. Newland.—p. 103.

Significance of Absence of Hydrochloric Acid in Stomach Contents.—Wilkinson urges more frequent examination of the stomach contents for hydrochloric acid and enumerates many conditions in which it is absent and in which administration of the acid gives relief and even leads to a cure.

Resuscitation After Anesthesia.—Moss uses for artificial respiration rapid pushes over the sternum. Sylvester's method, he says, is irrational. The sternal compression method rapidly ventilates the lungs. Should the heart fail, he injects either strychnin, pituitary extract or atropin directly into the heart muscle.

Annales de Médecine, Paris

July, 1921, 10, No. 1

*Paroxysmal Tachycardia. Daniéopolu and V. Danulesco.—p. 1.

*Tuberculous Meningitis. Riser and Roques.—p. 10.

*Surface Tension of Urine. E. Doumer.—p. 26.

*Fasting in Treatment of Diabetics. M. Labbé.—p. 32.

*Cancer Statistics 1901-1906. E. Jeanselme and A. Barbé.—p. 58.

Mechanism of Paroxysmal Tachycardia.—Daniéopolu and Danulesco report from Bucharest a case of pulsus alternans in a man of 50 who developed heterotopic tachycardia after a subcutaneous injection of epinephrin. The tachycardia had all the electrocardiographic characteristics of paroxysmal auricular tachycardia, and they seek to explain the mechanism.

Tuberculous Meningitis Simulating the Epidemic Form.—In the three cases described, the polynucleosis in the lumbar puncture fluid and clinical signs of subacute epidemic meningitis seemed to justify intraspinal serotherapy. The whole developed rapidly and proved fatal in a few days in the man of 35, and the two children of 2 and 13. The meningitic symptoms did not appear in the older child until the tenth day of the general malaise and loss of appetite, with death the eighteenth day. A profuse fetid diarrhea was almost the first symptom in each case. The polynucleosis of 82, 83 and 53 per cent. showed most of the cells intact, which testified to toxic action rather than to abundance of the bacilli. No tubercle bacilli were found in the spinal fluid of the adult and only a few in the older child. Riser and Roques have compiled from the records 76 cases of tuberculous meningitis with polynucleosis but only 59 are reliable with polynucleosis of over 20. All terminated fatally with one exception, and the course was rapid in all but 8 in which it was

over twenty days. In the absence of tubercle bacilli in such cases, the reduction of the chlorids is an aid in differentiation, but in case of doubt they advise injection of anti-meningococcus serum as it cannot aggravate the inevitably fatal prognosis of tuberculous meningitis.

Surface Tension of the Urine.—Doumer describes how to measure the substances reducing the surface tension of the urine, and emphasizes its clinical import in respect to the bile salts, etc.

Fasting in Treatment of Diabetes.—Labbé has been making a critical study of the effect of fasting in treatment of diabetics, and concludes that in the cases without emaciation it allows the sugar content not only of the urine but of the blood to be brought back to normal. But when there is denutrition, this cannot be realized. Even if the glycosuria and acidosis are arrested, the effect is transient and they soon return. This transient and provisional effect is gained at too great expense; the patient is not rendered more resistant, and the evolution of the disease is not checked. In two of his patients thus temporarily improved, he was surprised at the brutal way in which coma developed soon after. The fasting treatment with denutrition should be reserved for acute accidents. In the premonitory period of coma in attacks of acidosis, fasting need not be feared, for it always mitigates the acidosis. But it is useless to impose repeated periods of fasting on these patients. Fasting is rarely necessary in diabetes with denutrition, and it should always be rational, not a routine procedure, and should always be carefully supervised.

Cancer Statistics.—Jeanselme and Barbé state that they have devoted several months to research on the 1,501 cases of cancer at the Tenon Hospital during the six years ending with 1906. The occupation, age, organ, residence and other details are tabulated. At first glance it seems that certain quarters and certain buildings showed an exceptional proportion of cancers, but investigation proved that these quarters and buildings were so densely populated that the actual per capita percentage was no higher than the average elsewhere.

Bulletin Médical, Paris

Aug. 20, 1921, 35, No. 34

*Mental Hygiene. Toulouse.—p. 667.

Mental Hygiene.—This is the address on curable and avoidable insanity delivered by Dr. Toulouse, president of the Ligue d'Hygiène Mentale, at the recent public meeting of the league. He explained that the human mind is still very imperfect, still in the embryonal stage. It is the least perfect of the physiologic functions, and the most fragile in the present stage of its evolution, but he protested against the prevailing impression that mental disease is incurable. Acute mania of the confusional type is usually the result of physical or emotional exhaustion, and recovery is the rule after about five months of peace and tonics and nourishing food. The restoration is more complete than after typhoid or tuberculosis, and the tendency to recurrence is no greater than with acute articular rheumatism. He describes various measures that have been introduced in the United States and urges their adoption in France, saying that a beginning has already been made by an open service for mental disease at the Paris Ste.-Anne Asylum like the one for the soldiers during the war. He warns against forcing children in school, saying that the school should be a garden where brains come to flower in all liberty, not a cemetery for brains. But cramming for examinations and worrying about them are the best means to bring on the constant fatigue which seems to favor development of dementia praecox.

Journal de Médecine de Bordeaux

Aug. 10, 1921, 92, No. 15

*Reconstruction of Muscles and Tendons. Charbonnel.—p. 437.

*Mastoiditis in Children. Cadenaule and Retrouvey.—p. 445.

Reconstruction of Muscles and Tendons.—Charbonnel reviews the broad field of operative reconstruction of muscles, aponeurosis and tendons. His illustrated article is one of a course of graduate lectures on orthopedic surgery.

Recurring Mastoiditis.—The mastoiditis developing a long time after the first attack with apparently complete recovery

runs a course like the primary disease. The trephined bone is usually thinner at this point and the recurring mastoiditis causes bulging of the skin in an earlier stage, so that the osteitic process is found less advanced than at the primary disease. One of the three children whose cases are described here has had to be operated on four times for three returns of the disease in four years and a half since the first operation at the age of 3. This case emphasizes the necessity for restoring clinically normal conditions in the nose and throat as an indispensable supplement to the mastoid operation.

Lyon Médical, Lyons

Aug. 10, 1921, 130, No. 15

*"Ultra-Rapid" Treatment of Gonorrhea. L. Phélip.—p. 675.
*Writing of Prescriptions. B. Lyonnet.—p. 709.

Rapid Treatment of Gonococcus Urethritis.—Phélip declares that those who try the method he has been applying for a year will be amazed at the facility, the brilliant results and the certainty of this technic, judging from his experience in ten cases. It consists in the ionization of 10 c.c. of a 1 to 3 per cent. solution of a silver salt introduced into the previously cocainized urethra. He never uses more than 30 volts, and does not give over three or four ionization sittings.

Prescription Writing.—Lyonnet enumerates a long list of common blunders in prescription writing, and tells how to avoid them. He quotes the resolution adopted by the Paris Société de Pharmacie to the effect that in prescribing alkaloids, to avoid errors, the name of the alkaloid should be written first and then, in a parenthesis, the name of the acid. For example, quinin (sulphate), not quinin sulphate; morphin (hydrochlorid).

Médecine, Paris

August, 1921, 2, No. 11

*Recent Progress in Pediatrics. P. Lassablière.—p. 821.
*Typhoid Fever in Children. P. Nobécourt.—p. 828.
*Mongolian Idiocy. J. Comby.—p. 835.
*Whooping Cough. E. Weill.—p. 841.
*Acute Pericarditis in Children. L. Baumel.—p. 843.
Diets for Growth. G. Mouriquand.—p. 847.
*Gastro-Intestinal Hemorrhage in New-Born. J. Andérodias.—p. 854.
Subacute Rheumatismal Endocarditis in Children. P. Halbron.—p. 856.
Examination of the Blood in Infants. G. Blechmann.—p. 861.
*Adenoids in Infants. G. L. Hallez.—p. 866.
Medical Inspection of Schools in France. Dufestel.—p. 868.
School Lunches. R. Gaultier.—p. 872.
Open Air Schools. J. Génévrier.—p. 874.
Physiologic Variations in Composition of Milk. Lassablière.—p. 877.
Treatment of Obesity in Children. Minvielle.—p. 880.
Treatment of Whooping Cough. P. Lassablière.—p. 883.
Treatment of Acute Pulmonary Disease. P. Lassablière.—p. 885.
*Bismuth Carbonate in Treatment of Oxyuriasis. Hallez.—p. 889.

Recent Progress in Pediatrics.—Lassablière reviews a number of recent important works by French pediatricists, most of which, by Marfan, Nobécourt, Comby, Weill and others have been summarized in these columns. Panisset has called attention to the danger of foot-and-mouth disease being transmitted in milk to children and urges a change to condensed milk in times when it is prevalent. Lassablière says that he has never seen a case of scurvy in an infant fed on good condensed milk, and his research on guinea-pigs has confirmed that sweetened condensed milk retains all its anti-scurvy properties; a dose of 5 c.c. of the condensed milk, diluted 1:4, proved sufficient to ward off scurvy in the animals fed on wheat and sterilized hay. Hume's recent experience has also confirmed this, contrary to the assertions of Hopkins and of Hess. The excess of sugar in condensed milk explains the way in which young infants thrive on it, Monrevaux having recently reported excellent results from the use of a 10 or 15 per cent. solution of saccharose in nutritional and digestive disturbances in infants. Among the more recent important works is Lesage's study of arthritism in children. He defines it as an abnormal deviation of nutrition for which the liver is primarily responsible, but this deviation is characterized not only by arrest of the decomposition of the purin bodies but by insufficient oxidation of the bodies of the fat series, which stops at the ketone stage in children. Nobécourt found the pneumococcus in 177 of 322 mothers and babes in the Maternity. The proportion was from 61 to 79 per cent. between November and June, but only 18 per cent. the rest of the year. In nurslings, the pneumococcus in the

nose and pharynx may not induce any appreciable symptoms, but usually there are general symptoms with rhinopharyngitis. Intrapulmonary injections of antipneumococcus serum have caused disturbances in some cases. Better results might be anticipated with an oil vehicle for the antiserum. Active vaccination may prove a useful adjuvant to meningococcus antiserum in treatment of meningitis. Weill proposes to utilize the anaphylactic shock in treatment of the pyretic cachexia of cerebrospinal meningitis. In Blechmann's case there was pus in the cranial subarachnoid space as well as in the ventricles, and the antiserum was injected into this space.

Typhoid Fever in Children.—Generally benign in children, yet the mortality averages 10 or 12 per cent. Nobécourt relates, in comparison to the 16 to 18 per cent. mortality in adults.

Mongolian Idiocy.—Comby has observed that the mongolian imbecile is often the last child of a large family, the mothers physically exhausted or worried. Hence this type of idiocy is rare in countries with a low birth rate. He gives thyroid extract systematically in all such cases, and has noted decided benefit from it although nothing like the miracle in myxedema.

Whooping Cough.—Weill has been proclaiming since 1894 that whooping cough is contagious above all in the pre-monitory period, and becomes less and less contagious until there is no further contagion in at most two weeks after the onset of the whoop. Whooping cough in the service never spread as the children with it are not brought to the hospital until the spasmodic cough develops, and by that time the contagious period is past. No contagion occurred among 104 children tested by the closest living in contact with 26 whooping cough children. Some of these children during the years since have contracted whooping cough elsewhere. One month of isolation from the very first coughing is ample for prophylaxis, he reiterates.

Acute Pericarditis in Children.—Baumel warns that a little nausea or vomiting may be the only symptom unless one notices that the pulse is weak and depressible and the heart sounds deep or at least attenuated. He is convinced that insidious pericarditis is far more common than generally supposed, and that it frequently follows left pleurisy with effusion. Administration of digitalis and iodid is important to ward off adhesive sequelae. He recently diagnosed adhesive pericarditis in a year old infant with a precordial murmur covering the entire revolution of the heart. There are also indications of patent ductus arteriosus, the cyanosis being congenital, while the pericarditis dates from the sixth month. The child's father has rheumatism and heart disease.

Gastro-Intestinal Hemorrhage in the New-Born.—The child may have swallowed blood during delivery or the blood may be traced to a crack in the nipple, and certain drugs may turn the stools black. If syphilis is responsible for the hemorrhage, mercurial inunction, etc., are effectual but slow. Rocaz advocates subcutaneous injection of 1 cg. of neo-arsphenamin per kg. of weight twice a week. He gives 0.15 c.c. in 1 c.c. of a 0.01 per c.c. solution of procain, suspending for fifteen or twenty days after a series of twenty injections. If laboratory tests show normal bleeding time and very slow coagulation, 10 c.c. of horse serum or diphtheria antitoxin or fresh human serum or citrated whole blood can be injected into a vein or cranial sinus or subcutaneously. Every five or six hours 15 or 20 c.c. of blood can thus be injected until the hemorrhage stops. The infant must be kept still, to ward off syncope, and be kept warm with hot water bottles or in the incubator. For stimulants, camphorated oil and ether may be useful, and 20 or 30 c.c. of physiologic saline daily, by the rectum or subcutaneously. Regular feeding should not be resumed until certain that the hemorrhage is over. Then the child rapidly recuperates.

Adenoids in Nurslings.—Hallez remarks that the adenoids may be congenital or develop after recurring coryza. Before the age of 4, surgical measures are seldom indicated, he says, on account of the almost inevitable recurrences, unless one's hand is forced by inflammation or otitis or bronchopulmonary complications, or the obstruction of the passages interferes with feeding. A little stretching with forceps may be enough to open the passage, and calcium and epinephrin given

(2 drops of 1:1,000 epinephrin two or three times a day), with local measures.

Bismuth Carbonate in Treatment of Oxyuriasis.—Hallez quotes Loeper's recommendation of bismuth carbonate as a harmless and usually effectual means to exterminate oxyurids. He gives from 2 to 10 gm. a day to adults; 4 gm. to a child of 7, and 2 or 3 gm. to a younger child.

Paris Médical, Paris

July 23, 1921, 11, No. 30

*Medical Responsibility. Courtois-Suffit and F. Bourgeois.—p. 73.

*Pneumococcus Endocarditis. R. Lutembacher.—p. 85.

*Intercricoid—Thyroid General Anesthesia. G. Rosenthal.—p. 86.

Medical Responsibility.—This general review is preceded by an appeal from a lawyer for consultation of three medico-legal experts in all cases involving medical responsibility. The testimony of one alone does not have the same authority. Suffit and Bourgeois comment on the increasing numbers of damage suits brought against physicians, saying that these attacks are almost always from charity patients. The history of medical responsibility in the French courts is almost a constant series of absolutions, as the medical man is not held responsible unless there has been a grave error evident to any one with common sense. A Château-Thierry court condemned in 1905 a physician to 8,000 francs damages claimed on account of the death of a young man under chloroform while a dislocated shoulder was being reduced. The court held that the physician should have informed the young man of all the dangers of chloroform, and advised him to bear the dislocation rather than risk the anesthesia. The court of appeal reversed the decision, saying that as the danger of sudden death is enhanced by the impressionability of the patient, it is the physician's duty to reassure him, not frighten him still more. At the first suit brought on account of sudden death under chloroform, Velpeau in his appeal to the court said "You hold in your hands the future of surgery, and this is a question in which the public more than the medical profession is vitally interested." They remark parenthetically that instances are known of sudden death under ethyl chlorid; a case with legal consequences has recently been reported. Neglect to supervise an overtight plaster cast, a hypodermic injection without disinfection of the skin, roentgen irradiation with apparatus with which one is not familiar, omission of general examination before giving arsenicals, large doses of cocain, etc.—these are examples of malpractice that any one with common sense would condemn. But they are extremely rare. The experts must realize that a medical diagnosis is usually merely a hypothesis; what the physician tries to do is to select the most plausible hypothesis.

A suit for malpractice is a serious injury for a physician even when the baselessness of the attack is demonstrated in the courts. Public opinion and gossip, derogatory comment in the public press, smirch even when they do not burn, and no one is safe from unjustified attacks. A number of specific examples are cited. Among them are instances of damages asked because the physician "did not call often enough"; or because the physician did not operate on the woman's stomach when another physician later did operate, and she claimed an earlier operation would have been better; or because the physician did operate and the patient (charity) deemed the operation two years before to have been useless; or because a grave fracture of the tibia healed with 1 cm. of shortening. This last case dragged for three years through the courts. Damages of 6,000 francs were assessed against a physician who had yielded to the pleading of a "tattooed man" and removed the pigment from his face and hands (without charge). The man failed to apply massage, etc., as ordered, and he sued and obtained damages for the resulting stiffness of his fingers. One man sued for 50,000 francs after an interval of twelve years claiming that the neglect to place in a splint the limb being treated for phlebitis was responsible for certain complications.

The long list of such suits shows that the laity hold the physician responsible for all the unfavorable happenings that may develop in the course of any disease. So much is written and said of the progress of science that the public has come to believe it almost infallible, and ascribes all mishaps to the negligence or ignorance of its high priests. Having the patient or parent sign a paper releasing the physician

from responsibility is useful to the extent at least that it renders them less liable to sue for damages thereafter. Le Bec has had considerable experience with such attacks, and he relates that in a recent case when a young man died at the beginning of an operation for cleft palate and the family threatened the surgeon with a suit, the surgeon replied that unless the suit was dropped he would have the family history investigated for deformities, epilepsy, insanity, and penal offences. He heard no further from that family. In another case a bride's wedding present was a vaginitis with bilateral purulent salpingitis. He sent for the husband to consult with him, but the husband refused to come and sent word that he consented to any operation deemed necessary. Four months later the bride denounced the surgeon for having done the required operation, the husband saying he "would not have allowed it if he had known." Le Bec told her, "Bring your husband to me and I will explain to you in his presence the origin of your ills." Nothing more was heard from either. In conclusion a number of instances are described in which the decision of the courts was unjust and disastrous. The courts, too, are not always careful enough in weighing in advance the claims presented to sift out the unmistakable frame-ups. Even when, as in one of the instances cited, the case was finally decided in the physician's favor after ten years of appeals, the plaintiff being irresponsibly indigent, the physician had to pay the costs of the suit which totaled over 1,349 francs.

Pneumococcus Tricuspid Insufficiency.—Lutembacher found recent vegetations on the tricuspid valve, accompanying recent pneumococcus pneumonia, at necropsy of the man of 64. The pneumonia ushered in the clinical picture but the endocarditis soon followed.

Intercricoid-Thyroid General Anesthesia.—Rosenthal introduces a cannula into the trachea between the cricoid cartilage and the thyroid. This allows safe and regular anesthetization no matter what is being done to the face or throat. He prefers ethyl chlorid for the purpose, and insures a brisk current by giving a jet of oxygen with it. Ether or chloroform can be given instead. A gas, he says, is better adapted for intratracheal administration than a fluid.

Schweizerische medizinische Wochenschrift, Basel

Aug. 25, 1921, 51, No. 34

*Vital Stain for Human Eye. O. Knüsel and P. Vonwiller.—p. 777.

*Arteriosclerosis of Vessels in the Skin. S. Watanabe.—p. 780.

*The Blood in Influenza. W. Rüttimeyer.—p. 784.

*Intradermal Vaccination. W. Hoffmann.—p. 790.

Mutilating Customs Among Nubians. W. G. Fröhlich.—p. 791.

Vital Stain for Human Cornea and Retina.—Knüsel and Vonwiller instill neutral red in the eye, and the epithelium takes up the stain and permits direct inspection of its finest structures by this means. It does not interfere with vision, and they have seen no evidence of the slightest injury in the twenty persons treated in this way except when the amount instilled was intentionally made excessive. Tests of protozoa and laboratory animals have apparently confirmed the harmlessness of neutral red. In man it renders visible the structure of the epithelium which has hitherto been invisible, and it has permitted study of certain physiologic and pathologic phenomena. The staining is done with 1 drop of a 1 per cent. aqueous solution of neutral red instilled every one or two hours. The stain is taken up by the tissues; none passes off into the nose. The staining can be kept up for a week or two without harm. Six views of the microscopic findings are shown.

Arteriosclerosis of the Vessels in the Skin.—Watanabe tabulates the findings in 116 cases. Only in twenty-one cases was arteriosclerosis evident in the vessels in the skin; in all the others the vessels affected were in the subcutaneous layer.

The Blood in Influenza.—Rüttimeyer gives the details of the differential blood count in large numbers of influenza cases, classified by the course and outcome.

Intracutaneous Vaccination.—Hoffmann endorses Leiner's method of injecting the vaccine into the skin instead of applying it to the scarified skin. The needle is introduced for 0.5, 1 or 1.5 cm. parallel to the surface of the skin. The reaction is less and there is less danger of secondary infection, and no danger of infecting others, and there is less of a scar.

Annali d'Igiene, Rome

June, 1921, 31, No. 6

- *Biology of Anopheles. B. Grassi.—p. 329.
- *Fractioned Sterilization. E. Bertarelli.—p. 350.
- *Disinfection of Dialyzing Membranes. F. de Angelis.—p. 354.
- Conditions for Pure Milk Supply. G. Neppi.—p. 359.

Biology of Anopheles.—Grassi here reports extensive research on the hibernation, the feeding and the flying habits of anopheles.

Disinfection of Dialyzing Membranes.—De Angelis found that the membranes could be sterilized, so far as the staphylococcus is concerned, with 10 per cent. phenol, or 2 per cent. mercuric chlorid, or 10 per cent. solution of formaldehyd, without impairing its dialyzing properties. For anthrax spores, 20 per cent. phenol or 5 per cent. mercuric chlorid is required, and this does not affect the dialyzing property of the membranes themselves. The slow dialyzing power of toxins is not modified by the disinfection, but albumin and colloids in general are unable to pass through membranes thus treated.

Clinica Pediatrica, Modena

1921, 3, No. 7

- *Epidemic Encephalitis in Children. E. Mensi.—p. 229.

Epidemic Encephalitis in Children.—Mensi's experience has confirmed the remarkable variety of the clinical pictures induced by epidemic encephalitis in children. Even the youngest are not exempt. One of his patients was an infant of 2 years, and Cesaris-Demel has published a case in an 8 day old infant, both with necropsy. The inflammatory process and punctate hemorrhages are found mostly in the pons, peduncle and optic-striate-nucleus region. The virus is probably filtrable, but Micheli says that in one phase it can be cultivated. A number of typical cases are described, and treatment by augmenting the natural defensive forces is advocated: saline infusion, Ringer's solution, heterogenous serum and protein therapy, and lumbar puncture, etc., to get rid of toxins.

Pediatrica, Naples

Aug. 1, 1921, 29, No. 15

- *Epidemic Encephalitis. S. Maggiore and M. B. Sindoni.—p. 682.
- *Biologic Diagnosis of Tuberculosis. I. Nasso.—p. 690.
- Congenital Atresia of the Anus. A. Vetri.—p. 702. Cont'd.

Epidemic Encephalitis.—Maggiore and Sindoni here report further cultural and clinical evidence which sustains, they say, that epidemic encephalitis and epidemic poliomyelitis are one and the same disease. The manifestations merely differ according to the regions attacked by the virus. The cocci isolated by them from cases of epidemic encephalitis correspond in every respect, they say, to those isolated by Flexner and Noguchi in acute poliomyelitis, and it reproduced the disease in rabbits.

Biologic Tests for Tuberculosis.—Nasso concludes from the findings in 10 nontuberculous and in 53 tuberculous children that the own urine test for tuberculosis is absolutely specific. He has simplified Wildbolz' technic: merely evaporating 100 gm. of urine in a broad based basin at 60 or 65 C. for three or four hours to reduce it to one tenth. The salts stick to the bottom of the basin, and 2 or 3 drops of the concentrated urine are injected as for an intradermal tuberculin test. He applied a similar test with the patient's own blood serum evaporated to a tenth in a watch-glass, and found the results instructive in the same way. This test was applied to 26 children, and this method seems preferable as the injection of the concentrated serum was never painful and never induced necrosis, but the reaction is not quite so pronounced as with the urine test.

Riforma Medica, Naples

Aug. 6, 1921, 37, No. 32

- *Superior Symphysiectomy. R. Costa.—p. 746.
- Appendicitic Abscess in Abdominal Wall. A. Zaffagnini.—p. 748.
- *Amaurosis in Epidemic Encephalitis. S. Mongini.—p. 750.
- Wine in Surgical Antisepsis. L. de Luca.—p. 752.
- *Surgery in Carotid Region. E. Aievoli.—p. 753.

Superior Symphysiectomy for Permanent Enlargement of Peris.—Costa's illustrations show how the excision of the top of the symphysis materially enlarges the passage. There are no important vessels in this region, and the peritoneum

is not molested. He has applied this method in five cases and his assistant in two. The operation was done at the fourth month of the pregnancy in one case; in the others at the approach of or during labor. The results were extremely satisfactory in all, and there has been no disturbance in gait. The children were all born alive, except one that had been suffering before. The benefit from the operation was particularly evident in one case with a true conjugate of 7.8 cm. and the diameter of the fetal head 9.2 cm. This operation enlarges the pelvis permanently. Some of his patients had eclampsia and sepsis, but these did not detract from the success of the operation. It is indicated, he says, with a simple flat pelvis with conjugate not below 7.5 cm. When done during labor, it is better to wait until the os is completely dilated. Ten days were sufficient for healing as a rule. The portion resected was the area between the spines of the pubis, to a depth of 1 cm. from the upper margin of the symphysis, the prevesical space and bladder well protected with sponges through a Pfannenstiel incision.

Epidemic Encephalitis.—The first and the only symptom for a time in the woman of 32 was bilateral amaurosis. Then came cerebellar-bulbar disturbances, and vision gradually returned by the thirtieth day. She had three healthy children. The oculists consulted for the amaurosis noted papillitis in one eye and retinal congestion in the other. During the second month there was considerable improvement, but then came a period of pains in the lumbar region, paresis, and sphincter disturbance.

Surgery in the Carotid Region.—Aievoli surveys the experiences to date with shutting off the circulation in the carotid, especially for pulsating exophthalmos. Development of collateral circulation explains the return of the disturbances in some cases. Ligation of both common carotids and of the ophthalmic vein seems to insure more permanent results. Cauchoix's thirteen cases were not all favorable, but enough were successful to justify consideration of ligation of the ophthalmic vein as a routine procedure.

Rivista Critica di Clinica Medica, Florence

Aug. 5, 1921, 22, No. 22

- *Syphilitic Fever of Relapsing Type. B. Maggesi.—p. 253.

Syphilitic Fever of Relapsing Type.—Maggesi's patient was a girl of 9, apparently healthy until she developed attacks of high fever lasting for two or three days, with intervals of a few days. There was no chill, no profuse sweating and the general health did not seem much impaired. An eruption finally accompanied the febrile attacks, and retrogressed with them. The positive Wassermann and negative search for malaria parasites were confirmed by the cure under mercurial treatment. An attack of fever followed the first mercurial inunctions, and there were two or three more attacks, but there have been none during the months since. Maggesi ascribes to some biologic cycle in the spirochetes this relapsing or recurring fever.

Brazil-Medico, Rio de Janeiro

June 25, 1921, 1, No. 26

- *Acute Leukemia. E. Villela and C. Magarinos Torres.—p. 327.
- Medical Nomenclature. A. Lima.—p. 330.

Acute Myeloid Leukemia with Proliferation in Malpighian Corpuscles.—Villela and Magarinos Torres report what they think is the first case to be published in which there was a proliferation of the reticular apparatus of the malpighian corpuscles in the spleen. The patient was a man of 28 who had acquired syphilis three years before, with suppurating bone and joint complications confining him to bed for nearly a year. The acute leukemia ran a rapidly fatal course with death in less than three weeks.

Semana Médica, Buenos Aires

July 28, 1921, 28, No. 30

- *Multiple Sclerosis, Myopia and Diabetes. O. Wernicke.—p. 97.
- *Stool Sign of Foreign Body in Digestive Tract. T. A. Tonina.—p. 109.
- Reform in Medical Teaching. O. L. Bottaro.—p. 111.
- Necropsy Findings in Star Anise Poisoning. P. J. Pando.—p. 114.
- Spanish League for Social Medicine. A. Aguado Marinoni.—p. 116.
- Phrenologic Anatomy. E. Amato.—p. 117.

Intra-Ocular Sclerosis.—Wernicke presents evidence that pernicious myopia, as well as glaucoma, may be traced to

multiple sclerosis—both intra-ocular manifestations of the same process. He argues further that all the nervous disturbances observed in diabetes are evident likewise in multiple sclerosis, and that the latter may be capable of inducing glycosuria by way of the nervous system, liver, pancreas, etc. The foci of multiple sclerosis seem to spread by way of the blood. Hence the disease does not necessarily begin in the brain, and foci are liable to develop elsewhere. The probability of becoming involved is greater the larger the organ, but the symptoms therefrom depend on the function and on the sensitiveness to pain. There is much to sustain the assumption that such foci may be responsible for chronic muscular and joint rheumatism, as he explains; the foci here making their presence felt early by the pain induced in these more sensitive regions. Inability to stand cold is common to both rheumatism and disseminated sclerosis.

Serous Stools as Sign of Foreign Body.—Tonina says that the "aquarelle diaper" was first described by E. Ortiz in 1912, as a sign of irritation from the presence of a foreign body in the digestive tract of the infant. It was described in detail recently, p. 1056.

Archiv für klinische Chirurgie, Berlin

July 21, 1921, 116, No. 1

- *Postoperative Jejunal Ulcer. W. Denk.—p. 1.
- *Diagnosis of Disease in Esophagus. M. Sgalitzer.—p. 53.
- *The Trachea After Goiter. W. Denk and A. Winkelbauer.—p. 84.
- *Brain Tumors. O. Marburg and E. Ranzi.—p. 96.
- *Conservative Treatment of Surgical Tuberculosis. A. Bier.—p. 162.
- *The Limits of Local Anesthesia. Braun.—p. 185.

Peptic Ulcer.—Denk analyzes the experiences with post-operative jejunal ulcer at Eiselsberg's clinic, saying that the number has constantly increased, from 12 in 1903 to 309 in 1920. It occurred almost exclusively in men. In 4 cases it developed after resection of the stomach. Alcohol, nicotine and lead poisoning may have contributed in some cases. The cause inducing the primary ulcer in the first place persists, and entails the jejunal ulcer. It is less liable after cancer than after ulcer operations, as there is less secretion and hence less erosion from gastric juice with cancer. A gastro-enterostomy for other indications than an ulcer—caustic stenosis, for example—is practically never followed by peptic ulcer. In prophylaxis, he advises resection, as often and as extensive as possible. The mortality is so low that this is no argument against it. In the latest series of 216 resections, the mortality was only 3.7 per cent. He advocates resection even when the ulcer in pylorus or duodenum has healed or is healing. There can be no peptic ulcer after the Billroth I. With existing tobacco or lead poisoning and vagotonia, long continued use of drugs to reduce the vagotonia is advisable.

Esophagus Disease.—Sgalitzer enumerates a number of minor technical points to aid in differential diagnosis with the roentgen rays and esophagoscope combined. (Twenty-three illustrations.)

The Trachea After Operations for Goiter.—Conditions in the trachea gradually right themselves as a rule in the six months following strumectomy. But occasionally the tracheal disturbances persist unmodified.

Brain Tumors.—Marburg and Ranzi review the 318 cases of brain tumors given operative treatment in Eiselsberg's service since 1901, comparing the clinical pictures with the ultimate outcome. Of the 113 cases in which the brain tumor was removed, 14 per cent. were cured and 23 per cent. materially improved, and 6 per cent. showed transient benefit. Only 10 per cent. failed to show any improvement thereafter. Essential improvement was realized in 71 per cent. of the 21 pituitary tumors; in 34 per cent. of the 50 cerebral, and 31 per cent. of the 16 cerebellar tumors, and in 18 per cent. of the 26 tumors involving the auditory nerve.

Conservative Treatment of Surgical Tuberculosis.—This address by Bier at the last surgical congress has attracted much attention. It was summarized, July 23, 1921, p. 329, when published elsewhere.

The Limitations of Local Anesthesia.—Braun concludes his study of this subject by saying that local anesthesia can usefully supplant general anesthesia in fully 50 per cent. of all operations. The main point is to determine the special indications in the individual case.

Deutsche medizinische Wochenschrift, Berlin

July 28, 1921, 47, No. 30

- Errors in Diagnosis and Treatment of Cases of Arsenic Poisoning. A. Heffter.—p. 853.
- Ion Equilibrium and the Action of Poisons. S. G. Zondek.—p. 855.
- Adulteration of Pharmaceutical Products. H. Fühner.—p. 857.
- Auditory Disturbances Under Chenopodium. H. Evers.—p. 857.
- Habit-Forming Effects of Trivalin. F. Reichmann.—p. 858.
- Lipoids and Pseudonegative Wassermann Reactions. Peritz.—p. 859.
- Clinical Value of Blood-Platelet Findings. V. Schilling.—p. 861.
- Roentgenography of Exudative Pericarditis. Schultze.—p. 863.
- Value of Desiccated Milk. L. Langstein.—p. 864.
- Pertussis Serum. M. Bardach.—p. 864.
- Intracardial Injections. R. Blau.—p. 865.
- *Treatment of Diabetes Mellitus. Lenné.—p. 867.
- Pressure Pain in the Metatarsophalangeal Joints. Schober.—p. 868.
- Increased Incidence of Phagedena. F. Rosenberger.—p. 868.
- Toxicoses of Pregnancy. L. Blumenreich.—p. 869.

Treatment of Diabetes Mellitus.—Lenné emphasizes that it is not the purpose of treatment to eliminate glycosuria under all circumstances. Often we must be content if we can get the diseased organism to perform its functions reasonably well, so as to improve the general condition of the patient both subjectively and objectively, even though the glycosuria persists. Many patients feel better in every way on a more liberal diet with slight glycosuria than they do on a stricter diet with sugar-free urine. If we recognize the different effects of various proteins on glycosuria, we must not forget that there is also a marked difference in the way various carbohydrates affect different types of patients. Some patients assimilate one carbohydrate better and some another; for example, it is wrong to assume that oatmeal is going to agree equally well with all patients. It will be found good for some and bad for others. The same is true of potato starch and rice starch. If on substituting other carbohydrates it is found that the capacity for improvement in assimilation has been lost, here is the time when further limitation of proteins and the introduction of fast days are indicated, after which the diseased organism takes on new strength, as is shown by a better assimilation of carbohydrates. If such reaction is waited for in vain, in spite of all measures, it is a bad sign.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, 1921, 165, No. 3-4

- *Hard Tumors of Male Urethra. M. Grauhan.—p. 154.
- *Treatment of Varices. W. Löhr.—p. 166.
- *Resection of Colon with Gastric Cancer. C. Mau.—p. 216.
- *Extraperitoneal Operations on Bladder. H. Boeminghaus.—p. 257.
- *Retrocecal Hernia. H. Zoepffel.—p. 267.
- *Laparotomies, etc., Under Roentgen Control. L. Drüner.—p. 275.
- *Foreign Body in Gallbladder. W. Schulze.—p. 281.
- *Ileus from Heart Disease. A. Sohn.—p. 285.

Hard Tumors in Male Urethra.—Grauhan compares a personally observed case with those from the literature, and warns that these tumors are usually cicatrix carcinomas. The inflammatory pseudotumors that develop above a stricture are accompanied by atypical proliferation of epithelium, and malignant transformation is so common that the portion of the urethra involved and the stricture should be resected without delay.

Treatment of Varices.—Löhr discusses the physiology, anatomy, etc., of varicose veins, and the outcome in eighty cases under various operative measures. The ultimate results all testify, he says, to the superiority of the Babcock method of extraction of the varicose saphenous vein by introduced sound, plus excision. This combination is simple and effectual, and there is no danger of recurrence.

Gastric Cancer.—Mau has resected both stomach and colon in 18 cases, and reviews 83 from the literature. Permanent survival is known in 9 per cent. which is equivalent to 29 per cent. of the 24 patients who survived the intervention of the 79 in whom the outcome is known. Even as a palliative operation, he says, the outcome is better than with mere gastro-enterostomy. The indication for the resection of the colon is the inclusion of arteries in the cancerous growth which it is impossible to free otherwise. The permanent survivals were mostly in cases of large tumors of the greater curvature.

To Insure Extensive Access to the Bladder.—Boeminghaus extols the advantages of Voelcker's method of cutting around the peritoneum most closely attached to the bladder, and then

suturing the lips of the gap in the peritoneum. This shuts off the bladder completely from the peritoneum, and the bladder is then accessible for the most extensive operations in any part of it, the pelvis raised. In the five cases described in which this technic has been applied, the tumors were located at different points in the bladder, and all were easily resected, except one palliative operation on a cancer.

Retrocecal Hernia.—The entire small intestine was involved in the hernia, and perforation of the inflamed appendix had begun to induce incarceration. The young man recovered promptly after the operation. Zoepffel knows of only fifteen cases of retrocecal hernia on record, and only ten were given operative treatment. Resection was required in only one instance.

Laparatomies Under Roentgen Control.—Drüner expatiates on the advantages of raising the pelvis or having the patient lie prone on the table with his knees on a shelf below, or lie on his back with the knees raised, to facilitate roentgen-ray control.

Foreign Body in Gallbladder.—A rubber drain used at a cholecystostomy broke and part of it slipped into the gallbladder, where it was found three years later at an operation or the "recurring gallstones" incriminated for the symptoms.

Heart Symptoms Suggesting Ileus.—Sohn was unable to find any explanation at the laparotomy or at necropsy of the man of 67 for the symptoms of ileus he had been presenting. Heart block and arteriosclerosis of mesenteric vessels, with possibly spastic or paralytic phenomena must have been responsible for the clinical picture of the fatal ileus.

Medizinische Klinik, Berlin

July 24, 1921, 17, No. 30

Disturbance in Urination After Fifty. V. Blum.—p. 895.
Arsphenamin Eruptions. A. Buschke and W. Freymann.—p. 899.
Poisoning with Anilin, Naphthalin, etc. W. Neuland.—p. 903.
Winckel's Disease. W. Neuland.—p. 906.
Senile Hysteria. F. Friedländer.—p. 906.
Operations to Reduce Size of Nose. E. Eitner.—p. 908.
Tenderness in Diagnosis of Adnexitis. A. Bofinger.—p. 909.
Determination of Urea. A. Kowarski.—p. 911.
Serology of Syphilis. E. Epstein and F. Paul.—p. 913. Begun No. 29, p. 877.
Ear Disease from Practitioner's Standpoint. K. Grahe.—p. 914. Cont'n.

Urinary Disturbances After Fifty.—Blum cites statistics which show that disturbance in urination in men is due to spinal disease in only about 5 per cent. of all cases, and in about a similar proportion to stenosis of the urethra, diverticulum or disease of the bladder. In practically all the other cases the disturbances are the result of a neoplasm in the prostate. The atrophied prostate is squeezed into a thin shell by the growing adenoma, and removal of the purely local neoplasm restores clinically normal conditions. To call this neoplasm in the prostate a "hypertrophied prostate" is not only an incorrect term but is apt to mislead one to ascribe to natural senile processes what is merely a local, removable adenoma. The age is the tumor age in general. In every phase of the prostatic adenoma it is liable to bleed easily, and the number of those that succumb to this hematuria is not small, while the Damocles sword of infection is always menacing, with its grave consequences. More than 14 per cent. of all prostatic adenomas have proved to be cancerous, he continues. During the first stage, when the only complaint is of frequent and difficult micturition, with imperious and sometimes painful tenesmus, which nothing can be found to explain, merely general hygiene and dieting should be enforced. Massage is of dubious benefit in this phase, and there is no reason for giving disinfectants for the urine and using the catheter. But active measures are required with retention of urine, hematuria or infection. The combination of both initial and terminal hematuria points to the prostate as the source. Spontaneous hematuria may follow straining at stool or at micturition, jumping from a street car, or catheterization. Cystoscopic examination is imperative after the hemorrhage is arrested. To aid in its arrest, keep the man in bed and apply the whole arsenal of internal hemostatics. If the bladder feels distended, introduce as large a catheter as possible, fastening it to keep up the compression in the urethra. If urine does not flow then, it must be aspirated, to allow the bladder to contract. If the

bleeding keeps up, a suprapubic opening should be made into the bladder, and preparations made for a secondary prostatectomy. With infection installed: the retention catheter and rinsing out the bladder, with urine disinfectants internally. He states that he has repeatedly seen the best results follow intravenous injection of neo-arsphenamin or a silver salt in these cases of acute urogenous infection.

Arsphenamin Eruptions.—Buschke and Freymann report three cases in which a dermatitis of the lichen ruber type developed consecutive to a course of arsphenamin treatment. There was just enough difference to show that it was not lichen ruber. They comment on the remarkable fact that arsenic is liable to induce skin diseases of the same types as those it is often effectual in curing. It is a manifestation of the similia similibus principle, they say, which underlies parenteral therapy as well as serology and vaccine therapy.

Poisoning of Infants with Anilin, Naphthalin, etc.—Neuland refers to accidental poisoning with substances inducing methemoglobinemia. His article was reviewed editorially, page 1108. He presents arguments to show that Winckel's disease is probably an unsuspected poisoning of this kind.

Senile Hysteria.—Friedländer's case was a combination of hysteric astasia-abasia in a man of 70 with spasms of the esophagus, cardia, stomach, bowel and bladder sphincter—the spasms all traceable to intense vagotonia.

Cosmetic Operations on the Nose.—Eitner states that a small ivory frame, introduced after the subcutaneous resection of redundant bone, imparted a normal outline to the nose, and his patients thus operated on in 1913 have had no disturbance from their implant since. He describes here a method for shortening the nose, likewise without visible scar.

Serology of Syphilis.—In concluding their study of the theory of the serologic diagnosis of syphilis, Epstein and Paul emphasize that colloidal, electric and surface tension reactions are involved, not changes in the chemical structure of the reacting substances.

Monatsschrift f. Geb. u. Gynäkologie, Berlin

July, 1921, 55, No. 1

*Hydatidiform Mole. H. Hinselmann.—p. 1.
*Artificial Vagina. M. Frank.—p. 5.
Pathogenesis of Uterine Tuberculosis. R. Schröder.—p. 15.
*Renal Tuberculosis in the Pregnant. H. Graebke.—p. 25.
*Paralysis After Forceps Delivery. W. Kofferath.—p. 33.

Hydatidiform Mole.—Hinselmann's plate shows the atypical kariokinesis peculiar to hydatidiform mole. The edema in the villi is due to a disturbance in the development of the vessels.

Artificial Vagina.—Frank reports a case of external male pseudohermaphroditism in which the aspect and training were those of a young woman. The rectum was utilized to make a vagina, and the case teaches that the rectum should not be used if it is abnormally small or the walls thin and the sphincter muscle weak. These drawbacks were all encountered in this case, but the result was fairly satisfactory after all. The small intestine is better for the above reasons as a rule. The outcome with this was a complete success in a preceding case, but this technic requires a more complicated plastic operation.

Renal Tuberculosis in the Pregnant.—Graebke found tubercle bacilli and blood corpuscles, white and red, in the urine from the left kidney of the woman of 23, six months pregnant. This kidney was slightly tender, and an exploratory incision showed merely insignificant foci of degeneration but no tuberculous lesions. The tubercle bacilli evidently passed readily through it without inducing any lesions in it. She was delivered five weeks later of a lusty boy and has been in clinically good health since. The successful outcome in this case confirms the necessity for extra caution with signs of renal tuberculosis in the pregnant. The readiness with which the kidney in the pregnant allows passage of bacteria as well as of various substances warns to heed well the indications in considering nephrectomy.

Paralysis After Forceps Extraction.—The paralysis in the woman of 37 was on the right side and of the Erb type, and the phrenic nerve was paralyzed likewise. Roentgen ray examination cleared up the puzzling case.

Wiener klinische Wochenschrift, ViennaJuly 21, 1921, **34**, No. 29

Stenosis of the Intestine. J. Schnitzler.—p. 352.

Spinal Anesthesia. A. Candea.—p. 353.

Causal Significance of Facts Learned by Psychoanalysis. P. Schilder.—p. 355.

*Dermatitis Among Workers in Phenol Resins. O. Sachs.—p. 356.

Experiences as Prisoner of War in Siberia. F. Hutter.—p. 356. Cont'd.

Acute Dermatitis and the Manufacture of Artificial Amber.—Sachs warns that in view of the increased manufacture of artificial amber or phenol resins (bakelite) great precautions should be taken to prevent the development of dermatitis. In the process of manufacture the fumes of phenol, formaldehyd and ammonia escape into the room. In several patients observed by Sachs the dermatitis was localized on the face, forearms and hands. Many of the patients presented also a conjunctivitis and several bronchitis. The dermatitis was accompanied by intense reddening, some swelling and exudation, and was of a severe type in most of the cases. The patients were all women, as no men were employed in the factory. Nearly all the employees were affected. Treatment consisted in the application of Burow's solution. After the acute manifestations disappeared, a bandage with an ointment of 3 per cent. boric acid in rectified wool fat or Lassar's zinc paste was applied. The course of treatment extended, on the average, over from four to six weeks. Many patients changed their employment rather than expose themselves again to the inconveniences. It is the duty of factory inspectors to see to it that the necessary ventilation apparatus is installed and that other precautionary measures are taken. This artificial amber is used in making billiard balls, buttons, etc. Some of the employees had protected themselves by smearing the face with petrolatum.

Zentralblatt für Chirurgie, BerlinJuly 23, 1921, **48**, No. 29

*Severing of Nerves to Combat Gastric Inflammation. W. Braun.—p. 1038.

*Encapsulation of Goiter Remnant. W. Capelle.—p. 1039.

Gastro-Enterostomy in Duodenal Ulcer. K. Borszékí.—p. 1041.

Complications of Retrocolic Gastro-Enterostomy. D. Eberle.—p. 1044.

Operative Extra-Articular Stiffening of Hip Joint. Báron.—p. 1047.

Advantages of Canoe-Shaped Goiter Sounds. J. Dubs.—p. 1050.

Nerve Division to Combat Severe Inflammation of the Stomach.—Braun remarks that in cases in which, in spite of clinical evidence of severe inflammation of the stomach and duodenum, at operation, in place of the expected prepyloric ulcer, only more or less extensive inflammatory adhesions are found, the decision as to further technical procedure is sometimes difficult. It is often a mistake to close the abdominal cavity after merely dividing a few bands. On the other hand, more serious intervention, such as exclusion of the pylorus, resection, or gastro-enterostomy, may prove to be wrong. Of late, in such cases, Braun, instead of merely dividing the bands, has sought to isolate the pyloric end of the stomach and the duodenum from its nerves and vessels, in hopes of thus being able to combat the inflammation better. He accomplishes this by detaching the omentum from the stomach over an expanse of 8 or 10 cm., thus completely isolating this part of the stomach from its vessels and nerves. This shuts off the branches of the splanchnic and sympathetic nerves, which run parallel to the stomach vessels to the stomach wall; namely, the nerve tracts that are mainly concerned in the transmission of peripheral irritations (pain and reflexes). No disturbances due to lack of blood supply and no disturbance of motility were noted. The results so far seem to warrant further trials of the method.

Encapsulation of Goiter Remnant After Goiter Resection.—Capelle found that quite often after goiter operations, especially bilateral resections, the healing process was disturbed by inflammation; not so much severe infection as low-grade suppurations, which usually give rise to troublesome fistulas. In more than 100 bilateral resections of late he has resorted to encapsulation of the goiter stump, whereby the operation wound is closed off and the secretion from it checked or stopped, which results in drying up the whole operative area. At the same time, the contraction of the tissues lessens the whole wound area. After resection of the goiter, the capsule can usually be spread out fan-shaped by means of forceps.

It is then drawn up and sutured to cover the stump, as is illustrated in the original article by three clear halftones.

Zentralblatt für Gynäkologie, LeipzigJuly 23, 1921, **45**, No. 29

Radiology of Digestive Tract in the New-Born. E. Vogt.—p. 1030.

Extraction of After-Coming Head of Dead Fetus. W. Sigwart.—p. 1033.

Cause of Face Presentation of Acranial Monsters. Amreich.—p. 1035.

*Difficult Birth and Mental Disease. W. Hannes.—p. 1037.

Modification of Jaschke-Scherbak Milk-Pump. F. Kermauner.—p. 1041.

Connection Between Difficult Birth and Mental and Nervous Disturbances Later.—Hannes states that his investigations allow no other conclusion than that difficult births and those in which the child is born in an asphyxiated state are not any more associated with anomalous mental development and idiocy, in later life, than are normal and spontaneous births. His conclusions are based on comparison of 399 difficult deliveries with 206 normal deliveries. The mental defectives in the first group totaled 2.2 per cent. and in the normal group 3.4 per cent. The 1.5 per cent. with inherited taints in each group are not included in these figures.

Zentralblatt für innere Medizin, LeipzigJuly 23, 1921, **42**, No. 29

Accumulation of Fat in Supraclavicular Fossa. F. Schultze.—p. 585.

Nederlandsch Tijdschrift v. Geneeskunde, AmsterdamJuly 23, 1921, **2**, No. 4

*Technic for Frozen Sections. G. C. Heringa.—p. 428.

*After-Contraction of Muscles. J. Pinkhof.—p. 437.

*Cause of Fibrillation in the Heart. S. de Boer.—p. 445.

*Proper Candidates for Sanatorium Treatment. P. de Bloeme.—p. 450.

*Frequency of Venereal Disease, Cancer and Tuberculosis. A. Hendriks.—p. 457.

*The Optic Nerve in Epidemic Encephalitis. P. J. Waardenburg.—p. 462.

Latent Tertian Malaria. K. A. Rombach.—p. 470.

The Oswaldo Cruz Institute in Brazil. C. de Langen.—p. 493.

Preparing Microscopic Specimens.—Heringa enumerates among the advantages of what he describes as his new gelatin-freezing technic, that, as the gelatin does not harden, it is possible to remove the stain from the specimen. Also that the gelatin holds the tissues together to facilitate cutting. A still further advantage is that a large number of sections can be used at the same time. The method has all the advantages further of the freezing technic, the avoidance of alcohol, of the necessity for heating, the rapid work and the simplicity of the whole procedure. He describes it in detail.

Contraction of Voluntary Muscles After Certain Efforts.—Pinkhof discusses the mechanism and the interpretation of the involuntary raising of the arm that follows pushing sideways with the extended arm against some solid resistance. This is Kohnstamm's "catatonia test."

Cause of Fibrillation of the Heart.—De Boer offers experimental evidence to prove that hastening of the impulse so that it reaches the ventricle just at the close of the refractory period is liable to entail fibrillation. Repeated extrasystoles is thus the basis for fibrillation.

Indications for Sanatorium Treatment.—De Bloeme says that even after thirty years of the sanatorium system, it is still something of a question to determine which patients are promising candidates for sanatorium treatment. The beginning cases are not always the mildest, and many persons with incipient tuberculosis owe their impressive symptoms to some other cause, thyroidism, neurasthenia, hysteria, etc.

Frequency of Venereal Disease, Cancer and Tuberculosis in General Practice.—Among Hendrik's 2,061 patients in his sickness insurance practice at Gravenhage during the last eight years, cancer occurred in 1.37 per cent; syphilis in 4.04 per cent. of the men and in 2.61 of the women; tuberculosis in 4.8 per cent.

The Optic Nerve in Epidemic Encephalitis.—Waardenburg noted ring scotoma in one case and slight restriction of the peripheral visual field in the second case, along with paralysis of accommodation or convergence, anisocoria, transient immobility of the pupils, and disturbance in the associated movements of the eyes.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 16

CHICAGO, ILLINOIS

OCTOBER 15, 1921

THE SYMPTOMATIC TREATMENT OF PNEUMONIA *

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BOSTON

The hope for a true curative treatment for the various types of pneumonia undoubtedly lies in the field of specific therapy. There are, however, but few successful forms of specific therapy in all medicine, and for the most part the successful practice of the art of medicine has lain in the past in the direct treatment of signs and symptoms; and in spite of the more brilliant results obtained with specific remedies, it cannot be denied that symptomatic treatment has met with no small measure of success.

At the present moment it is our object while waiting for the perfection of the specific cure to consider the matter of the symptomatic treatment of pneumonia, with special reference to the attempt to find the true indications for treatment in terms of morbid physiology. Symptomatic treatment may be either empiric or rational; the latter, of course, is the method of choice. Rational symptomatic treatment is only possible when, not merely the anatomic, but also the functional derangement in a given patient can be clearly visualized by means of knowledge gained from symptoms and physical signs, and from properly understood laboratory and functional tests, and when, from such a visualization, therapeutic measures of known effect are employed to meet truly existing indications.

To apply such an ideal to the treatment of pneumonia it becomes necessary first to analyze the functional difficulties with which the pneumonia patient is confronted.

The outstanding difficulty is the respiratory battle. Even in the absence of specific remedies, it seems likely that a considerable number of persons who now succumb to pneumonia could be saved were this respiratory burden taken from them. The ability to overcome toxemia and to repel bacterial invasion is undoubtedly reduced by exhaustion. The majority of pneumonia patients recover, as it is. It would therefore seem reasonable to suppose that, were the respiratory load lightened and exhaustion from respiratory effort prevented or decreased, the mortality could be reduced to a very low rate indeed. Given half a chance, the

pneumonia patient will of himself survive his toxemia and master his infection. It will be our effort to show that there are methods at hand which it may be hoped will give him the half chance by removing or diminishing his respiratory burden.

Difficult breathing or dyspnea of a more or less typical type is the prime subjective and objective respiratory manifestation of pneumonia. Let us consider, therefore, the manner of its causation. It has long been known to be at least not solely explainable on the basis of morbid anatomy. The extent of the pulmonary consolidation bears no constant relationship to the intensity of the dyspnea; and, furthermore, dyspnea may cease when the crisis is past with no alteration in the anatomic process in the lungs. We must seek, then, a physiologic as well as an anatomic explanation.

Dyspnea occurs in normal persons under certain circumstances, after violent exertion, for example, or when the oxygen in the inspired air is greatly reduced as at high altitudes. It must be borne in mind that the term dyspnea should be restricted to difficult or distressful breathing. It is essentially a subjective phenomenon, though usually in addition it is possible to tell objectively when the breathing has become distressful. Increased breathing to which the term hyperpnea is properly applied is not necessarily distressful. One may have hyperpnea with no dyspnea. Hyperpnea is a condition in which the total volume of air entering the lungs per unit of time is increased over normal, when in other words, the ventilation of the lungs is increased. Increased ventilation of the lungs may be accomplished by an increase in rate or in depth of respiration or, more commonly, by an increase in both. An increase in rate of breathing only is not necessarily an indication of hyperpnea. Types of rapid shallow breathing occur in which there is no increase in the ventilation of the lungs, at least not in alveolar ventilation. To such the term tachypnea may well be applied. Tachypnea would be the respiratory homologue of tachycardia and may, as in some tachycardias, be due to purely reflex or nervous causes. The work of Peabody and his collaborators¹ and also that of Meakins² has thrown considerable light on the nature of these several respiratory types.

FACTORS THAT MAY CAUSE DYSPNEA

With these definitions in mind, we are in a position to discuss the factors which may cause dyspnea. In the first place, in normal individuals we have a great

* From the Medical Service of the Massachusetts General Hospital.

* Aided in part by a grant from the Proctor Fund, Harvard Medical School.

* Read before the Thirty-Sixth Meeting of the Association of American Physicians, Atlantic City, May 10, 1921.

1. Peabody, J. F. W., et al.: Clinical Studies on the Respiration, I, III and IV, Arch. Int. Med. 16:846 (Nov.) 1915; 20:433, 443 (Sept.) 1917.

2. Meakins, J. C.: Harmful Effects of Shallow Breathing, with Special Reference to Pneumonia, Arch. Int. Med. 25:1 (Jan.) 1920.

variation in the amount of exertion necessary to produce dyspnea. The trained athlete may perform, with no subjective breathlessness, an amount of work which would produce extreme dyspnea in an untrained but otherwise normal person, and an individual with the so-called effort syndrome may have dyspnea on very trivial exertion. What are the reasons for these differences, and what, in fact, is the essential cause of dyspnea?

We think that in general it can be laid down as axiomatic that in any individual, normal or diseased, the symptom dyspnea will arise whenever the pulmonary ventilation called for by his life processes at the moment exceeds the quantity of air that his pulmonary bellows is mechanically capable of delivering with ease. If this principle is sound, the onset of dyspnea in persons, either normal or abnormal, will depend on the ratio between the ventilation called for by bodily needs and the ventilation that their bellows can deliver. It is really a case of demand and supply. In the case of the athlete doing increasing amounts of work, the demand, that is to say, the call for pulmonary ventilation, is essentially the same as in the untrained subject, but the supply, that is to say the ventilating power of his pulmonary bellows, is greater. The result is that the athlete gets dyspneic less readily. The reverse holds in the man with effort syndrome. His supply is lower than normal; he gets dyspneic sooner. The difference in the ventilating power of the lungs in different individuals is largely dependent on their vital capacity. The tidal air can obviously never exceed the vital capacity; as a matter of fact, it never reaches it. To make each individual respiration maximal would be a fatiguing and uneconomical way of producing ventilation. A high rate could not be maintained under these circumstances, as it takes time and effort to make a maximal respiration. The ventilating capacity will also be affected by certain other factors. The demand for ventilation on the part of the body is for a certain alveolar ventilation, that is to say, for a certain amount of air actually to enter the lung alveoli. The supply of ventilation, that is to say, the amount the bellows can deliver, must be thought of in terms of total ventilation. If the dead air space is increased, a larger total will be necessary to accomplish a given alveolar ventilation. Also rapid shallow types of breathing will require a greater total for a given alveolar ventilation than will slow deep types. The rapid shallow type is, in other words, an uneconomical type. These types have been discussed by Edsall,³ and their significance in determining the relationship between ventilation demand and supply must be borne in mind.

During progressively increasing muscular work there is in normal subjects, as has been shown by Boothby⁴ and by Means and Newburgh,⁵ a progressive and essentially parallel increase in pulmonary ventilation, gas exchange and blood flow. In the course of this progression, dyspnea arises when ventilation reaches a point that throws a strain on the ventilating capacity of the lungs, and inability further to increase the work will be encountered when the subject reaches

the greatest ventilation or circulation rate of which he is capable. The total ventilation of well developed normal men may be increased to as much as eight or nine times the resting value. The upper limit, as shown by Peabody,⁶ will be greater, the greater the vital capacity. The increase in total ventilation is met, as has been said, by an increase in both rate and depth of breathing, but the increase in depth rarely exceeds a third of the vital capacity under any circumstances.⁷ In producing large ventilation, therefore, the person with a small vital capacity will be at a disadvantage.⁸

Let us now apply these principles to pneumonia. We must again consider the demand for, and the supply of, pulmonary ventilation. In the normal person the demand is governed essentially by the gas exchange, that is to say, by the metabolism. Thus, as we have said, with increasing muscular work the gas exchange and ventilation increase in essentially direct proportion. In this case it is the metabolism which is cause and the ventilation which is effect. The respiratory center wishes to maintain a constant alveolar carbon dioxid tension. To do this, it can easily be seen, ventilation must increase in like proportion to carbon dioxid output. If it did not, alveolar carbon dioxid tension would be altered.

In a disease such as pneumonia, the metabolism will, as in the normal, be one of the factors determining the volume of the pulmonary ventilation; an increase in metabolism due to the disease will call for an increase in ventilation exactly as the elevated metabolism of muscular work did in the normal person. There are recognized in disease causes for increased metabolism which are quite apart from bodily activity. Fever is one of them. An increased level of the metabolism has been shown to exist by Du Bois and his collaborators in the fevers of typhoid,⁹ malaria,¹⁰ and sometimes in tuberculosis.¹¹ The typhoid patient at the height of his disease may have an increase of from 40 to 50 per cent. in his metabolism resulting from his fever alone and not due to muscular activity. It is altogether probable that a similar increase occurs in the fever of pneumonia. The metabolism, then, of the pneumonia patient may be expected to be higher, even while he is at complete rest, than it would be under the same conditions when he was well. He will, in other words, have a metabolic need for increased breathing or hyperpnea.

The metabolic, however, is not necessarily the only factor calling for hyperpnea. Another possible one is acidosis. If blood alkali is used up by combination with acid, in order to preserve blood reaction at its normal point the carbon dioxid tension of the blood must be reduced. This can only be accomplished by reducing the alveolar carbon dioxid tension through increased pulmonary ventilation. In general terms it may be said that to lower the alveolar carbon dioxid tension to half its original level the ventilation must be

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3. Edsall, D. L.: Clinical Study of Respiration, Boston M. & S. J. **167**: 639, 1912.

4. Boothby, W. M.: Determination of the Circulation Rate in Man at Rest and at Work, *Am. J. Physiol.* **37**: 383, 1915.

5. Means, J. H., and Newburgh, L. H.: Effect of Caffein on Blood Flow in Normal Human Subjects, *J. Pharmacol. & Exper. Therap.* **7**: 449, 1915.

published.¹² The presence or absence of acidosis can best be determined by constructing the so-called carbon dioxide diagram of the blood.¹² To do this, one determines and plots the carbon dioxide dissociation curve. The blood is equilibrated with three atmospheres, each having a different and known tension of carbon dioxide at the same tension of oxygen. The carbon dioxide content of the equilibrated blood is determined by blood gas analysis. The three points obtained are plotted and a curve drawn through them as in Chart 1, the ordinates (expressed in per cent. by volume) being the carbon dioxide contents and the tensions (expressed in millimeters of mercury) the abscissas. Now the reaction of the blood, Henderson¹³ has shown, depends chiefly on the ratio between the concentration of free carbonic acid and of bicarbonates, thus $[H^+] = K \frac{[H_2CO_3]}{[BHCO_3]}$ in which $[H^+]$ is the hydrogen ion concentration (and hence the reaction) of the blood, $[H_2CO_3]$ the concentration of carbonic acid and $[BHCO_3]$ that of bicarbonates in the blood and K a constant. The reaction of the blood at any point in our dissociation curve can be derived, therefore, from its ordinate and abscissa, for the ordinate, or carbon dioxide content, is proportional to bicarbonate concentration, while the abscissa, or tension, is equivalent to the concentration of free carbonic acid, for gases go into physical solution in direct proportion to their tensions.

This being true, in the diagram any diagonal line drawn through the point 0 will represent a certain hydrogen ion concentration, or blood reaction, for the ratio of ordinate to abscissa for any point in such a diagonal will be the same. By the formula of Haggard and Henderson, Peters, Barr and Rule¹⁴ have constructed such diagonals for different blood reactions. They are shown in Chart 1. The logarithmic expression of hydrogen ion concentration, the so-called p_H , is usually employed.

Having plotted the dissociation curve of a given blood, one can then obtain samples of blood directly from an artery or vein and determine their carbon dioxide content by analysis, and then plot these on the previously plotted curve. These are called the arterial or A point and the venous or V point. From the position of these points, the reaction of the blood can be read off on the diagonals.

We have to date constructed twenty carbon dioxide diagrams for the bloods of thirteen patients with pneumonia. Three of these were shown to this society a year ago.¹⁵ The rest have been determined since then. We also have to date a series of some eighteen diagrams of controls of various sorts. It was pointed out in the previous communication that acidosis in the sense of an abnormal amount of nonvolatile acid in the blood is shown by the level of the dissociation curve.

A low curve means that a portion of the blood alkali is used up. The presence of abnormal acid is usually cared for and compensated for by reduction of carbonic acid through hyperpnea. When this compensation is sufficient, even though the dissociation curve is low, the A and V points will fall on the diagonal of normal p_H (which is 7.35). When compensation has not been adequate, there is a shift in blood reaction and this will be shown by a position of the A point or V point to the right of the p_H 7.35 line which is in the direction of acidity.¹⁶

In the previous paper¹⁵ there was shown a zone within which it was expected normal curves should fall. The majority of our curves for pneumonia patients fall within this. A few fall slightly below it. For this reason we

believe that often there is no nonvolatile acidosis in pneumonia, or that when present, it is of slight grade.¹⁷

When we come to the p_H of the blood in pneumonia we find that certain cases show a reaction less alkaline than normal, even though the dissociation

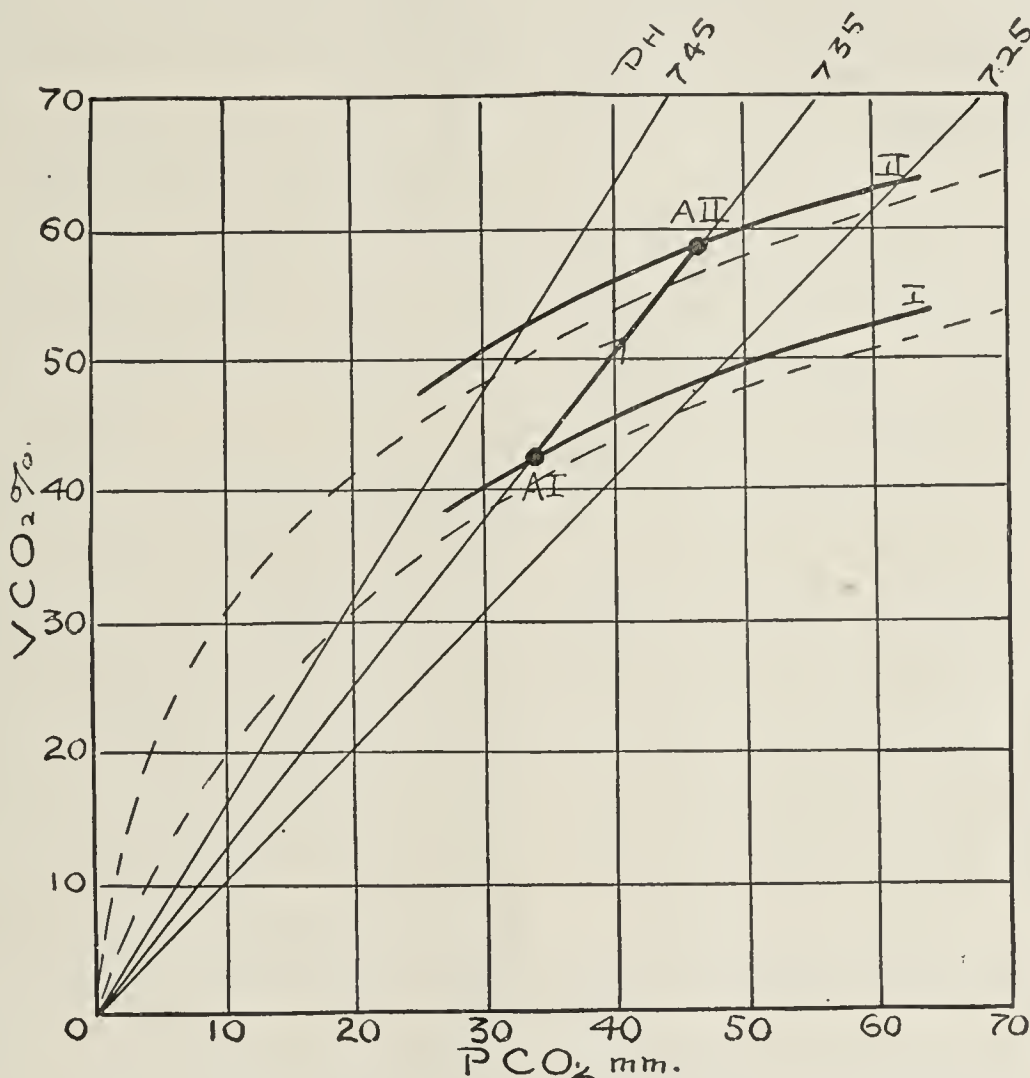


Chart 1.—Diagram showing that in a pneumonia patient with a dissociation curve at a normal level (Curve I), that is to say, falling within the normal zone (indicated by interrupted line) and a normal p_H of 7.35 as shown by the position of the arterial point AI, the effect of raising the curve to the position of Curve II, by the administration of bicarbonate, would be to decrease the volume of pulmonary ventilation necessary; for, with the arterial point in the position AII, the carbon dioxide tension of the arterial blood will be 46.5 mm. When it was in the position AI, however, it had to be kept down to 34.0 mm. With an unchanged carbon dioxide output, considerably less ventilation will be needed to keep the arterial carbon dioxide tension at 46.5 mm. than at 34.0 mm. The effect of alkali then would be to diminish the task of the pulmonary bellows. This chart and Chart 2 are hypothetical but are in many respects similar to actual curves that we shall report later. $V CO_2$, carbon dioxide content of blood in percentage by volume; $P CO_2$, carbon dioxide pressure of blood in millimeters of mercury.

12. Haggard, H. W., and Henderson, Yandell: Hematorespiratory Functions, *J. Biol. Chem.* **39**: 163 (Aug.) 1919.

13. Henderson, L. J.: Das Gleichgewicht zwischen Basen und Säuren im tierischen Organismus, *Ergebn. Physiol.* **8**: 254, 1909.

14. Peters, J. P., Jr.; Barr, D. P., and Rule, F. D.: CO_2 Absorption Curve and CO_2 Tension of the Blood of Normal Resting Individuals, *J. Biol. Chem.* **45**: 489 (Feb.) 1921.

15. Means, J. H.; Bock, A. V., and Woodwell, M. N.: Studies of the Acid-Base Equilibrium in Disease from the Point of View of Blood Gases, *J. Exper. Med.* **33**: 201 (Feb.) 1921.

16. The p_H falls as a solution becomes less alkaline or more acid.

17. These curves will be published in full and discussed in detail in the near future by Means, Barach and Woodwell.

curve is at a normal level. This to our minds suggests a retention of carbon dioxid, giving rise to what may be called a carbonic acidosis. In normal persons the alveolar air and arterial blood are essentially in tension equilibrium. This, as Peters has shown, is not necessarily true in disease.¹⁸ In pneumonia or in heart disease it may often happen that all the blood does not get properly aerated as it passes through the lungs. This may be because of consolidation, of edema, or of exudate, or foam in the air passages, as suggested by Hoover.¹⁹ Under such circumstances the blood leaving the lungs will be a mixture of aerated and unaerated blood. Furthermore, the carbon dioxid tension of the blood will be higher than that of the alveolar air. If in a portion of the lungs a proper gas exchange cannot take place, in order to maintain blood carbon dioxid tension at a normal level, the normal portion of the lungs must be overventilated. Impairment, then, in the respiratory function of any portion of the lungs, if it leads to a mixture of aerated and unaerated blood, will be a factor demanding hyperpnea. It may well exist in pneumonia.²⁰

A third possible cause for hyperpnea, which has recently been suggested by Pearce²¹ and which may at times be present in pneumonia, is an insufficient circulation rate or blood flow. We pointed out before that, as metabolism increases, ventilation and blood flow must increase in like proportion. To a certain extent, however, as Pearce shows, an insufficient response on the part of the circulation can be offset by an increased response on the part of the ventilation—superventilation, as he calls it. From this it would follow that in an individual whose circulation rate did not increase parallel with his metabolism, dyspnea would occur at an earlier point because of the superventilation which compensates for the insufficient blood flow. In a pneumonia patient with poor heart action and insufficient blood flow, then, we might have a need for hyperpnea from circulatory causes. As a matter of fact, our own studies of the blood gases in pneumonia rarely show evidence of stagnation of blood flow.

A fourth cause for hyperpnea is anoxemia, or deficient oxygen saturation of the blood as it passes through the lungs. Such a condition is frequently found in pneumonia and may result from the admixture of aerated and unaerated blood or from an imperfect aeration of the entire blood mass as it passes through the lungs. The former might result from consolidation or localized edema, the latter from generalized edema or from the presence of exudate or foam in the air passages. How anoxemia causes hyperpnea is a disputed matter, and for the purpose of the present analysis it is not necessary that we go into it.

There are one or two other factors which might play a part in the determination of the required ventilation in pneumonia. For one thing, there is the matter of

the dead air space in breathing. In the normal person, alveolar and total ventilation run roughly parallel, for ventilation increase is met by increase in both rate and depth. It can be seen, however, as we have said earlier, that unless there was a compensatory change in the size of the dead space, with a rapid shallow type of breathing, it would take a relatively greater total ventilation to secure a given alveolar ventilation than with a slow deep type. The rapid shallow type is, as has been pointed out, a less economical type; a greater total effort is required to secure a given result.

An enlargement in the dead space would also require a greater total ventilation to secure a given alveolar ventilation. Such an enlargement occurs in emphysema, as has been shown by Hoover.²² So far as we know, it has not been studied in pneumonia. In the emphysematous patient with pneumonia, however, it might be expected to be still another factor demanding hyperpnea.

So much for the factors which may play a part in determination of the pulmonary ventilation required of the pneumonia patient. Any or all of them, if present, will exert their influence in the direction of demanding a greater ventilation than the person would have under normal circumstances.

VENTILATORY POWERS OF THE PNEUMONIA PATIENT

Let us now turn to the matter of supply, to the ventilatory powers of the pneumonia patient in contrast to his ventilatory needs. This, in the last analysis, boils down to the vital capacity, and to the type of his breathing. The lower the vital capacity, the more will a patient have to increase his ventilation by an increase in rate at the expense of depth. That the vital capacity is reduced in pneumonia is certain. A few observations that we have made show that there may be a reduction to one third or less of the normal. This may be due to actual obliteration of air space by the pathologic process, or it may be due to inability to take a deep breath because of pleural pain or to interference with proper action of the diaphragm due to abdominal distention. Whatever the cause, it will have the effect of necessitating a rapid shallow type of breathing.

In regard to such a type of breathing, it has been shown by Meakins² actually to exist in pneumonia, and it has been shown by Haldane, Meakins and Priestley²³ to be of itself capable of producing anoxemia. This, they think, is due to an incomplete expansion of the lung in very shallow breathing and the admixture of poorly aerated blood from poorly ventilated portions with properly aerated blood from properly ventilated portions of the lung.

To summarize the morbid physiology of pneumonia, then, we may say that the pneumonia patient may be called upon to ventilate his lungs more than he would under normal circumstances for any or all of the following causes: (1) increased metabolism due to fever; (2) acidosis; (3) deficient circulation rate or blood flow, and (4) anoxemia. His demand for ventilation, in other words, is increased. Now at the same time his

18. Peters, J. P., Jr., and Barr, D. P.: CO₂ Absorption Curve and CO₂ Tension of the Blood in Cardiac Dyspnoea, *J. Biol. Chem.* **45**: 537 (Feb.) 1921.

19. Hoover, C. F.: Moisture in the Air Spaces of the Lungs and Oxygen Therapy, *J. A. M. A.* **71**: 880 (Sept. 14) 1918.

20. In the matter of the pH of the blood, the normal can be taken as 7.35. How much variation there is in health is unknown. Several of our cases show pH's of 7.25 or less, which we believe is lower than the normal range of variation. Our figures have all been corrected for oxygen unsaturation by Peter's¹⁴ formula.

21. Pearce, R. G.: The Cardiorespiratory Mechanism in Health and Disease, *Arch. Int. Med.* **27**: 139 (Feb.) 1921.

22. Hoover, C. F.: Alveolar Air and Minute Volume of Air in Pulmonary Emphysema, *Tr. Assn. Am. Phys.* **27**: 572, 1912.

23. Haldane, J. S.; Meakins, J., and Priestley, J. G.: Harmful Effects of Shallow Breathing, *J. Physiol.* **52**: 433 (May) 1919.

available supply of ventilation dependent on his vital capacity may be markedly decreased. His respiratory mechanism is confronted simultaneously with more work to do and a lessened ability for doing it. Not only that, but because of the low vital capacity, he is obliged to meet his demand for increased ventilation by adopting a rapid shallow type of breathing which of itself introduces two vicious circles, the first that, being an uneconomical type of breathing, it still further increases the necessary total ventilation; and the second, that this type has been shown to increase the degree of anoxemia. It would seem that we need look no further for an explanation of the dyspnea. Moreover, the multiplicity of the factors involved and the fact that various combinations of them may serve to use up all respiratory reserve will show why such clinical phenomena as dyspnea and cyanosis bear no definite relation to the extent of the anatomic process in the lungs.

TREATMENT

With this analysis of the morbid physiology in mind, let us try to deduct the logical indications for symptomatic treatment in pneumonia. The possible lines to pursue would seem to be (1) procedures which diminish the need for ventilation, and (2) procedures which increase the vital capacity — in other words, measures which will either decrease demand or increase supply of ventilation.

As to the first, we have several methods of attack. The metabolism we probably could alter only by altering the temperature. Hyperpyrexia we do try to relieve, but it is not felt wise nowadays to interfere with temperature unless excessive. At the crisis, nature restores temperature to its normal level. The metabolism probably falls with it, and, as is well known, dyspnea often ceases with no discoverable change in the extent of the anatomic lesion. This may well be explained by a suddenly decreased demand for ventilation.

Deficient blood flow we may attempt to prevent or relieve by suitable cardiac stimulation.

In the matter of increasing vital capacity and so increasing the efficiency of the pulmonary bellows, there probably are no direct measures that can be used except when the low capacity is due to pleural pain,

in which case morphin may accomplish it; or, when it is due to abdominal distention, when relief of that condition may improve it.

There are, however, two procedures which meet direct indications which we wish particularly to discuss; both are of the type which may be expected to diminish the need for ventilation. One is the administration of alkali; the other, the therapeutic administration of oxygen.

In regard to alkali, we have found, as has been stated earlier, that the carbon dioxide dissociation curve is either at a normal or a slightly subnormal level. This means that there is either a normal or slightly reduced amount of available alkali in the blood. Our findings in this respect are in agreement with those of Palmer.²⁴ This writer, however, has found that there is a

considerable quantity of organic acid eliminated in the urine of pneumonia patients. It has also been found by Palmer²⁵ and others that it takes more alkali by mouth to render the urine alkaline in pneumonia than in the normal person. In considering the preservation of acid-base equilibrium in disease, we must bear in mind that there are two principal compensatory mechanisms, the pulmonary and the renal. The level of the dissociation curve indicates that the renal compensation is either not at all or only slightly disturbed. The organic acid found in the urine by Palmer must be eliminated by the kidney nearly as fast as produced, for did it accumulate in the blood the dissociation curve would be definitely lowered. The pulmonary response is generally adequate also, as shown by the

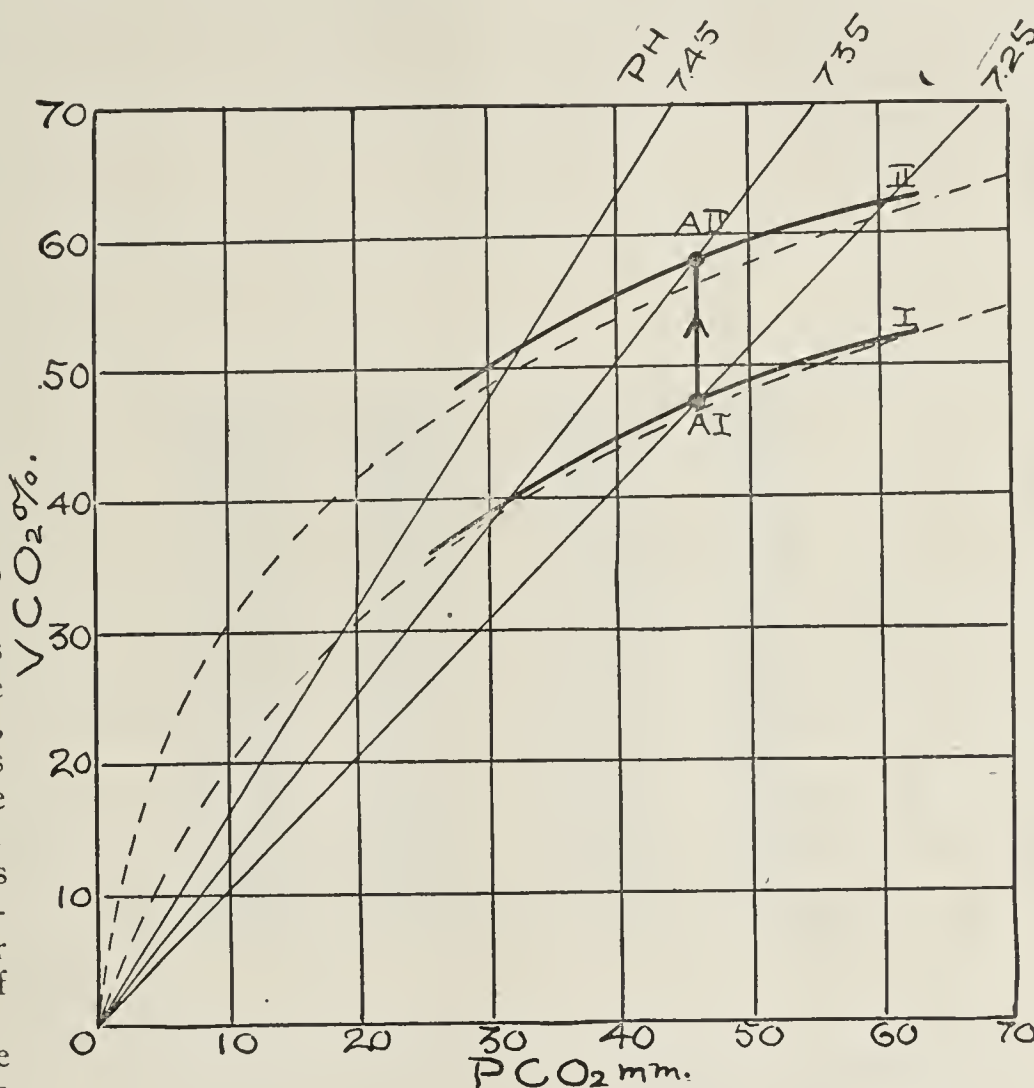


Chart 2.—Diagram showing that in a pneumonia patient with a pH shifted in the acid direction as shown by the position of the arterial point at AI on the pH 7.25 diagonal, the effect of raising the curve from the position I to II will be to convert an insufficient ventilatory response into a sufficient one. The same pulmonary ventilation will be needed to keep the arterial point in the position AII when the curve is in the position II, as was required to keep it at AI when the curve was in the position I. But in the position I the pH is 7.25, which is acidotic, while in the position II it is 7.35, or normal. The effect of alkali has been to restore pulmonary compensation with no added effort on the part of the ventilatory mechanism. Elevation in the curve by alkali of the order of magnitude shown in this and in Chart 1 has been found quite easy of accomplishment.

normal pH of the blood, although, as we have said before, in certain cases there is apparently a shift in reaction in the acid direction with a curve at a normal level, which we might interpret as carbonic acidosis due to insufficient pulmonary compensation, resulting perhaps from depression of the respiratory center as found in experimental pneumonia by Newburgh, Means and Porter.²⁶

24. Palmer, W. W.: Acidosis and Acid Excretion in Pneumonia, *J. Exper. Med.* **26**: 495 (Oct.) 1917.

25. Palmer, W. W., and Henderson, L. J.: Clinical Studies of Acid-Base Equilibrium and Nature of Acidosis, *Arch. Int. Med.* **12**: 153 (Aug.) 1913.

26. Newburgh, L. H.; Means, J. H., and Porter, W. T.: Respiratory Mechanism in Pneumonia, *J. Exper. Med.* **24**: 583 (Nov.) 1916.

If there is either no reduction or only slight reduction in the bicarbonate content of the blood as shown by the level of the dissociation curve, why is it that the alkali tolerance is increased? This may be in part because, owing to a urinary acidity increased by the presence of organic acid, it actually takes more alkali to change the reaction of the urine itself, but in greater part it seems to us that it may be due to a retention of alkali as a compensatory measure on the part of the body.

As Henderson and Haggard have shown, to eliminate a given quantity of carbon dioxide per minute, less pulmonary ventilation will be required at a high level of blood bicarbonate than at a low one. That is to say, with a high dissociation curve, less ventilation will care for a given carbon dioxide output than with a low curve. A raising of the curve therefore enables the respiratory mechanism to perform a required task with less labor. Scott²⁷ has shown that patients with pulmonary emphysema do this very thing. They have a greatly reduced ventilating capacity; they compensate by raising their dissociation curve.

Now it occurs to us that the same sparing of the respiratory mechanism may occur in pneumonia as a result of giving sodium bicarbonate. When the curve is below the normal zone this, of course, will be beneficial; but even when it is at a normal level to start with, on giving alkali it goes to a higher level than normal. This in a patient with a normal p_H before alkali might, theoretically at least, reduce the amount of pulmonary ventilation that he would have to produce, and in one with a low p_H a raising of the curve might change an existing ventilation from an insufficient to a sufficient one. Some of our cases seem to show that, even without the therapeutic administration of alkali, nature attempts to raise the curve, for after the crisis it was at a considerably higher level than before. We have also found the curve can be readily raised 10 per cent. by volume or more by giving alkali.

Our conception, then, of the use of alkali in pneumonia is that it may be helpful by correcting a non-volatile acidosis if that exists, and even if it does not, by decreasing the amount of ventilation necessary to accomplish the output of a given quantity of carbon dioxide; or, in cases which show a lowering of the p_H , by rendering an ineffective ventilation effective. These actions are shown hypothetically in Charts 1 and 2. In brief, alkali given therapeutically, we believe, may act as a conservator of respiratory

effort. The actual effect of alkali has been studied in very few cases. The finding of the indication, however, we believe is definite, and the use of alkali worthy of further study. That it is desirable to diminish respiratory effort we believe is obvious; but pertinent in this regard are the findings of Newburgh, Means and Porter,²⁶ which showed that in experimental pneumonia as the disease advanced there was a progressive decrease in the sensitivity of the respiratory center ending finally in death from respiratory failure. It has also been shown more recently by Davies, Haldane and Priestley²⁸ that resistance to respiration in time fatigues the center. It is entirely conceivable that the abnormal respiratory load in patients with pneumonia has the same effect, and that removing or decreasing this load might greatly improve the chance of recovery. A word of warning, however, about the use of alkali is in order. It was shown in our previous paper,¹⁵ and has been shown by others, that an alkalosis can be produced by overdosage with

sodium bicarbonate. To our minds, following Palmer,²⁵ the reaction of the urine should be the guide. Enough bicarbonate should be given to make the urine alkaline; then it should be discontinued, to be recontinued later if the urine returns to an acid reaction. This method we believe safe. It is inconceivable that a dangerous state of alkalosis could develop while the urine remained acid, for the response to alkalosis by the body would be the elimination of base by the kidney.

The second therapeutic measure that we have studied in detail is the use of oxygen. Stadie²⁹ and Meakins³⁰ have both found that there often is an arterial or anoxic³¹ anoxemia in pneumonia. We have had the same experience. In this clinic in the past year there

have been treated by oxygen inhalation ten patients with lobar pneumonia and two with bronchopneumonia. All had arterial anoxemia in some stage of the disease, except one of the patients with bronchopneumonia. The arterial saturation in the majority of these was from 74 to 92 per cent.; the lowest observed was 62.3 per cent. Of the ten lobar pneumonia patients there were eight in whom blood gas determinations were made in relation to the oxygen therapy. The arterial saturation was materially raised in all but one by oxygen administration when a suitable

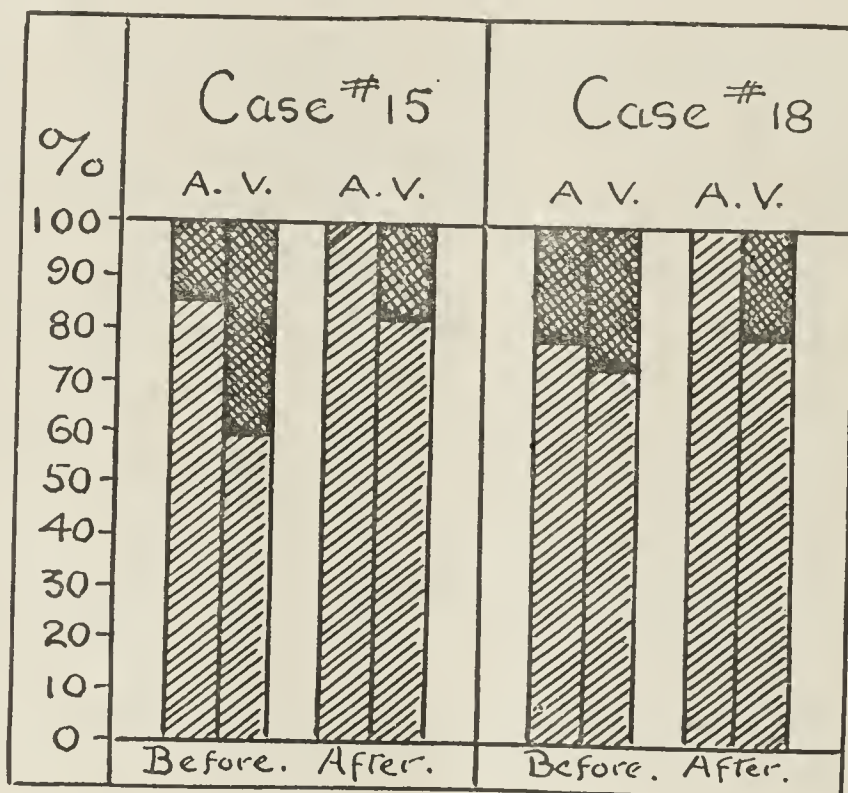


Chart 3.—Effect of oxygen therapy on the arterial and venous oxygen saturation in two cases of lobar pneumonia. A, arterial blood; V, venous blood. The height of the lightly shaded portion of the column indicates the percentage oxygen saturation of the given blood. The observations in Case 15 were just before and immediately after twenty minutes of oxygen therapy. It will be seen that a moderately severe arterial anoxemia was entirely abolished. The observations in Case 18 were before and after oxygen had been given intermittently for a total of thirteen out of twenty-four hours. Here a very severe arterial anoxemia was abolished.

27. Scott, R. W.: Observations on the Pathologic Physiology of Chronic Pulmonary Emphysema, *Arch. Int. Med.* **26**: 544 (Nov.) 1920.

28. Davies, H. W.; Haldane, J. S., and Priestley, J. G.: The Response to Respiratory Resistance, *J. Physiol.* **53**: 60, 1920.

29. Stadie, W. C.: Oxygen of Arterial and Venous Blood in Pneumonia and Its Relation to Cyanosis, *J. Exper. Med.* **30**: 215 (Sept.) 1919.

30. Meakins, J.: Observations on the Gases in Human Arterial Blood in Certain Pathological Conditions and Their Treatment with Oxygen, *J. Path. & Bacteriol.* **24**: 79 (Jan.) 1921.

31. Barcroft, J.: Anoxemia, *Lancet* **2**: 485 (Sept. 4) 1920.

apparatus was employed. In four it was raised to the normal level. In the case of bronchopneumonia which showed arterial anoxemia the saturation also increased after oxygen.

Objectively, the effect of oxygen therapy was nearly always to lessen or abolish cyanosis, and also to slow very definitely the pulse rate anywhere from 5 to 20 beats. Subjectively, there sometimes was relief to respiratory distress and sometimes not.³²

It seems to us that the presence of anoxemia constitutes a perfectly definite indication for treatment, anoxemia is for one thing one of the possible causes of hyperpnea, and therefore its relief may be expected, to a certain extent, to reduce the respiratory burden; in addition it is the cause of a number of very unpleasant symptoms *per se*. Barcroft,³³ for example when in an anoxic state produced in a chamber with rarefied air suffered from distressing headache, nausea, vomiting, faintness and visual disturbances. His degree of anoxemia was not as great as is often found in pneumonia. In severe anoxemia, profound damage may be done to the cardiovascular and central nervous systems. It would seem, then, that the relief of anoxemia might spare a patient from a multiplicity of injurious effects. The slowing of the pulse rate when anoxemia is relieved would indicate an improved heart action. It further has been shown by the work both of Meakins and of ourselves that anoxemia in pneumonia can usually be decreased or abolished by suitably conducted oxygen therapy.³⁰ The results in two of our treated cases are shown graphically in Chart 3. For the purpose, oxygen may often have to be given continuously or at frequently repeated intervals. Some of the more modern types of apparatus will have to be used, and in most instances a special nurse will be necessary to carry out the treatment.

SUMMARY

1. Rational symptomatic treatment must be based on a clear understanding not only of the morbid anatomy but also of the morbid physiology of the disease concerned.

2. In pneumonia, the outstanding feature is the respiratory battle. A great strain is thrown upon both respiratory and circulatory mechanisms.

3. The respiratory strain results from the circumstance that the pneumonia patient is simultaneously confronted with a necessity for a greater pulmonary ventilation than under normal circumstances, and a pulmonary bellows of reduced efficiency with which to accomplish it. He has a greater ventilatory demand and at the same time a decreased ventilatory supply.

4. A number of factors contribute to this vicious state of affairs. Increased metabolism, acidosis, deficient circulation, and anoxemia may increase the demand for ventilation. At the same time, decreased vital capacity due to consolidation, edema or pleural pain, or abdominal distention may decrease the capacity of the pulmonary bellows.

5. We can directly meet some of these indications. Acidosis, if present, we can correct by alkali administration. Alkali administration also may be hoped to help the nonacidotic case because it raises the

bicarbonate level of the blood, which in turn makes it possible for the patient to get along with a reduced pulmonary ventilation.

6. Anoxemia, which is frequently present and which has a variety of injurious effects, may be corrected or relieved by oxygen administration.

7. Both these measures—alkali administration and oxygen administration—must be carefully and intelligently controlled. Bicarbonate should be given only in amounts sufficient to turn the urine alkaline to litmus. If pushed further than this, it may do harm by producing alkalosis. Oxygen should be given with one of the modern types of apparatus and often nearly continuously by a specially instructed nurse. Its continuation is to be governed by the effect on the cyanosis and the comfort of the patient.

8. These measures are supplementary to specific therapy. When used, however, they may be expected to spare the patient several avoidable burdens and leave him free to devote his entire energy to the fighting of his infection, thus, theoretically at least, improving his chance of recovery.

15 Chestnut Street.

THE VALUE OF DRUGS IN OPHTHALMOLOGY*

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Previous speakers have given us the general principles of pharmacotherapy. Therefore, in discussing the use of drugs in eye affections it is the practical applications of those principles to individual remedies in ophthalmology that should be considered.

In discussing the use of drugs in the treatment of affections of the eyes, the great assistance of heat, cold, electricity, massage, roentgen ray, radium, organ therapy, the serums, surgery and, occasionally, even bleeding, must be borne in mind. Space does not allow even the mention of all the drugs that are useful in ophthalmology, so that I will discuss principally those remedies which have in my own experience proved valuable.

The late Dr. Reber very truly noted the fact that the laboratory tests for the efficiency of drugs vary so much in their biologic surroundings from the clinical tests that exact coincidence cannot be expected. He said:

And if perchance there should be a conflict in testimony between the test tube in the laboratory and the results of carefully conducted therapeutic tests in the consulting room or clinic, my voice would be raised in favor of the latter until such a time as the results can be harmonized.

DRUGS ADMINISTERED INTERNALLY FOR EYE AFFECTIONS

Salicylates.—These are of proved value in certain inflammations of the uveal tract, especially in sympathetic ophthalmia. They lessen pain, promote rest and sleep, and directly affect the local inflammatory process.

Sodium salicylate is the best of these representatives of the virtues of salicylic acid. In sympathetic ophthalmia, best results have been obtained by very large doses.

Acetylsalicylic acid ("aspirin") is less disturbing to the digestion, and at the same time it is more prompt in

32. The data on oxygen therapy will be published shortly in full by Barach and Woodwell in the Archives of Internal Medicine.

33. Barcroft, J.; Cooke, A.; Hartridge, H.; Parsons, T. R., and Parsons, W.: The Flow of Oxygen Through the Pulmonary Epithelium, *J. Physiol.* 53: 450 (May) 1920.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

its analgesic effect. In inflammatory conditions and discomfort following eye operations, 10 grains of acetylsalicylic acid given at bedtime will often assure a good night's rest and help to hasten recovery. This means a great deal when restlessness or anxiety is a real handicap to convalescence.

Iodids.—Potassium iodid and sodium iodid were the sheet anchors of our ophthalmologic fathers. While they do not destroy the spirochetes in syphilitic conditions, they do cause the formation of a proteolytic ferment that has a distinctly selective action on the cellular elements of new tissue growths, or on inflammatory exudates. They therefore deserve to hold their place in present day therapeutics in both syphilitic and nonsyphilitic eye affections. In interstitial keratitis associated with congenital syphilis, the iodids have proved themselves of real value. This is also true in extensive choroidal lesions with vitreous opacities, irrespective of the cause. In gumma of the iris or ciliary body, I have observed the growth to disappear very rapidly under the internal administration of rapidly increasing doses of potassium iodid. Its effect on the formation of new cell growth is well illustrated in melanoma of the choroid when unintelligent patients have for a time refused enucleation of the eye. In such cases I have seen the tumor grow less and the sight improve. Unfortunately, the tumors have shown a fulminating growth with the cessation of the iodids. Owing to the effect of the iodids on exudates in the interior of the blood vessels, they are of value in arteriosclerotic processes involving the choroid, retina and optic nerve. In older people, when the drug has been given over a long period of time, sodium iodid and strontium possess advantages.

Syrup of ferrous iodid is of much value in many ocular conditions, especially those occurring in cases with poor nutrition. In writing about this medicine, Dr. Reber said: "In the interstitial keratitis of children, it is almost a panacea."

Bromids.—The bromids of sodium or potassium assist ophthalmic surgery by their sedative action on the nervous system, the depressing effect on the motor area of the cortex, and by allaying reflex excitability. In nervous people with poor control, the use before an operation of bromid in addition to the application of local anesthetics will prevent the danger of "squeezing," and will assist the patient in maintaining the necessary quiet after the operation.

Nitrites.—The action of sodium nitrite is similar to that of the other members of the nitrite group in producing vasodilatation and reducing blood pressure. It is useful in retinal hemorrhages in older people when there is high blood pressure.

Amyl nitrite by inhalation is helpful in making a diagnosis in cases of toxic amblyopia. It also has a therapeutic value in the later stages of those cases in which there is a paleness of the temporal portion of the nerve.

Nitroglycerin has been used in cases of embolism of the central retinal artery. But my experience with this and other drugs in such cases has not been satisfactory.

Calcium Salts.—Calcium lactate seems to possess a definite value when given in the dose of 5 grains three times a day for several days preceding an operation on the iris or muscles whenever the patient's coagulation time is markedly slow. In those cases in which

there are recurrent hemorrhages of the retina, it is a valuable addition to the other appropriate remedies.

Barbital ("veronal").—This is usually very effective in producing sleep after operation, but sometimes produces great excitement instead. To use a patient's expression, "It set me nearly crazy." Its use, therefore, in ophthalmic surgery is not without some danger.

Cathartics.—Properly employed, these are of much value in ophthalmic practice. Of these, cascara sagrada is especially valuable on account of its effect on the colon.

Cinchophen ("atophan").—This possesses the power of hastening the elimination of uric acid and the urates. In cases of increased blood-uric acid and a general so-called gouty tendency, cinchophen administered in 5 grain doses three times a day, before an intra-ocular operation, tends to diminish the danger of a postoperative iritis or iridocyclitis. It is very effective if given later in these cases when these conditions actually arise after an operation.

In hysterical patients, when the hysterical condition is complicating recovery, asafetida or valerian will have a quieting and, therefore, beneficial effect. I am not prepared to say whether the effect produced is carminative, or whether it is purely mental from the evil odor and taste.

Hydrochloric Acid, Dilute.—This is valuable when there are vitreous opacities without any visible fundus lesion, and which seem to be connected with a gastrointestinal toxemia. Its stimulating effect on the stomach secretions, and its antiseptic effect on the intestinal tract, have been frequently mentioned.

Strychnin.—The salts of strychnin can be used to advantage in cases of paresis of ocular muscles (including that of accommodation after diphtheria). They are also useful in cases of partial optic atrophy, in the later stages of toxic amblyopia, and in weakness of accommodation and convergence in neurasthenic conditions. It is well to remember the cumulative effect pointed out by Hare and others. It is best given hypodermically, and has to be pushed until toxic effects are shown in order to get the best results.

Hexamethylenamin.—This product of ammonia and formaldehyd is often useful to the ophthalmic patient after operations whenever bladder complications cause much trouble and restlessness from constant desire to pass the urine.

Opium.—Morphin sulphate has an analgesic, relaxing and depressing effect on the whole central nervous system. It is very valuable before operations on very nervous and pain-sensitive persons. It relieves the dread and the nervous shock of the operation, enables the patient to hold still without "squeezing," and enhances the effect of the local anesthetic. Before cataract extractions, it can be given in combination with atropin; in glaucoma, in conjunction with strychnin. It should, however, never be given before an operation unless the effects on that individual patient have been ascertained beforehand, because in some people morphin causes great cerebral excitement, nausea and vomiting.

Codein is not as subject to individual idiosyncrasies as morphin, so that it can often be substituted with advantage for morphin. It is an effective reducer of pain, a good hypnotic and sedative. It is very useful in reducing cough or pain in operative cases.

Arsenic.—Liquor potassii arsenitis (Fowler's solution) is very useful in some cases of clonic blepharospasm and also in later stages of malarial keratitis.

Arsphenamin.—Given intravenously, this has proved of great value in all stages of syphilitic eye lesions. Just as in cases of syphilitic manifestations in other parts of the body, so in the later phases of the disease in the eye, it is well to associate arsphenamin with mercurials. My experience with intraspinal medication in syphilitic optic nerve lesions has not been very extensive. But so far, I have seen personally only one case in which the sight suddenly lessened after the first injection. Several cases have been seen in which the atrophic condition was helped and the improvement has been maintained. Other cases have been seen in which the optic atrophy continued its usual sad course, uninfluenced by the injections.

Neo-arsphenamin has not shown any great advantage over the first named arsenic preparation.

Mercurials.—In spite of the introduction of arsphenamin and other arsenic preparations, mercury still has a place in modern ophthalmologic therapeutics. Dr. Reber speaks of calomel as "that gift of the gods." In addition to its general effects, it is very valuable in all inflammatory eye conditions, in unloading the intestinal tract of toxic material. Even people who are much annoyed by "muscae" affirm that the specks are much less troublesome "after a good cleaning out with calomel." In syphilitic conditions, the internal, the intramuscular injection, and the epidermal administration of mercurial preparations are very valuable. In ocular manifestations of congenital syphilis in children, it is of great value given as suggested by Fordyce and Rosen. The administration of mercuric chlorid in conjunction with injections of neo-arsphenamin has been very effective.

Pilocarpin.—The general effect of pilocarpin by mouth and by hypodermic application have been so often described that it is not necessary to add anything more than the statement that I still have faith in its virtue when properly applied in selected cases of uveal inflammation and inflammation of other ocular tissues.

LOCAL ANESTHETICS OR ANALGESICS

One of the great epochs in ophthalmology opened in 1884 when Karl Koller discovered the anesthetic properties of cocain, for it was through his powers of observation that this precious boon was given to suffering humanity. Surgeons and patients the world over should rise up to call his name blessed.

Cocain hydrochlorid, owing to its free solubility, has been the form in which cocain has been generally used. This salt—the oldest of the family of local anesthetics—though supplanted by many synthetic products, under some conditions, still has a niche which it fills effectively. In addition to holocain for ocular operations, with atropin in certain severe inflammations of the uveal tract, and with miotics in painful cases of absolute glaucoma, cocain has no rival. But on account of its instability, toxicity, dilating effect on the pupils, drying effect on the corneal epithelium, and its danger of causing glaucoma, it is best supplanted in certain cases by some of the newer products of synthetic chemistry.

The principal synthetic products are beta-eucain, holocain hydrochlorid, stovain, alypin and procain.

Holocain is used chiefly because of its antiseptic properties, absence of effect on the pupils and corneal

epithelium, and lesser toxicity. For use in office work for removal of foreign bodies on the cornea, etc., its advantages are obvious. Its sterilizing and stimulating effect on corneal ulcers makes it doubly valuable. In major operations I have instilled in the patient's eye a 1 per cent. solution of fresh holocain hydrochlorid every five minutes for twenty minutes before the patient comes to the operating room.

The subconjunctival injection of a 0.5 per cent. solution of procain with epinephrin in addition to the local instillation has been very efficacious in intra-ocular operations. Generally the injections are given below; but in sclerocorneal trephining, in muscle operations, and in some cases of iridectomy, the injections are made at the site of the operation. Even in cases of glaucoma, epinephrin is added to the procain. In glaucoma cases that are suitable, a hypodermic of morphin with strychnin is also given twenty minutes before the operation.

Ethylmorphin hydrochlorid ("dionin") acts as an analgesic and as a local vasodilator. I use it for its absorbent effect in postinflammatory and postoperative conditions. In corneal scars, uveal exudates and vitreous opacities it seems to assist Nature in bringing about absorption. It is well to remember the varying individual sensitiveness to this drug. Some persons stand an initial strength of 1 per cent., while others experience great discomfort from one-fifth that strength. The patient should be informed beforehand of the local effects it is likely to produce, especially the reflex sneezing. I use at bedtime the weakest solution possible to obtain the vasodilatory effect.

CYCLOPLEGICS AND MYDRIATICS

Atropin is the historical progenitor of this group of drugs. Murray quotes Fukala as stating that belladonna was first introduced between 500 B. C. and 130 A. D. Owing to Galen's disfavor, its use was abandoned for many centuries.

The great value of atropin sulphate in ophthalmic therapeutics is too well recognized to require mention. Without it (or some of its substitutes) the present day ophthalmologists would indeed be lost. However, it is a potent drug and should at all times be used with care. In all elderly people, or in young people with a glaucomatous tendency, its use should be confined to those cases in which no substitute would answer the purpose. In all cases in which cycloplegics are used for purposes of refraction or ophthalmoscopic examination, a 1 per cent. solution of pilocarpin should follow the completion of the test. Children are especially sensitive to atropin, and there are few of us who have not seen the flushed face, dry mouth, bright eyes, rapid pulse and respiration, and great excitability following its use. Some very asthenic persons exhibit a marked idiosyncrasy for it. I have seen mydriasis and partial paralysis of accommodation lasting several days from a belladonna plaster placed on the back. It is also felt that the long continued use of cathartics containing belladonna, in the cases of elderly people, may in a few instances play a contributing part in the causation of chronic glaucoma. Locally, at times, it causes a conjunctival irritation resembling trachoma. Even a local dermatitis follows its use. This disturbance disappears quickly after the atropin is discontinued, and the appropriate remedies used. Owing to its toxic action, many substitutes are used in ophthalmic practice, though in inflammatory lesions of the uveal tract it still holds first place.

When the patient exhibits an idiosyncrasy for atropin, I have found for therapeutic purposes that scopolamin hydrobromid is the best substitute. This is especially true in operative cases for glaucoma, and in those cases in elderly people when atropin has an exciting action. It has less tendency to cause local irritation, or to increase tension, and acts as a cerebral sedative. However, it must not be used in strong solution, for some people are easily affected by it. For purposes of testing the static refraction in cases in which atropin is not advisable, I prefer a 1 per cent. solution of homatropin hydrobromid to which one drop of a 4 per cent. solution of cocain is added to one dram of the solution. This addition does away with the local irritation of the homatropin, but is not strong enough to interfere with the corneal epithelium. The homatropin is instilled every fifteen minutes for two hours for purposes of testing the refraction. The recent retesting of cases in which this method was used twenty-five years ago makes one feel that, on the whole, the results have been satisfactory.

For the ordinary case of ophthalmoscopic examination, I have found that euphthalmin (which is now being manufactured under the name of "eucatropin") is the drug *par excellence*. Its use also is made more satisfactory by the addition of a very minute amount of cocain. One instillation in persons over 50 years of age usually gives marked mydriasis in from thirty to thirty-five minutes. In very elderly people, the instillation of a 4 per cent. solution of cocain repeated at the end of ten minutes usually gives a satisfactory dilatation of the pupils at the end of fifteen minutes from the first instillation. It is most important in all cases in which cocain is used to keep the eyes closed as much as possible until the examination is made in order to prevent the irregularity of the corneal epithelium. Some observers have reported satisfactory results from the use of duboisin and daturin.

LOCAL ANTISEPTICS AND ASTRINGENTS

The ophthalmologist as well as the patient must regard boric acid with a sense of eternal gratitude. Though it has been in use for more than 200 years, it still holds the place of regard. It is most widely used as a household remedy, a standby in ophthalmic practice, and a constituent of nearly all proprietary collyria. Its safety and its soothing qualities warrant the continuation of its use.

Mercuric chlorid has long stood at the head of the list of antiseptics in ophthalmic practice. It is of great value in irrigating the conjunctival culdesac in a 1:5,000 or 1:10,000 solution before the operations. In the shape of a salve of 1:5,000, it can be used in the bandaged eye the night before an operation and for filling the eye after an operation. In cases of corneal ulcers, the salve is very efficacious when used in the eye every two hours, in addition to the other treatment. In a few cases, when an idiosyncrasy exists, it causes conjunctival irritation, chemosis and dermatitis. The patient should be tested before the operation for the possibility of such an idiosyncrasy.

Some operators of great experience prefer mercuric oxycyanid.

Chlorin water is one of the most satisfying of all antiseptics in the treatment of certain types of blepharitis, especially blepharitis squamosa. The official chlorin water is used in the strength of one dram to

half a pint of tepid water, and the lid margins are thoroughly washed twice a day with absorbent cotton.

Solution of formaldehyd is very valuable in the treatment of corneal ulcers. It may be used by direct application to the anesthetized ulcer in the strength of 1:50, on a cotton tipped probe, or it may be used as an irrigant in from 1:1,000 to a 1:5,000 solution.

Iodin is very efficacious in the treatment of corneal ulcers. A 2 per cent. solution applied to the lid margins is a remedy that has no superior in nearly all cases of blepharitis. Of course, it is essential that all crusts should be removed first.

Yellow mercuric oxid with good reason is a favorite remedy in all inflammation of the lid margins. However, in some cases it acts as a marked irritant, causing a toxic dermatitis. In these cases, ichthyol as a salve is a good substitute, as the most sensitive skins do not seem to resent its presence.

Resorcin, too, alone or in combination with other drugs such as oxid of zinc ointment, is very efficacious.

Among the newer remedies, ethylhydrocuprein hydrochlorid ("optochin"), a quinin derivative, is particularly effective in any pneumococcus affection of the eye or eyelids. It is very valuable in serpiginous ulcers, in all forms of purulent conjunctivitis, and in blepharitis. In the case of the last, I use it in a 2 per cent. solution, while in the former cases I use it in a 1 per cent. solution. The solution should be fresh.

A still more recent antiseptic is mercurochrome, which is a combination of fluorescein and mercury. It is very highly thought of by Dr. Lancaster and his colleagues on account of its germicidal, nonirritating, yet penetrating qualities. Dr. Lancaster advises its use before operations, and also in acute infections of the ocular and palpebral conjunctiva. It may be used in strength from 1 to 2 per cent. solution.

Pyoktanin (one of the anilin dyes) has been much lauded as a remedy for various eye infections, but I have not found it to possess as satisfactory antiseptic properties as some of those already mentioned.

Silver nitrate has long been recognized for its valuable antiseptic and astringent effects in diseases of the conjunctiva. Its effectiveness in gonorrheal conjunctivitis in the adult and in the new-born cannot be denied. Its application, however, is painful. As a preventive measure in the new-born its use is not without danger when in a 2 per cent. solution it is dropped on the delicate cornea. I have seen several cases in which its use was followed by great reaction and whitening of the corneal epithelium—with much alarm to the physician and parents. Owing to the irritating effect of silver nitrate, many substitutes have been found in the silver protein compounds. Among the many, argyrol has proved of great value from its germicidal, cleansing, yet non-irritating qualities. In spite of early laboratory tests showing the inertness of argyrol as a bactericide, ophthalmologists of the greatest clinical experience have continued to report satisfactory results from its use in a multitude of different cases. Later laboratory tests have corroborated the clinical findings of its effectiveness. One of its foremost champions is Dr. Bruns, whose praise is thoroughly justified in my experience. I would be lost without it. Before and after eye operations, in all chronic and acute purulent affections of the conjunctiva, it is of great value. The solution, however, should always be fresh. After instilling the argyrol, I wait a few minutes and then irrigate the eye

with tepid boric acid solution to remove the coagulated masses of mucus.

While protargol is of great germicidal value, I have supplanted its use by argyrol, owing to the irritating effects of the former.

Copper sulphate in the shape of the copper stick is indicated in trachoma.

Zinc sulphate or chlorid, valuable astringent in all inflammations of the conjunctiva, possesses specific bactericidal effects in cases of diplobacillary conjunctivitis.

Alum, in the shape of the stick, is a good astringent for applying to limited portions of the inflamed conjunctiva.

Among the vegetable astringents, tannic acid is valuable as an ingredient for collyria for home use as well as for application in the office.

MIOTICS

Of the different salts of physostigmin, I have found the salicylate most satisfactory. Physostigmin is a very efficient contractor of the pupils and a stimulator of the ciliary muscle. It is therefore very valuable in the medical treatment of glaucoma. However, it is a drug that should be used with precaution, and the solution should not be stronger than is necessary for obtaining the result desired. A strong solution for hastening the disappearance of medicinal mydriasis is often very uncomfortable and disturbing. In long continued use of even weak solutions it may after a while become a marked irritant, the conjunctiva showing a condition not unlike the conjunctivitis from atropin. In some cases its effect is less severe, the patient complaining merely of irritation after its use, and the eye exhibiting a hyperemia of the ocular conjunctiva with a mild circumcorneal injection. In cases of simple chronic glaucoma with only a moderate increase of tension, I have seen very disastrous results from one instillation of a strong solution of physostigmin (1 per cent. solution). The following case will illustrate this point:

A woman had used for a long period a solution of physostigmin salicylate ($\frac{1}{10}$ grain to 1 ounce) in each eye twice a day with a very satisfactory effect on the intra-ocular tension. While the patient was in a distant city, the bottle containing the physostigmin solution was broken. Fearing to go without it, the patient requested a physician to give her a prescription for a solution of physostigmin. Within two hours after the instillation of a 1 per cent. solution, an acute attack of glaucoma supervened, which later required an operation.

Pilocarpin hydrochlorid is milder and less irritating than physostigmin, and I prefer it in all cases to hasten the disappearance of mydriasis, and in the majority of cases of glaucoma. I have used it in solution as strong as 2 per cent., and, so far, have not found that any irritating or painful effect has resulted from its use. It is often happily combined with a small amount of physostigmin salicylate. In all collyria containing miotics, boric acid is also added.

SUBCONJUNCTIVAL INJECTIONS

The eye lends itself well to subconjunctival injections owing to the ease with which they can be employed, readiness of absorption, and facility for noting the effects. In properly selected cases, with the majority of drugs used the injection is painless.

Ophthalmic surgeons have used, subconjunctivally, a great variety of drugs in many types of ocular lesions. Darier especially has had great experience in ocular

therapeutics of this nature. While I have used subconjunctival injections for a number of years, my list of drugs for that purpose is still small. The subconjunctival use of holocain and epinephrin has been mentioned under local anesthetics.

Among the other remedies with which I have had most experience are sodium salicylate, sodium iodate and citrate, guaiacol, mercuric cyanid and oxycyanid and sodium chlorid. In regard to the use of the solutions of the salts of mercury, I feel that they are of real value, but I also feel that they have at times been used rather unnecessarily and unwisely. For example: With a limited infected ulcer of the cornea, a thorough sterilization by drugs or cautery or by use of the thermophore, followed by a treatment every two hours with antiseptics and a bandage between treatments, the ulcer will heal without the use of mercuric cyanid. It is well to remember Darier's expressed contraindications to the use of subconjunctival injections "when there is present circulatory stasis, rendering absorption of medicaments difficult or impossible by the obstructed lymphatics. Under such circumstances, mercuric cyanid injected beneath the conjunctiva will act as an irritant more harmful than useful, and producing intense pain and chemosis." I have seen several such cases with infected corneal ulcer in which the mercuric cyanid injection had been followed by unpleasant results. Patients, too, complain bitterly of the pain following its use in uveal inflammations, detached retina, etc.

When the specific action of a drug is not called for, but when it is desirable to promote absorption of extravasated blood, inflammatory exudations, or the fluid under a detached retina, physiologic sodium chlorid solution acts admirably in the latter stages after acute conditions have passed away. It is painless, causes very little reaction, and it can be repeated as often as every other day. It is especially effective if associated with other remedies, including rest in bed.

CONCLUSION

In our justifiable enthusiasm over the great achievements of Pasteur and Lister, we have had rather too much tendency to consider the one great factor in infection to lie in the invading bacilli and their toxins, the while overlooking the equally great factor of bodily and tissue resistance. Fortunately, the serious study of food products of late is tending to the correction of this error. This research work is not only of large value in the various so-called nutritive disturbances of the eye, but of great assistance in cases of bacterial infections as well. "One man's meat is another man's poison" is well exemplified in the study of food sensitization in certain obscure ocular manifestations.

Preventive medicine is making vast strides. But in ocular affections we shall still have to rely, for many years, on the so-called curative measures—not the least of which are drugs.

Restoring Ranks of Depleted General Practitioners.—The time has come when qualifications for practicing a specialty should be determined by the state authorities, and the most important of such qualifications should be a stipulation that the candidate must have engaged in general practice, in part time at least, for a period of not less than five years. This will restore the depleted ranks of general practitioners for whom there is a crying need, produce a large number of genuine specialists with a greater knowledge of the whole human body, and tend to eliminate the specialist in name only. —M. Nicoll, Jr., *Health News* 15:306 (Dec.) 1920.

THE USE OF DRUGS IN NEUROLOGY
AND PSYCHIATRY*

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Nervous and mental disorders cover an extremely wide territory, much of which has hardly been explored. The types of disorders are numerous. The principles underlying the disorders are often obscure. In some disorders, as in the infections, the degenerations and the neoplasms, the same principles apply in neurology and psychiatry as in the field of internal medicine. In this group, we are dealing with symptoms of the reactions of the nervous system to infective agents, to poisons elaborated within the system or introduced from without, to changes in the vascular system, to neoplasms, to trauma, and to the degenerative changes of advanced life. In treating these disorders, the physician is dealing with familiar problems. He aims to destroy the infective agent, to eliminate or counteract the poisons, to supply deficient chemical substances, to regulate and safeguard the cardiovascular system, to check or remove the neoplasm, and to deal with the traumatic residual. In this work, he makes use of drugs according to the general principles outlined by Barker, counteracting the organismal irritants, regulating the disordered functions, and supporting the compensatory measures initiated by the various systems.

USE OF DRUGS IN VARIOUS DISORDER GROUPS

In another group of disorders, one has to keep in mind principles which are provisionally discarded by the internist and the other specialists. These disorders are not due to the disordered functions of a single system. They are the result of a conflict between different instinctive forces. They may be a method of adaptation, although an inferior one, to the difficulties of a complex social environment. Where such is the meaning of a disorder, it is obvious that the use of drugs must play a very subsidiary rôle, and the fact that these principles have been so frequently neglected makes the chapter of the abuse of drugs in neurology and psychiatry a somewhat lengthy one. Where a nervous or mental disorder is the expression of a definite structural or toxic involvement of the nervous system, the principles which determine the use of drugs require no special comment. Among the disorders of this group, the syphilitic disorders take the first place, and with regard to them the rôle of drugs has been most important. The introduction of arsphenamin has been the same boon to neurologic and psychiatric practice that it has been to the syphilologist. It is doubtful whether full advantage is taken of the possibilities of the drug. There is still a tendency to look on certain organic nervous diseases of syphilitic origin as not being amenable to this treatment. While this is partly true, the distinction has been taken in too absolute a sense, and it is not possible to foresee with absolute certainty whether a given case will benefit by the drug and if so, to what extent. Those who maintain that it is useless to treat a case of general paralysis of the insane fail to do justice to the actual results of intensive treatment carried on over a sufficiently long period, with

the necessary variations in the method, intravenous, intraspinal, intradural, intraventricular or intracisternal. In differentiating the various forms of syphilitic involvement of the brain, the degree of resistance to treatment by arsphenamin is perhaps the most important point to emphasize, and this does not always go parallel with the prominence of those symptoms which we have been accustomed to associate with the fatally progressive type of disorder.

In regard to the treatment of tabes dorsalis, the experience of the various workers differs, but it can hardly be doubted that in some types of cases the symptoms are modified by the treatment.

SYMPTOMS REQUIRING SEDATIVE TREATMENT

In the other groups of organic nervous disorder, in which it is not a question of surgical procedure, treatment is more of a symptomatic nature. In the large group of disorders with involuntary movements (Parkinson's disease, choreiform and athetoid conditions, and various lenticular syndromes) a great variety of drugs have been employed for their sedative action; but, while they may reduce rigidity and stop the involuntary movements, the drugs employed are such that they cannot be continued indefinitely, and treatment for a limited period leaves no permanent improvement. In regard to Sydenham's chorea, the claims for benefit by treatment of the underlying infection by salicylates are not firmly established, and the traditional treatment with liquor potassii arsenitis (Fowler's solution) is more an indication of medical conservatism than of the virtue of arsenic. The motor restlessness in chorea may be so exaggerated as to make sedatives advisable, and it is not uncommon to see children treated with enormous doses of a great variety of sedatives. In many cases a child who is making little progress under such intensive drug therapy will derive the greatest benefit from having the drugs discontinued, and from being treated in a continuous warm bath. The results from subcutaneous injections of magnesium sulphate in chorea may turn out to be of therapeutic importance; the benefit from injections of sodium cacodylate in conditions of spasticity is only transitory, and of academic rather than practical interest.

Of the disorders with motor symptoms, epilepsy is one in which drug treatment has been used for many years with little modification. This treatment consists of the bromids in various mixtures, combined with dietetic and general hygienic treatment. The treatment has been recognized to be merely symptomatic, and its drawbacks have been obvious. The introduction of luminal has, therefore, been welcomed in the treatment of epilepsy, all the more so as it is frequently beneficial in cases of quite severe type. It is, perhaps, premature to say whether, over a long series of years, the treatment will continue to give as good results as it at present promises to do. In hysteria, other types of convulsive episodes are encountered, and the drugs which are frequently used in this disorder belong to the chapter on the abuse of drugs in neurology and psychiatry. They are the pharmacologic evidence of the medieval trend which is still alive below the surface of the modern physician.

SYMPTOMS REQUIRING ATTENTION OF NEUROLOGIST

Of the various symptoms which demand attention from the neurologist and the psychiatrist, the most common are pain and distress, sleeplessness, agitation

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

and excitement. These are the symptoms for which the physician has recourse to drugs, while the complex underlying disorders are recognized to be beyond the reach of such simple methods of treatment. It is true that claims have been made for the beneficial effects of certain tissue extracts in cases of pathologic lying; should it be possible to isolate the active principles and produce them synthetically, their application to the more familiar forms and the minor degrees of moral aberration would open a new chapter in the history of ethics.

As for the treatment of pain and distress and sleeplessness, the danger of a purely symptomatic treatment is well known. They are merely indicators of the underlying disturbance, and it is the business of the physician not to confine himself to the warning sign, but to penetrate to the underlying disorder. Merely to remove the disconcerting symptoms involves the double danger of neglecting the fundamental trouble, and of developing an ignoble dependence on the drug. But symptoms deserve some attention on their own account, and pain is the one which is the most insistent. The value of opium and its derivatives is familiar, and the pharmacologist is trying to find out that combination of alkaloids which gives the beneficial effects with the most certainty, and with the least disturbance of other functions. Some have warmly advocated the use of opium in the treatment of conditions of depression, recommending gradually increasing doses, with, later, gradual reduction. Although in an occasional case this treatment is followed by improvement, it is not to be depended on. Similar claims have been made for the beneficial treatment of cases of agitated depression with bromid pushed to the point of intoxication, but these claims, too, are still to be substantiated. For conditions of mental distress with agitation, barbitol in comparatively small doses is a very useful drug.

Sleeplessness, too, is an indication that all is not well with the economy, and that it is time to make a detailed review of the personal balance. At the same time, it is frequently advisable to give some temporary help with regard to sleep. Paraldehyd is the drug which gives the nearest approach to a normal sleep, but, owing to its disagreeable odor, the coal-tar derivatives have been much preferred, and of the series barbitol is the most uniformly satisfactory. A great number of new hypnotics are being continually brought forth, but the value of each requires some time to be established. Apart from sleeplessness, pain and mental agitation, the patients of the psychiatrist are apt to have conditions with considerable motor excitement, and here drugs in the past have been used to a deplorable extent, and in a routine and unintelligent way. Where now a patient is treated in a continuous bath without the use of any drugs, either for sedative or hypnotic purposes, the patients of a previous generation received their nightly dose of scopolamin. It is true that occasionally one has to resort to a sedative of this description in a wild, unreasoning excitement, but as a rule a case with considerable motor overactivity can be treated without scopolamin, or its equivalent, with a good nursing personnel, facilities for a continuous warm bath, and an occasional dose of paraldehyd.

If in psychiatry the use of drugs is somewhat limited, it is largely because in these complex disorders the chief weight in the treatment must be laid on the

personal relationship between physician and patient, on the organization of the nursing personnel, and on the atmosphere of the hospital with its occupational and recreational elements. It is in virtue of the presence of these factors that treatment in hospitals is, as a rule, to be recommended in preference to treatment of the patient at home.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WILMER AND CAMPBELL

DR. FOSTER KENNEDY, New York: I agree decidedly with Dr. Campbell that, unless we can apply drugs in a more or less intelligent way to the pathology of the disease, we ought to rely almost entirely on physical and psychologic therapeutics. Apropos, however, of our present practice in the treatment of tabes and other syphilitic disorders of the nervous system, I should like to emphasize a position which every medical man, if placed in the position of his patient, would adopt for himself; namely, that once an individual has been definitely infected with syphilis, especially of the spinal nervous system, that patient can never be told that he has had sufficient treatment for the rest of his life. Recurrences occur too frequently to allow any such attitude as that to be adopted, and I am convinced that periodic treatment of the syphilitic, if neurologically syphilitic, will keep in abeyance many of the acute forms of meningitis which quite frequently occur after inadequate treatment. Luminal is the ideal sedative to be used in epilepsy and also in the neuroses associated with the menopause. In overtone spastic cases resulting from lesions in which the pictures of severe paralysis agitans are produced, I have obtained excellent results by giving 25 minims of belladonna, three times a day, and then scopolamin (hyoscin) at night. The fact that such results can be produced by a drug would go to show that the lesion is not a fixed one, but is rather an edematous block. I support Dr. Campbell in what he said about the use of endocrine products in neurologic practice. Repair processes in central nerve lesions are so slight and so slow that in respect of them we are always in a state of therapeutic ineptitude. Consequently, we easily fall prey to wishful thinking. Too much is being claimed for the repair efficacy of glandular extracts. Many people are being deceived, and false hopes in all kinds of conditions are being aroused. People with brain tumor, etc., are constantly being told they have only to take a little pituitary extract and they will be healed. This cannot be done—yet.

DR. CLAES JULIUS ENEBUSKE, Boston: Four pharmacodynamic groups were mentioned by Dr. Campbell as being used in the more frequent neurologic and psychiatric disorders, namely, hypnotics, sedatives, antispasmodics and anodynes. I miss a fifth pharmacodynamic principle, the etiotropic mode of action. The etiotropic conception is not my invention. The value of drugs in neurology is necessarily uncertain as long as the medicinal substances are known in the profession chiefly through descriptive terms of properties in vitro, and as long as their use is founded chiefly on empiricisms and inherited habits of thinking. The value of drugs in neurology attains a higher stabilization in the measure as the use of the medicinal substances is being rationalized by, principally, two processes of development: (1) the development of their application in accord with inalterable physiologic laws, for the attainment of definitely preconceived pharmacodynamic action, and (2) the development of scientific biologic tests, whereby it can be controlled that the dynamic action indicated and desired is also actually obtained. The technical realization of this development is, in the main, a biochemical problem. Great advancement in the value of certain drugs has been achieved. For instance, sodium chlorid has attained prominent value through the development of the definition of the strength of solutions in terms of gram-molecule per volume-unit and the definition of its pharmacodynamic action in terms of osmotic pressure. By the application of these principles in a case of dementia praecox—a young man who had crushed the end-phalanx and denuded the second phalanx

of a finger—I obtained growth of new healthy soft tissue completely covering the bone and resulting in a finger as shapely and useful as before. And yet the sodium chlorid was not entirely necessary to this result. For a greater or lesser part of it might have been replaced by certain other chemicals, if only the idea of gram-molecule per volume-unit as expression of the strength of the solution and the idea of osmotic pressure as expression of its action were retained. There are other new principles, biochemical and pharmacodynamic, which are very promising for psychiatric therapy. My investigations have developed an important mode of action in relation to the cause of certain physical symptoms which occur with great frequency in psychiatric diseases, being present in practically every case of the dementia praecox group and also in the manic-depressive group.

TREATMENT OF ARTHRITIS

CHEMICAL AND CLINICAL STUDIES WITH THE
SALICYLATES, AND CINCHOPEN AND
NEOCINCHOPEN *

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AND

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In 1875, Büss¹ used sodium salicylate in the treatment of rheumatic fever, and since that time salicylates have been regarded as almost specific in the treatment of acute infectious arthritis. Cinchopen was introduced as a remedy for gouty arthritis, owing chiefly to the discovery of its strong uric acid eliminating powers. It has been recognized since the observations of Garrod,² more than seventy years ago, that infectious arthritis, differing from gouty arthritis, is not associated with retention and deposition of uric acid; still there has been a tendency among many physicians to regard infectious arthritis as associated with a disturbed uric acid elimination. Although high figures for the uric acid of the blood (from 5 to 10 mg. per hundred cubic centimeters) are almost invariably found in untreated cases of gout, cases of nongouty arthritis seldom show abnormal findings for this blood constituent, except an occasional case with renal complications. Although, as already pointed out, the salicylates have been employed in infectious arthritis largely because of their analgesic and antipyretic properties, and cinchopen has been employed in gout because it stimulates uric acid excretion, a closer study of these two classes of compounds has shown that, in general, they possess somewhat the same properties, i. e., the salicylates also increase the elimination of uric acid, and cinchopen possesses analgesic properties. It is a singular fact that drugs possessing such similar therapeutic properties should have come, for entirely different reasons, to be used in the treatment of infectious and gouty arthritis. This has led us to believe that, after all, these two forms of arthritis may possibly possess something in common.

* From the Department of Medicine and the Laboratory of Pathological Chemistry, New York Post-Graduate Medical School and Hospital.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Büss, C. E., cited by Hanzlik, P. J.: The Salicylates: I, A Historical and Critical Review of the Literature, 1914, Annual Report of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

2. Garrod, A. B.: Observations on Certain Pathological Conditions of the Blood and Urine in Gout, Rheumatism and Bright's Disease, *Med.-Chir. Tr.* **31**: 83, 1848.

EFFECTS OF SALICYLATE THERAPY

We have again³ undertaken a study of the blood uric acid, together with the urea and creatinin, of nongouty arthritics before and during the period of drug therapy, with the hope that such observations might add to our knowledge of this subject. In a comparatively recent paper, Denis⁴ has made the suggestion, in connection with the increased uric acid elimination following the administration of salicylates, that the beneficial effects resulting from their use in acute rheumatic fever "may in part at least be due to a power possessed by this class of drugs of increasing kidney permeability, thereby facilitating the rapid and more or less complete excretion of the as yet unknown toxins which produce symptoms of this disease." If this hypothesis should be correct, one would expect a fairly definite relationship between the therapeutic efficacy and the decrease in the uric acid content of the blood. From a study of our actual observations (summarized in the accompanying table), there appears to be very little relation between the drop in the blood uric acid and the clinical improvement.

In connection with this work, however, we have made the interesting observation, the details of which are being reported elsewhere,⁵ that the administration of these drugs may reduce the blood concentration not only of uric acid, but also of urea and chlorids, particularly in cases in which there is slight retention of these substances. Although the excretion of uric acid is apparently stimulated considerably more than that of any of the other urinary constituents, still it is obvious that these drugs are much more than simply "uric acid eliminants." Most of our studies in this connection have been made with neocinchopen and cinchopen, although the salicylates probably produce similar effects. It is of interest that, whereas moderate doses of these drugs stimulate the function of the kidney, Hanzlik, Scott and Thoburn⁶ have pointed out that full therapeutic doses of the salicylates given to the point of toxicity produce the opposite effect.

The influence of these drugs on the composition of the blood has been studied in a series of more than fifty cases, in about one fourth of which the patients were suffering from arthritis. Tabular data are given for eleven of the arthritis cases. The analytic methods employed for the blood analyses were carried out as already described.⁷ Our clinical deductions are based partly on the observations in these cases and partly on observations in a large series of cases in the private practice of one of us (A. F. C.).

A few pertinent clinical facts regarding the individual cases are here presented:

REPORT OF CASES

CASE 1.—A man gave a history of pain and swelling in the joints for five weeks previously; salicylates had been given before admission, without improvement. The patient was brought in by stretcher. After the first day of neocinchopen

3. Chace, A. F., and Fine, M. S.: The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides, *J. A. M. A.* **63**: 945 (Sept. 12) 1914.

4. Denis, W.: *J. Pharmacol. & Exper. Therap.* **7**: 255 (Oct.) 1915.

5. Myers, V. C., and Killian, J. A.: Studies on the Influence of Phenylcinchoninic Acid and the Ethyl Ester of Paramethylphenylcinchoninic Acid on Renal Excretion, *J. Pharmacol. & Exper. Therap.*, to be published.

6. Hanzlik, P. J.; Scott, R. W. and Thoburn, T. W.: The Salicylates: VII, Further Observations on Albuminuria and Renal Functional Changes Following the Administration of Full Therapeutic Doses of Salicylates, *Arch. Int. Med.* **19**: 1029 (June) 1917.

7. Myers, V. C.: *Practical Chemical Analysis of Blood*, St. Louis. C. V. Mosby Company, 1921.

therapy, the temperature dropped from 101 F. to 99 F. and remained normal thereafter. At the end of two weeks, the patient was sleeping well, and did not complain of pain. He left the hospital, recovered.

CASE 2.—A man was admitted by ambulance, complaining of severe pains in the joints and swelling of the forearms. He was unable to use the arms. His temperature was 103 F.; leukocytosis 15,400, polymorphonuclears 83 per cent. Following four days of salicylate therapy by rectum, the patient was fairly comfortable, and slept at intervals. Three days later he

INFLUENCE OF SODIUM SALICYLATE, CINCHOPHEN AND
NEOCINCHOPHEN ON THE URIC ACID OF THE
BLOOD IN INFECTIOUS ARTHRITIS

Case and Diagnosis	Date, 1920- 1921	Blood Analyses Mg. to 100 C.c.			Medication
		Uric Acid	Urea N	Creat- inin	
1. R. H., man, aged 31, acute infectious arthritis	4/30 5/1 5/7* 5/9	Trace 2.0 1.8 2.1	17.2 14.4 14.2 10.5	2.3 1.8 1.6 1.4	Salicylates previous to ad- mission; neocinchophen, 50 grains daily, 5/1-7
2. L. G., man, aged 42, acute infectious arthritis	1/5 1/6 1/9* 1/10 1/13	2.7 2.8 2.7 3.0 2.9	10.0 10.3 15.2 16.0 14.9	2.1 1.9 2.5 2.3 2.5	Sodium salicylate given, 240 grains daily by rectum in 1 per cent. starch solu- tion, 1/6-9
3. N. T., man, aged 30, acute infectious arthri- tis, endocarditis	1/6 1/10* 1/12* 1/15	2.2 1.0 0.0 2.7	14.7 10.0 9.7 12.3	2.2 2.0 2.0 2.1	Neocinchophen, 100 grains daily, 1/7-11
4. S. F., woman, aged 43, acute infectious arthritis	11/24 11/28* 12/1 12/5* 12/7 12/16* 12/18*	3.0 Trace 1.4 Trace 2.7 1.2 1.7	11.8 12.0 11.0 8.7 11.5 12.2 12.1	1.8 1.9 ... 1.8 2.0 2.0 2.1	Sodium salicylate, 180 grains daily with sodium bicarbonate, 11/25-27; neo- cinchophen, 45 grains daily, 12/2, 75 grains, 12/3. 100 grains, 12/4-5, 180 grains, 12/8, and 200 grains, 12/9-18
5. H. J., man, aged 34, acute infectious arthritis	4/17* 4/20 4/22 4/26* 4/30 5/1* 5/7	1.3 1.7 2.2 1.8 2.0 1.5 2.2	14.2 16.2 15.0 13.6 17.2 17.1 18.0	... 1.9 1.8 ... 1.4 1.8 2.0	Sodium salicylate and so- dium bicarbonate, 120 grains each daily, 4/9-16; neocinchophen, 50 grains daily, 4/22-24; cincho- phen, 50 grains daily, 4/30-5/1
6. G. F., man, aged 20, acute infectious arthritis	5/1 5/2 5/7* 5/9	2.3 2.2 1.8 2.6	10.0 10.2 10.8 11.7	1.5 1.4 1.6 1.5	Neocinchophen, 50 grains daily, 5/2-7
7. C. R., woman, aged 47, acute in- fectious arthritis	4/20 4/23*	2.6 2.5	15.7 13.9	2.1 2.2	Neocinchophen, 50 grains daily, 4/20-22 and 24-27
8. G. E., man, aged 44, acute infectious arthritis	4/30 5/1 5/6* 5/11	3.6 3.6 3.1 3.6	16.3 15.1 15.4 18.0	1.8 1.5 2.0 2.3	Neocinchophen, 50 grains daily, 5/1-8, and cincho- phen, 50 grains daily, 5/11-15
9. J. McG., man, aged 40, chronic arthritis	11/5 11/11 11/15 11/22* 11/27 11/30* 12/2* 12/3*	4.5 3.3 2.5 2.0 2.0 1.5 3.5 2.4	18.2 ... 12.4 ... 13.2 12.6 11.2 11.2	2.0 1.9 1.9 ... 2.0 2.2	Purin-free diet, 11/11-15; cinchophen, 50 grains daily, 11/18-21; neocincho- phen, 50 grains daily, 11/27-30, 75 grains, 12/1, 100 grains, 12/2
10. A. P., woman, aged 60, chronic arthritis, with renal impair- ment	9/20 9/29 10/3* 10/6* 10/10*	5.9 5.6 2.0 2.5 Trace	21.9 22.9 21.7 17.2 18.7	1.9 2.0 2.1	Low protein diet; cincho- phen, 37.5 grains daily, 9/30-10/9
11. E. R., woman, aged 38, chronic arthritis	3/7 3/10 3/13* 3/16 3/19*	2.6 2.9 2.8 3.4 1.4	10.6 10.9 11.6 10.5 11.1	2.2 2.2 2.5 1.9 1.5	Neocinchophen, 50 grains daily, 3/10-12, and 100 grains daily, 3/16-18

* Blood analyses after medication.

was greatly improved, was out of bed, and able to use both arms; so he left the hospital. At all times, the urine contained a small amount of protein, and red and white blood cells.

CASE 3.—A man was admitted by ambulance, complaining of severe pains in the forearms. He was unable to use the arms. Examination revealed a temperature of 103 F.; leukocytes 17,100, with polymorphonuclears 83 per cent.; urine protein ++. Neocinchophen was administered by mouth, 100 grains daily for five days. After two days of this therapy, the urine protein was +, and at the end of the period, negative. After two days the patient was free from pain; after six days he could use his arms freely, and was out of bed; ten days after admission, he left the hospital, cured.

CASE 4.—A woman, on admission, complained of extreme pain in right leg and arm, and swelling and stiffness in both limbs. Her temperature was 100-101 F. She was at once put on sodium salicylate and sodium bicarbonate. From admission, she was restless and unable to sleep, and on the third night delirious. The salicylates were discontinued. On admission, the urine protein was negative, but before the salicylates were discontinued it was + + + +, with many red cells and a moderate number of leukocytes in the sediment. After a three days' interval, neocinchophen administration was started, and was raised gradually to 200 grains daily. After discontinuance of the salicylates, the urine protein dropped to +, and was uninfluenced by the neocinchophen. The patient considerably improved the first day of neocinchophen therapy, and markedly improved on the third day. No deleterious effects were noted from the rather large doses. The patient recovered.

CASE 5.—A man was admitted by stretcher, helpless and complaining of severe pain in the arms, legs and back. The onset occurred five weeks previously. Examination revealed leukocytes, 18,000, and temperature 103 F. At once sodium salicylate and sodium bicarbonate were given by mouth, with local applications of methyl salicylate. After one week, the treatment was discontinued. The pains were still severe, and temperature was 102 F. After a five-day interval, during which the patient did not improve, neocinchophen was started. The next day he was free from pain, and could use the arms very well. The fourth day, he was out on the roof, felt very well and had no pains. Recovery ensued.

CASE 6.—A man was admitted complaining of swelling and pain in both hands and the right foot, of twelve hours' duration. Examination revealed a temperature of 103 F.; leukocytes 18,000, with 83 per cent. polymorphonuclears. Neocinchophen therapy was instituted; and after six days, the swelling of the hands and feet was reduced, and the pain coincident with movement of the joints was markedly reduced. Next day the patient was in a chair, feeling greatly improved. Recovery followed.

CASE 7.—On admission, a woman complained of severe pains in both arms and hands, and of stiff joints. She was unable to sleep. The leukocyte count was 23,200; the temperature before therapy 102-102.4 F. At the end of the first day of neocinchophen therapy, the patient was fairly comfortable. The urine was negative. At the end of ten days, she was sleeping very well and complained of no pain. Recovery followed.

CASE 8.—A man suffered from severe pains in the arms and legs. There was a temperature of 101 F.; leukocytes numbered 16,600, and the urine showed a trace of protein and an occasional hyaline cast throughout his stay in the hospital. Neocinchophen was given for the first week, with considerable clinical improvement. It was discontinued for two days, whereupon severe pains reappeared. Cinchophen was then given for five days, with marked improvement. The patient was discharged, improved.

CASE 9.—There had been swelling and pain in the knee joints, shoulder joints, wrists and elbows for five years previously. There was no rise in temperature, nor leukocytosis. The patient was improved by dietary measures, but after four days of cinchophen therapy he was able to be up in a wheel chair; after a six-day interval, neocinchophen therapy was begun. The knee joints, which had especially troubled the patient, were free from pain in four days, and he was able to walk about the ward with ease. The urine was negative throughout. The patient left the hospital markedly improved, except for deformity in the legs.

CASE 10.—A woman had chronic arthritis affecting both knees, and a tumor in the left breast, probably malignant. There was no rise in temperature. Slight nitrogen retention was noted, but no proteinuria at any time. Cinchophen therapy was employed and caused nausea. The uric acid and urea of blood were appreciably reduced, but there was no marked clinical improvement. The patient was removed against advice.

CASE 11.—A woman complained of pains, with moderate degree of ankylosis in various joints, of ten years' duration. There was no rise in temperature, and the urine was negative throughout. Low carbohydrate diet was prescribed, with neo-

cinchophen therapy after a short control period. The pain was relieved, but ankylosis remained unchanged. The patient left the hospital slightly improved.

COMMENT

Judging from our present studies, the excretion of uric acid is not so readily stimulated by these drugs in cases of infectious arthritis as in most other conditions. The relative inertness here noted is accentuated in advanced nephritis, in which these drugs may have little or no influence on the uric acid excretion.⁸ In three of our eleven tabulated cases (3, 4 and 10), however, the blood uric acid was reduced to a trace, and in these cases there was also a noticeable drop in the urea. The absence of chemical blood changes in the remaining cases can probably be ascribed, in part at least, to the acquisition of a tolerance for this group of drugs.

As there appears to be no relation between the blood changes and the therapeutic efficiency of the different drugs, it seems improbable that the clinical improvement is in any way dependent on the increased excretion of uric acid or other substances by the kidney. We have been led to believe, as a result of unpublished experiments carried out in this institution by Simpson and Meeker, that the improved kidney function is probably dependent on an altered circulation in the glomeruli. Similarly, Dr. Hanzlik⁹ has suggested that the benefit to the joints may possibly be attributed to local circulatory effects, which facilitate the interchange of inflammatory and metabolic products.

Although our studies were begun with the idea of comparing the action of cinchophen¹⁰ and sodium salicylate, many more observations have recently been made with neocinchophen than with cinchophen, for the reason that neocinchophen is much less liable to produce gastro-intestinal disturbances. Neocinchophen is an ester which appears to be quite inert in the stomach. We originally supposed that the therapeutic effects of neocinchophen would be less pronounced than those of cinchophen, but this idea does not appear to be borne out by our results.

In the doses which we employed, neither cinchophen nor neocinchophen produced proteinuria or intensified it when already present.

Cinchophen and neocinchophen, particularly the latter, appear to be very promising agents in the treatment of acute infectious arthritis. Drs. Hanzlik and Scott⁹ write us that they have formed a similar opinion.

CONCLUSIONS

1. It may be stated in general that the salicylate and cinchophen groups of drugs show comparatively little difference in their analgesic, antipyretic and "uric acid eliminating" effects. It should be noted, however, that this latter term is not sufficiently inclusive, since these drugs also stimulate, to a lesser degree, the elimination of other waste products.

2. There appears to be no relation between the therapeutic efficiency of these drugs in infectious arthritis

and their influence on the blood uric acid, a statement which is not generally regarded as applying to gouty arthritis.

3. In the series of cases here reported, cinchophen and neocinchophen seemed to have a more specific effect in the severe cases of infectious arthritis.

4. The salicylates have the distinct disadvantage of producing marked proteinuria and casts when given in large doses. On this account, cinchophen and neocinchophen are the drugs of choice when, for any reason, it seems desirable to favor the kidneys. Furthermore, the latter drugs appear to produce their therapeutic effect through smaller doses.

5. The salicylates have the advantage of being better assimilated by rectum.

6. Cinchophen and neocinchophen, particularly when given with alkalis, are better tolerated by the stomach than salicylates. Since neocinchophen is an ester instead of an acid, there is less need of using alkali than with cinchophen. In fact, when given without alkali, neocinchophen does not seem to irritate the stomach.

7. Although a few cases of marked idiosyncrasy to the salicylates (acetylsalicylic acid), in the nature of an allergic reaction, have been reported, our experience is that patients are more liable to have vasomotor disturbances of the urticarial type from cinchophen. No serious instances of the latter have been observed.

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ABSTRACT OF DISCUSSION

DR. RALPH PEMBERTON, Philadelphia: Since recognition of the agency of focal infection in arthritis, we must agree that the pendulum has swung heavily to the bacteriologic end. In our series of 400 cases, we were unable to relate to impaired renal function the benefits most writers ascribe to eliminative procedures. In respect to uric acid, the evidence Dr. Chace introduces tends strongly to get away from the remnants of the belief that it plays an important rôle in this disease. Apropos of this question, I feel more and more that there is much in common between arthritis and gout. The point which has interested me most, perhaps, in Dr. Chace's paper has been the suggestion he made as to the action of the salicylates upon the circulatory system. Dr. Hendrix, Miss Crouter and I have been interested in the respiratory function of the blood, and we have made the observation that if the normal person is compared with the chronic arthritic, there may be found a higher percentage saturation of oxygen in the blood of the latter. With convalescence there seems to be a tendency for that percentage to drop back toward its normal value. The normal individual shows, roughly, a percentage of perhaps 46 or 47. The arthritic runs about 18 per cent. higher. Indeed, he may go very much higher than that. The same phenomenon of a rise in percentage saturation with oxygen takes place in cases in which there is a lowered sugar tolerance, when the blood is examined during the course of that test. We have been rather driven to the conclusion that while this may be referable to a lowered metabolism, it is easy to explain it on the basis of a change in the circulation: whether a vasoconstriction is hard to say. Hoover has shown that various toxins and poisons have the property of inducing capillary constriction, and Rosenow stated that in some experiments on streptococcal arthritis on rabbits there has been found in the tissues adjacent to the joints a very distinct vasoconstriction. I am making so bold as to suggest that part of the phenomena of arthritis may be referable to the oxidative disturbance consequent on such conditions. It is my belief that most types of arthritis tend to a common pathologic basis. Furthermore, I believe it justifiable to relate both acute and chronic arthritis or "rheumatism" to the same underlying pathologic condition, although they do not present the same syndrome clinically.

8. Fine, M. S., and Chace, A. F.: The Diminished Power of the Nephritic Kidney for Eliminating Uric Acid, *Arch. Int. Med.* **16**: 536 (Sept.) 1915.

9. Personal communication to the authors. Drs. Hanzlik and Scott have (since the reading of our paper) reported their results (Cinchophen, Neocinchophen and Novaspirin in Rheumatic Fever, Comparative Therapeutic Efficiency, Toxicity and Renal Functional Effects, *J. A. M. A.* **76**: 1728 [June 18] 1921).

10. Cinchophen and neocinchophen are the terms adopted by the Council on Pharmacy and Chemistry of the American Medical Association to apply to phenylcinchoninic acid and the ethyl ester of paramethylphenylcinchoninic acid. The latter substance may now be obtained under the trade name of tolysin.

PLASTIC REPAIR OF THE EYELIDS BY
PEDUNCULATED SKIN GRAFTS*

GEORGE H. CROSS, M.D.

CHESTER, PA.

Plastic surgery of the face, especially of that part bordering on the orbits, rightfully the domain of the ophthalmologist, received during the World War a tremendous impetus, due primarily to the large number of injuries involving the eyes, nose, and orbits, which were received by the men in that conflict. This invaluable experience gained by the ophthalmic surgeon will, without a doubt, find a fruitful field of usefulness in the treatment of those post-war cases of injury, incurred in industrial occupations, and other peace time pursuits. These cases, while not precisely similar to war injuries, are governed in the manner of their correction by the same general surgical principles. The restoration of the eyelids and the socket has a most important bearing on the mental attitude of the patient, and means much to his or her appearance, both cosmetically and practically. A person with an empty, deformed socket, unable to retain an artificial eye, or with no eyelids, or with only part of an eyelid to cover a retained globe, has greatly limited opportunities in securing industrial employment; and embarrassment arising from the gazes and questions of the curiously inclined public cause him to shun society and seek seclusion.

TYPES OF GRAFTS

There are three general subdivisions of lid restoration, which may be classified thus: (1) pedunculated, autogenous grafts; (2) free dermic, or Wolff, grafts; (3) epidermal or Thiersch grafts. The latter type, used after the method of Esser, of Holland, and Gillies, of England, while not applicable to the type of case we have under consideration, has a most valuable use. It is undoubtedly the best method of treating those cases of severe burns, with glazed, parchment-like skin surface, and cases of ectropion due to contracture of scar tissue, or when it is impossible to use a pedunculated graft, when indicated, because of scars, or inability to obtain a vascular supply to the graft. According to the title of this paper, I shall devote attention to the discussion of cases which are of the first classification and try to demonstrate the practical application of the pedunculated skin graft in the reconstruction of the eyelids. This type of

graft is very successful in facial work, owing to the excellent arterial supply from many sources, which permits the selection of several different locations from which to obtain tissue to rebuild the eyelids. First, with the base of the flap at the external canthus, lid tissue may be obtained from either the temple, eyebrow, scalp or cheek. Second, with the base over the nose, the forehead can be utilized, and employing the side of the nose as a base, a flap may be shifted from one eyelid to the other on the same side. Third, with the base on the neck, the skin from the chest can be utilized, tubing the pedicle of the graft; this method was devised by Major Gillies.

PREREQUISITE TO SUCCESS

Before undertaking the actual plastic transplant, there are a number of important underlying factors to be considered, which if neglected are likely to spell failure, no matter how skilfully or carefully the surgery may be performed. It is essential that sufficient time shall be allowed to elapse, following the primary repair, in order that all shrinkage and contracting of scars shall have ceased and the injured parts restored to their normal tone.

Neglect of this point explains the failure of incisions to heal kindly, and the failure of the transplanted graft to accomplish its purpose, owing to the secondary contraction, which so alters the size and shape of the area to be covered that the graft as planned is insufficient for the purpose. In all cases involving the lacrimal area, the removal of the lacrimal sac should be the first step undertaken; this greatly lessens the danger of the loss of the graft by infection, which so often

lies dormant in the lacrimal sac or canal, only to flare up with amazing rapidity and destroy all our plastic repair. It is also necessary to visualize the change in the shape and position of the area from which the graft was removed, because it is quite as important to cover this area as the area for which the surgery was undertaken. We cannot afford to distort the eyelids or the corner of the mouth, nor do we wish to bring the hair line of the scalp down to the eyebrow. If one has the time and facilities, much can be learned by experimenting with the intended grafts, cut from a gelatin-faced cast, made of a plaster-of-Paris base, with the face composed of a gelatin compound known as Henning's paste. This enables the surgeon to deal with the problems that actually arise and should prove most instructive, because each case is a law unto itself and has to be

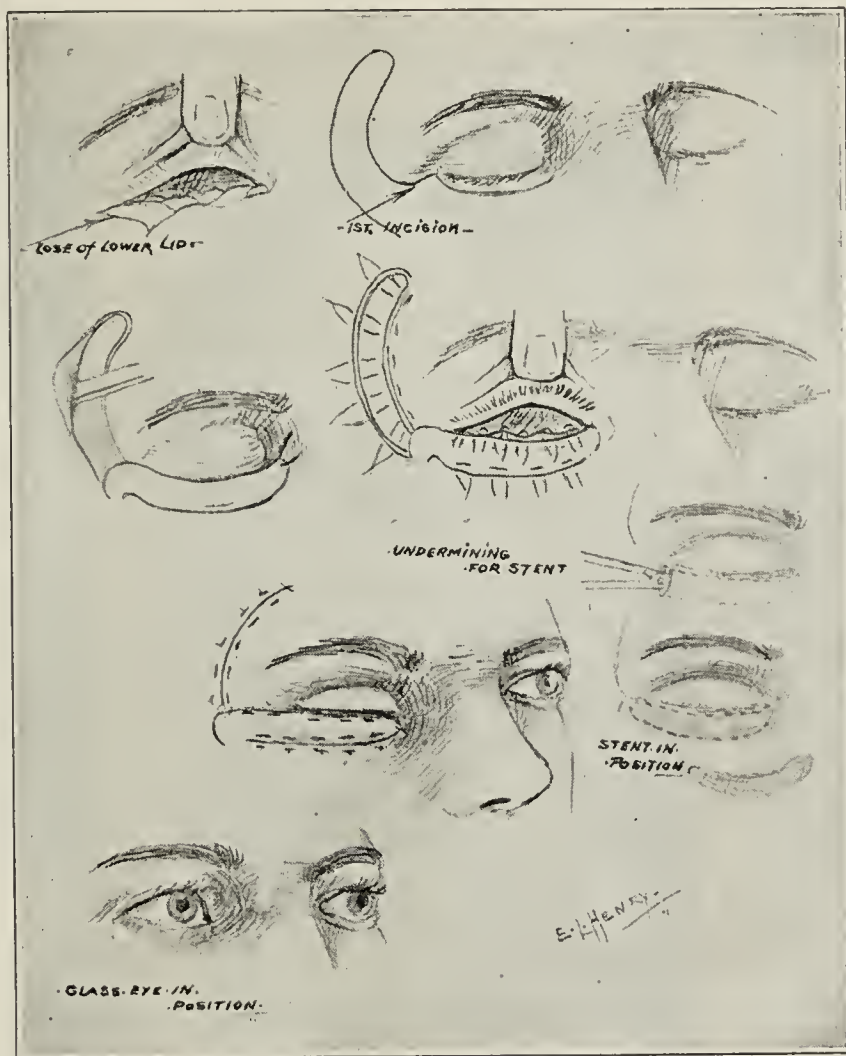


Fig. 1 (Case 1).—Schematic drawing showing restoration of lower conjunctival culdesac by a pedunculated flap graft following an Esser inlay.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

handled as such. The general surgical principles involved will be outlined in the description of the technique employed in the first case, while the many variations and modifications will be discussed as they arise in the other cases.

There is no doubt in my mind but that if photographs were taken today the end-results would show much greater improvement than the accompanying illustrations, which were of necessity taken shortly after the operation had been completed, and before the men were transferred to convalescent centers, to provide the much needed room for the unoperated cases from overseas. Then too the fitting of artificial eyes was limited to a selection from the stock on hand; the government did not employ artisans to make eyes to order. Massage was most helpful in softening and eliminating scars; many of the patients were greatly improved in appearance following a supervised course of treatment in the department of physiotherapy.

brane was drawn over the outside surface by the resultant scars and allowed the secretions to drain over the cheek, thus preventing the retention of a prosthesis. In this case, a pedunculated temporal graft was used, the temporal artery in the base being employed as the blood supply.

Technic.—Following the extirpation of the sac the edge of the lower lid and conjunctiva were freed from the scar and the edges were dressed up to determine the size and shape of the graft required. Then, from a piece of rubber tissue a model of the graft was cut, allowing a good margin for shrinkage. With this form, the best site for the graft was tried out. In this case the temple was selected; the graft was marked out with the point of a knife, dissected and swung into place. It was sutured with interrupted silk sutures, or, better, mattress sutures, with a continuous overcast suture to approximate the edges. The denuded area from which the graft had been taken was covered by undermining the surrounding skin well back, drawing the edges together, and suturing with silk, horse hair, and silkworm gut. In some cases, it is best to cover in the denuded area first, and suture the graft afterward. The base of the graft has to turn on its own anchorage; therefore it is important to plan very



Fig. 2 (Case 1).—Absence of lower lid with discharge of tears and exposure of conjunctiva.



Fig. 3 (Case 1).—Pedunculated graft sutured in place by mattress suture and interrupted sutures of silk.



Fig. 4 (Case 1).—Immediate result after Esser inlay: tissues swollen before toning down by massage; artificial eye held in new lower culdesac by a new lower lid.

The accompanying illustrations are photographs of soldiers operated on by the personnel of the ophthalmologic service at the U. S. Army General Hospital, No. 11, Cape May, N. J., which consisted at that time of Drs. William A. Krieger, W. S. Reese, H. W. Scarlett and myself, and for a limited time, Drs. M. Wiener and E. La Mothe. The excellent schematic drawings, descriptive of these operative procedures, were made for me by the members of the art staff of the hospital, Mrs. A. K. Chesney, Miss A. G. Garret and Miss E. I. Henry. They very clearly and accurately depict the various stages of the operations, as they were sketched at the operating table. These men were all injured by machine gun, shrapnel or fragments of high explosive shells, and the primary surgery had been completed from two to eight months prior to our starting the reconstructive work.

REPORT OF CASES

CASE 1.—S. H., aged 30, injured Oct. 9, 1918, was operated on April 17, 1919. This case, illustrative of the first method, is one in which the eyeball and the entire lower lid were lost following injury by machine gun bullet. The mucous mem-

carefully its position, keeping it as close to its new bed as possible, and avoiding too great an angle to prevent puckering of the skin. The tip of the graft should be made blunt and rounding, since then it is much less likely to slough.

Suturing is important, not so much as to the material used as to the method of using it, aiming to interfere as little as possible with the circulation of the flap. A most important consideration is the base line of the flap. One should avoid having too much tension here, or the circulation of the entire flap will be impeded and disaster will result. Dr. V. P. Blair used to remark that the great trouble in maintaining a successful graft was not in getting the blood in, but in getting it out of the flap. So if a graft appeared cyanotic, we would stab it full of holes to drain out the venous blood, which was being impeded in its return, and then hunt for the cause of the blockage. The mattress suture method of wound closure, championed by Dr. George M. Dorrance, proved very successful in its lessened interference with the circulation of the flap, and was a most effectual means of preventing depressed scars, which are to be studiously avoided in plastic work of the face.

This pedunculated flap supplied the tissue for the outer surface of the lid, while the inner surface was obtained by an Esser tunnel, on May 13. That this was too soon after the lid graft was demonstrated at the operating table and

ring healing. The final picture of this patient (Fig. 4) was taken shortly after the operation was completed, and does not do full justice to the method of procedure. When last saw the patient, the swelling in the center of the lower lid was greatly lessened.

CASE 2.—H. C. K., aged 23, injured Nov. 6, 1918, was operated on Feb. 18, 1919. This case, in which there was loss of the inner portion of the lower lid, along with destruction of the eyeball, is interesting for several reasons. It illustrates how necessary it is at times to do so much in order to accomplish apparently so little. The loss of the lid border in this case was sufficient to prevent the wearing of a prosthesis, so we proceeded to supply the new lid by a cheek pedicle graft. During the operation, in suturing the graft well into the inner canthus, we must have got into the lacrimal duct, or canal, since on the second day there were indications of trouble. The flap was infected, and the leukocyte count was 38,000. This was a most unexpected complication, though productive of no bad results. Owing to the excellent and untiring care of the nurses, in the use of *large, hot*, normal salt compresses, kept hot night and day, we did not lose the graft, with the very happy result you see in Figure 8. An important factor in this result was the use of heavy silkworm-

a contracted socket and loss of bony tissue as shown by a marked depression beneath the socket. This followed injury by a machine gun bullet, which after destroying his eye passed down through the hard palate and mouth and lodged

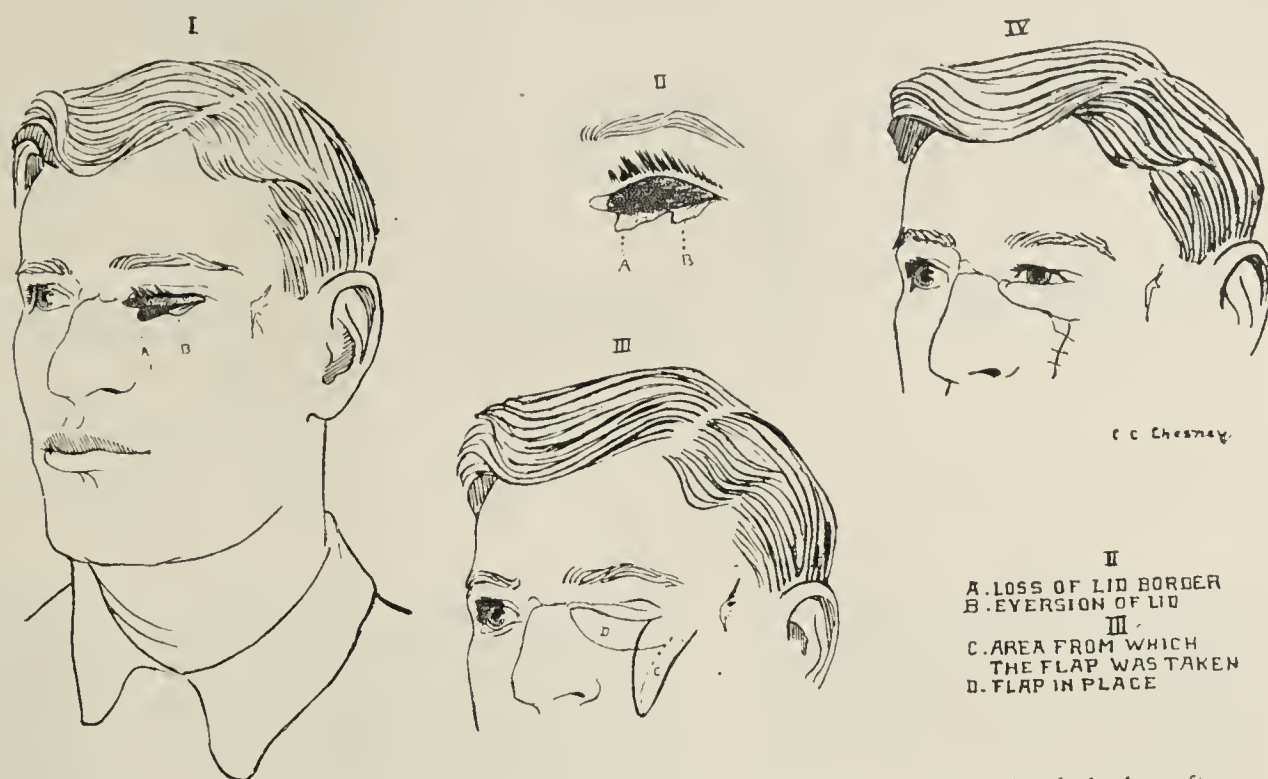


Fig. 5 (Case 2).—Schematic drawing of restoration of lower lid by a pedunculated cheek graft.

in the left side of the neck just under the skin, being removed by the fingers without operation. The wound in the neck is clearly shown in the last picture.

Operation.—In this case, the procedure was similar to that in the first one, in that it was also preliminary to an Esser



Fig. 6 (Case 2).—Absence of left eye: Fragment of high explosive shell entered temple (at site of scar), destroyed eye and inner two thirds of lower lid, and injured bridge of nose.



Fig. 7 (Case 2).—Flap sutured in place, swelling indicating infection; cheek sutures of silkworm gut.

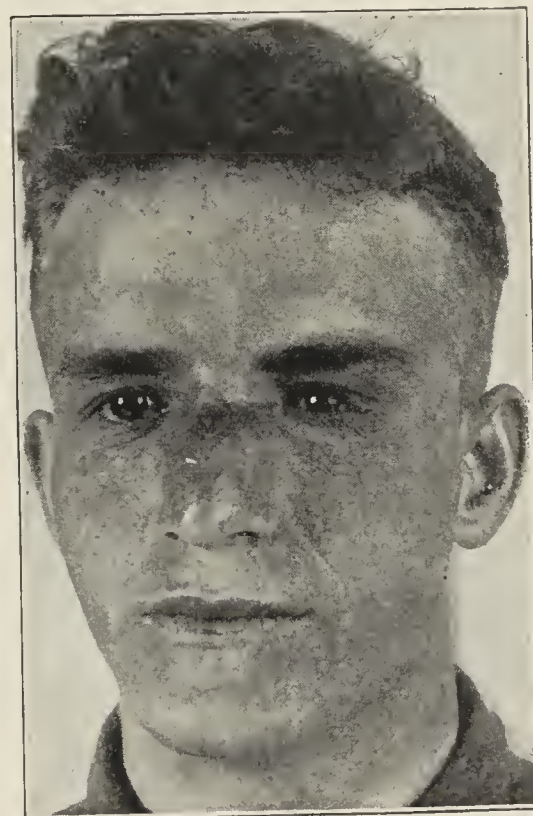


Fig. 8 (Case 2).—Final result at time of patient's discharge; no bad results from the infection; artificial eye in place.

gut sutures to coapt the edges of the area from which the graft was removed. They held perfectly until the wound united. There was a surprisingly small amount of scarring in this case, and you will see in Figure 8 that there is no distortion of the mouth.

CASE 3.—H. C. S., aged 28, injured, July 18, 1918, was operated on April 1, 1919. In addition to the loss of the middle of the lower lid of the right eye, this soldier also had

tunnel to form a new lower culdesac. The cheek was selected in this case in order to obtain a graft thick enough to build up the depression over the antrum. Care must be taken to avoid the whiskers if possible, also the salivary duct. On May 1, one month later, an "Esser tunnel" operation was performed, and it was my intention later to open the lower incision of the graft and turn a layer of fat from under the graft down under the skin of the face to fill up depression.

Unfortunately this case was not completed when the hospital was closed.

CASE 4.—M. G. S., injured, July 15, 1918, was operated on Jan. 22, 1919. The defect of the eyelids and nose was caused by a piece of shrapnel or high explosive shell, which destroyed the tissues and bony covering of the anterior ethmoid cells.

healed by first intention, after which the plug was pulled out through the nose. No attempt was made in this case to readjust the base of the flap. We were satisfied to let well enough alone, as there was no distortion of the bridge of the nose or malalignment of the eyebrows.

525 Welsh Street.

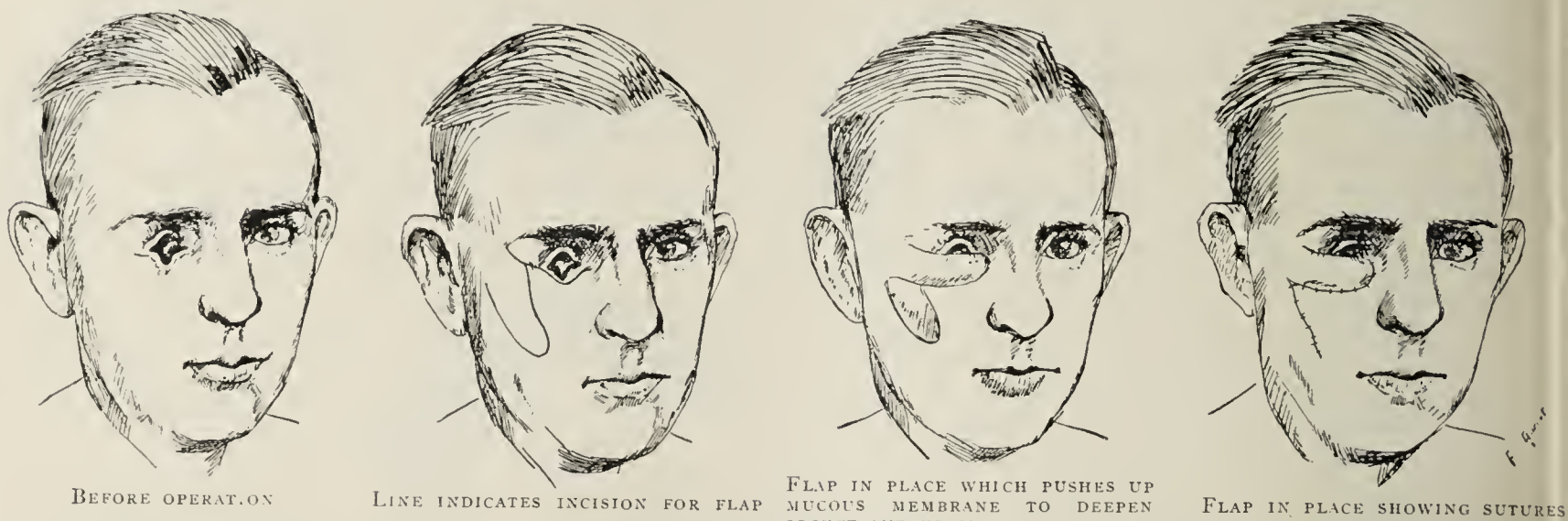


Fig. 9 (Case 3).—Schematic drawing of pedunculated cheek graft to restore lower lid, preliminary to an Esser tunnel to form new lower culdesac.

This condition when he reached us was very annoying, owing to the discharge of secretions from the nose through the sinus in the ethmoid region, the marked ectropion of the lower lid, the distortion of the upper lid due to scar contraction, and in addition, the constant overflow of tears. This case is of interest, as it is one of the few in which the eyeball escaped destruction following severe injury to the orbital tissues.

Operation.—First, the scar was dissected out and the tissue freed from its bony attachment. This allowed the lids to be

ABSTRACT OF DISCUSSION

DR. VILRAY P. BLAIR, St. Louis: It is difficult to discuss any phase of eyelid repair without considering all of the methods that may be used, because unless one is prepared to use one or another method, as the case demands, it is possible that the best results might not be obtained. Lancaster called attention to the fact that the pedunculated graft may be excessively thick, and Dr. Cross stated that there might be some hesitation in the establishment of circulation in the



Fig. 10 (Case 3).—Loss of right eye, contracted socket and loss of lower lid; injury by machine gun bullet which passed through right eye, ethmoid and maxillary sinus, hard palate, and out the left side of the neck.



Fig. 11 (Case 3).—Pedunculated flap from the cheek sutured in place (first dressing): cheek sutures of silkworm gut, flap sutures of black silk.



Fig. 12 (Case 3).—Case not completed, artificial eye in place following Esser inlay; scar on neck shows exit of machine gun bullet, which entered through the right eye. Layer of fat to be shifted from under flap to fill depression over antrum was the next contemplated procedure.

restored to their normal position. Then a plug of sterile gauze, tied to a strand of heavy silk, was pulled in through the wound until it blocked the bony opening. This prevented the secretions from the nose gaining access to the under surface of the flap. Then the opening in the bone was covered with a thin sheet of paraffin wax, after which a rather wide graft was swung from the forehead, so that in addition to covering the sinus, it would push up the border of the lower lid, correcting the ectropion, and at the same time relieving the tension on the upper lid. The wounds

graft. In the making of all long flaps, if, instead of attempting to make the flap and transfer it at the same time, the flap is outlined to the exact size desired, and after raising it, it is sutured back into its original bed for about a week, and then transfer it, one can make a long flap, and a very much thinner flap with absolute certainty as to what the circulation is going to be. In the injury cases, especially burns, in which the skin of both eyelids of both eyes has been destroyed, that type of work is prohibited. But here one can turn down a broad pedunculated graft which, after being sutured back in

its original bed for a week, is split into two pieces, and the very thin grafts can be placed one over the two lids at the same time. Another cause of thickening of these pedicle grafts, which we also find in the Thiersch grafts, is that the scar that forms in the bed in which you put the flap contracts. This causes a mounding of the graft in the form of a pad. After six months or a year, the basal scar lets go. I believe the time is coming when the Thiersch graft will disappear and every form of purely surface skin defect is going to be repaired by the full thickness graft. The promise of this work seems to be such that I think we shall be able to get almost perfect results and with no evident deformity resulting from this raising of a flap.

DR. GEORGE H. CROSS, Chester, Pa.: You have the choice of taking a graft as thick as you want it. As Dr. Blair has suggested, if the vitality of the graft is questioned, it is possible to cut it loose and then suture it back into its original place, leaving it until vascularization is complete before putting it in its bed. I forgot to speak of modeling compound. The most painful part of the process in using a graft from the arm or leg or elsewhere in the body is the

RADIUM THERAPY OF TERATOID TUMORS OF THE TESTICLE*

B. S. BARRINGER, M.D.

AND

ARCHIE L. DEAN, JR., M.D.

NEW YORK

The purpose of this paper is to indicate a new conception of the therapy of teratoid tumors of the testicle.

Some years ago the late Dr. Janeway was able in several instances to destroy very large metastatic growths secondary to teratoma of the testicle. This was done by means of a "radium pack." The dose of radium for such a pack is 12,000 mc. hours placed over a tumor mass at a distance of 6 cm. from the skin, the filtration being 2 mm. of lead.

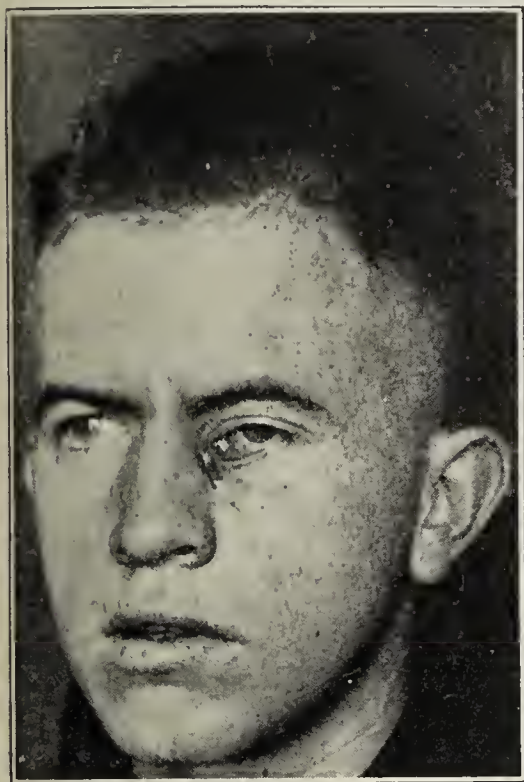


Fig. 13 (Case 4).—Sinus at base of bridge of nose, ectropion of lower lid, distortion of upper lid by scar tissue, following injury by fragment of shrapnel or high explosive shell. Secretions escaped through sinus when blowing nose.

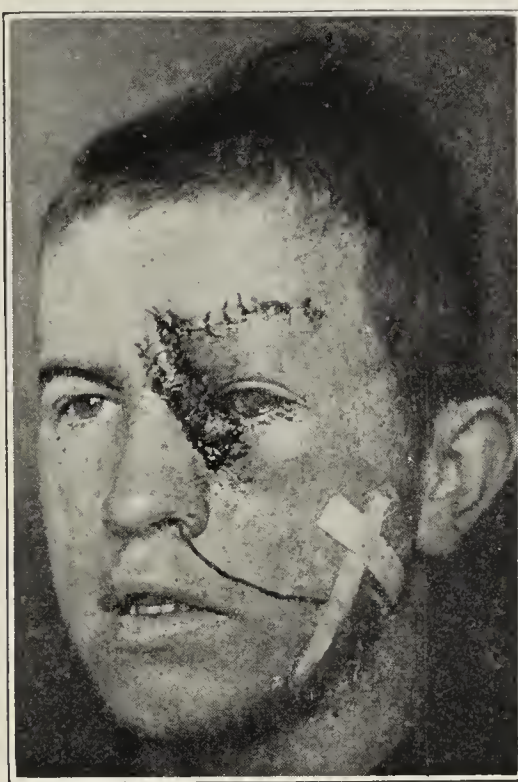


Fig. 14 (Case 4).—Pedunculated forehead graft sutured in place, covering sinus and relieving distortion of upper lid and ectropion of lower lid. Black silk cord is fastened to gauze plug in ethmoid defect. Photograph taken at first dressing.

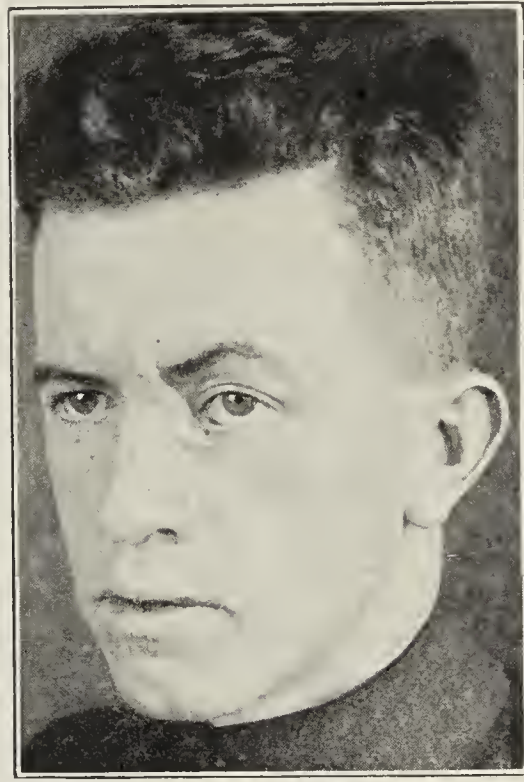


Fig. 15 (Case 4).—Final result showing the cosmetic result that was obtained. No attempt was made to replace the base of the flap.

wound resulting from its removal. We have found that the ordinary dental modeling compound, first warmed and then laid over the area from which the graft was taken, makes a comfortable dressing. Also, in considering grafts of the eyelids you do not have to use adhesive plaster or gauze; after the graft is in place, warm the modeling compound sterilized with 1:500 mercuric chlorid solution, place it directly over the grafted area and apply a bandage; then when you dress it again you can put it right back in its original position. Dr. Gillis once said that the most important point in having the graft "take" was in maintaining an even pressure. By the method outlined you can maintain a pressure which is the same when you dress the case as obtained at the time of the operation.

Social Service for Chronic Invalids.—Only a small proportion of the old chronic invalids in institutions or at home can be reclaimed to civil life, but those of the younger generation who become chronic invalids will profit by the new methods of reeducation open to them. Most patients have some faculty which could be developed along commercial lines, unless they are in need of constant medical or surgical care.—R. Fried, *Hospital Social Service* 4:141 (Sept.) 1921.

The following history illustrates the extraordinary effect of radium in one of these cases:

H. H. M., aged 36, first seen, Oct. 23, 1916, had had right and left epididymitis in 1906. In 1915 the right testicle became sore and very large, but not sensitive. The patient had lost 15 pounds in three months. The Wassermann test was reported negative. The right testicle was the site of an irregular, semielastic tumor. There was a large mass filling the right side of the pelvis and protruding from the right abdominal wall, manifestly malignant. A radium pack was applied to this abdominal mass. Two weeks later Dr. Keyes removed the tumor of the testicle and cord up to the internal abdominal ring. Pathologic examination (Ewing) revealed teratoma. Two weeks later (and four weeks after the radium application) the abdominal mass could no longer be felt.

March 22, 1920 (three years and five months after the patient was first seen), he reported by letter that he was entirely well.

There have been several cases as brilliant as this. During the past few years we have attempted to

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

determine which testicle teratomas react to radium and what is the best way to use this agent.

PATHOLOGY

Ewing places the varieties of teratoid tumors of the testicle in three main classes:

1. Adult embryomas or teratomas, constituting a relatively small group.
2. Embryoid, teratoid or mixed tumors, more frequently seen than the foregoing.
3. Embryonal malignant tumors, these being most often seen.

The tumors arise, with rare exception, from sex cells situated in the rete testis, and the teratoma may develop either toward the testicle and epididymis, involving both in a large tumor mass, or much more rarely toward the epididymis, forming a typical tumor of the epididymis. We have seen two tumors of this variety.*

METASTASES

Ewing says:

The intraperitoneal nodes at the celiac axis are often involved through the lymph channels of the spermatic veins, and an epigastric tumor is often the first sign of recurrence. This form is especially common with the highly malignant embryonal carcinomas. From this point there may be rapid progress upward, so that mediastinal and even cervical tumors may divert attention and become the largest tumors in the body. Invasion of the spermatic and iliac veins, with continuous tumor growth extending as far as the heart, has been observed both with chondrosarcoma and chorioma. Discontinuous metastases by way of the veins are most frequent, and they give rise to tumors of the lungs, liver, brain, kidney and stomach.

DIAGNOSIS

Notwithstanding the situation of testicular tumors, making them easily accessible to palpation and observation, the diagnosis very often is difficult. One of us vividly remembers doing an operation for hydrocele and noting at the time of operation that there was what we took to be inflammatory change in the epididymis. The patient left the hospital healed. He went to another hospital a month later, where a teratoma testis was removed. When the tumor is typical, the whole testicle an irregular, hard mass in which no distinction between the testicle and epididymis can be made, the main diagnosis is between teratoma and gumma. In a large number of cases of gumma of the

testicle, seen at Bellevue Hospital in the Service of Dr. Keyes, we do not remember having seen one that did not give a positive Wassermann test. We, on the other hand, have seen only one patient who had syphilis give a positive Wassermann test and who had a teratoma testis. Therefore a positive Wassermann test strongly points against the diagnosis of testicular teratoma.

We have seen two cases in which the teratoma grew atypically and involved the epididymis alone, giving a picture not unlike tuberculosis of the epididymis. In one of these cases the diagnosis of teratoma was made prior to operation because of the secondary tumor mass in the abdomen. The preoperative diagnosis of teratoma is very important because we have never seen a patient in whom the tumor was incised either for the purpose of making a diagnosis or under a mistaken diagnosis—hydrocele, spermatocele, epididymitis, etc.—that did not succumb to a local recurrence of the tumor.

When the teratoma occurs in an undescended testicle, the diagnosis is still more elusive.

THE INEFFICIENCY OF PRESENT OPERATIVE METHODS

Orchidectomy.—In nineteen postoperative recurrent cases which we have seen at the Memorial Hospital, orchidectomy had been performed in eighteen. There were eight recurrences in the groin along the spermatic cord; seven in the abdomen along the spermatic lymphatics, and four in the lungs. In six cases, more than one region had become involved.

Radical Operation.—Hinman reports several cases in which he has done the more radical dissection, taking out the testicular tumor and dissecting the fascia around the spermatic vessels up as high as the kidney. In one of his cases there was a secondary tumor of one of the perispermatic lymph-nodes which was dissected out. This patient lived for some months after the operation, apparently well.

PRESENT TECHNIC AT MEMORIAL HOSPITAL

We treat early cases as follows:

A careful physical examination is made, including roentgenograms of the chest. When distant metastases and regional involvement are not found, the case is classified as "primary operable." The patient is admitted to the hospital, and the testicular tumor, spermatic cord and abdomen along the tract of the spermatic



Fig. 1.—Teratoma testis: The epididymis and cord are invaded; the testicle proper is virtually free of tumor tissue.

vessels are treated with the radium pack.¹ The dose over the testis is usually 12,000 mc. hours at 6 cm. distance, the filtration being 2 mm. of lead. The same dose is considered sufficient for the other regions. The patient is now permitted to go to his home, but he returns for examination once a week.

We have found that the rapidly growing, cellular and more malignant embryonal types of these tumors are much more sensitive to the action of radium than those tumors in which adult tissue predominates. Therefore, when the tumor rapidly reduces after irradiation, we know that we have to deal with a tumor in which embryonal tissue predominates. In such tumors it is our custom to delay operation for a number of weeks and even months so as to get the maximum effect of the irradiation. In tumors which do not decrease in size after irradiation we operate in from three to six weeks after the application of the pack. The technic of operation is as follows:

A curved abdominal incision is made, beginning at the external abdominal ring, and sweeping outward and upward toward the kidney. The spermatic vessels are exposed, the vas is cut and the tissue on each side of the spermatic vessels (to the distance of about 1 cm.) is bluntly dissected upward as high as the renal vessels. This mass of tissue embodies the lymphatic vessels and nodes around the spermatic vessels. All of this dissection is extraperitoneal, and all this time the testicle is still lying in its bed. Handling the testicle before its vessels and lymphatics are cut tends, we believe, to squeeze tumor cells into the general circulation.

If there are any glandular metastases, these are dissected out and tubes of screened radium (silver, 0.5 mm., and rubber, 2 mm.) are placed in its bed, using 200 mc. hours to each. These tubes are later removed by attached strings. Finally the vessels are cut high up and the testicle is dissected out and removed and the wound sewed up. We have performed this operation some eight times, have had no postoperative deaths, and do not believe it to be a serious operation if infection does not occur. From three to six weeks after the wound is healed, radium packs are again applied over the length of the scar.

RESULTS

Of the thirty-six cases of teratoma testis treated at the Memorial Hospital during the past four years, there were:

1. Three cases classified as "primary operable," that is, three cases which were seen before operative procedure had been undertaken, and which at the time of admission showed by physical examination neither such local extension nor metastatic involvement as

would prevent complete operative removal of the tumor process. Of these patients one is living without recurrence nine months after being first seen; one is dead, and one is lost track of.

2. Eight cases classified as "primary inoperable." These included patients who had never been operated on, but who presented at the time of admission the physical signs of metastases, so that operative procedure could offer no hope of complete removal of the disease. In one of these the diagnosis of teratoma was made prior to operation because of the secondary tumor mass in the abdomen. Of these, three are living, forty-one, two and three months after being first seen; three are dead, and two have been lost track of.

3. Nineteen cases of "postoperative recurrent teratoma." These patients had received surgical treatment elsewhere and had been referred to the Memorial Hospital at various time intervals after the appearance of recurrences. Of these, five are living, seventeen, twenty-eight, eighteen, twelve and three months after they were first seen; eight are dead, and six have been lost track of.

4. Six cases classified as "for prophylactic irradiation." These patients had been referred after operation elsewhere, but before recurrences had been observed. Of these, two are living, two and nine months after the patients were first seen, two are dead, and two have been lost track of.

In one of the primary operable cases irradiated before and after operation, as outlined above, the patient died of recurrences some months after operation. The teratoma in this case was of the adult type.

These statistics emphasize the extreme malignancy of teratoma testis. We believe, however, that radium

is a very valuable adjunct to operation in dealing with this disease. The type most often seen and most malignant, the embryonal, is the most sensitive to destruction by radium.

ABSTRACT OF DISCUSSION

DR. EDWARD L. KEYES, JR., New York: The problem of removing these testicular growths, as has been pointed out by Dr. Barringer, is not quite the same as that in which we are dealing with bladder and prostate tumors, because these rapidly growing cellular growths yield readily to irradiation. I saw a patient in 1916 who had a large tumor of the testicle that simulated hydrocele. Another physician advised a combination of radium and surgery. He treated the patient by a so-called pack over the abdomen, not permitting the radium to reach the testicle. After two weeks I took the patient into the hospital for operation. At that time the tumor in the abdomen was not visible, although I looked for it. I removed

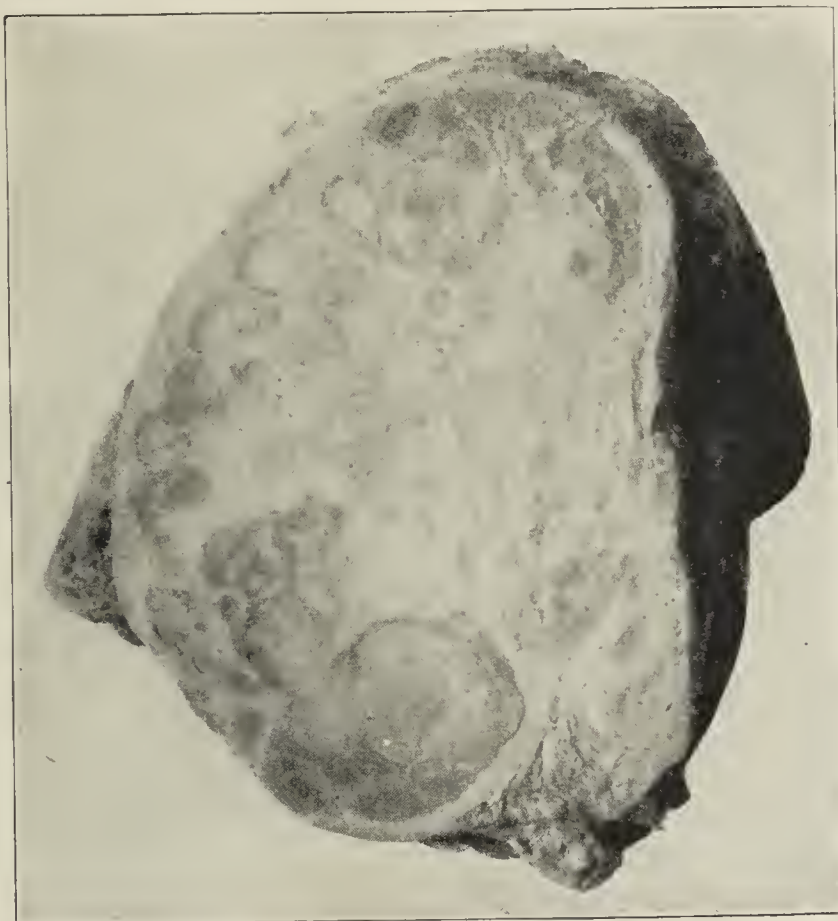


Fig. 2.—Longitudinal section of gross specimen. Removed twelve days following radiation of 13,070 mc. hours, applied externally in form of pack. The testis measures 14 cm. in circumference. It is firm, fibrous and elastic. Section shows smooth translucent tissue, divided by several bands like the septa of the organ, and there are several necrotic areas 1 to 2 cm. wide, sharply circumscribed. Some of these are yellow, others orange colored. The tunica albuginea is thickened, but intact. The upper nodes of the cord are slightly enlarged.

1. Failla, G.: Radium Technique at the Memorial Hospital, New York, Arch. Radiol. & Electrotherap. 25: 3 (June) 1920.

the testicle, and the patient remained in the hospital for two weeks. At the time he left the hospital it was no longer possible to palpate any tumor in the abdomen, following one radium pack. A year ago he was living and perfectly well.

DR. FRANK HINMAN, San Francisco: In about twenty-five years at Johns Hopkins Hospital they had only twenty-six cases, and I have seen only eleven cases in the six years since leaving there, so that it is rather remarkable that the authors should have such a large series to report. Following radical operation without radium, I have one patient living after seven years in whom glandular metastases had occurred. Six other patients are all alive over one year; the longest next to the seven years is four years. In all of these cases, malignant metastases were found in the gland area removed, except in two. Two attempts have been made to treat these patients by radical operation in which large inoperable masses along the aorta were found. At the time we did not have radium, but undoubtedly radium should be applied in such cases as well as the others, because it is impossible to remove the glands operatively. We have recently had one operative death on the third day following radical resection. The patient was talking and apparently in excellent condition, when he suddenly collapsed. A necropsy was not obtained; we attributed death to cardiac failure. Numerous glandular metastases had been successfully removed, but in doing so resection of the inferior mesenteric artery was required. We have since tied off many of these arteries in dogs, cats and rabbits, with absolutely no effect. Pathologists tell us that it is frequently found completely obstructed without apparent injury to the intestines, and other surgeons have tied it next to the aorta without hesitation. We do not believe that its resection was the cause of this fatality.

DR. JAMES D. BARNEY, Boston: Some years ago I was asked to see a patient in consultation with another physician. I had known the patient for many years. He had always been considered to be tuberculous and the physician who asked me to see him thought he had a tuberculous epididymitis. I agreed in this diagnosis and advised operation. The surgeon did not think well of that and sent the man to Saranac Lake for tuberculin treatment, etc. A few months later he was obliged to operate because of an enormous growth of the testicle. This growth was removed and reported to be a teratoma. In another case seen with another surgeon I agreed in a diagnosis of tuberculosis of the epididymis and advised operation. This surgeon also refused to operate, but the patient went to a third surgeon who operated and found teratoma. The first patient died about three years after his operation from metastases; the second patient is still living. It is important to bear in mind the possibility of tumor of the testicle, which in these cases seemed to begin in the epididymis, whenever one is in the least doubt as to the diagnosis.

DR. ARCHIE L. DEAN, JR., New York: The diagnosis is very important. We usually see a young man with a scrotal tumor that has been growing for several months, dating frequently from a definite trauma; there is no sign of inflammation, the swelling assumes the shape of the normal testicle, the outline of the penis is not encroached on as with

hydrocele, and the palpating fingers note elastic areas, very hard spots and may dip into cystic depressions. Manipulation is painless. Light is not transmitted. Metastases may occur by three routes: (1) Inguinal adenopathy occurs only after the tumor has involved the scrotal integument; (2) lymphatic drainage most frequently follows the spermatic vessels; (3) venous metastases are facilitated by the proliferation of the vessels about the tumor, and metastases are then found in the lungs.

BILATERAL GLOBULAR DETACHMENT OF THE RETINA IN RENAL RETINITIS

F. PHINIZY CALHOUN, M.D.

ATLANTA, GA.

The case herewith reported was studied in the base hospital at Camp Gordon during the war, and through the kindness of Dr. Herman Mosenthal, then chief of the medical service, I am permitted to make this report.

The case is of particular interest to the internist, as the laboratory phase of it was thoroughly worked up by one well qualified, as is evidenced by the accompanying chart. The eye findings in connection with chronic nephritis especially concern the ophthalmologist.

REPORT OF CASE

History.—H. M., aged 21, Casual Officer 32254, service one year, was brought into the officers' ward on the night of Dec. 17, 1918, in coma. The history obtained from a fellow officer was

that until December 15 the patient had been on duty and apparently well. The following day he complained of headache. December 17, the headache was severe and he had vomited. He was found in bed that evening unconscious and breathing heavily, when he was immediately transferred to the base hospital. During the night, he had six general convulsions, each lasting about two minutes. The blood pressure was systolic, 210; diastolic, 140. A general physical examination was negative. The following morning, 750 c.c. of blood was withdrawn from the left median basilic vein. Sweats, hot packs and diuretics were given, and the blood pressure was reduced to 160 systolic and 90 diastolic.

The first urinalysis showed, specific gravity, 1.015; albumin, ++++; urea, 0.688 gm to 100 c.c.; sodium chlorid, 0.09 gm. to 100 c.c. Microscopically, there were present pus, blood, coarse granular and epithelial casts in quantity.

A tentative diagnosis of chronic parenchymatous nephritis with uremia was made, and appropriate treatment was ordered.

December 20, the patient was rational, his general condition was improved, and he was able to give these additional facts to his history.

He had entered the army in 1917, apparently in perfect health, undergoing the usual examinations and receiving the usual vaccinations without bad results. His father and mother were living and well, and there was no history of

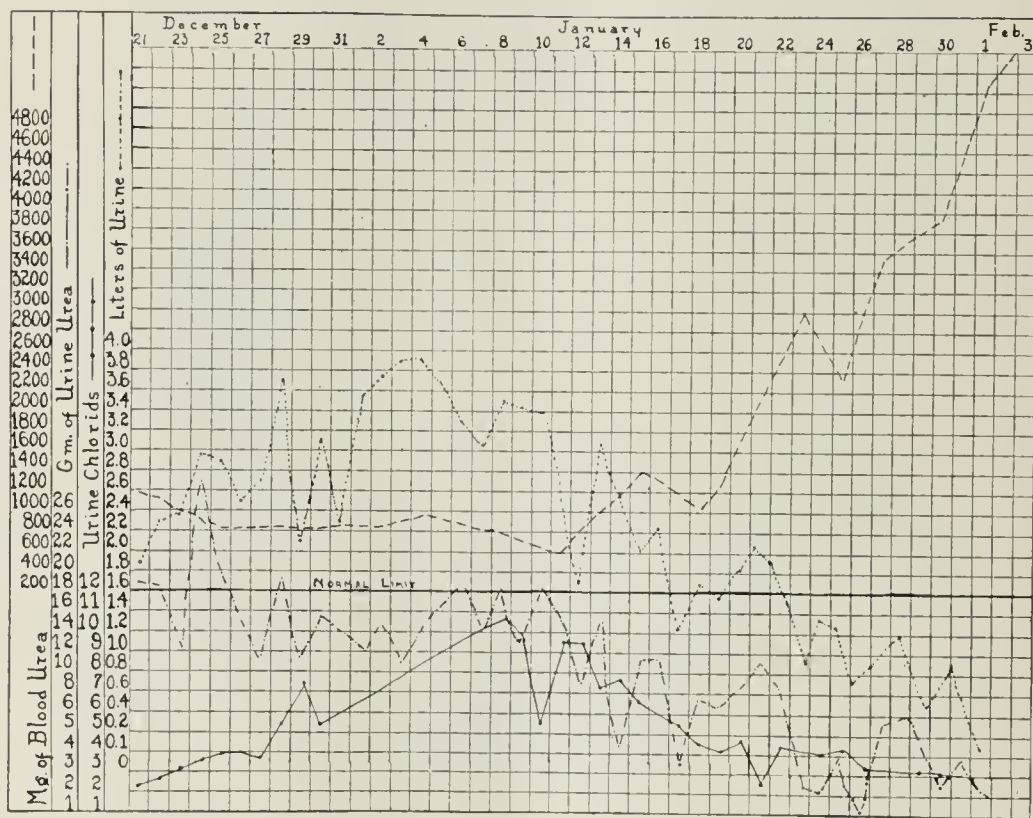


Fig. 1.—Fluctuations of blood urea, urine urea, urine chlorids and total urine per day, during the course of the disease. (Prepared under the direction of Dr. Herman Mosenthal in the clinical laboratory of the base hospital, Camp Gordon.)

tuberculosis or cancer in the family. In early childhood he had had measles, chickenpox, whooping cough and grip. He was an abstainer from alcohol and tobacco, and denied venereal infection. Since entering the army, it had been necessary for him to get up once each night to void. Stooping brought on dizziness, and about one year ago, his sight suddenly became defective, but soon after improved. In spite of all these facts, he thought his health was perfect.

On becoming rational, it was found that his sight was defective, and I was called to see him, December 21.

Eye Examination.—The vision in each eye was for hand movements only. The external appearance was normal, except that the pupils were moderately dilated and reacted very sluggishly to light. The fundus of each eye showed an intense neuroretinal edema, with the outline of the disk completely obscured. The veins were markedly engorged and tortuous. The arteries were sclerotic, causing venous compression. There were many small flame-like hemorrhages and exudates in the inner retinal layers, especially placed at the temporal side of the disks involving the maculae.

There were short intervals of improvement in vision and the fundus picture along with his general improvement, but always with a return of the intense edema and increase in

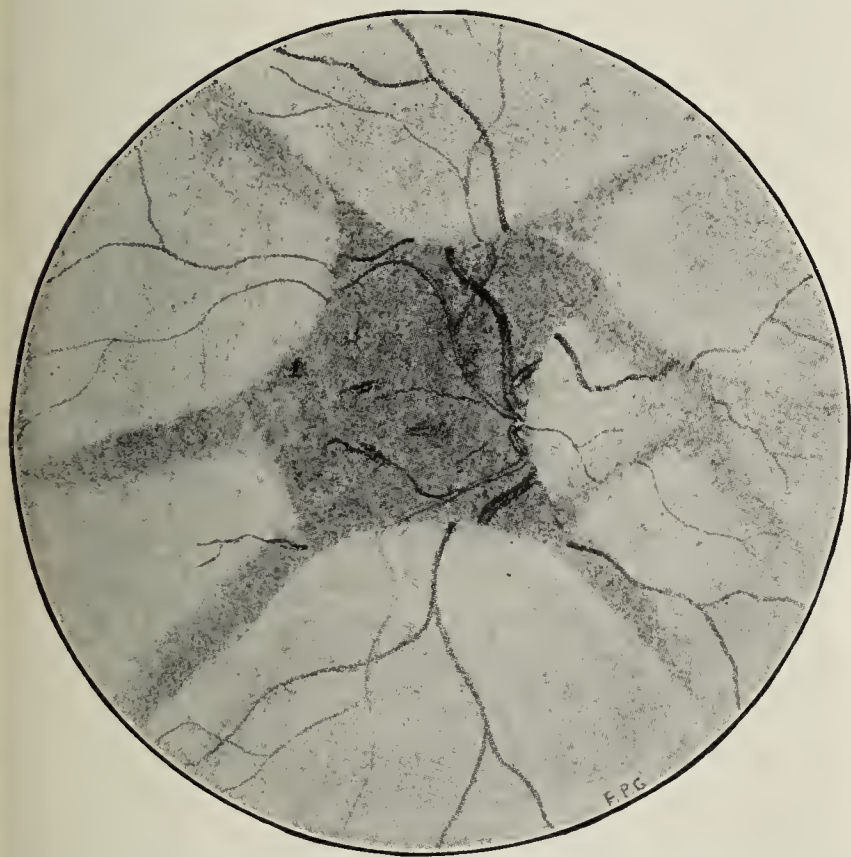


Fig. 2.—Charcoal drawing of the right fundus, illustrating the globular detachment of the retina.

the number of hemorrhages and exudates, until January 18 when a flat detachment was detected in the upper part of each retina. Two days later, multiple globular detachments were seen in each eye, extending far forward to such an extent that they could be detected by oblique illumination.

Heroic measures were adopted to save the life of this splendid soldier; but a complete suppression of urine occurred February 1 and he died February 6.

Necropsy.—The postmortem examination of the kidneys made by Dr. H. W. Nowell, then in charge of the laboratories, was: "The arcuate vessels, the vasa recta, and the efferent vessels of the glomeruli show in patches a thickening of the intima causing an encroachment on the lumen. The tubules are hypertrophied, and the epithelial cells show degenerate changes, and hyaline areas are present."

COMMENT

Whatever opinion one may have as to the relative frequency of retinal detachment in renal retinitis, and I believe it is generally regarded as an infrequent complication except in pregnancy, one should read carefully the original article by R. Foster Moore¹ on

"The Retinal Detachment of Renal Retinitis." I believe he will be convinced then of the common frequency of this complication.

Many detachments are undiscovered because they occur in severe renal retinitis toward the end of the patient's life, when ophthalmoscopic examinations are not generally made. Again, globular detachments are usually situated peripherally and are not looked for, whereas the retinitis is centrally placed and readily seen.

As Moore's experience has been unusual since he studied the cases of nephritis in the wards of St. Bartholomew's Hospital, London, for a period of two years, I may be permitted to mention in part his deductions:

1. Nephritis in the absence of retinitis is not a cause of detachment.

2. The liability to detachment is largely proportioned to the severity of the retinal changes.

3. The occurrence of detachment is not related to the presence or absence of general edema.

4. The immediate cause of the detachment is an active subretinal exudate probably derived entirely from the retina.

5. In the event of recovery of the patient reattachment occurs with permanent visual and fundus defects.

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THE CAUSES OF UNFAVORABLE SYMPTOMS FOLLOWING GASTRO-ENTEROSTOMY *

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This paper is based on the study of thirty-six patients on whom the operation of gastro-enterostomy has been performed. The study has been pursued for some years, the first report¹ having been made in 1913. Many of the patients have been studied several times, at intervals, during that period. Posterior gastrojejunostomy was the operation performed in every instance; in two the pylorus had been occluded by the surgeon; in two excision of the ulcer had been done. Twenty-two of the patients were clinically cured. Fourteen presented, for a longer or shorter period of time, symptoms which they ascribed either to the operation or to the original disease. They have been studied from the standpoint of the internist, not that of the surgeon, in an attempt to determine the causes of the symptoms and methods for their relief.

The title "unfavorable symptoms following gastro-enterostomy" has been chosen rather than "failure of gastro-enterostomy" because many of the symptoms depend on a situation arising out of the operation itself rather than the recurrence of the original disease, for which the operation was done.

Many misstatements have become current about the functions of the stomach after gastro-enterostomy.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Outland, Skinner and Clendening: Surg., Gynec. & Obst. 17: 175, 1913.

They have been made, very evidently, not as the result of actual study of cases, but as the result of theorizing about what ought to happen. Samples of such statements are that the operation does no good because the food continues to go out through the pylorus, that it fails because the food enters the



Fig. 1.—Barium meal coming out from the stoma, two weeks after gastro-enterostomy.

jejunum too rapidly, that it fails on account of the establishment of a vicious circle. Examination of actual cases serves to minimize the value of such considerations or to give them their proper emphasis.

Patients of this kind should be studied just as any other gastro-enterologic patient—by a careful review of the history, including, if possible, a study of the roentgenograms and laboratory findings made before operation; a general physical examination; a laboratory study of gastric contents and stool, and roentgenograms. In my experience the last gives the most information.

PHYSIOLOGY OF STOMACH AFTER GASTRO-ENTEROSTOMY

It is important to review briefly the physiology of the stomach after a gastro-enterostomy has been done.

1. *Motor Functions of the Stomach after Gastro-Enterostomy.*—The most important question under this heading is whether or not the food leaves the stomach by way of the pylorus or by way of the stoma. The work of Cannon and Blake² and of Leggett and Maury,³ done on cats and dogs, tended to show that it left by way of the pylorus, even in the presence of a large, well-placed stoma. Largely on the basis of their work, Paterson⁴ founded his "physiologic theory" of the way the operation of gastro-enterostomy cures an ulcer: e. g., the neutralization of gastric acidity, by the entrance of intestinal juices into the stomach through the stoma. The work of Cannon and Blake,

and Leggett and Maury, however, was done on four-footed animals without pyloric obstruction. In human beings, in my experience, the food always leaves the stomach by way of the stoma. It may leave by both the stoma and the pylorus. It may, in some cases, leave exclusively by the pylorus for a time, and in the same individual, examined later, leave partly by the pylorus and partly by the stoma. This is irrespective of whether the pylorus was obstructed at the time of the operation or not. In cases of high grade pyloric obstruction the stoma operates practically exclusively and continues to do so indefinitely. The oldest patient in my series was roentgenographed the last time twelve years after operation. The stoma was operating perfectly as an exit; the pylorus, not at all. At the time of operation he had a very considerable pyloric obstruction, and was emaciated to an astonishing degree. He has been observed many times in the interval; the clinical result is excellent. When roentgenographed, the stoma is always functioning; the pylorus has always remained closed. Except for one or two brief periods when he showed symptoms which seemed to point toward an obstruction of the distal loop of the jejunum, he has remained as well as can be.

But, while the stoma remains most constantly the only exit in the cases of the highest grade obstruction, it also operates as such in lesser grades. At the extreme other end of the line, we have observed two patients in whom there was no disease of the stomach



Fig. 2.—Barium meal leaving stomach by way of the stoma, two years after gastro-enterostomy. Note "heel" shape of stomach due to lateral issuance of meal. This is a favorable type of action of gastro-enterostomy.

whatsoever but on whom a gastro-enterostomy had been made. In spite of the fact that, in them, the pylorus was perfectly patent, and also that it did act as the main exit of the stomach, still there was always some food that passed through the stoma. The changed anatomy of the stomach seemed to make no

2. Cannon and Blake: *Ann. Surg.*, 1905, No. 5.

3. Leggett and Maury: *Ann. Surg.* 46, No. 4, 1903.

4. Paterson: *Tr. Internat. Cong. Med.*, London, 1913.

difference in the patients' digestion or assimilation. They were perfectly comfortable and maintained their weight.

In the type of case in which there is not complete pyloric obstruction, not enough to cause vomiting, but in which there is atony of the gastric musculature, and

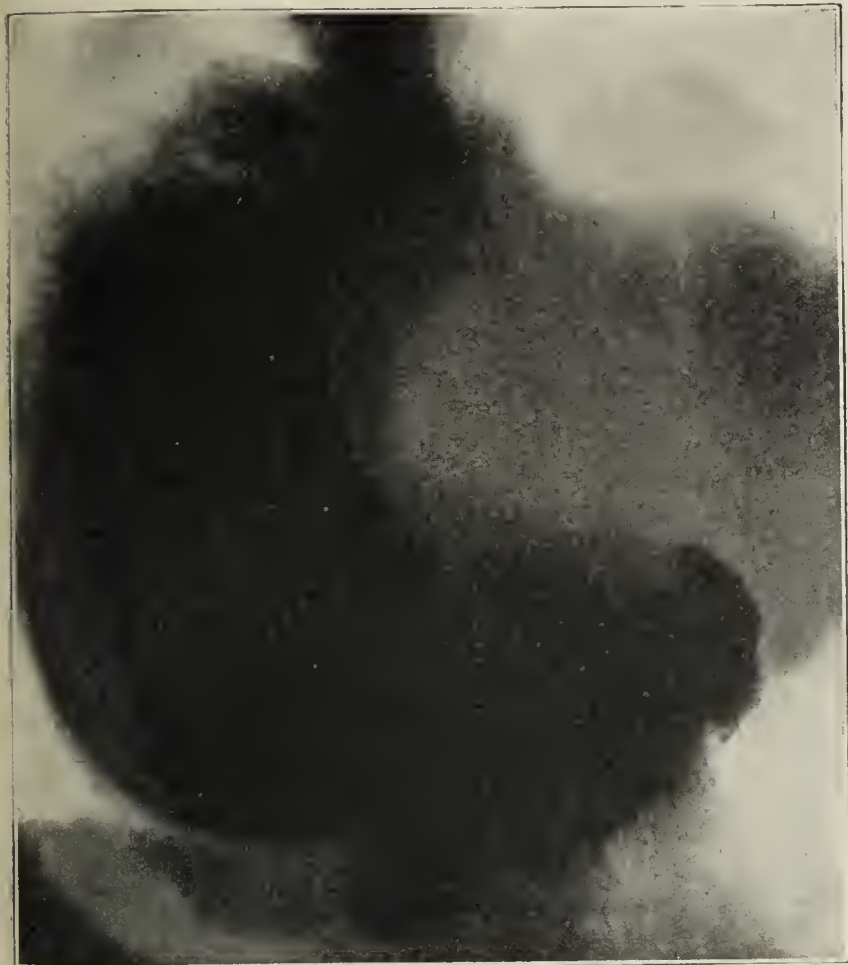


Fig. 3.—Eleven years after gastro-enterostomy. At operation the pylorus was completely blocked. Following the operation the patient gained rapidly in weight and has remained in good health and free from digestive symptoms ever since. Roentgenograms made at various times in the interval have shown the stoma always open and acting as the exclusive exit of the stomach.

a residue of stagnant secretion in the fasting stomach, gastro-enterostomy serves at first as a drainage operation. Observing these cases soon after operation, the stoma is doing a large part of the work, with the pylorus doing some. Later, in six months or a year, it will often be found that the pylorus is doing all or nearly all of it.

In one case which came under observation on several different occasions, we noticed a very interesting thing: Although ordinarily the food left largely by the pylorus, at times the ulcer would apparently become active, when the pylorus would shut down, and all food leave by the stoma. The pyloric area was thus effectively rested, and the acute stage of the ulcer shortened; for later the food was again leaving by the pylorus. It may be that gastro-enterostomy is a beneficial thing in these cases, even when high grade obstruction is not present.

Emptying Rate of the Gastro-Enterostomized Stomach: Some advocates⁵ of pyloroplasty, and some critics of gastro-enterostomy are in the habit of stating that the defect of the gastro-enterostomized stomach is that the food rushes through without chymification and thus causes diarrhea and malnutrition. It may be well, therefore, to call attention to the actual figures on the subject. Unfortunately, we have not timed the emptying rate on all our twenty-two "normal"

cases. We had previously records on six, however, which have been in print since 1913, and hence cannot have been influenced by recent criticism. In them the emptying rate was, respectively, one and one-half, two, three, three and one-half, two and one-half hours and one hour—an average of two and one-quarter hours, a minimum of one hour and a maximum of three and one-half hours. This, it is to be noted, is with a barium meal, of thin consistency; heavier meals would certainly remain longer. Chymification, as shown by recovered test meals, at the end of an hour is good.

2. Secretory Functions of the Gastro-Enterostomized Stomach.—The subject has been exhaustively studied by Smithies.⁶ My own studies tend to show, in general, that secretion is diminished compared with the preoperative condition.

Our series of cases is much smaller than Smithies', and in general, agrees. We have, in two cases, however, been able to approach the subject from a slightly different angle. In these two cases we have studied the gastric contents at varying periods over a period of three and one-half years. Both showed a considerable reduction in acidity immediately after operation, and in both the acidity, while it varied greatly, tended to increase with time. This increase was coincident with a slower emptying rate of the stomach, and was



Fig. 4.—Both pylorus and stoma functioning a year after gastro-enterostomy.

greater when the pylorus began to function partially.

3. Influence of Gastro-Enterostomy on Absorption and Nutrition.—Cameron⁷ and Carter⁸ have made studies on this subject. The operation usually has

5. Davis, B. B.: *Ann. Surg.* 73: 450 (April) 1921.

6. Smithies, F.: *Surg., Gynec. & Obst.* 26: 275 (March) 1918.

7. Cameron: *Brit. M. J.* 1: 144, 1908.

8. Carter, H. S.: *Am. J. M. Sc.* 154: 851 (Dec.) 1917.

little influence or a favorable influence on nutrition. Especially if the pylorus has been previously obstructed, the patients gain markedly in weight. One in our series gained 45 pounds in a year, nearly a third of



Fig. 5.—Same patient as in Figure 4. This plate, showing the stoma functioning almost exclusively, was taken at a different time from the preceding during a period of exacerbation of ulcer symptoms, and illustrates the manner in which the stoma acts at such times.

his total weight. One was decidedly overweight, so that we instituted a reduction cure. The weight is usually well maintained.

Carter states that soon after operation the fat absorption is low, but that this improves as time goes on. A case of his tested two years after operation showed a normal nitrogenous balance, fat absorption and carbohydrate utilization.

With this background we are in a position to consider those cases in which the result of the operation was not so happy. They have been divided into two groups: the immediate bad results, those in which the symptoms arose while the patient was still in the hospital; and the remote, in which the symptoms arose at a later time, or came on gradually.

CAUSES OF UNFAVORABLE SYMPTOMS FOLLOWING GASTRO-ENTEROSTOMY

1. *Immediate.*—(a) Obstruction of the distal loop on the jejunum. The symptoms are copious, watery vomiting, shock, and intoxication of the Draper type. The cause is usually herniation of the jejunum into the lesser peritoneal cavity through the opening in the mesentery. Moschowitz and Wilensky⁹ have reported a case in which the jejunum was strangulated in the jejunal fold of the mesentery. The condition always

calls for immediate early reoperation. The prognosis is bad. I have seen two such cases in consultation (they are not included in the tabulation of this series). Mayo¹⁰ and Moynihan¹¹ report cases with chronic vomiting due to obstruction of the distal loop of jejunum—so-called vicious circle.

(b) Seepage, around the suture line. This must be a rare accident in experienced hands. The symptoms are reported as pain, elevated temperature, and local tenderness. The prognosis is good. I have never seen a case of this kind.

2. *Later Symptoms.*—Tabulated according to symptoms, the patients showed: hemorrhage, 8 cases; diarrhea, 6; fulness or discomfort after meals, 4; gaseous eructations, 3; vomiting, 1; nausea, 3; anorexia, 6, and discomfort before meals, 6 cases.

Considered under the headings of causes, so far as I have been able to determine them, they are:

(a) The formation of jejunal ulcers. One case in this series. There have been upward of 140 cases reported in the literature. As I have no new facts to add to those already recorded, I shall not discuss it.

(b) Recurrence of the ulcer—six cases. It often happens that a gastro-enterostomy is done for an ulcer, on the posterior wall of the stomach, which is still active. After the operation the symptoms persist—pain, hemorrhage, eructations and gas. This also happens in ulcers at the pylorus. Whether with or without cicatrization sufficient to cause obstruction,



Fig. 6.—Patient with symptoms due to too large a stoma with consequent early emptying and dilatation of the jejunum.

the ulcer is still active, and this activity persists. With the gastro-enterostomy made, however, the ulcer at the pylorus has a better chance to heal. These are the cases previously mentioned, in which the pylorus inter-

9. Moschowitz and Wilensky: Surg., Gynec. & Obst. **21**: 390, 1915.

10. Mayo: Ann. Surg. **36**: 243, 1902.

11. Moynihan: Duodenal Ulcer, London, 1912.

mittently becomes blocked, and the stoma takes over the work, giving the pyloric area a rest.

One factor that predisposes to the recurrence in both cases is for the patient to believe that after opera-



Fig. 7.—Patient with symptoms due to too high implantation of the stoma. Roentgenogram taken immediately after ingestion of meal.

tion he is suddenly well and may eat anything he likes. This leads us to:

Lack of proper instruction before discharge from the surgeon. After gastro-enterostomy the patients should maintain a strict ambulatory ulcer diet for at least a year, and should report to an observer twice a year until it becomes evident that they are symptomatically well. Deviations from this simple rule are usual with surgeons. The patients go out and begin to eat everything to "test their new stomachs," as one of them put it. It is no wonder they soon come to grief. Many of them need to be restricted even to a liquid or soft diet for months after operation. Attention to their bowels is less frequently necessary.

Hemorrhage. This is not infrequent. Gross hemorrhage occurred in 6 per cent. of Smithies' unfavorable cases, and microscopic blood in 10 per cent. of all his cases. The treatment for it is the same as without operation. When present in the stool alone, jejunal ulcer must be remembered.

(c) Diarrhea—one case. The symptom occurs also in cases of too large stoma, described below. It has usually been ascribed to too rapid emptying of the stomach and the premature introduction of food into the intestines. Andrews and Mix¹² describe a case in which the stomach emptied in thirty seconds and was accompanied by cramping pain, tenderness in the abdomen and frequent explosive bowel movements. I have never seen a stomach empty this rapidly. In the case that I saw, it emptied in an hour; but there

was rapid early emptying. In the fluoroscope the small intestine, and especially the large, were spastic and likely to cramp into segments and stay cramped. I have been inclined to ascribe the condition not so much to undigested food as to actual pus infection of the intestinal walls. The patient was made more comfortable by a very bland diet, by the recumbent position after meals, six small meals a day, and hydrochloric acid, though there are still periods of discomfort, and the bowels are very easily upset.

(d) Dilatation of jejunum from too large a stoma—four cases. Hertz¹³ and Case¹⁴ have independently called attention to this condition. It is well shown in Figure 6. The stoma, from being either too large or poorly placed, allows food to rush into the jejunum and distend it. The symptoms are a sense of fulness, amounting to actual pain, after meals. Hypersecretion was marked symptoms of one of my cases. This is paradoxical, but can be explained by the probability that the jejunum distends so much as to obstruct partially the distal loop by sagging. In this case the pylorus was occluded at a secondary operation, before I saw the patient.

The treatment is rest in the prone position, after meals, for from half an hour to an hour; and small, easily digested meals, at regular intervals. In the course of time the stoma may narrow and the symptoms clear up.

(e) Gastric stasis from too high implantation of the stoma—two cases.

In cases of atony of the stomach before operation,



Fig. 8.—Same patient as in Figure 7. Roentgenogram taken six and one-half hours after Figure 7. Note residue not drained by stoma.

or of emaciation with gastroparesis, or both, the condition may persist after operation. If so, the stoma may come to be placed higher than the upper level of

12. Andrews and Mix: S. Clinics, Chicago 4: 879 (Oct.) 1920.

13. Hertz: Ann. Surg. 58: 466, 1913.

14. Case, J. T.: Roentgen Studies After Gastric and Intestinal Operations, J. A. M. A. 65: 1628 (Nov. 6) 1915.

the food. There results a more or less severe grade of gastric stasis. The situation may easily be brought about by a too high implantation of the stoma. The surgeon operates on the patient in the horizontal position, when the low point of the stomach may be very different from the low point of the stomach in the vertical position. Murphy¹⁵ reports one such case in which the pylorus was occluded at operation.

Whether brought about by the dropping of the stomach in atony or from the natural shifting in the vertical position, the result is the same. The food passes out of the stoma until the stoma is above the upper level of the food. Symptoms of anorexia, belching, discomfort after meals, etc., follow. The treatment is to assume the prone position after meals, when the stoma will be able to drain the stomach completely. Wearing an abdominal support is also useful. A dry diet, with small meals, and no fluid intake should be substituted. Under such a regimen the prognosis is good.

In both this condition and the former one of dilatation of the jejunum from too large a stoma, the situation is made worse in those cases in which the pylorus has also been occluded by the surgeon. If the surgeon is going to occlude the pylorus, he must be very sure his technic is good.

(f) Superimposed gastric disease—no cases in this series. Murphy, however, reports two bad results after gastro-enterostomy, one in which a carcinoma was implanted upon the old ulcer, and one in which syphilis, apparently, from the description, a tabes with gastric crises, developed after operation.

SUMMARY

Gastrojejunostomy is a satisfactory operation in proper cases, properly done. On account of its simplicity it is a good operation for the general surgeon to use as a routine. The most favorable cases are ulcers at the pylorus causing obstruction. The highest grade obstruction, other things being equal, will obtain the greatest relief, but lesser grades of obstruction will be benefited. The least favorable cases are indurated ulcers away from the pylorus. Unless the case has been improperly selected, or unless some error in technic occurs, the patients with gastro-enterostomy have, with few exceptions, little or no disturbance of digestion or nutrition. Occlusion of the pylorus, is, in my experience, a poor procedure.

The causes of late unfavorable symptoms following gastro-enterostomy are: (1) jejunal ulcer; (2) recurrence of the ulcer, particularly ulcers on the posterior wall of the stomach, or due to lack of dietary regulation after operation, or from other undetermined causes; (3) diarrhea, from too rapid exit of food or bacteria; (4) dilatation of the jejunum from too large a stoma; (5) gastric stasis from too high implantation of the stoma, and (6) superimposed gastric disease.

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15. Murphy: *Am. J. Roentgenol.*, April, 1919.

Laboratory Science in Medicine.—A critical study of the history of the study of the typhoid problem from the dual viewpoints of theory and practice leads to an appreciation of how much the development of the laboratory sciences has meant in clinical medicine.—*Bull. Mass. Dept. Ment. Dis.* 4:7 (Oct.) 1920.

DIAGNOSTIC AND THERAPEUTIC ASPECTS OF LATE SEQUELAE OF GASTRIC SURGERY

OBSERVATIONS BASED ON SIX THOUSAND, FOUR
HUNDRED OPERATIONS FOR CHRONIC GAS-
TRIC AND DUODENAL ULCERS *

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This article embodies, in the main, my experience and opinion with regard to factors contributing to the failure or success of the surgical treatment of patients with chronic benign ulcer of the stomach or of the duodenum. The subject was chosen partly because of a growing suspicion of physicians regarding the ultimate benefits derived from purely surgical interference, especially following gastro-enterostomy for uncomplicated juxtapyloric lesions, and partly in view of the diagnostic problems and the therapeutic considerations arising as the result of late sequelae.

A full consideration will not be given of the relative merits or indications for medical and surgical treatment, of the antagonistic views held by prominent internists with reference to the virtue of purely medical measures, or of the uncompromising attitude, and the occasion for it, of the majority of surgeons regarding nonsurgical therapeutics. It seems that these and numerous other causes for disagreement lie largely in the fact that our present knowledge concerning many fundamental factors of normal and morbid gastric physiology, and of the lesion itself, is incomplete. Besides, there is an absence of uniform standards of selection, judgment, and skill in the management of ulcer-bearing patients. To those intimate with the difficulties of our problem there is a feeling that we are passing through a transitional stage so far as the treatment of ulcer is concerned. While we appreciate the limitations of medical treatment, there has also been a growing dissatisfaction among surgeons with the results of their treatment. A study such as this, wherein we may see the factors that made not only for failure but also for success in the past, may perhaps serve the added purpose of evaluating any change or addition to our future therapeutic armamentarium.

As about 70 per cent. of all ulcers are duodenal, and about 65 per cent. of all gastric ulcers are at or near the pylorus and on the lesser curvature, posterior gastrojejunostomy, with or without cautery or knife excision, has been the usual operative procedure in the Mayo Clinic. Therefore, my observations and statistical review deal chiefly with this large group. In the discussion that follows, bearing on the causes for failure or incomplete relief after operation, the fact should not be lost sight of that, in our experience, as statistics will show, the end-results have been highly favorable. Failures after medical treatment are taken as a matter of fact, but failures after operation are often given undue prominence, a psychologic fact of considerable importance.

CHIEF REASONS FOR FAILURE

Immediate postoperative complications, while they may have an important bearing on later sequelae, do

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*Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

not come within the province of this paper. Patients under observation following unsuccessful surgical treatment may present a variety of symptoms, chiefly pain or distress, emesis, hemorrhage and intestinal disturbances. The underlying causes may be purely neurotic, or they may be due to functional derangement or to gross lesions. Moynihan,¹ whose experience has been very similar to that in the Mayo Clinic, gives the following as the chief reasons for failure:

1. The performance of gastro-enterostomy in the absence of a lesion intrinsic to the stomach or duodenum.

2. Faulty technic, which often gives rise to the symptoms of vicious circle, the result of obstruction of one of the jejunal limbs, especially the distal one, or the result of too small a stoma or too long a jejunal loop.

3. Lack of thoroughness in operating, such as neglecting to remove a diseased gallbladder or an appendix at the time of an otherwise successful operation, or to deal directly with an ulcer-bearing area when circumstances warrant it.

4. Formation of a new ulcer in the stomach or duodenum, at or beyond the stoma, and reactivation of the partially healed or unhealed ulcer, or carcinomatous changes in a gastric ulcer not removed at the primary operation. In these cases such sequelae give rise essentially to painful symptoms at variable periods after operation in which the complaint is often identical to the original. Similar distress may be provoked by extensive adhesions at the pylorus or by those involving the stomach and anterior abdominal wall, the result of repeated operations or undue manipulations.

CASE GROUPS

The patients who have come under our observation may be divided roughly into two groups:

Group 1.—Almost all of the patients in the first group had been operated on primarily elsewhere, and the cause of their recurring symptoms were usually due to (1) operation in the absence of a lesion, a technical error, or to a combination of both (about 200 gastro-enterostomies have been undone by surgeons in the Mayo Clinic, including a number of their own) or to (2) gastrojejunal or jejunal ulcer. Secondary operations for the removal of such lesions were performed in forty-four cases. These complications are more serious than the original lesion. In about one third of these cases there was no tangible evidence of a preexisting lesion.

The group of patients with recurring symptoms who had been operated on elsewhere represents the most difficult problem in diagnosis because of (1) invariable absence of authentic data concerning the operative findings, the details of operative procedure, and the degree of technical skill; (2) the possibility of the recurring symptoms being due to the original causes underlying the complaint, often nervous or reflex, especially in the absence of reliable preoperative clinical evidence for ulcer; (3) the roentgen-ray determination of postoperative complications made difficult because of the inevitable physical and functional changes incident to operative intervention (Carman²).

and (4) subjective cures being found when laboratory examinations indicate a disturbed physiology, and the appearance of postoperative symptoms when the functions seem to be improving, or when they are within normal limits (Wilensky³). But if the postoperative state of the patient is worse than the preoperative, or, as is often the case, the postoperative symptoms are different and more urgent, common sense dictates secondary surgical intervention since the complication is invariably of a mechanical nature.

Group 2.—The patients in this group had demonstrable lesions of the gastroduodenal area which were found and corrected. Other lesions of the accessory digestive tract, when present and amenable to surgical interference, were removed by the surgeons.

SEQUELAE DEMANDING SECONDARY OPERATIONS

In our cases, failure to achieve cures made 228 secondary operations necessary out of a total of 6,402 operations of all types for chronic benign ulcer; there were 4,793 posterior gastrojejunostomies alone. The causes underlying the recurrence or continuation of painful symptoms have been mentioned. Reliable statistical data are not available with regard to the frequency of reactivated ulcer. It is reasonable to infer that the resumption of the original symptoms of variable severity, when associated with hyperacid gastric secretion and responding favorably to proper and adequate medical measures, are due to this factor. Especially is this true in the persistent absence of any definite clinical or roentgenologic evidence of a new ulcerative process.

Gastrojejunal or jejunal ulcer necessitated secondary operations in fifty-seven cases. Such sequelae are undoubtedly more frequent because in some instances the disturbance from the ulcer may not be sufficient to bring the patient back for treatment, or he may seek treatment elsewhere. In at least ten additional cases a conclusive diagnosis of such a lesion was made; four of these patients submitted to an intensive medical regimen.

OTHER CLINICAL AND DIAGNOSTIC DATA

Wright⁴ has called attention to the preponderance of the male sex in cases of gastrojejunal and jejunal ulcer. Forty-nine of our fifty-seven patients were males and eight were females. In more than half the patients the pain was left-sided and lower than before the operation. Eighty-eight per cent. of the patients, including those who experienced no relief from the operation, had a recurrence of symptoms within one year following the operation. Other data of clinical interest and diagnostic importance have been emphasized in my study of eighty-three proved cases.⁵ An accumulative experience has enabled my colleagues in roentgenology to detect the lesion with surprising frequency.

Judd⁶ has recently reported the entire series of 101 cases of gastrojejunal ulcers observed at the Mayo Clinic. In these cases, eight of the lesions were distinctly jejunal in location.

3. Wilensky, A. O.: The Present Status of Gastric and Duodenal Ulcer, *Ann. Surg.* **73**: 420 (April) 1921.

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5. Eusterman, G. B.: A Clinical Study of Eighty-Three Gastrojejunal Ulcers: Diagnosis Verified at Operation, *Minnesota Med.* **3**: 517 (Nov.) 1920.

6. Judd, E. S.: Jejunal Ulcers, *Surg., Gynec. & Obst.* **33**: 120 (Aug.) 1921.

1. Moynihan, B.: A Clinical Lecture on Disappointments after Gastro-Enterostomy, *Brit. M. J.* **2**: 33 (July 12) 1919.

2. Carman, R. D.: The Stomach After Operation: Roentgen Diagnosis of Diseases of the Alimentary Canal, Ed. 2, Philadelphia, W. B. Saunders Company, 1920, pp. 377-413.

The formation of a new ulcer at or near the site of the original ulcer was the occasion for a secondary operation in twenty-one patients. This occurrence is exclusive of the gastrojejunal group in which reactivation of the primary ulcer or the formation of a new ulcer was not uncommon. Again the male sex predominated, as only four of the patients were females. The period of relief following the first operation ranged from three months to eleven years, but 70 per cent. of the group had a recurrence of symptoms within an average period of one year and eight months. Three patients had no relief whatever. Twelve of the recurring ulcers were gastric; in seven cases, the original ulcer was gastric and, with one exception, excision alone, pyloroplasty, or sleeve resection had been performed originally. In the remaining five cases, there were concurrent lesions originally in the stomach and duodenum, and gastro-enterostomy with or without excision of the gastric ulcer was the original operation. In the nine instances of a new duodenal ulcer the original lesion was in the duodenum, and the primary operation in seven was excision, plastic operation, or simple enfolding. In the remaining two, a posterior gastrojejunostomy had been performed. The few new gastric ulcers that had apparently developed in the presence of a gastro-enterostomy admit of much speculation. The majority of recurring ulcers, of course, followed excision or pyloroplasty.

Carcinoma developing on benign gastric ulcer for which a previous gastro-enterostomy alone had been performed was found at secondary operation in twenty-three cases. This group represents an earlier series, for in more recent years the Balfour cautery or knife excision combined with gastro-enterostomy, pyloroplasty, or some form of resection is the routine procedure. In ten more recent instances, however, operation revealed carcinoma developing at or near the site of a former gastric ulcer in which surgical measures other than gastro-enterostomy were instituted originally.

In a total of 144 of 4,793 gastro-enterostomies, or in 3 per cent., for miscellaneous reasons besides those enumerated, a secondary operation was performed. In the remaining eighty-four, a secondary operation was undertaken, chiefly because of complications developing after excision or pyloroplasties for gastric ulcer, but the proportion of such primary operations to gastro-enterostomies was much smaller.

END-RESULTS

Graham,⁷ in 1914, reported the surgical end-results in 600 cases of duodenal and gastric ulcers. There were 438 patients with duodenal ulcer, and 94 per cent. of 163 of these who had pyloric obstruction of variable degree at the time of operation were cured. Of the entire group, 88 per cent. were cured or satisfactorily improved. Since that time answers to questionnaires from 1,800 additional patients have been tabulated. The percentage of patients cured or greatly improved remains approximately the same in the two groups. As Balfour⁸ has shown, the added routine procedure of cautery or knife excision, especially the former, has, among other procedures, almost nullified the possibility of postoperative hemorrhage, and the

percentage of patients classified as improved has been much increased. In order to maintain these percentages the surgeon must continue to be conservative in accepting the young male adult with active gastric chemism and the psychoneurotic ulcer-bearing patient, if intensive medical management can be the alternative. Deaver⁹ has recently reported a cure in 90 per cent., following operation for duodenal ulcer.

ADVANTAGES OF GASTRO-ENTEROSTOMY OVER PYLOROPLASTY

In view of such favorable end-results by almost purely surgical procedures and the fact that a secondary operation was necessary in only 228 cases of the 6,402, it is difficult to follow the logic of physicians who argue that gastro-enterostomy is inherently faulty. The average duration of symptoms in our ulcer-bearing patients was nine and one-half years, and such complicating factors as pyloric obstruction, recurring hemorrhage, and chronic perforation, singly or in combination, were present in 35 per cent. A leading American exponent of medical therapy in several personal communications has emphasized his conviction from repeated careful study that a properly performed gastro-enterostomy in the presence of a chronic indurated duodenal or pyloric ulcer is a splendid physiologic procedure. Total and free acidity in our cases is reduced from 40 to 60 per cent. following gastro-enterostomy. As C. H. Mayo¹⁰ has said, this procedure permanently applies the principle of medical treatment, bringing about a change in the local environment, which invariably permits nature to heal the ulcer as well as to overcome symptoms. Carman, on repeated fluoroscopic examination at variable intervals after operation, has shown that (1) the stomach is usually smaller than before operation unless marked dilatation existed previously; (2) the stomach empties in considerably less time than the normal unoperated stomach, and (3) the opaque meal passes freely through the stoma, which does not tend to contract materially. Proponents of some form of pyloroplasty (Finney, Strauss, Horsley,¹¹ and Davis¹²) in preference to gastro-enterostomy have advanced some plausible arguments. The decision as to the best type of operation is a problem that the surgeons must solve, although an expression of opinion from the clinician may not be out of place. My experience with the end-results of several hundred well executed pyloroplasties, many performed under favorable circumstances, has not been encouraging. Recurrence of ulceration in the suture line, adhesions to adjacent viscera, induration, contraction and narrowing, which provoke faulty pyloric mechanism and serious functional disturbances, in the absence of adequate obvious cause, are occasional sequelae. My answer to the charge that gastro-enterostomy is an unphysiologic procedure is that at least 15 per cent. of all pyloroplasties eventually prepare a rich soil for a highly successful gastro-enterostomy. It is reasonable to believe, therefore, that time and an enlarged experience will temper the present laudable enthusiasm for pyloroplasty.

9. Deaver, J. B., and Reimann, S. P.: The Surgical Treatment and the Pathology of Gastric and Duodenal Ulcer, Surg., Gynec. & Obst. **32**: 103 (Feb.) 1921.

10. Mayo, C. H.: Gastric and Duodenal Ulcers, Ann. Surg. **73**: 328 (March) 1921.

11. Horsley, J. S.: A New Operation for Duodenal and Gastric Ulcer, J. A. M. A. **73**: 575 (Aug. 23) 1919.

12. Davis, B. B.: Comparative Results of Pyloroplasty and of Gastro-Enterostomy in Stomach Surgery, Ann. Surg. **73**: 450 (April) 1921.

7. Graham, C.: Observations on Peptic Ulcer, Boston M. & S. J. **170**: 221, 1914.

8. Balfour, D. C.: Cautery Excision of Gastric Ulcer: Further Observations on the Value of the Method, Ann. Surg. **67**: 725 (June) 1918.

CONCLUSION

The nihilism with regard to therapeutics manifested by the surgeon in the past is not a flattering chapter in the annals of achievement in the domain of gastric surgery. In more recent years, this attitude has changed, as evidenced in the contributions of such representative surgeons as Mayo,¹³ Judd, Wilensky and Davis. This attitude augurs well for surgery and for the patient. Medical management has been discredited, not because the principle is wrong, as the capacity for healing in ulcers is variable, but because the effort was inadequate and the cooperation of the patient was not sufficiently cultivated. Consistent medical management is often superior to poor surgery, and the mortality is practically nil. The prospect for cure following a successful operation has too frequently been forfeited through the gross dietetic indiscretions of the neglected patient. Many functional derangements of organs other than the stomach, often of major importance, that surgery cannot be expected to cure, require the cooperation of the internist for their alleviation. Bastedo¹⁴ says bluntly that no longer shall we tolerate a surgeon who places a patient with an ulcer on a heavy and bulky diet within two or three weeks of his operation. All this emphasizes the necessity of friendly cooperation between the internist and the surgeon. Unquestionably, the best interests of the majority of ulcer-bearing patients are conserved by such combined efforts. In the Mayo Clinic, the surgeons leave to the clinicians the preoperative preparation and the details of the immediate and later postoperative dietetics, alkaline therapy, removal of foci of infection and regulation of the future life of the patient. It seems safe to predict that the pooling of all therapeutic resources will prevail over the present tendency of surgeons to institute newer or more radical measures in surgical technic for the cure or alleviation of a widely prevalent and increasing disease.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CLENDENING AND EUSTERMAN

DR. B. W. SIPPY, Chicago: Gastro-enterostomy is of unquestioned value when successfully performed for pyloric obstruction that is unrelievable by less serious measures. After gastro-enterostomy, on giving a full meal of ordinary food and controlling the emptying time with a stomach tube, the stomach seldom empties itself appreciably earlier than the normal emptying time. Food and its accompanying digestive secretion are usually found from five to seven hours after each full meal. It must be remembered also that after gastro-enterostomy the stomach empties itself through the pyloric orifice, proportionate to the size of the opening through it. It is a mistake to assume that following gastro-enterostomy the alkaline secretions of the duodenum enter the stomach in sufficient quantity to neutralize the free hydrochloric acid that attends the clinical peptic ulcer. The free acidity is likely to be lowered somewhat, but not sufficiently to annul appreciably the digestive action of the gastric juice. In many cases unfavorable symptoms following gastro-enterostomy arise because the disease for which the operation was performed was not removed. For example, gastro-enterostomy alone is the most common surgical procedure performed for peptic ulcer. Unless a peptic ulcer is removed by excision or resection, the ulcer does not cease to exist without undergoing a healing process. The conditions for

the healing of pyloric obstructive ulcer are not always sufficiently improved to permit the ulcer to heal. The digestive night secretion is usually controlled, but the ulcer continues to be exposed to irritating digestive gastric juice for a period of from nine to fifteen hours each day. The selection of cases for gastro-enterostomy should be very greatly influenced by the character of the medical and surgical service available. Pyloric obstruction due to peptic ulcer is relievable by accurate medical management in 85 per cent. of all cases. Since gastro-enterostomy is performed largely by those who aspire to imitate the skilled expert, the immediate bad results are the most serious. Only the highly skilled surgeon can regularly protect the patient from such immediate bad results as arise from leakage, hemorrhage, misplaced or undersized stomata, or regurgitant vomiting, due to too long or badly rotated, twisted or overdistended jejunal loops. Uncontrolled night secretion, unrelieved food retention and the development of jejunal ulcer are among the more common apparent conditions contributing to the remote bad results of gastro-enterostomy when performed for peptic ulcer.

DR. J. SHELTON HORSLEY, Richmond, Va.: So far as surgery is concerned, we can divide ulcers of the stomach and duodenum into two distinct types. In one, there is either stenosis or an ulcer with marked surrounding leukocytic infiltration at or near the pylorus. In cases of this type every one is agreed that gastro-enterostomy is the operation of choice, unless the stenosis is very narrow, when I think a pyloroplasty may be indicated. In the second type of ulcers there is a patent pylorus. It is in these cases that trouble follows after gastro-enterostomy. Explanation of this trouble may be found in the changed physiology which permits the dumping of the acid contents of the stomach into the jejunum, whose contents are normally always distinctly alkaline. Even in the Mayo Clinic, where the technic of gastro-enterostomy has reached its perfection and where absorbable sutures are used, there is a definite percentage of cases (usually about 2 or 3 per cent.) that develop gastrojejunal or jejunal ulcer. It seems probable that some of the cases of these ulcers escape observation, and it is even more probable that for every patient who has a frank jejunal ulcer, there are many more who have symptoms that are caused by the irritation and hyperemia from the acid gastric juice in the jejunum, and yet the irritation is not sufficient to produce an ulcer. When there is a permanent cicatricial closure of the pylorus, the gastric juice cannot gain exit there and the alkalinity of the duodenal contents is preserved and protects the stoma at the gastro-enterostomy from the acid; hence, in this type of cases gastro-enterostomy gives good results. The ulcer of the duodenum or stomach is probably originally caused by a streptococcic hematogenous infection; and, doubtless, numerous other lesions, such as cholecystitis, were produced at the same time. The ulcer, which is the surviving lesion, is frequently regarded as the sole lesion, but often there is an accompanying cholecystitis, which is flared up by a pyloroplasty and causes moderate adhesions and symptoms. Whenever a pyloroplasty is done, the gallbladder, if adherent or diseased, should also be removed, because the adhesions of the gallbladder after a pyloroplasty will transmit a pull, or tug, of the peristalsis and so produce pain; whereas, in gastro-enterostomy there is less peristalsis about the pylorus; consequently an infected or adherent gallbladder will not give as many symptoms as after a pyloroplasty, though the pathologic condition may be just as bad.

DR. C. S. BARNES, Philadelphia: Gastro-enterostomy is a question of what part of the country you visit. If you visit Baltimore and see Dr. Finney work, you feel that you want to do a Finney operation. If you go on to the West and see a gastro-enterostomy, you feel that you want to do a gastro-enterostomy. I have had case after case in which I did the Finney operation. You can dissect out the ulcer much more easily. It is a very simple operation to those who will take enough trouble to work it out. It has one disadvantage, that when the ulcer is on the posterior surface of the pylorus it is not as accessible as elsewhere. But even there the ulcer can be resected, and gastro-enterostomy should be done. I have practically no complaints after a

13. Mayo, W. J.: Chronic Duodenal Ulcer, *J. A. M. A.* **64**: 2036 (June 19) 1915.

14. Bastedo, W. A.: Determination of the Need of Surgery in Peptic Ulcer, with Remarks on Gastro-Enterostomy, *Am. J. M. Sc.* **160**: 491 (Oct.) 1920.

Finney operation because the duodenum is used to receive the contents of the stomach. The Finney operation is practically a gastro-jejunosomy except for the pyloroplasty.

DR. G. B. EUSTERMAN, Rochester, Minn.: The profession is indebted to Dr. Sippy for having developed a simple and quite effective method of medical management of ulcer-bearing individuals. In properly selected cases we employ his method, in slightly modified form, as a routine. The question of the relative merits of pyloroplasty and gastro-jejunosomy is a matter which the surgeons must thresh out. I have simply advanced a clinician's opinion based on the comparatively less favorable end-results of a considerable number of skilfully performed pyloroplasties.

OBSERVATIONS ON BACILLUS BOTULINUS INFECTION OF CANNED SPINACH *

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Several recent outbreaks of botulism due to the consumption of infected canned spinach¹ have aroused some discussion concerning the growth and toxin production by *Bacillus botulinus* in a food product of this type. Given an initial infection, is this organism able to multiply and produce its characteristic toxin readily or may the development in such a medium be retarded? Also, coincident with toxin formation, are any metabolic products formed which may be detected by a mere physical examination and thus enable one to judge the food as spoiled and unfit for consumption? Essentially, this becomes a question of whether the development of *B. botulinus* in canned spinach is accompanied by gas production with resultant bulging or "swelling"² of the can or the production of an offensive odor, so that the consumer may be protected by elimination of abnormal food containers. Several reports¹ which have been received by this bureau concerning these outbreaks of botulism have indicated that the spinach held responsible was apparently normal, while others have stated that the food was either open to suspicion or obviously unfit for consumption.

This paper presents the results of experiments which were designed to obtain a more definite knowledge of the development of *Bacillus botulinus* in canned spinach and also a summary of the examination of numerous samples of canned spinach procured in the open market or from dealers.

EXPERIMENTAL INOCULATION OF SPINACH WITH BACILLUS BOTULINUS

For this experiment, forty apparently normal cans of spinach were selected. This number was divided equally between two sizes of cans, a large one, Size 10, containing 6 pounds 4 ounces, and a small one, Size,

2½, containing 1 pound 14 ounces. Of the total number, twenty-four were inoculated, and the remainder held as uninoculated controls. For inoculation, a suspension of *Bacillus botulinus* spores was prepared by growing the culture for seven days at 37 C. in a 2 per cent. glucose beef infusion broth containing chopped meat, pipeting off the fluid above the meat and centrifugalizing. The sediment was taken up in sterile saline and the resultant suspension heated at 80 C. for fifteen minutes to destroy vegetative cells and toxin. The strain of *B. botulinus* employed for this purpose had been obtained from infected asparagus which was responsible for an outbreak of botulism at Boise Idaho.³

An estimate of the number of viable spores inoculated into the cans was obtained by making a series of dilutions of the original suspension and transferring known amounts from each dilution to deep tubes of 2 per cent. dextrose beef infusion agar. After three or four days' incubation at 37 C., several tubes showing suitable distribution of colonies were counted. By this procedure, it was estimated that the inoculum given each can of spinach consisted of approximately 800,000 spores.

Inoculation was performed by piercing the cans with a sharp-pointed instrument and immediately introducing the spore suspension by means of a sterile capillary pipet. This was always thrust into the can to a depth of 2 or 3 inches, thereby placing the inoculum well into the center of the mass. Aseptic conditions were observed throughout the work. After inoculation, the cans were at once resoldered to give an airtight seal and divided into two lots, which were held at 37 C. and at room temperature, respectively. As the cans were not heated to expel the air, this method of inoculation undoubtedly eliminated the decreased pressure in many of the cans and may account for the "springy" condition of some of the Size 2½ cans which were subsequently held at 37 C.

At various intervals after inoculation, several cans of each lot were opened and about 25 c.c. of the material removed for culture and feeding. To gain an idea of the relative toxicity of the spinach, two different quantities of the juice from each sample were fed to guinea-pigs. Cultural work involved the use of aerobic dextrose agar plates, dextrose infusion broth under oil, and dextrose deep agar tubes. The last were used to obtain an estimate of the number of organisms in the spinach juice and the procedure followed was similar to that described for the determination of the numbers in the inoculum, with the exception that the samples were not previously heated, so that here the figures represent the total of both vegetative and spore forms.

To check any relationship of the toxicity of the material to the physical condition of the can or of the spinach, the condition of the cans, i. e., whether "flat" or "swollen," and the odor and appearance of the spinach after opening the can were noted. The uninoculated cans which were used as controls were subjected to the same examination as were those which had received *B. botulinus*.

The development of *Bacillus botulinus* in canned spinach was found to be somewhat irregular, as shown in the accompanying tables. In only the large cans

* From the Bureau of Chemistry and the Bureau of Animal Industry, U. S. Department of Agriculture.

* The writers are indebted to Dr. Charles Thom for valuable criticism and suggestions throughout the course of this work.

1. Geiger, J. C.: Pub. Health Rep. **35**: 2858-2860 (Nov. 26) 1920; also, reports to Bureau of Chemistry from the central and western food and drug inspection districts.

2. The trade terms "flat," "springy" or "swelled" are used to designate the condition of the ends of the can. Normally, a can should be "flat" (slightly concave), owing to a decreased pressure within the can. The "springy" or "swelled" condition is caused by an increase in pressure resulting from gas production within the can. A springy can may also result from improper exhausting.

3. Thom, Charles; Edmondson, R. B., and Giltner, L. T.: Botulism from Canned Asparagus, J. A. M. A. **73**: 907-912 (Sept. 20) 1919.

which were held at 37 C. was a prompt and uniform response obtained (Table 1). Here, toxin formation and the production of gas, as evidenced by the swelled condition of the cans, proceeded rapidly. At room temperature, the response was considerably slower (Table 2), indeed, the material from several cans was found to be nontoxic, although toxic cultures of *B. botulinus* were obtained from these in every instance. In the Size 2½ cans, the ability to initiate growth was found to be quite irregular. Of five inoculated cans held at 37 C., only two were later found to be toxic. The one became swollen after a

other hand, while containing a larger number have exhibited great variation, the numbers ranging from 35,000 to 20,000,000 per cubic centimeter. As the material was not shaken or stirred before examination, an uneven distribution of organisms within the can may account for this difference. Dextrose agar plates have indicated the absence of aerobic organisms in all but two instances. These may represent either contamination at the time of inoculation of the can or perhaps dormant spores originally present in the spinach. In the examination of miscellaneous samples of spinach reported later in this paper, we have occasion-

TABLE 1.—DEVELOPMENT OF BACILLUS BOTULINUS IN SIZE 10 CANS AT 37 C.*

Interval After Inoculation, Days	Can Number	Condition of Can †	Physical Examination of Spinach		Dextrose Agar Plates (Aerobic)	Recovery of <i>B. botulinus</i>	Numbers per C.c. of Spinach Juice	Guinea-Pig Feeding	
			Odor	Appearance				Amounts Fed, C.c.	Results
4	1	Hard swell	? ‡	Normal	Sterile	+	.....	3.0	Dead within 18 hours
								0.5	Dead within 18 hours
	2	Springy	Normal	Normal	Sterile	+	.....	3.0	Remained well
7	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
	3	Hard swell	Bad	Normal	Sterile	+	50,000	0.5	Dead within 18 hours
	4	Hard swell	Bad	Normal	Sterile	+	112,000	0.5	Dead within 18 hours
14	Control	Flat	Normal	Normal	Sterile	Sterile	.....	5.0	Remained well
	5	Hard swell	Bad	Slightly mushy	+	+	35,000	5.0	Dead within 18 hours
					Spore-forming spreader			0.5	Dead, about 48 hours
	6	Hard swell	Bad	Normal	Sterile	+	160,000	0.5	Dead within 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	5.0	Remained well

* Inoculated with 800,000 spores of *B. botulinus* type A (Boise strain); controls uninoculated.
† After from three to four days of incubation, five of the six cans had become swollen; the other was a "springer."
‡ A slight difference in odor when compared with the normal cans is designated by the mark ? in this and in the following tables. If judged solely by the odor, these would undoubtedly be passed by the average consumer or by one unfamiliar with the product.

TABLE 2.—DEVELOPMENT OF BACILLUS BOTULINUS IN SIZE 10 CANS AT ROOM TEMPERATURE *

Interval After Inoculation, Days	Can Number	Condition of Can †	Physical Examination of Spinach		Dextrose Agar Plates (Aerobic)	Recovery of <i>B. botulinus</i>	Numbers per C.c. of Spinach Juice	Guinea-Pig Feeding	
			Odor	Appearance				Amounts Fed, C.c.	Results
7	7	Flat	Normal	Normal	Sterile	+	<100	5.0	Remained well
	8	Springy	Normal?	Normal	Sterile	+	3,000,000	5.0	Dead within 18 hours
								0.5	Dead within 18 hours
14	Control	Flat	Normal	Normal	Sterile	Sterile	.....	5.0	Remained well
	9	Flat	?	Mushy	Sterile	+	300	5.0	Remained well
								0.5	Remained well
21	10	Hard swell	?	Normal	Sterile	+	90,000	5.0	Dead within 18 hours
								0.5	Dead within 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	5.0	Remained well
35	11	Hard swell	Sour	Mushy	Sterile	+	200,000	5.0	Dead within 18 hours
								0.5	Dead, about 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	5.0	Remained well
	12	Springy	Normal	Slightly mushy	Sterile	+	8,000,000	5.0	Dead within 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Dead, about 18 hours

* Inoculated with 800,000 spores of *B. botulinus* type A (Boise strain); temperature from 21 to 27 C., as determined by thermograph; controls uninoculated.
† After four days, all cans remained flat. At the seventh day, two had become "springy". Between the seventh and fourteenth day, one "springy" and one normal can developed into "hard swells." One can remained normal until between the fourth and fifth week after inoculation, when it became "springy."

few days and the other between the second and third week after inoculation (Table 3). Among those held at room temperature, there was evidence of toxin formation in three out of a total of seven cans (Table 4). The number of cans in which *B. botulinus* failed to develop might have been less if a longer interval had elapsed before examination. The purpose of opening a number of apparently normal cans at various intervals was to answer the question raised before, i. e., whether an apparently normal can would be toxic. One instance of this kind was found, for in Can 18 sufficient toxin had been formed to kill the animal which received the larger quantity of spinach juice.

In practically every case the nontoxic samples contained only small numbers of organisms per cubic centimeter of spinach juice; the toxic samples, on the

ally encountered members of the aerobic spore-bearing group of bacteria.

EXAMINATION OF MISCELLANEOUS SAMPLES OF CANNED SPINACH

A total of 174 cans was examined bacteriologically. These were selected from various shipments believed to be connected with the botulism outbreaks and also from a number of other lots which were suspected of being imperfectly processed. Of the entire number, ninety-two were normal and eighty-two were either "swollen" or "springy." The contents of six of the eighty-two abnormal containers were found to be toxic when fed to guinea-pigs. One of these six cans presented a peculiar condition in that, while animals were regularly killed by feeding small amounts of the

spinach juice, cultures of *B. botulinus* could not be obtained. Even large amounts of the material introduced into flasks of liver broth or dextrose beef infusion broth with meat failed to yield toxic cultures. The various mediums used were carefully checked by the growth of known strains of *B. botulinus* in other lots of the same preparation. Protection experiments performed with the centrifugalized spinach juice against Types A and B⁴ immune serums showed the toxin to be of the A type, for the animals receiving Type A antitoxin remained well while those receiving Type B died with symptoms typical of botulism. In our

Other than several miscellaneous observations, no determinations were made of the potency of the toxic spinach juice. Five c.c. quantities given by mouth to 250-300 gm. guinea-pigs usually produced a fatal result within twenty-four hours. A number of guinea-pigs were injected intraperitoneally with successive dilutions of centrifugalized spinach juice, with the result that 0.1 c.c. killed in less than eighteen hours, 0.01 c.c. in from about eighteen to twenty hours, and 0.001 c.c. in about thirty-six hours. The same experiment was performed with another sample of toxic spinach with similar results.

TABLE 3.—DEVELOPMENT OF BACILLUS BOTULINUS IN SIZE 2½ CANS AT 37 C.*

Interval After Inoculation, Days	Can Number	Condition of Can †	Physical Examination of Spinach		Dextrose Agar Plates (Aerobic)	Recovery of <i>B. botulinus</i>	Numbers per C.c. of Spinach Juice	Guinea-Pig Feeding	
			Odor	Appearance				Amounts Fed, C.c.	Results
4	13	Hard swell	Bad	Normal	Sterile	+	.....	3.0	Dead within 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Dead, about 18 hours
7	14	Springy	Normal	Normal	+ 1,000 colonies per c.c.	+	160	3.0	Remained well
	15	Springy	Normal	Normal	Sterile	+	20,000	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
14	16	Flat	Normal	Normal	Sterile	+	50	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
21	17	Swell	?	Normal	Sterile	+	51,000	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Dead within 18 hours
								...	Dead, about 18 hours
									Remained well

* Inoculated with 800,000 spores of *B. botulinus* type A (Boise strain); controls uninoculated.
† At the fourth day, one can had become a "hard swell," two were "springy" and two were normal. By the seventh day one of the remaining normal cans became "springy." The one "springy" can which remained unopened gradually developed into a "swell" between the second and third week after inoculation.

TABLE 4.—DEVELOPMENT OF BACILLUS BOTULINUS IN SIZE 2½ CANS AT ROOM TEMPERATURE *

Interval After Inoculation, Days	Can Number	Condition of Can †	Physical Examination of Spinach		Dextrose Agar Plates (Aerobic)	Recovery of <i>B. botulinus</i>	Numbers per C.c. of Spinach Juice	Guinea-Pig Feeding	
			Odor	Appearance				Amounts Fed, C.c.	Results
4	18	Flat	Normal	Normal	Sterile	+	.....	3.0	24 hours, unaffected; 3 days, partial paralysis; 4 days, dead
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
7	19	Flat	?	Normal	Sterile	+	1,800	3.0	Remained well
	20	Hard swell	Bad	Normal	Sterile	+	20,000,000	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Dead, 18 hours
14	21	Flat	Normal	Normal	Sterile	+	2,100	5.0	Dead, 24 hours
	22	Hard swell	Bad	Normal	Sterile	+	2,200,000	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
21	23	Flat	Normal	Normal	Sterile	+	2,000	5.0	Dead within 18 hours
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well
42	24	Flat	Normal	Normal	Sterile	+	130	5.0	Remained well
	Control	Flat	Normal	Normal	Sterile	Sterile	.....	0.5	Remained well

* Inoculated with 800,000 spores of *B. botulinus* type A (Boise strain) held at room temperature, from 21 to 27 C., as determined by thermograph; controls uninoculated.
† At the fourth day, two cans had become "springy," the remainder were normal. By the seventh day, these two "springy" cans had developed into "swells," while the remainder were still unchanged and were finally recorded as normal at the termination of the experiment (see cans No. 21, 23 and 24 above).

experience, this one instance has been unique in that we were able to demonstrate the presence of toxin of a specific type, but could not recover the organism in cultures. From the other five toxic cans, cultures of *B. botulinus* were obtained. In all of these cases, protection experiments with specific immune serums have shown the toxin to be of the A type. Since all of our protection tests were essentially similar, one only is given in detail (Table 5). Stains made from the toxic cultures obtained from these samples of spinach have shown in most cases the presence of one or more bacterial types, in addition to those typical of *B. botulinus*. In only one instance have these additional forms exhibited aerobic growth.

It should be noted that all of the six containers in which the presence of *Bacillus botulinus* or its toxin was demonstrated were abnormal. The ends of the cans were bulged outward and the trade term "hard swell" applied in every instance. Considerable pressure had developed, for on opening, the material spurted out. Without exception, the odor was bad. The physical appearance of the infected spinach was good generally, evidently *B. botulinus* is unable to disintegrate the plant tissue.
Of the entire eighty-two "swelled" or "springy" containers, viable micro-organisms were obtained from fifty-eight, while the remaining twenty-four, or 29.2 per cent., were found to be sterile. Numerous feeding experiments have demonstrated that, with the exception of the six cans which were found to contain

4. Burke, G. S.: Notes on *Bacillus Botulinus*, J. Bacteriol. 4: 555-565 (Sept.) 1919.

B. botulinus, these spoiled samples were harmless to guinea-pigs. A study of the types of organisms responsible for the spoilage has not been made. The majority of them refused to grow under aerobic conditions.

The flat or normal cans were found to be sterile, with three exceptions. An aerobic spore-bearing gram-positive bacillus was obtained from one and obligate anaerobes from the other two cans. These provoked no ill effects when fed to experimental animals.

COMMENT

One outstanding feature of the experimental inoculation of spinach has been the irregularity exhibited by *B. botulinus* in initiating development. In some instances, the organisms multiplied rapidly, while in others, there was no apparent increase in numbers, even after an interval of several weeks. Under conditions actually encountered in the industry, it is possible that the number of infected cans which showed subsequent development and spoilage would be less than in the experiment. The experimental inoculation was considerably greater than one would imagine to be the case in accidentally contaminated foodstuffs, and, furthermore, the inoculated spores were not subject to a prolonged heating such as has been shown by several investigators⁵ to retard subsequent development.

TABLE 5.—PROTECTION EXPERIMENTS WITH SPECIFIC IMMUNE SERUMS*

Toxic Spinach Juice	Immune Serum	Result
1.0 c.c.	1.0 c.c. Type A	Lived
0.1 c.c.†	1.0 c.c. Type A	Lived
0.01 c.c.†	1.0 c.c. Type A	Lived
1.0 c.c.	1.0 c.c. Type B	Dead less than 24 hours
0.1 c.c.†	1.0 c.c. Type B	Dead, 24 hours
0.01 c.c.†	1.0 c.c. Type B	Dead, about 30 hours

* Centrifugalized spinach juice and serums given simultaneously by intraperitoneal injection to guinea-pigs.
† Volume made up to 1 c.c. with sterile saline solution.

Our experiments show that the multiplication of *B. botulinus* in canned spinach is accompanied by gas production as well as by the elaboration of its specific toxin. As previously noted in Table 4, one instance was encountered in which toxin formation had taken place to a certain extent, while gas production either had not occurred or was insufficient to produce any bulging of the can. Feeding infected material to susceptible animals, such as the guinea-pig, constitutes a delicate test for the presence of the toxin. On the other hand, a certain quantity of gas must be evolved before it is sufficient to overcome the decreased pressure within the can and to cause distortion. On this basis, it is reasonable to assume that during a certain early stage in the development of the organism a weak toxin may be found before bulging of the can, due to gas formation, is evidenced.

Should infected material make its way into the trade shortly after preparation, or perhaps be held at a low temperature, there is the possibility that an instance of this sort might be encountered by the consumer. In such a case, he would have no warning on which to discard the food. It is believed that such an occurrence would be infrequent. As already pointed out, all infected containers procured from the trade have been distinctly abnormal in regard both to the

“swelled” appearance of the can and to the odor of the product. It is firmly believed, therefore, that a conscientious scrutiny of the food product would result in the detection of spoilage⁶ and the elimination of such foodstuffs should prevent extensive outbreaks of botulism. It is a matter of record that on tracing back the shipments of spinach incriminated in several of the botulism outbreaks, our inspection reports show that extensive spoilage actually occurred and that these lots had been sorted over and salvaged several times. In one instance, 590 cases out of a total of 900 spoiled during shipment and were destroyed. From the standpoint of the public health any lot of food which has given evidence of extensive spoilage should be regarded as potentially dangerous.

As a criterion to enable one to recognize abnormal containers, the data at hand indicate that the condition of the can, that is, whether “springy” or “swelled” would be of more value than the odor or appearance of the spinach, since some of the toxic cans which were opened shortly after inoculation exhibited very little if any abnormal odor.

SUMMARY

Bacillus botulinus, Type A, is able to multiply and to produce its characteristic toxin in canned spinach, although the development of the organism in this food product was found to be somewhat irregular. In some instances, there was evidence of a rapid multiplication, while in others there was apparently neither growth nor toxin formation. In all of the latter cases, however, the organism was found to be viable.

A temperature of 37 C., as contrasted with room temperature, accelerated the development to a certain extent.

When multiplication had progressed readily, 0.5 c.c. of the spinach juice per os proved sufficient to kill guinea-pigs, usually within eighteen hours.

The growth of *B. botulinus* in canned spinach is accompanied by the evolution of gas as well as by the elaboration of the specific toxin. In only one instance had toxin formation advanced to such a stage as to produce a fatal result, while at the same time gas production either had not occurred or was insufficient to cause bulging of the can.

Of 174 samples of canned spinach taken from suspected lots, *B. botulinus* or its toxin was found in six. In every case, the organism was of the A type. These six toxic cans were all “hard swells,” and when opened, the odor was distinctly offensive.

The destruction of foodstuffs deemed to be abnormal, either by appearance of the containers or by the odor, should prevent the greater number of the outbreaks of botulism. From the public health aspect of the problem, the last point is of especial importance.

6. This has been found to apply to other foodstuffs, such as canned peas, corn and salmon.

Remuneration of Hospital Pathologist.—From the pathologist's standpoint, the places where the salary or the total remuneration is commensurate with the ability, knowledge and training demanded, are notoriously few. In far too many, the pittance offered is more or less of an insult, in addition to being ridiculous. In others, while a fair salary is paid, a spirit of self-complacency arises from the fact, and, though the stream of pathologists ebbs and flows, the salary remains the same forever.—R. A. Kilduffe, *Hospital Progress* 3:45, 1921.

5. Burke, G. S.: The Effect of Heat on the Spores of *Bacillus Botulinus*: Its Bearing on Home Canning Methods, *J. A. M. A.* 72: 88-92 (Jan. 11) 1919. Weiss, Harry: The Heat Resistance of Spores with Special Reference to the Spores of *B. Botulinus*, *J. Infect. Dis.* 28: 70-92 (Jan.) 1921.

SCHICK TEST AND ACTIVE IMMUNIZATION WITH DIPHTHERIA TOXIN-ANTITOXIN

OBSERVATIONS ON YOUNG ADULTS *

F. W. MULSOW, M.D., PH.D.
CHICAGO

The history of the efforts to control diphtheria furnishes an interesting chapter in the development of preventive medicine. It was thought when Loeffler, in 1884, proved the diphtheria bacillus to be the cause of diphtheria, that this disease would soon cease to exist. Again, in 1895, when diphtheria antitoxin first came into general use for treatment and immunization, it was believed that this disease would soon be eradicated. The death rate from diphtheria has been definitely reduced by the use of antitoxin; but there has been very little reduction in the last ten years. Further advances for controlling diphtheria have been made in the last few years by using the Schick test to determine those susceptible to diphtheria and subsequently immunizing them with the toxin-antitoxin mixture. Park¹ is quite certain that any child over 2 years of age showing a negative Schick test, when the test is properly made, is immune to diphtheria, probably for life. As revealed by subsequent Schick tests, Schroeder² has found that from 85 to 90 per cent. of those showing positive Schick reactions are immunized for a period of at least five years following the administration of the toxin-antitoxin mixture; but this does not hold true when infants under 6 months of age are given the toxin-antitoxin. The most extensive use of the Schick test and the subsequent immunization with toxin-antitoxin has been made by Zingher³ and his associates of New York City, who have tested more than 52,000 schoolchildren and given toxin-antitoxin to those giving a positive reaction. Zingher does not consider it necessary to make the preliminary Schick test in children under 5 years of age, since most of them give a positive reaction and very few show any marked reaction from the toxin-antitoxin; but he advises giving the preliminary test to all children over 5 years of age, since many of these are immune, and rather severe reactions from toxin-antitoxin occur quite frequently in those above this age.

RESULTS OF SCHICK TEST ON NURSES

For several years, the Schick test has been made on all nurses entering the service at Durand Hospital. Those reacting positively have been immunized with diphtheria antitoxin. As their immunity disappeared, as shown by the Schick test, they were given more antitoxin. In this way the occurrence of diphtheria among the nurses has been almost entirely eliminated; but occasionally nurses have developed diphtheria, as their passive immunity has disappeared before new administration of antitoxin was carried out.

During the last year, the Schick test has been made on ninety-seven nurses, and sixty-five of these, or about 67 per cent., have shown a positive reaction. The

test has also been made on forty medical students, and twenty-seven, or 66 per cent., have given positive results. This high percentage of positive reactions among adults may be due to the fact that the large proportion of those tested have come from small towns or country districts. Zingher³ has found in New York that children from the homes of the more well-to-do give a much higher percentage of positive Schick reactions than those from homes of the poorer classes of population who live in closely crowded neighborhoods. The latter have probably developed immunity from repeated exposure to diphtheria bacilli.

In trying to keep the nurses immune by the use of antitoxin, it has been observed that the Schick reaction would often be negative from five to six weeks after the first injection; but after a second injection, the reaction would often become positive in from three to four weeks, and after a third injection, it was positive in from two to three weeks. It appears from this that the duration of immunity produced by antitoxin becomes shorter with repeated injections. It was after the later immunizations with antitoxin that diphtheria has occasionally developed.

IMMUNIZATION BY TOXIN-ANTITOXIN

Recently, the immunization of nurses and interns at the Durand Hospital has been attempted by the use of toxin-antitoxin. In this work, 1 c. c. of a toxin-anti-

CHANGES IN THE SCHICK REACTION FOLLOWING INJECTIONS OF TOXIN-ANTITOXIN AND ANTITOXIN

Treatment*	No.	No. with Positive Schick Reactions Three Months Later	No. with Negative Schick Reactions Three Months Later	Percentage Giving Negative Schick Reactions
Antitoxin given before injecting toxin-antitoxin	10	1	9	90
Antitoxin given after injecting toxin-antitoxin	10	4	6	60
Antitoxin given before and after toxin-antitoxin	3	2	1	33
No antitoxin given.....	8	0	8	100
Totals	31	7	24	77

* The interval between the injections of antitoxin and toxin-antitoxin varied from two to twenty-nine days; but in most instances the interval was from three to ten days.

toxin mixture, in which there was 85 per cent. of the L + dose of toxin to each unit of antitoxin, was injected at weekly intervals until three injections had been given. All injections were made subcutaneously, in the lateral aspect of the middle of the arm. The reactions following the injections of toxin-antitoxin were all limited to a local reaction, except in a few cases in which there was a slight fever and slight general malaise. The severe local reactions occurred in those having a combined positive Schick reaction, and consisted of edema, hyperemia, and tenderness of the lower half of the arm, with some extension down on the forearm. In no instance was there any necrosis or abscess formation at the site of the injection.

The effect of the administration of toxin-antitoxin to thirty-one young adults having positive Schick reactions has been studied over a sufficient length of time, three months or more, to permit the drawing of tentative conclusions. Of the thirty-one persons, seven have continued to have positive Schick reactions for three months or more following the injections of the toxin-antitoxin. In these seven persons, immunizing doses of antitoxin had been injected shortly before, or soon

* From the John McCormick Institute for Infectious Diseases.
1. Park, W. H.: Does a Negative Schick Test Indicate Present and Future Security from Diphtheria? Arch. Pediat. 38: 329 (June) 1921.
2. Schroeder, M. C.: The Duration of the Immunity Conferred by the Use of Diphtheria Toxin-Antitoxin, Arch. Pediat. 38: 368 (June) 1921.
3. Zingher, Abraham: Diphtheria Preventive Work in the Public Schools of New York City, J. Pediat. 38: 336 (June) 1921.

after, the administration of the toxin-antitoxin. On the other hand, in every instance in which there was considerable tenderness and redness around the point of injection of the toxin-antitoxin, the Schick reaction has become negative. In many cases, the Schick reaction has become negative when there was very little local reaction. In three instances in which the control injection in the Schick test showed considerable reaction, which is known as the positive combined reaction, 0.2 to 0.5 c.c. of the toxin-antitoxin mixture was injected instead of 1 c.c. In each case, the Schick reaction became negative in one month after the last injection. In one of these cases, the Schick reaction was very marked, so that one-half the usual amount of toxin injected produced an area of redness and induration 3 cm. across, and the control area was about 1.5 cm. across. In this case, there was, following the first injection of 0.25 c.c. of the toxin-antitoxin in the lower lateral aspect of the arm, edema and hyperemia for a distance of 5 cm. on either side and above the point of injection and for about 7 cm. below. Following the second injection of 0.5 c.c. of the toxin-antitoxin, there was swelling and redness which nearly encircled the arm and extended to the elbow below and down the dorsal surface of the forearm for 10 cm. There was considerable local itching and also a rise of temperature of 1 degree. The third injection of 0.5 c.c. of toxin-antitoxin produced slightly less reaction than the second. In one instance, three injections of 1 c.c. of toxin-antitoxin on two different occasions, three months apart, failed to produce a negative Schick reaction within four months after the last injections of toxin-antitoxin. It may be stated, however, that immunizing doses of antitoxin were given, four days before the first injection, and two weeks after the last injection in the first series of injections of the toxin-antitoxin, and three times between the two series of injections of toxin-antitoxin. The table shows the effect that the injection of toxin-antitoxin has on the Schick reaction.

CONCLUSION

A large percentage of nurses and medical students of Chicago gave a positive Schick reaction. Approximately 75 per cent. of those who had a positive Schick reaction gave a negative reaction after injections of toxin-antitoxin. It appears that the injection of antitoxin soon after the administration of toxin-antitoxin interfered somewhat with the effect of the latter. Severe reactions to injections of toxin-antitoxin in hypersensitive persons or those having a combined positive Schick reaction may be avoided by injecting smaller amounts and yet an immunity may be developed.

Clinical Notes, Suggestions, and New Instruments

CRIMPED PAPER CUPS FOR EMBEDDING

McIVER WOODY, M.D., DALLAS, TEXAS

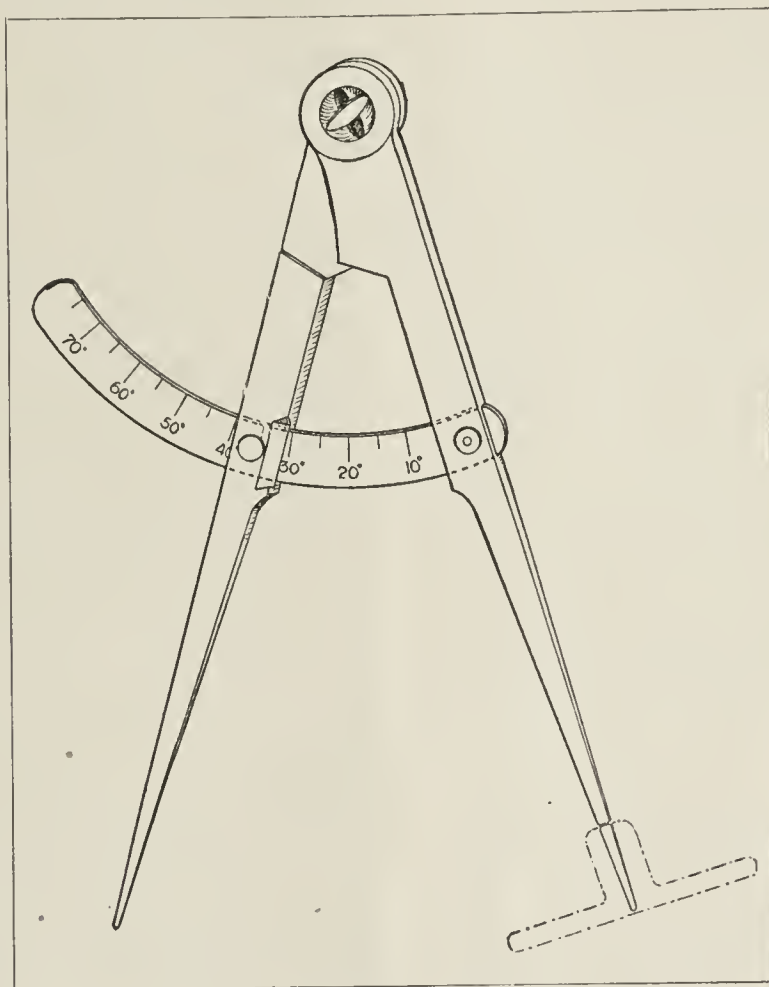
Dean, Baylor University College of Medicine

Bon-bon cups of crimped paper make ideal molds for either paraffin or celloidin embedding. They are stamped out in nests of twenty-five by machines, and they can be bought at any candy factory for little more than the cost of the paper that goes to make them.

Their flexibility allows them to contract with the embedding material, and tends to prevent the formation of the depression usually seen. However, they will spread on being filled, unless a cage is used. This is easily made by soldering one or two stout wires across the under side of a brass curtain ring. The wires keep the cup from slipping through, and the ring supports its sides.

For paraffin work, the cup and the cage are put in a dish of cold water. The cage falls to the bottom and the cup floats free, the paraffin hardening so rapidly that crystallization and brittleness are prevented.

For celloidin work, the cup is filled with thick celloidin, the specimen is transferred to it from thin celloidin, and the cup in its cage is set on a glass plate, and covered with a tumbler so as to provide a certain amount of ventilation. Evaporation takes place from the top, bottom and sides of the cup, and the celloidin hardens uniformly around the specimen. When the proper consistency is attained, the paper is torn off, and the block trimmed and mounted.



Outlet pelvimeter.

OUTLET PELVIMETER

M. PIERCE RUCKER, M.D.,
RICHMOND, VA.

Outlet pelvimetry is the most important part of pelvimetry certainly for the general practitioner. Not only is the funnel

pelvis the most common deformity found in private practice, but there is no way of detecting such a deformity clinically until late in labor. The engagement of the head is a good test that the inlet of the pelvis is of sufficient size; but if one waits to apply the same test to the outlet, and the outlet proves too small, the patient is then worn out with suffering and is a poor surgical risk.

The usual measurements taken of the outlet are: transverse (between the tubera ischii), anteroposterior, anterior sagittal, and posterior sagittal of Klein. In addition to these it is usual to outline the pubic arch with the fingers, and note one's judgment of the angle the rami make with one another, in such terms as narrow, broad or normal. In order to do away with such indefinite terms for describing the pubic arch, I have devised an instrument, a modification of the ordinary carpenter's dividers, with which this angle can be measured in degrees of a circle. The method of operation is very simple. The arms of the dividers, or pelvimeter, are superimposed on the descending rami, and the result is read on the scale. The reverse is graduated in centimeters so that, with the detachable swiveled bar, one can make the usual measurements of the outlet of the pelvis with the same instrument.

1600 Park Avenue.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . Six dollars per annum in advance

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SATURDAY, OCTOBER 15, 1921

THE SYMPTOMATIC TREATMENT OF PNEUMONIA

The article in this issue by Means and Barach on the symptomatic treatment of pneumonia is worthy of special notice. The authors, who are men of both laboratory and hospital training, state frankly that there is as yet no serum, vaccine or, in fact, any remedial agent that can be regarded as a dependable specific in this disease. Too often the practitioner, influenced by the optimistic conclusions of some preliminary report that has on it the stamp of a well known laboratory or hospital, regards the question as settled. Or, still worse, he takes at par the shrewdly worded advertisements of commercial promoters of such agents with their garbled quotations, and prescribes the drug, vaccine or serum with the confidence that he is using a remedy whose specific virtues have been clearly proved.

Drs. Means and Barach also recognize that until the day of specific treatment of pneumonia arrives, symptomatic treatment is permissible and advisable. But, and this is the important fact, they refer to symptomatic treatment that is based on a knowledge of the way in which the normal working of physiologic laws is perverted by this disease, that is, they insist on a rational therapy. Here again the general practitioner may profit by reading their views—surely he will not be dismayed by an occasional technical term, formidable largely because new, or by a diagram or a chemical reference not understood at first glance. He will find that the conclusions are easy to grasp, simple of application, and he may feel assured that they are reached by the methods of science. The plea for more rational symptomatic and less haphazard empiric therapy is an excellent one. While the writers are discussing only two phases of treatment of pneumonia, the physician will find that they approve as scientific what he has so often used, the occasional life saving dose of morphin or digitalis, or the helpful cathartic. He will, however, find no support for the unnecessary and routine treatment of every insignificant symptom by one or many drugs. He will note, we trust, that emphasis is laid on

the harmlessness of the use of oxygen and the alkali recommended. How many times have physicians been guilty of giving drugs which are not harmless, or dosages of dangerous size or combinations whose chemical resultants in the stomach or blood were utterly unknown and perhaps far from harmless.

This plea for a simple, harmless, rational treatment of pneumonia cannot be made too urgent. But, after all, we must admit that however scientifically and carefully these conclusions may have been reached, the crucial test will be made by the practitioner. Will oxygen or alkali save life in pneumonia or help to save life? We feel sure that in many thousands of cases of pneumonia and by many hundreds or even thousands of physicians, oxygen has been freely given. It appears, also, that the verdict of nearly all of these physicians would be that oxygen has little value in pneumonia, except as a suggestive measure. Perhaps it has not been properly administered, or a retrial with more critical observation would alter the opinion of many who are now skeptical. As to the alkalis, many who have given them in pneumonia state that there has been no perceptible benefit; but, on the other hand, still other physicians believe that alkalis are of unquestioned value. Only in the laboratory of general practice will these questions be finally answered. But the problems must be solved by no careless or prejudiced trial, by no personal opinion. The practitioner can reach warranted conclusions just as well as the laboratory worker or hospital physician, if he will train himself to habits of as careful and controlled observation and to as accurate recording and analysis of facts. Then, indeed, will his conclusions be worthy of consideration as a contribution to scientific medicine. These two symptomatic remedies are worthy of trial or retrial at the hands of careful practitioners. To repeat, and quoting from Means and Barach, these measures—alkali administration and oxygen administration—"must be carefully and intelligently controlled."

WHY EAT RAISINS?

A recent issue of THE JOURNAL¹ called attention to the current extravagance, if it may be so designated, of advertising which is intended to secure increased use of a variety of articles of food. So far as this procedure aims to call attention to the dietary value or culinary excellence of special brands of products or to types of less well known edible substances, there is in general little occasion for criticism. Even the ancients lauded their specialties; and there can be no harm in announcing the availability of choice citrus fruits or particularly palatable and wholesome ready-to-eat cereals or either a novel or staple dietary article which has been made purchasable in some unusually acceptable or sanitary form. Foods, like

1. "Eat-More" Campaigns, Current Comment, J. A. M. A. 77: 1109 (Oct. 1) 1921.

clothes and soaps and kitchen utensils, have legitimate advertising virtues. When, however, the promotor attempts to foist alleged unique qualities of his pet product indiscriminately upon the public under claims of specific therapeutic or health-promoting potency, the medical profession is warranted in giving critical consideration to the subject.

Within the last few weeks, raisins have been lauded in the advertising columns as "the iron food for vitality." The "food iron" of this dried fruit is represented as the "true beauty food" with which to regale the "pale, tired women," etc., etc. The reader is further told in some of the statements that "physicians know that value of the raisin." This fruit, which most persons know as a delicious morsel usually eaten by those who enjoy it for the sake of its palatability, thus is at once put into a class with Nuxated Iron, Ironized Yeast, and other familiar "tonics." What are some of the known facts, as distinguished from advertising fictions, about raisins? According to the analyses compiled by Sherman,² raisins with an iron content of 0.002 per cent. of the edible portion represent no superiority over many of the commonest cereals which enter into the daily diet. Some of the edible nuts have even better claim to distinction as "iron foods." The legumes which we consume as peas and beans are far richer in iron than are raisins, in contrast to which, further, spinach and meat and eggs would present an enviable iron record. Why cite more data? Indeed, one might well ask: "Why raisins?"

Even if the presence of an "average" amount of iron in raisins be admitted at the outset, there is no evidence that raisin-iron is absorbed better than the iron in other staples of every-day diet, if, indeed, it is absorbed to any extent whatever. Sherman has observed that, in healthy persons in whom the intake and output of iron have been determined, the requirement appears to have varied with individuals and the nature of the diet from 6 to 16 mg. of iron per man daily. He concludes from these results that a daily allowance of from 10 to 12 mg. of food iron should suffice for the maintenance of iron equilibrium in an average man under favorable conditions; but until the conditions which determine a larger metabolism of iron are more clearly defined, it would seem desirable to set a higher standard, perhaps 15 mg. of food iron per man daily. One hundred grams (more than three ounces) of raisins would furnish at most about 2 mg. of iron, even on the unlikely assumption that the element is completely rendered available in the digestion of a semidigestible fruit of this type. Thus the mathematics of diet sometimes tells important truths.

The raisin propaganda further tells the public, i. e., everybody, that "you'll want this food every morning." Such statements may work positive harm. There are, as every physician and many laymen know, persons

whose alimentary tracts cannot at all times endure the ingestion of fruits which furnish a considerable amount of indigestible residue. The medical profession, as the guardian of the public health, must resent dietotherapeutic advice that may be detrimental to unsuspecting patients who are publicly assured that "the physician knows the value of raisins." Let us hope that the raisin may continue to bring joy to the palate in the future as—unheralded—it has in the past. Our quarrel is not with a wholesome food, but with unwarranted, unwise and misleading advice.

THE SECRETION OF THE PYLORIC REGION OF THE STOMACH

There are various reasons why the physiology of the pyloric region of the stomach has a peculiar importance in connection with gastric problems. There is a marked difference between the character of the cells in the mucosa of the pylorus and the fundus, the so-called parietal cells being found only in the latter area. Since the classic investigations of the German physiologist Heidenhain, it has been widely taught that the secretion from the pyloric mucosa is alkaline, in contrast with the unique acid discharge that characterizes the function of the other portions of the gastric membrane. This view has not remained unchallenged, various writers asserting that the differing nature of the fluid found in the pyloric region must be ascribed to injury or atrophy of the mucosa in consequence of experimental manipulation. Whether enzymes of any sort are present in the secretion of the pyloric mucosa has also been debated in view of the conflicting statements on record.

Since the pyloric part of the stomach represents a location where pathologic conditions are prone to arise somewhat more readily than in other parts of the stomach, it is of more than academic interest to have precise information respecting its function. The experimental studies of Ivy and Oyama¹ seem to have solved most of the vexed questions. These investigators have conducted their observations on dogs in which the pyloric portion of the stomach was isolated as a pouch with or without nerve supply intact, much after the fashion of the well known studies of Pawlow on the fundal region. There is no reason for assuming that any permanent damage or deterioration of the sequestered membranes occurred.

The facts ascertained by Ivy and Oyama substantiate the conclusions which Bensley had reached earlier from a histologic study of the cells of the mucosa of the pyloric antrum that "the secretion of the pyloric glands is simply mucus." It is described more specifically as viscous, tenacious, transparent, odorless and slightly salty in taste. In appearance and consistency it is best compared with egg white. Unlike what

2. Sherman, H. C.: *Chemistry of Food and Nutrition*, Ed. 2, New York, the Macmillan Company, 1918.

1. Ivy, A. C., and Oyama, Y.: Studies on the Secretion of the Pars Pylorica Gastri, *Am. J. Physiol.* **57**: 51 (Aug.) 1921.

obtains in the fundus of the stomach, the rate of formation of secretion in the pyloric region is not increased by meals, water drinking or secretagogues. Acids and irritants, when applied to the mucous membrane, excite the formation of the secretion. The secretion is alkaline, with an average hydrogen ion concentration represented by p_H 7.00 to 7.50. With the further statement that the pyloric secretion does not contain substances of specific digestive importance, whether enzymes, secretagogues or antiferments, the distinctive character of the fluid poured into the stomach in the neighborhood of the pyloric sphincter becomes further apparent.

WHAT IS PROGRESS IN OBSTETRICS?

As one reads obstetric textbooks, ancient or modern, one finds repeated again and again the caution to regard normal labor as a physiologic function and to consider interference only in the presence of definite pathologic indications. Recently, however, there has seemed to be a change in the way of radical interference even in normal labor. Obstetricians in this country appear to be alining themselves definitely into two camps—conservatives and radicals. At the last session of the American Gynecological Society, opportunity was given for a statement of the platforms supported by the opposing parties.

Dr. Rudolph W. Holmes¹ took the position that the indiscriminate employment of operative intervention in obstetrics has accomplished little in the way of conservation of life of either the mother or the child. He deprecated the ruthless operative course in all parturient women as a solution for the troubles incident to the hazards of birth. He pointed out that very little has been contributed in the last forty years to the art of obstetrics. The old masters developed a nicety of technic in the handling of labors which was a guarantee of excellent outcome in the large majority of instances, but the death rates from eclampsia and placenta praevia as complications seem to have been reduced little if at all. Recalling the fiasco of the twilight sleep furore and the dangerous results from thoughtless laudation of the reputed harmless virtues of pituitary solution, Dr. Holmes emphasized that the basic error which has crept into the obstetric field is the belief that pregnancy and labor are pathologic conditions and that child-bearing is a disease which must be terminated by some spectacular procedure. His criticisms are not addressed to the general practitioner but to the reputed leaders in obstetrics who sponsor intervention during labor. "No one," he said, "is doing so much of this needless operative interference as many of our reputed leaders, and they know not the wreck they have wrought for they hear only the encomiums of their fallacious rep-

resentations and their misapplied skill. . . . The general polemic that labor is a species of the torture of the inquisition has been advanced so frequently that many defend most drastic interferences on the score of saving women this horror—that the dread on the part of women of this frightful agony warrants any and all kinds of expedients to relieve them of the various stages of labor, when, in fact, too often these strictures are merely the shibboleths of those who would operate with little or no provocation." Among the practices which Dr. Holmes condemns are the routine shortening of the first stage by introduction of a bag, the slashing of the parturient canal when dilatation is completed, the routine practice of version, the extraordinarily large number of cesarean operations, and, finally, the practically invariable application of forceps merely to hasten delivery. Meddlesome midwifery has developed from minor transgressions to major surgery. So much for the views of the conservatives.

In the discussion, members of the opposite camp stated their points of view. The proponent of version, Dr. I. W. Potter, opposed to the induction of labor and the use of bags, argued that his method was less painful, and resulted in fewer complications and in a lowered maternal and fetal mortality. The proponent of prophylactic forceps, Dr. J. B. De Lee, considering pituitary solution a criminal agent if applied before the delivery of the child, stated his belief that women are even ready to undergo the increased risk of cesarean section to avoid the perils and pain of even ordinary labor. He claimed that the powers of natural labor are dangerous and destructive in many instances to both mother and child. He combines his frequent application of forceps with episiotomy in many cases. He has, however, no sympathy for Potter's podalic version, stating that the published results as to mortality condemn the method. Other obstetricians presented pleas for special methods, or cited arguments for or against the methods already mentioned.

In determining where the truth lies, the application of common sense and ordinary logic will yield a solution as readily in this as in any other scientific problem. Through years of experience, the medical profession has learned and is continuing to experience in practice that the ways of Nature are best, that while there is a tendency to the destruction of life there is a far greater tendency toward its conservation, and that a middle course is practically always the correct one. There can be no application of routine methods with efficient results. Our greatest leaders have ever appreciated that individualization of the patients is the sine qua non of success. Give Nature her opportunity in every normal patient, and interfere only in the presence of pathologic conditions representing actual indication for intervention; this has been a true principle of medical practice in the past, and it is true today.

1. Holmes, R. W.: The Fads and Fancies of Obstetrics, *Am. J. Obst. & Gynec.* 2: 225 (Sept.) 1921.

Current Comment

THE BLOOD PRESSURE—A LAYMAN'S VIEWS

Our esteemed contemporary, the *Literary Digest*, conducts among other departments one headed "Science and Invention" in which from time to time such matters medical as may interest the public are digested and elucidated. The selection of periodicals there abstracted appears usually to be a matter of careful choice. However, anybody's foot may slip once in a while; and when the *Digest* decided to present an abstract of an article by Robert H. Moulton which appeared first in the *Forecast*, it not only slipped but came to a completely prostrate posture. Among other peculiar fallacies which the *Digest* aids in promulgating is the statement that "there has been no device to measure the blood pressure accurately until very lately." Quoting Mr. Moulton, the *Digest* then proceeds to describe such an apparatus, informing the reader that "the air bag is strapped on the subject's arm over the femoral artery," the patient apparently being in the hand-toe position in order to achieve this extraordinary anatomic configuration. Among the diseases which it is alleged high blood pressure may produce is the omnipresent diabetes. The *Digest's* editor, in preparing his abstract, frequently states that "Mr. Moulton goes on," and "Mr. Moulton goes on." One is inclined to exclaim: "Why, Mr. Moulton, how you *do* go on!" There is no fear, of course, that the readers of our own highly erudite and scientific columns will be misled by Mr. Moulton's vagaries; as evidence, a baker's dozen or so have already clipped the page from the *Digest* and sent it to the Tonics and Sedatives department. But what about the poor deluded layman?

IS CATALASE A MEASURE OF METABOLIC ACTIVITY?

The blood and extracts of various tissues of the body readily bring about a decomposition of hydrogen peroxid with the liberation of oxygen. This action has been attributed to the presence of an enzyme to which the name catalase has been applied. What physiologic function, if any, such an enzyme may have in the organism is by no means apparent. No one contends that peroxids are widely distributed in animal tissues. Nevertheless, a few years ago a tendency became apparent in scientific literature to associate tissue catalase in some way with physiologic oxidations. As metabolism depends on these in ultimate analysis, the content of catalase present in tissues has been interpreted by some as an index or measure of the vigor and intensity of life processes. The most extreme applications of this hypothesis have been attempted in this country by Burge, who has, to quote a recent writer, offered the possible connection between catalase and functional activity as an easy and ready explanation of nearly every problem in the field of biology. The untenability of the much quoted claims of Burge has already been dealt with in THE JOURNAL. They have been attacked from the standpoint both of the inadequacy of the experimental technic on which they

were based and of the actual facts of comparative investigations. It would seem futile to refer further to Burge's hypothesis that physiologic function is paralleled by catalase activity in the body except for the circumstance that some textbook writers and medical workers still accept and transmit the alluring claims.¹ The newest critic is Morgulis² of the University of Nebraska College of Medicine. His crucial experiments have consisted in exposing frogs to widely different temperatures which it is well known can effect a change of from 300 to 400 per cent. in the metabolic rate of this species. No corresponding influence on their catalase content could be detected by carefully controlled quantitative methods. One cannot escape Morgulis' conclusion, now, that whatever the function of catalase in the organism may be, it is not a measure of metabolic activity.

A PLEA FOR THE METRIC SYSTEM

For years the problem of introducing the metric system into general use in this country has occupied the interest of physicians as well as of other scientists. This system is today employed in all the civilized world except Great Britain and her colonies, Russia and the United States. Even Russia, before the outbreak of the war, calculated all her imports according to the metric system. The present time seems to be distinctly opportune for a renewed agitation in the United States for adopting the system. Two million American soldiers received some instruction in its use during their sojourn in France; many of our industrial plants became familiar with the metric scale through work on war material designated for shipment abroad, and the wiping out of international borders is today more closely realized than ever before in the world's history. At its last meeting, a committee of the American Chemical Society recommended the general adoption of the metric scale and requested that chemists hereafter order all supplies in metric quantities. A resolution favoring the method was introduced into the House of Delegates of the American Medical Association, at the Boston session. As one hears of the numerous organizations cited as being wholly favorable to discarding the old methods and to replacing them by the metric, one wonders how it is that the change has not long since been made. The medical profession should take the lead and not follow in this reform. If it is to do this, the first step must be education of the young men. Teachers in medical colleges should teach in terms of the metric system and talk in terms of the metric system at the bedside as well as in the lecture room. To stop at this, however, would be slow work. It is necessary that medical journals, too, should feel their responsibility in this matter. If authors who submit manuscripts do not give measurements in metric terms, the periodicals may aid the movement by making the necessary transposition.³

1. Compare, for example, Howell, W. H.: *Textbook of Physiology*, Ed. 7, Philadelphia, W. B. Saunders Company, 1919, p. 977.

2. Morgulis, S.: Is Catalase a Measure of Metabolic Activity? *Am. J. Physiol.* 57: 125 (Aug.) 1921.

3. In articles published in this and in other periodicals issued by the American Medical Association, both systems are given, the one supplied by our manuscript editing department being in parentheses.

Association News

THE ST. LOUIS SESSION

Organization of the Local Committee of Arrangements

The Local Committee of Arrangements for the Annual Session to be held in St. Louis, May 22-26, 1922, has been organized as follows: chairman, Robert E. Schlueter; secretary, John W. Stewart; treasurer, Malcolm A. Bliss; together with the chairmen of the subcommittees: on Finance, Frederick C. Simon; on Hotels, Louis H. Behrens; on Commercial Exhibit, Lee Dorsett; on Scientific Exhibit, Ralph L. Thompson; on Entertainment, Cyrus E. Burford; on Printing, Thomas A. Hopkins; on Registration, Theodore P. Brookes; on Sections and Section Work, Malvern B. Clopton; on Clinics, Harvey S. McKay; on Transportation, Robert F. Hyland, and on Badges, Edward P. Buddy.

All communications for the attention of the Local Committee of Arrangements or for any of its subcommittees should be addressed to the proper officer at 3525 Pine Street, St. Louis, Mo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Medical Society Meeting.—The Dallas County Medical Society will hold a special meeting, October 18-19, at Selma, with clinics in medicine and surgery, children's diseases and other departments of the profession, under the direction of Dr. William W. Harper.

Removal of State Laboratory.—The state laboratory and Pasteur institute, Montgomery, moved, October 1, into their new modern quarters in the Health Building. New equipment has been installed, including apparatus for making analysis of water, for making blood tests and for sterilization.

Hospital News.—At the last session of the state legislature, an appropriation of \$150,000 was made to build a home for the feeble-minded near the Alabama Insane Hospital at Tuscaloosa, to be ready for occupancy early in the new year. An addition to the dining room and kitchens of the hospital will be made at a cost of \$225,000.

ALASKA

Personal.—The governor has appointed Dr. Harry C. DeVighne, secretary of the Alaska Board of Medical Examiners, Juneau, territorial commissioner of health, effective, September 20.

ARKANSAS

Hospital News.—Work on the annex to the City Hospital, Little Rock, has been started. The building will be four stories high and will cost approximately \$125,000.—It has been announced that three additional buildings will be erected at the State Tuberculosis Sanatorium, Booneville.

CALIFORNIA

Personal.—Dr. Wallace H. Barnes has been appointed resident physician at the University Infirmary, Berkeley. This is a newly created position, made necessary by the increased enrolment at the University of California.

Anesthesiology Required.—A recent amendment to the California medical practice law includes anesthesiology among the required subjects of the medical curriculum for institutions to be approved by the board of medical examiners.

Gift to Stanford Medical Library.—The California Organization for Federal Recognition of Women Physicians presented the fund for the Dr. Julia P. Larson Memorial Section of the Stanford Medical Library to the president of the organization, in September. This fund was raised by the women physicians of the bay cities, assisted by the Swedish Women's

Organization, in memory of Dr. Larson, who was chosen by the California organization to represent them for federal recognition during the late war.

Opening of Laboratory.—A new physiotherapy laboratory, built and equipped at a cost of approximately \$100,000, was opened, September 29, at Los Angeles. The laboratory is under the supervision of Hjalman Svensson, graduate technician of the Central Institute of Stockholm, for two years in charge of the physiotherapy department at the Los Angeles County Hospital. It will work in cooperation with the Los Angeles County Medical Association, and treatment will be administered after counseling with the patient's physician.

CONNECTICUT

Faculty Changes at Yale Medical School.—A number of faculty changes are announced at Yale Medical School. Two new professors are Dr. Francis G. Blake, John Slade Ely professor of medicine, and Dr. Edwards Albert Park, professor of pediatrics. Dr. Arthur M. Morse is now full professor and head of the department of obstetrics and gynecology. New associate professors are Dr. John P. Peters, Jr., department of medicine, and Dr. Alfred T. Shohle, department of pediatrics. Dr. Samuel C. Harvey, associate professor of surgery and attending surgeon, is in charge of the surgical department of the school. Assistant professors are Dr. Clyde L. Deming, urology; Dr. John Jamieson Morton, Jr., surgery; Dr. Grover F. Powers, pediatrics, and Dr. William C. Stadie, medicine. Dr. Eugene M. Blake has been made assistant clinical professor of ophthalmology. Several additions to the faculty of the rank of instructor have also been made.

DISTRICT OF COLUMBIA

Venereal Disease Clinic.—A three days institute on social hygiene was held this week in Washington at the Interior Department Auditorium. It was arranged under the auspices of the U. S. Public Health Service, the District of Columbia Social Hygiene Society and the Women's Advisory Council of the U. S. Public Health Service. Dr. Daisy M. O. Robinson of the U. S. Public Health Service, Mrs. Edith Houghton Hooker of Baltimore, Dr. Kate Karpeles, and Miss Margaret S. Brogden, chief of the social service department of the Johns Hopkins Hospital, were among the speakers who discussed the various phases of venereal diseases.

FLORIDA

Venereal Clinic to Be Established.—Capt. W. H. Gillette, U. S. Public Health Service, has arrived in St. Augustine from Washington, D. C., to establish a government clinic for venereal diseases in that city, under the direction of the state board of health.

GEORGIA

Personal.—Dr. Walter E. Barber, Atlanta, has resigned as member of the Fulton County board of health, as he is leaving the county, and will be succeeded by Dr. W. Frank Wells, Hapeville.—Dr. De Lamar Turner, Savannah, has been appointed county physician by the county commissioners to succeed Dr. Elton S. Osborne, effective October 1.

ILLINOIS

Personal.—Dr. Samuel W. Lathan, Eldorado, has been appointed chief medical director of the state industrial board.

Hospital News.—Plans have been submitted for the addition to the St. Francis Hospital, Litchfield, to be built at a cost of \$50,000.

Typhoid in Kane County.—Eleven cases of typhoid fever occurred in St. Charles Township, Kane County, the result of drinking the milk from a dairy farm which furnished milk to Chicago. Three of the cases terminated fatally. It is believed that the fact that all milk sold in Chicago is pasteurized forestalled a severe outbreak in that city from the same source.

Research Work in Poliomyelitis.—The state department of public health and the department of animal pathology and hygiene of the state university are cooperating in efforts to determine, if possible, whether a relation exists between cases of poliomyelitis among human beings and of paralysis among farm animals. The department of health furnishes the university with information relative to the location of poliomyelitis cases, while the university collects specimens of excretions and secretions for bacteriologic and microscopic study.

Birth Registration Drive Planned.—Director of Public Health Rawlings recently held a conference with the state registrar of vital statistics and an officer from the federal bureau of the census in regard to plans for enforcing the state vital statistic laws that require births to be reported completely and promptly. It appears that twenty-nine counties out of the 102 in the state are now responsible for delayed and incomplete birth reports. Efforts to put Illinois in the registration area will be concentrated in these twenty-nine counties, and when other means fail to secure complete reports, prosecution of offenders against the law will be instituted.

INDIANA

Tuberculosis Clinic.—A clinic was held at the Randolph County Hospital, Winchester, October 4. Dr. James H. Stygall, medical director of the Indiana Tuberculosis Association, was in charge.

Personal.—Drs. Robert E. Neff and George Bowman have resigned as superintendent of the city dispensary and district physician for the dispensary, Indianapolis. Drs. James R. Ritchey and Phillip H. Sheridan will succeed them.

Fined for Illegal Practice of Medicine.—It is reported that John F. Cassman, formerly an implement dealer in Lake Cicott, who recently announced himself a psychotherapy practitioner and opened offices at Kokomo, has been found guilty of practicing medicine without a license and fined \$25.

Hospital News.—A memorial hospital for children in honor of James Whitcomb Riley will be built in Indianapolis from funds collected by the schoolchildren of the state during the month of October. The site was donated by the residents of Indianapolis, and an annual appropriation for expenses will be made by the state legislature.

Tuberculosis Nursing School.—At the meeting of the Indiana League of Nursing Education, held, October 5, at Indianapolis, Dr. Harold S. Hatch, Sunnyside Sanatorium, Oaklandon, announced that a course in tuberculosis nursing will be started at the sanatorium by affiliating with several general hospitals, the course to be elective on the part of student nurses in the hospitals.

State Charities Meeting.—The thirteenth annual meeting of the Indiana State Conference of Charities and Correction will be held, October 22-25, at Muncie. Among the speakers will be: Drs. Samuel Dodds, superintendent, Northern Hospital for Insane, Logansport; Alfred Henry, Indianapolis; Valeria H. Parker, secretary, U. S. Interdepartmental Social Hygiene Board, Washington, D. C., and Henry H. Goddard, Columbus.

IOWA

State Lecturer Speaks.—Dr. Jeanette F. Throckmorton, Des Moines, of the U. S. Public Health Service, and state lecturer for women, spoke to the women of Red Oak, September 23.

County Health Association.—At a general meeting, held, September 23, at Oskaloosa, plans were formulated for the organization of the Mahaska County Public Health Association, in cooperation with the Red Cross, which will have a voice in all legislation of the state and national organizations.

KENTUCKY

Board of Health Display.—At the state fair held in Louisville, September 26-30, the state board of health exhibited records from the Bureau of Vital Statistics in eleven volumes, and charts from the Bureau of Health Education. Dr. Jethra Hancock, director of the Bureau for the Prevention of Social Diseases, was in charge of the booth.

Licenses Revoked.—At a meeting of the state board of health held at its offices, Louisville, Sept. 22, 1921, after due notice and hearing, the certificates of Louis N. Pearlman and Samuel Pearlman, brothers, of Louisville, issued under the exemption clause of the new drugless practice law, were revoked, and their names ordered stricken from the registry in Kentucky, upon charges of itinerancy, false advertising and other grossly unprofessional conduct of a character likely to deceive or defraud the public.

Resolutions of Medical Society.—At the annual meeting of the Kentucky State Medical Association, held, September 27-29, at Louisville, it was resolved to use the property, bequeathed to the association by Mrs. Elizabeth S. Irvine, at Richmond, valued at \$120,000, and consisting of 15 acres, for a home for indigent physicians of Kentucky and their dependents.—A committee was elected to prepare a memo-

rial to the American Medical Association calling attention to the alarming lack of physicians in the rural districts of Kentucky.—A plan was approved by the house of delegates whereby the council will indemnify its members against unjust suits, filed by patients and alleging malpractice.

LOUISIANA

Hospital News.—The additional buildings to be erected at the U. S. Public Health Service Hospital, Camp Stafford, will cost approximately \$100,000. Mess halls are being constructed to replace those destroyed by fire last year, and will accommodate 750 persons. A new kitchen and other buildings will be erected immediately.

Medical Society Meeting.—A meeting of the Lafourche Valley Medical Society was held, August 9, at Napoleonville, under the presidency of Dr. Willoughby E. Kittredge. Marion Souchon, New Orleans, the guest of the evening, gave a demonstration on repairing tears immediately after labor.

MAINE

Personal.—The governor has appointed Dr. Clarence F. Kendall, Biddeford, state commissioner of health, to succeed Dr. Leverett L. Bristol, Augusta, who resigned recently.

MICHIGAN

Personal.—Dr. Robert A. McGregor, Jackson, prison physician, has been appointed head of the new bureau of the state department of health, with supervision over medical, dental and sanitary work at state penal and corrective institutions.

Clinic for Communicable Diseases.—Under the direction of the board of health, a five-day clinic for communicable diseases will be held, October 17-21, in Muskegon. The clinic is divided into two units, one for tuberculosis, under Dr. Malcolm D. Campbell, and the other for children, under Dr. Frank L. Rose, to discover the remedial defects in the children, and those who give a contact history of tuberculosis. Two graduate nurses will assist, and ex-service men who desire to take advantage of this opportunity may be examined. Each evening a clinic will be held for consultation and diagnostic purposes in regard to venereal diseases.

Public Health Meeting.—Dr. R. M. Olin, commissioner, has announced a public health conference in Lansing, November 28 to December 2, in conjunction with the winter meeting of the Michigan Public Health Association. The state department of health has requested that every health officer and nurse in the state attend the meeting. Short courses of instruction and demonstrations will be given in problems of health administration and disease control. Among the speakers will be: Dr. William H. Park, director of the bureau of laboratories, New York City; Dr. Haven Emerson, former health commissioner of New York City; Dr. Wade H. Frost, dean of the department of physiology and hygiene, Johns Hopkins University, Baltimore; Harriet Leete, R.N., American Child Hygiene Association, and Dr. Charles E. North, director of the North Public Health Bureau, New York City.

MINNESOTA

Southern Minnesota Medical Association.—The annual meeting of the association will be held, December 5-6, at Mankato.

Nurses' Home.—At the twenty-seventh annual conference of the Northern Minnesota Methodist Clergymen, held September 24, at Minneapolis, a campaign committee was appointed to raise of fund of \$250,000 for the Asbury Hospital Nurses' Home.

MISSOURI

Medical Meetings.—A joint meeting of the Medical Society of the Missouri Valley and the Medical Association of the Southwest will be held, October 25-28, at Kansas City.

Hospital News.—Oakhurst Sanatorium, the tuberculosis hospital for Gray's Harbor County, Elma, opened for the reception of patients, August 1.—Plans have been received for the new building which is to be erected near the Mullanphy Orphan Asylum, St. Louis. The building will be nine stories high, with a capacity of 500 beds.—The director of public welfare, St. Louis, has recently announced a plan for the expenditure of \$1,000,000 for the establishment of the Koch Hospital.—The contract was let, September 12, for the new hospital of the Missouri Pacific Company at St. Louis, for which the ground has already been broken.

MONTANA

Campaign to Save Babies.—A conference of the state board of health and a committee from the Medical Association of Montana was held, September 14, at Helena. A campaign was planned to reduce maternal and infant mortality in the state in cooperation with the State Federation of Women's Clubs. Statistics show that 11.8 mothers in Montana die for every 1,000 living births, and in 1920, seventy-one of every 1,000 babies died before reaching the age of 1 year.

NEBRASKA

Infantile Paralysis Ban.—The state board of health of Shelton has issued an order placing a ban on all public gatherings owing to an outbreak of infantile paralysis.

Retail Credit Bureau.—At a recent meeting of the Douglas County Medical Society, held in Omaha, 380 physicians and surgeons voted to affiliate with the Associated Retail Credit Bureau of Omaha, which gives credit information of tens of thousands of families.

NEW HAMPSHIRE

Personal.—The governor has appointed Dr. William H. Lyons, Manchester, to the board of registration in medicine.

NEW YORK

Hospital News.—Work on the buildings of the Marcy division of the Utica State Hospital has been started. The building will cost approximately \$2,724,000, and will accommodate 3,000 patients.

Right of Way for Physicians.—Special permits have been issued in Syracuse to all physicians to give them right of way through traffic when answering emergency calls. Plates received from the police department are attached to their cars.

School for Tuberculous Children.—At the meeting of the board of supervisors, Riverhead, in September, \$1,100 was made available to equip a schoolroom for the children of the Suffolk County Tuberculosis Hospital, Haltsville, and to pay the salary of a teacher.

Personal.—Dr. George S. Graham, formerly at the Albany Medical College, has been appointed professor of pathology at the Post-Graduate Medical School, Birmingham, Ala.—Dr. Laurence J. Early has been appointed associate professor in bacteriology, and Dr. Percy Lawrence DeNoyelles will be assistant professor in pathology and bacteriology at the Albany Medical College.—At the meeting of the Rochester Medical Association, held, October 3, at Rochester, under the presidency of Dr. Loron W. Howk, Dr. George H. Whipple, dean of the new medical school, University of Rochester, was entertained at dinner, and outlined the plan of the new school which was made possible by the gift of the Rockefeller Foundation and Mr. George Eastman.—Dr. C. R. Stockard, professor of anatomy, Cornell University Medical College, New York, will deliver the first Harvey Society Lecture at the New York Academy of Medicine, October 22, on "The Significance of Modifications in Body Structure."

New York City

Drug Addicts Increasing in City.—Dr. Carleton Simon, special deputy police commissioner, in his report for the quarter ending September 30, states that although drug arrests so far in 1921 total 2,488, there are still 20,000 addicts at large in the city. The arrests for the quarter are unprecedentedly high, numbering 932, and this since the enactment of the new sanitary code relating to habit-forming drugs. Of 659 cases brought to trial, 93 per cent. convictions have been obtained.

NORTH CAROLINA

Medical Society Meeting.—The semiannual meeting of the Eighth District Medical Society of North Carolina was held, September 15, in Elkin, under the presidency of Dr. Malcolm A. Ryall.

North Carolina Tuberculosis Association.—A meeting of the association, in conjunction with the National Tuberculosis Association, was held, October 6-7, at Greenboro, under the presidency of Dr. Watson S. Rankin, state health officer. Dr. James Alexander Miller, president of the National Tuberculosis Association, delivered the principal address, and papers were read by Dr. Charles J. Hatfield and Dr. Charles L. Montgomery, U. S. Public Health Service, Oteen.

OHIO

Medical Meeting.—At the Second Councilor District Medical Society, held, September 19-23, at Dayton, addresses were given by: Drs. John Phillips and George Crile, Cleveland; D. K. Blackfan, General Hospital, Cincinnati; William A. Steel and Jesse O. Arnold, Philadelphia; Charles J. Wahlen, Chicago, and James F. Rooney, Albany.

Meeting for Graduate Medical Study.—A meeting of the Fairfield County Medical Society was held, September 29, at Lancaster for the physicians of the surrounding counties, under the auspices of the Medical Education Committee of the Ohio State Medical Association. Dr. John H. J. Upham, Columbus, professor of medicine, Ohio State University College of Medicine, gave an address on "Routine Physical Diagnosis."

New County Health Association.—It has been announced that Dr. Ervin A. Peterson, head of the public health department of the American Red Cross, Washington, D. C., has been director of the newly organized Cuyahoga County Public Health Association, to become effective October 16. Dr. Robert H. Bishop, Jr., superintendent of the Lakeside Hospital, Cleveland, is the president of the association; Dr. Roger G. Perkins, vice president.

OKLAHOMA

Public Health Meeting.—At the fourth annual meeting of the Oklahoma Public Health Association, held, October 11-12, in Oklahoma City, Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service, gave an address.

Aeroplane Ambulance.—Dr. Walter Hardy, proprietor of the Hardy Sanatorium, Ardmore, has purchased a Wright aeroplane to be fitted up as an ambulance plane, with hangers for a litter which will be installed in the framework of the fuselage. Shock absorbers will be placed on the landing gear, and other necessary changes made.

Hospital News.—It is planned to make improvements at the All Saints' Hospital, McAlester, at a cost of \$50,000.—The contract has been let by the state soldiers' relief commission for a hospital for disabled soldiers at Sulphur at a cost of \$384,000.—New buildings will be erected at the Eastern Oklahoma Hospital, Vinita, at a cost of \$150,000.—The new tuberculosis sanatorium, at Clinton, for which an appropriation of \$206,000 was made by the last legislature, will be completed this fall. The land consists of 160 acres, and was donated to the state by the citizens of Clinton.

PENNSYLVANIA

Municipal Ownership of Dispensaries.—Forty-two tuberculosis dispensaries which have been operated by the state health department have been taken over by the municipalities or local organizations to be conducted as local welfare projects, owing to curtailment of activities due to limited state appropriations.

Personal.—Dr. Charles Miller, Pottsville, is in Jefferson Hospital suffering with internal hemorrhages, and C. S. Marsh, a Hahnemann medical student and veteran of the World War, has submitted to two blood transfusions in order to save Dr. Miller's life.—Dr. Haven Emerson, New York City, late head of the Veterans' Bureau, gave a public lecture on the "Care of the Disabled Ex-Service Man," in Philadelphia, October 6, under the auspices of the Medical Society of the State of Pennsylvania.

Industrial Relations Conference.—The governor has announced that the Industrial Relations Conference will be held, October 24-27, at Harrisburg, under the direction of Commissioner C. B. Connelley, Department of Labor and Industry. The subjects for discussion will be: industrial cooperation, industrial waste, industrial education, women and children in industry, medical supervision in industry, and industrial publicity. This conference will take the place of the annual safety congress.

Typhoid Doubled in Year.—Pennsylvania had 1,684 cases of typhoid fever in July and August, against 601 in the same period of 1920, according to state health department data, which show a number of the cases to have resulted from careless handling of milk supplies. The model milk ordinance recommended by the department has been adopted in Scranton, Wilkes-Barre, Williamsport, Reading, Butler, New Castle, Waynesboro and York, and none of them had any typhoid fever traced to milk or ice cream.

State Medical Meeting.—At the annual meeting of the Medical Society of the State of Pennsylvania, held, Oct. 3-6, at Philadelphia, the following officers were elected for the ensuing year: Dr. Lawrence Litchfield, Pittsburgh, president; Dr. John B. Carnett, Philadelphia, first vice president; Dr. Victor B. Chaapel, Williamsport, second vice president; Dr. John B. McMurray, Washington, third vice president; Dr. Spencer M. Free, Dubois, fourth vice president; Dr. Walter Donaldson, Pittsburgh, secretary; Dr. Christian B. Longenecker, Philadelphia, assistant secretary, and Dr. John Lowman, Johnstown, treasurer.

Bureau of State Welfare Organized.—Dr. John M. Baldy, state commissioner of welfare, announced that the new welfare department would be organized with four different bureaus to look after different phases of state charitable work, and named the directors of three of the bureaus. All three directors are Philadelphians. Dr. Ellen C. Potter, now with the state health department, will be director of the bureau of children; Bromley Wharton, who was secretary of the state charity board, will be director of the bureau of assistance, which will look after the state's charitable and benevolent work in hospitals and institutions, and E. J. Cafferty, member of the state prison labor commission, will be director of rehabilitation, which will deal with rehabilitation work among the inmates of penal institutions. The director of the bureau of mental health, which is provided by legislative enactment in the measure creating the welfare department, has not been selected. The activities of the bureau of mental health are to be devoted to perfecting and expanding the dual (state and county) system of caring for the insane, of expanding the activities of the state in the line of feeble-minded and of starting an active and studied campaign of education with the object of leading to the future state care of these wards of the state. The bureau of children will have for its object not only standardization of all institutions caring for children, but shall aim to house as many children as possible in families rather than in institutions. That policy already has been adopted by the state in establishing the mothers' assistance fund.

Philadelphia

College of Physicians of Philadelphia.—A meeting of the college was held, October 5, at Philadelphia. Dr. Henry Rawle Geyelin, New York City, read a paper on "Dietetic Management of Epilepsy."

Medal for Dr. Wingfield.—Dr. Russell Stewart Wingfield, formerly of the staff of the Stetson Hospital, who died, August 27, in Saloniki, Greece, from burns received while rescuing patients during a hospital fire, has received the posthumous award of the Greek "gold medal for devotion in epidemic duty."

Personal.—Sir Harold J. Stiles, K.B.E., M.B., C.M., F.R.C.S., regius professor of clinical surgery, University of Edinburgh, was the guest of honor of the Medical Club of Philadelphia, October 21.—At a meeting of the board of directors of the Philadelphia College of Pharmacy, held, September 26, Rear Admiral William C. Braisted, former Surgeon General of the U. S. Navy, and formerly President of the American Medical Association, was reelected president of the college.

Major Raken a Chevalier.—Major William Elkin Raken, who had charge of the medical forces with the American army in Italy during the war, has received word from Rome that he has been made a chevalier of the Order of the Crown of Italy by the king. Dr. Raken was in the last drive of the Italians against the Austrians, and after the armistice he took charge of the base hospital at Cornigliano, Ligure, Italy, and also served for a time as medical officer at the port of Genoa. While abroad he was personally decorated by the king of Italy with the Military Cross. Dr. Raken is chairman of the committee on medical aid and disabled soldiers of the American Legion in Philadelphia County.

American Academy Meeting.—The twenty-fifth annual sessions of the American Academy of Ophthalmology and Otolaryngology will be held in Philadelphia, October 17 to 22. The convention will open with a business program, October 17, and the annual address of the president, Dr. Emil Mayer of New York. Papers on industrial diseases will be discussed that day. The speakers will be Dr. Hans Barkan, San Francisco; Dr. John A. Donovan, Butte, Mont.; Dr. George Cross, Chester, Pa.; Dr. Percy Fridenberg, New York, and Dr. William M. Sweet, Philadelphia. Prof. J. Van der Hoeve, world-famous ophthalmologist of Leiden, Holland, will be an official guest of the academy and will speak at the

morning session, October 18. His topic will be "Certain Relations Between the Eye and Ear, Including Vestibular Organs." The officers of the academy are: Drs. Emil Mayer, president; Second F. Large, Cleveland, treasurer, and Luther C. Peter, Philadelphia, secretary.

TEXAS

Consumption Cure Quacks Guilty.—Six of the seven defendants composing the Thompson Treatment Co., who have been on trial in the federal court in San Antonio for the past two weeks, on the charge of using the mails to defraud, were found guilty, October 8. The Thompson concern operated a fraudulent consumption cure. The six men convicted were: H. B. Thompson, K. D. Thompson, J. G. McCoy, A. F. W. Macmanus, H. Fitzgerald, M.D., and O. R. Marshall, M.D. The protection against this particular fraud which the public has obtained through this conviction should be credited, in no small degree, to the excellent work of Assistant United States Attorney Leo Brewer, and Postoffice Inspectors William Renken and Leroy W. Morris. An analysis of the product used in the alleged treatment, made in the American Medical Association's Chemical Laboratory, doubtless played no small part in convincing the jury of the essential fraudulence of the scheme.

WASHINGTON

Personal.—Dr. Howard M. Francisco has been appointed superintendent and physician of the Washington State Veteran's Home, Retsil.

Medical Meetings.—The thirty-second annual meeting of the Washington State Medical Society, was held, September 2-3, at Seattle, and the annual session of the health officers of Washington, August 30.

Ban on Contracts.—At the meeting of the Spokane County Medical Society, held, September 22, at Spokane, a resolution was passed that members under contract for professional services to corporation employees and who insisted on holding their contracts should be expelled from the society.

Seattle Academy of Surgeons.—This association was organized in Seattle, Aug. 25, 1921. The following officers were elected at the first meeting: president, Dr. Charles C. Tiffin; vice president, Dr. E. Weldon Young, and secretary-treasurer, Dr. Charles E. McClure. Meetings will be held twice monthly.

WISCONSIN

Hospital News.—The new isolation hospital, Racine, was opened, October 1. The building was erected at a cost of \$125,000.

New Medical Dispensary.—A new medical dispensary will be erected at the Cudahy Brothers Packing Company, Cudahy, at a cost of \$5,000, presented by the president, Michael F. Cudahy, as a gift to his employees.

State Board of Health Appointments.—Dr. Valentine A. Gudex, Eau Claire, has been appointed deputy state health officer of the fourth district, state board of health, and Drs. Louis Dorpat, Rhinelander, and Ira F. Thompson, Madison, as directors of the state bureau of communicable diseases.

Personal.—Dr. Fabian J. Gosin, Green Bay, has resigned as city health commissioner, effective October 1.—Dr. Edward L. Miloslavich gave a lecture on "Pathology—Its Aims, Scope and Methods of Teaching" at the Department of Pathology at the Marquette School of Medicine, Milwaukee, October 6.

Wisconsin Antituberculosis Association.—The annual meeting of the association will be held, October 20-22, at Milwaukee. Dr. David Russell Lyman, superintendent of the Gaylord Farm Sanatorium, Wallingford, Conn., former president of the National Tuberculosis Association, will be among the principal speakers.

Organization of New Society.—At the meeting of the Milwaukee County Medical Society, held, September 23, a new society was organized to be known as the Association of Medical Sciences, comprising more than 1,000 physicians, dentists, druggists and nurses, for the medical education of the public. The medical council will consist of ten physicians, ten dentists, ten druggists and ten nurses.

Medical Regiment.—The first medical regiment in the U. S. Army will be stationed in Wisconsin, through the efforts of Adj.-Gen. Orlando Holway. The medical regiment for the Wisconsin National Guard will be known as the Sixth Corps Area Medical Regiment. There will be field hospital companies, sanitary companies, ambulance com-

panies and supply companies. Col. Gilbert E. Seamen, surgeon-general of the Wisconsin National Guard, is in command, assisted by Major William F. Lorenz.

CANADA

Western Ontario Academy of Medicine.—The first general session of the society was held, September 29, at Byron, Ont., when various phases of pulmonary tuberculosis were presented by Dr. Pretten, superintendent of the Queen Alexandra Sanatorium, Byron, and other physicians. The second session was held, October 7, at London, Ont., when Dr. Charles F. Neu, Indianapolis, spoke on "Some Phases of Encephalitis Lethargica" and Dr. Russell G. MacRobert, New York City, on "Fits and Fallacies."

GENERAL

Railroad Surgeons Meeting.—The fourteenth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held, October 21-22, at Chicago, under the presidency of Dr. George F. Thompson, Chicago.

The Radiological Society of North America.—The annual meeting of the society will be held, December 7-9, at Chicago. Among the speakers will be Dr. Guilleminot, Faculté de médecine, Paris; Dr. Wintz, Erlangen, Germany, and Prof. James G. Van Zwaluwenburg, University of Michigan, Ann Arbor.

American Dietetic Association.—The fourth annual meeting of the association will be held, October 24-26, at Chicago. There will be a commercial exhibit of equipment and labor saving devices, and a noncommercial exhibit of charts, bulletin and health posters. Among the principal speakers will be: Prof. Campbell P. Howard, Iowa State University, on "The Sphere of the Dietitian"; Dr. Rollin T. Woodyatt, assistant professor of medicine, University of Chicago, on "The Newer Ideas on the Dietetic Management of Diabetes and Their Practical Working Out in the Hospital," and Dr. A. L. Daniels, Iowa State Child Welfare Association, University of Iowa, on "The Dietary Needs of a Children's Hospital."

Foreign Physicians to Study in America.—Eight young physicians from Czechoslovakia and three from Poland have just arrived in New York for a period of special study and research in the United States under fellowships granted by the Rockefeller Foundation. The following men from Poland and Czechoslovakia began their studies in American institutions, October 1:

Dr. Ferdinand Tomanek at the Memorial Hospital, New York City, to study of method of research used in determining the effects of irradiation on tissues. Dr. Tomanek has already studied radiology under Dr. William Duane of the Harvard Medical School.

Dr. Vilem Hons will study physiologic and nutritional chemistry. Dr. Hons is a physician of 31, who received his medical degree from Charles University, Prague, in 1915. He has agreed to serve as biologic chemist in the Institute of Hygiene, at Prague, for a period of at least five years after his return to Czechoslovakia.

Dr. Karel Urbanek has come to study bacteriology and serology in order to fit himself for service as bacteriologist and serologist in the Institute of Hygiene. Dr. Urbanek has been assistant in pathologic anatomy and bacteriology in the Czech University. He spent six years in Siberia with the Czech legionaries.

Dr. Jarka Masek will study public health administration in preparation for government service in administrative work after his return to Czechoslovakia. Dr. Masek has a medical degree from the University of Prague, and has had several years' experience in hospitals and as district health officer.

Dr. Jan Jurena is to study food chemistry in the United States with a view to becoming food chemist at the Institute of Hygiene. Dr. Jurena is an experienced food chemist and is now director of food laboratories for Moravia in Brno.

Dr. Otto Schubert will study bacteriology and serology in preparation for service in the Institute of Hygiene. He has been serving in the department of bacteriology and serology in the Czech University.

Dr. Jaroslav Drbohlav of Czechoslovakia will study bacteriology preparatory to work in the Institute of Hygiene, Prague. At present he is the head of the district public health laboratory in Moravska Ostrava.

Dr. Otokar Slanina will return to his own country to take a position of leadership in public health administration.

Dr. Jan Surawski of Poland will make a special study of hospital administration and schools for training bedside and public health nurses. Dr. Surawski is a graduate of the medical faculty of the University of Zurich. After practicing medicine for a period of years, he became a health officer and later a hospital inspector. At present he is assistant in the bureau of hospitals in the Polish ministry of health, and will return to the ministry of health to take charge of the division of hospitals.

Dr. Joseph Celarek of Poland will specialize in the routine work of public health laboratories and the production of serums. Dr. Celarek is an experienced bacteriologist, now in charge of antityphus fever work in Lublin. He will return to take up important work in the Polish ministry of health.

Dr. Czeslaw Wroczynski of Poland, who has been awarded a fellowship for a year's study of public health and hygiene in the United States, is a graduate of the University of Paris Medical School. He has had wide experience as epidemiologist to the Polish ministry of health. He will return to Poland to fill a responsible position in the ministry of health.

LATIN AMERICA

Yellow Fever in Mexico.—According to newspaper reports, a new outbreak of yellow fever has occurred at Mazatlán and Culiacán, Mexico. Several deaths have already been reported.

Paraguay Medical Notes.—The Medical Society of Asunción, Paraguay, has decided to invite all physicians in the country to become members so the society will assume a national scope.—During the year 1920 over 29,000 patients were treated at the National Hospital and 19,000 in the outpatient department. It is intended to build a new pavilion soon.

Argentine-Uruguay Joint Meeting of Pediatricians.—The Sociedad Argentina de Pediatría, of which Dr. J. C. Navarro is president, invited the corresponding society in Uruguay to a special session and the invitation was accepted. The joint meeting was on September 20 and 21, and besides the scientific sessions, visits to medical and social service centers were planned.

Changes in the Public Health Bulletins of Cuba.—Dr. Guiteras has started a new policy in connection with the publication of the official bulletins of the Cuban Public Health Department. Hereafter, besides the quarterly edition of the bulletin, there will be a monthly bulletin entitled *Sanidad y Beneficencia* which will contain statistical and sanitary information. The quarterly edition will be reserved for more extended and technical reports. In addition, the reports published three times a month will contain summarized information on the prevalence of communicable diseases. The annual report, as heretofore, will be published as a supplement to the official bulletin.

Tribute to Kraus.—As Dr. Rudolph Kraus left Buenos Aires to take charge of the Butantan Institute in Brazil, he was tendered a banquet by the medical and other scientific organizations of Argentina, as tribute to his work as director of the bacteriologic institute of the national public health service of Argentina. This was founded by Penna in 1913, and he called Kraus to take charge of it. The works of the latter on typhoid, anthrax, whooping cough, endemic cretinism, malaria and epizootics have been frequently reviewed in THE JOURNAL. Dr. Alois Bachmann has been appointed director in his place. He has been chief of one section in the institute under Kraus. The address by Aráoz Alfaro at the banquet to Kraus is published in the *Semana Médica* of September 8.

Public Health Bulletin of El Salvador Renews Publication.—With the reorganization of the public health department of El Salvador, the *Boletín Sanitario*, its official organ, has renewed publication. The new director of public health is Dr. Luis V. Velasco; secretary, Dr. Carlos Muñoz Barrillas; inspector general of vaccination, Dr. M. Quijano H; director of the hookworm disease department, Dr. C. A. Bailey, of the Rockefeller Foundation. With the reorganization, all sanitary institutions of Salvador have been brought together, with the exception of the army military corps. According to the first report of the new director, the department is now thoroughly organized into different divisions and an active campaign against communicable diseases is being conducted. During the first quarter of 1921, 20,550 people were vaccinated and 14,388 revaccinated. The report lays stress on the assistance received from the Rockefeller Foundation in the yellow fever campaign.

FOREIGN

Conference of Assistants in Roentgen Laboratories.—A congress of women working in roentgen laboratories was held last month at Berlin.

Personal.—At the invitation of the Commonwealth Government of Australia, Dr. Charles N. Leach of the Rockefeller Foundation has sailed to assist in the work for the control of the hookworm.

From Parade Ground to Sanatorium.—The great parade ground at Berlin has been transformed into a field for light and sun baths for children with surgical tuberculosis. A Netherlands exchange comments that this is one of the blessings of the compulsory disarmament.

The International Antialcohol Congress.—At this meeting held recently in Switzerland, it was decided to convene the next congress at Copenhagen or Helsingfors, in 1923. The permanent committee of organization consists of H. Draut, member of the Swiss legislature, and Eilesen, member of the Danish legislature, with Weymann of Berlin and Soinioren of Helsingfors.

Tribute to Fredericq of Liège.—The *Scalpel* of Brussels states that as Léon Fredericq retires in November from the chair of physiology at the University of Liège, a medallion is to be presented to him. The list of his works is a long one and some of his textbooks have been translated into other languages. His son succeeds him in the chair of physiology of which he has been the incumbent for fifty years.

Woman in Medical Chair.—The London University senate has appointed Dr. Louise McIlroy to the chair of obstetrics and gynecology at the London School of Medicine for Women. Dr. McIlroy was educated at the universities of Glasgow, London, Berlin, Vienna and Paris. She was surgeon in charge of the Scottish Women's Hospital at Saloniki and Belgrade from 1915-1919; since then she has been gynecologic specialist in the Eighty-Second General Hospital, Constantinople.

New Italian Medical Journal.—The *Archivio di Patologia Clinica Medica* is soon to appear, a companion to the *Archivio Italiano di Chirurgia*, both issued by L. Cappelli at Bologna, Via Farini 6. It is to be published as material accumulates, six numbers forming an annual volume of about 600 pages, for which the subscription is 75 liras. The editorial staff consists of F. Schiassi, L. Zoia and G. Viola. The special field of the new *Archivio* is applied science in the service of internal medicine.

Cancer in Germany.—The statistics for the years 1914-1918 have recently been published and show that there has been no appreciable increase in recent years. In men the number has actually declined, from 23,494 in 1914 to 21,804 in 1918; the losses in war could scarcely have affected this, as the soldiers are not in the cancer age. In women there has been a slight increase, from 28,694 to 29,361. In 1904 the total average was 6.2 per 10,000, in 1913, 8.2. No regular laws can be deduced from these findings as in some districts the cancer mortality has advanced and in others declined during the years in question.

University of Jerusalem.—The foundations have been laid for the new university, to which the Jewish physicians in the United States are giving \$1,000,000 to build the medical college, of which the inside will be furnished in accord with American standards, with white tiled operating rooms, while the exterior will conform to the general plan of the university. Dr. Albert Einstein will be dean of the university, and an American surgeon, assisted by an all American staff, will be at the head of the medical department. Patrick Geddes, professor of botany, University of Edinburgh, has drawn up the plans for the building, which will be open to students from all countries, and will be nonsectarian.

Proposed Reforms in the Medical Curriculum in Germany.—The committee appointed by the German medical faculties to propose improvements in medical education has presented its report to the government, with the approval of most of the faculties. According to the *Medizinische Klinik*, the main points in the new plan are that the student can change his school at will, and the hours devoted to special branches are restricted to a certain maximum. The plan calls for twelve semesters, five for the preclinical and seven for the clinical work. Practical training is to be obtained during the summer vacation, and the "practical year" is to be dropped. The total length of the course will be six years as previously, with thirty semester week hours. The course is to begin in the spring with the summer semester and after the first semester there must be six weeks of attendance on the sick. After the third semester comes the examination in chemistry, physics, zoology and botany; after the fifth, in anatomy and physiology. The aim is to train thoroughly in the fundamentals only, during the first four semesters. All the special branches are deferred to the last three semesters. During the twenty weeks of vacation time, from twelve to fourteen weeks are to be devoted to practical training (four months to internal medicine, three months to surgery, and three months to obstetrics).

Deaths in Other Countries

Dr. S. Kreisler of Vienna, member of the Vienna Medical Society, father of the violinist, aged 76.—Dr. J. Cortés Bayona and Dr. L. Martí Lis, both medical inspectors in the Spanish army.—Dr. J. Valdés Castro of Havana, founder of the sanatorium Quinta la Benéfica, aged 79.—Dr. M. González de Segovia, president of the organized profession in Badajoz province, Spain.—Dr. C. Palladini, in charge of the antimalaria work in the Roman marshes.—Dr. M. Gil Rodríguez, director of the *Gaceta Médica Asturiana*.—Dr. J. A. Hjort of Lund.

Government Services

New Dispensary for Washington Navy Yard

A new dispensary building to cost about \$54,000 is to be constructed at the Washington, D. C., Navy Yard on the site of the existing small dispensary which is to be removed for the purpose. The improvement is being made at the urgent solicitation of the Surgeon-General of the Navy.

Examinations for the U. S. Public Health Service

It has been announced by the Surgeon-General that examinations of candidates for entrance in the regular corps of the U. S. Public Health Service will be held, November 14, at Washington, D. C., Chicago and San Francisco. Candidates must be between 22 and 32 years of age, and graduates of a reputable medical school. They must pass satisfactorily oral, written and clinical tests before a board of medical officers. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. All requests for information should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Surgeon-General Defends Public Health Service

Surgeon-General Cumming has issued a statement in defense of the U. S. Public Health Service's record of the care and treatment of ex-service men since the close of the World War. "The furnishing of hospitals to care for disabled veterans was the primary task assigned to the health service," the statement says, "but to it were added sundry sorts of work that seemed necessary to its full discharge. For instance, the service established, in all parts of the country, supervisors, whose chief duties were to search out suffering and disabled soldiers who were unaware of their rights under the law and to guide them in making applications for such care as they needed. The providing of hospitals, however, was the main duty and that duty has been thoroughly discharged by the health service. No ex-soldier who could produce any reasonable evidence of his right to hospital care has ever been denied it by the health service. The insistence on at least primary proof has proved to be essential: cast-off uniforms are cheap and masqueraders in them are not lacking; and if every one who applied for hospitalization were admitted without at least some investigation, no room would be left for the rightful applicants. That the hospital service provided has not always been what it should have been is not denied. Defects have occurred—defects which probably troubled the health service more than they troubled the vast majority of patients—but they were due to the immensity of the problem and the swiftness with which it came upon the country. Not that the Public Health Service failed to foresee what was coming. It did foresee it. As a result of this foresight, on Dec. 15, 1919, the Secretary of the Treasury reported to Congress that within two years hospital facilities would be required for 30,660 patients, and that \$85,000,000 in instalments would be needed to provide this. That the report was justified appears from the fact that little more than a year and half later, 27,000 patients were being cared for by the Public Health Service, about 10,000 of them in private hospitals under contract. Nevertheless, when that request was made the Public Health Service was subjected to a great deal of criticism for asking for so great a sum. It was also urged that the facilities for the care of disabled soldiers that had sufficed during the war (for instance, the hospitals in the army camps) would serve very well for them when the war was over. These councils prevailed, and no money for construction was appropriated. Certain limited funds that had been provided in 1919 by Congress were, however, available for construction, purchase, and for leasing. With these so far as they went, existing facilities were expanded and others were leased or bought and certain base hospitals taken over from the army and from the navy were improved. In addition, the use of certain limited facilities in national soldiers' homes were made

ber of clients whom we are obliged to classify as of unknown origin. The following list gives the relative proportion of clients in the various groups on the basis of an assumed total of 10,000 patients, which plan was chosen as being better adapted to bring out the differences in the less important groups than would be possible if the representation were given on a percentage basis: choice made from syndicate's list, 114; hostility toward the usual physician, 83, toward his successor, 26; commercial reciprocity, 405; referred by a druggist, 187; urgent cases, 3,091; acquaintances, 291; referred by former clients, 706; charity patients, outside of hospital, 1,231, hospital, 47; publicity, 52; result of error, 36; referred by colleagues, 374; unknown origin, 3,357.

The Marcel Benoist Prize

The special committee appointed by the Swiss federal council to award the Marcel Benoist prize of 20,000 francs has selected as the first recipient Dr. Maurice Arthus, former assistant director of the Pasteur Institute of Lille and at present director of the Physiologic Institute of Geneva. He is also the author of a book entitled "Anaphylaxis and Immunity" (*THE JOURNAL*, April 30, 1921, p. 1259). According to the terms of the will of Monsieur Marcel Benoist, an attorney of Paris who left his whole fortune to the Swiss federal council as an expression of his gratitude for the medical care he had received in Switzerland, this prize must be awarded each year to the scientist who, having been a resident of Switzerland for at least five years, shall have made, during the preceding year, "the most useful discovery, invention or research in the sciences; more particularly those pertaining to human life."

Death of François-Franck

Dr. C. E. François-Franck, who was a professor at the Collège de France, died recently at the age of 72. He was born in 1849 and studied in Bordeaux, where he taught for several years. In 1878, he came to Paris and was chosen by Marey as preparator of anatomic specimens. He later succeeded Marey as professor of physiology at the Collège de France. He specialized in the study of the normal and pathologic physiology of circulation, and made frequent use of chronophotography, invented by Marey, and also of the graphic method in the study of physiologic phenomena. He likewise solved several problems dealing with the functioning of the sympathetic system, and, during the last years of his life, devoted himself especially to researches on the comparative physiology of respiration and circulation, mainly in fish and insects. In 1887 he had been elected by the Academy of Medicine as corporate member in the section of anatomy and physiology.

BERLIN

(From Our Regular Correspondent)

Sept. 17, 1921.

Modification of Mothers' Benefits

The modification of the law pertaining to weekly allowances and medical care during illness, in view of the depreciation of the value of the mark, affords considerable relief to parturients and puerperants. The allowance toward the cost of confinement has been increased from 50 to 100 marks for all puerperal women. The weekly allowances and the "nursing money" (*Stillgeld*) for members of an insured person's family and for puerperants who, not being entitled to weekly benefits from the health insurance societies, receive allowances from state funds, have been increased from 1.50 marks and 75 pfennigs, respectively, to 3 marks and 1.50 marks, respectively. In the case of puerperants who are insured personally, there has been no general increase, as their weekly allowances and "nursing money" are determined on the basis of their regular salary, though the lowest range

of allowances has been raised here as well. Furthermore, the new law provides for medical treatment for the prospective mothers of all three aforementioned groups in case it is needed at confinement or during pregnancy. The carrying out of this provision depends, however, on whatever agreement in the matter is reached by the physicians and the health insurance societies, in connection with which negotiations are in progress. For the present, at least, prospective mothers will continue to be granted an allowance for the procuring of a physician or midwife in case of trouble during pregnancy, which sum has been fixed at 50 marks, in place of 25 marks, the former allowance. Members of the family of an insured person will still be entitled to the usual weekly allowance in case a confinement occurs within nine months after the death of the insured. The law also extends the limits as regards those who may lay claim to a weekly allowance on the ground of restricted income. In the future, a puerperant is to be regarded as having a restricted income if, during the calendar or fiscal year preceding the confinement, the income of herself and husband, or (if she is alone) her own total income, has not exceeded the sum of 10,000 marks, with an additional allowance of 500 marks for every child. Heretofore the limit of income was 4,000 marks.

Treatment of General Paresis by Inoculations with Malaria and Recurrent Fever

In 1919, Professor Weygandt, the Hamburg psychiatrist, together with Mühlens, professor of tropical diseases (also of Hamburg), began to treat general paresis with inoculations of the parasites of malaria and recurrent fever. At a recent meeting of the Hamburg Medical Association, Weygandt reported the results of his experiments: "As a result, the remissions and the improvement were much more marked than they had been previously when the cases were left untreated or were treated by any of the older methods." In the fifty cases treated for from four to twenty-two months, the following results were secured: ability to resume duties of calling, 26 per cent.; partial resumption of calling, 22 per cent.; ability to work at something, 10 per cent.; ability to work part time, 6 per cent.; domiciliary care now sufficient, 22 per cent.; no improvement, 10 per cent.; progressively worse, 2 per cent. Accordingly, there was a remission in 88 per cent. and a marked remission in 48 per cent. The neurologic and serologic improvement was not equal to the clinical and practical progress. In several cases, the inoculation method was combined with endolumbar injections of arsphenamin. Eight cases of marked remission were demonstrated."

International Congress of Sexual Science

The first international congress for the discussion of sexual reform on the basis of sexual science was held in the Langenbeck-Virchow House in Berlin, beginning September 16, under the chairmanship of Dr. Magnus-Hirschfeld. The session was participated in by an enthusiastic representation of specialists from this country and abroad. Some of the questions with which sexual science deals have of late become known to the general public through the experimental investigations of Steinach on the transformation and rejuvenation of the sexes. In his introductory address, Hirschfeld called attention to the significant position held by sexual science and sexual reform in modern life. The best way to relieve the facts of their odium is to investigate them scientifically and to discuss them publicly, for all forms of life must be treated as the expression of the will of the Creator. Among the many interesting topics scheduled for the later days of the congress, I may mention the lectures on "Die Bedeutung der inneren Sekretion für die menschliche Sexualität" that have been announced by Professor Lipschütz, Dorpat; Professor Weil, Berlin; Freiherr von Reitzenstein, Dresden, and

many others. A prominent place has also been assigned to the subject "Geschlecht im Recht," the importance of which will be discussed by several eminent jurists. The principal topic for the closing day of the congress will be "Sexualpädagogik." Following Hirschfeld's introductory remarks, Professor Mieli, Rome; Professor Pecirka, Prague; Dr. Rütgers, Holland; Professor Lipschütz, Dorpat; Dr. Nyström, Stockholm; Sanitätsrat Jessner, Königsberg, and many other representatives of sexual science and social hygiene, delivered short addresses, in almost all of which attention was called to the international character of science, which, before the war, served to unite all nations. This is the first congress to be held in Germany, since the war, in which representatives of all civilized nations (France excepted) are taking part. As evidence of the trend of events, I would call attention to the remarks of Professor Pecirka and Dr. Jessner, who were the first to receive special assignments; namely, in the universities of Prague and Königsberg, respectively, as instructors in the field of sexual science.

BUDAPEST

(From Our Regular Correspondent)

Sept. 13, 1921.

The Prevention of Tuberculosis in Hungary

Hungary is going to follow the lead given by Norway in attempting to deal with tuberculosis by legislation. The law of the latter country requires that (1) all cases of consumption of the lung and larynx and all deaths caused by the disease shall be notified, and (2) both private practitioners and public medical officers shall instruct such patients as to hygienic precautions while the authorities undertake the disinfection of dwellings and utensils. The health commission has the right of removing to a hospital any person whom they consider dangerous on account of infection. The law further provides against the employment of tuberculous wet-nurses as children's nurses and enjoins especial precautions as to the conditions of hotels, factories, workshops, railways, etc. Sweden introduced a less radical law, making notification of deaths by tuberculosis and disinfections compulsory.

This law will come into force soon after the opening of the parliament. Hungary has been considering a new law which has in it many interesting points. The proposals emanate from a commission consisting of those best versed in the tuberculosis needs of Hungary and also of some government officials. The report of this commission deals very fully with the incidence and spread of tuberculosis in Hungary, with tuberculosis in prisons, internment camps, etc., with the hygiene of tuberculosis, with the consideration of Danish, English and American legislation regarding tuberculosis, and with the means taken in other countries for the prevention of the disease. The commission puts forward two sets of proposals, and the government has adopted these recommendations with only slight changes. The first set of suggestions makes notification compulsory. The cases must be notified on a special form by the practitioner in attendance. Notification of all deaths from tuberculosis is also compulsory. Disinfection is to be carried out by the public authorities if it is thought necessary. The carrying out of hygienic measures is placed in the hands of the "health commission," as is also the compulsory removal of any patient to a hospital. In this particular the law is limited, and reserves the right to interfere only if the circumstances appear to necessitate it. Schoolmasters are bound to notify the school commission of any case of tuberculosis among the pupils which come to their knowledge, and the commission then decides whether it is necessary to remove the patient from learning together with other children. Schoolmasters, when applying for posts, must certify

that they are free from an infectious form of tuberculosis. A schoolmaster suffering from tuberculosis in an infectious form is to receive a pension of two thirds of the salary which he is drawing at the time, as is also done in Denmark. The penalty for contravention of any part of the law is a fine of from 200 to 2,000 Hungarian crowns, and eventually imprisonment from two to fourteen days.

The commission points out that it is highly necessary that the fight against tuberculosis should not be turned into a fight against the tuberculous. All institutes for the treatment of tuberculosis are to be under the supervision of the ministerial secretary for public sanitation. The minimum number of beds to be reserved in public hospitals for tuberculous patients, and the maximum daily fee charged to the patient must be stated, and are controllable. Even private sanatoriums may be brought under this part of the law. Certain classes of patients receive assistance from the state; this assistance is not to exceed half the fee charged by the institute where they are treated. The state further undertakes to assist in building new sanatoriums. The yearly amount which the state will pay for the tuberculosis movement is to be fixed, but will be revised after ten years.

Ether Ignited During Operation

During an operation for appendicitis performed in Nagyvárad in a private sanatorium, it was found that the patient needed more anesthetic and a bottle was opened; accidentally it fell to the ground and the ether fumes were ignited by the flame of the sterilizer. Two of the assistants were burned, one badly, while the operator and the unconscious patient escaped.

Change in the Aorta in Syphilis

Dr. Feldmann, pathologist to the county hospital at Gyula, has devoted special attention to the study of the aorta in syphilitic cadavers. He corroborated the findings of S. Abramow in Germany. In the first recent case, thickening of the intima, consisting chiefly of spindle-shaped cells, embedded in homogeneous intercellular substance, was marked. Portions of this thickened intima were made up of mucoid substance, and the superficial layers consisted of thick, hyaline fibers. In the adventitia there was proliferation of capillaries whose intima was thickened and adventitia infiltrated with round cells which extended into the media. He concluded from his investigations that the difference between syphilitic and ordinary aortitis is only quantitative. The diagnosis of syphilis can be made only if distinct gummas have developed in the walls of the vessel.

Ankylostomiasis in Eastern Europe

Sir Thomas Oliver, professor of industrial diseases in England, on his visit to Hungary and to other parts of Eastern Europe to study miners' diseases, awakened the interest of physicians who have miners for patients. Since Dr. Oliver's visit, special training is given to physicians in the mining districts. Already more than fifty have been educated to combat ankylostomiasis. Also the government has taken every means possible to stamp out the disease. Before any miner is allowed to work he must first pass through the hospital, where his excreta are examined, after which he receives a certificate of health. Since the introduction of this and other measures, the number of cases of ankylostomiasis has decreased very considerably.

The Treatment of Lupus by the General Practitioner

The use of the roentgen ray or the quartz light requires the employment of costly apparatus and special qualifications which are beyond the means or abilities of the general practitioner. An efficient substitute for these methods is recommended by Dr. Justus of Budapest, who applies

commercial hydrochloric acid to the affected surfaces with a cotton-wound toothpick, after freezing the area with ethyl chlorid spray, as advised by Dreyer in Germany. The action seems to be accentuated if the acid is saturated with free chlorine gas. From the cases which he reports and the histologic examinations made, it appears that the acid, when brought into contact with tuberculous tissue, causes a prompt emigration of white blood cells into these areas so that it is impossible to distinguish them. There is also a diapedesis around the vessels. This process does not take place in normal tissues under the same circumstances. When the lupus involves the nose or lip, or in the presence of abscesses or fistulas, a general anesthetic may be necessary. A gray slough forms within a few days after cauterization, and remains for several weeks. When this drops off, the superficial lupus tubercles come away, and if any remain, the treatment may be reapplied once or twice at intervals of three or four weeks. In from three to six months the ulceration becomes covered with epidermis; and if any isolated tubercles persist, these may be punctured with pointed capillary tubes filled with hydrochloric acid. The results obtained are said to be excellent, and three cases have been observed for a year without recurrence. But even if this occurs, it may readily be attacked if the patients are cautioned to present themselves every three months for examination. The method may also be combined with others, especially with the quartz (Finsen) light, as the tubercles are brought nearer to the surface by the cauterization process.

GUAYAQUIL

(From Our Regular Correspondent)

Sept. 1, 1921.

Yellow Fever

According to an official statement of the department of the interior and sanitation, there has not been a single case of yellow fever in Ecuador since May 22, 1919. As General Gorgas hoped, the last chapter of yellow fever seems to have been written in Guayaquil, where the Rockefeller Foundation Medical Commission completed its epoch making work and Noguchi discovered the causative germ of yellow fever. Now that yellow fever is out of the way, the fear of visiting Ecuador has disappeared, and people from all countries are arriving here. In Noguchi's paper on yellow fever in THE JOURNAL, July 16, 1921, p. 181, it was stated that Guayaquil had only 80,000 inhabitants, when as a matter of fact it has a population of 100,000.

The quarantine department is enforcing very rigid measures in order to prevent the importation of yellow fever from Peru, where it prevails now in the provinces of Lambayeque and Libertad. Ships from the Peruvian ports of Pimentel, Salaberry and Eten are placed in quarantine.

Icterus

Noguchi found among the wild rats of Guayaquil a leptospira which causes in the guinea-pig symptoms and lesions identical to those caused by *Leptospira icterohemorrhagiae*. This fact should not cause undue alarm, since the same germ has been found in the kidneys of rats in New York and in the trenches, although Inada and Ido's disease remains rare. During the month of June there occurred several cases of "jaundice," both infectious and epidemic. Fortunately it was a very brief outbreak, and there were not more than a dozen cases. The clinicians studied it very thoroughly, among them Prof. J. M. Carbo Noboa, who made dark field studies, cultures and guinea-pig inoculations without reaching any definite conclusions.

Chaulmoogra Oil

The government of Ecuador has been presented by the American government with 2,000 doses of the new chaul-

moogra oil preparation used with such good results in Hawaii. Most of it has been sent to the Pifo leprosarium so that it may be tried there and results recorded.

Habit-Forming Drugs

The public health department has ordered all druggists to report monthly the amount of morphin sold, with the name of the physician who prescribed the drug.

Communicable Diseases

The antiplague campaign is being continued, as the disease still persists. About 500 rats are caught daily at a cost of 12 centavos de sucre (about 3 cents) each. It is expected that as soon as the new water supply is installed and rat-proof concrete and brick houses replace old frame buildings, this epidemic will go the way of yellow fever.

Smallpox had disappeared from Guayaquil some time ago, but the disease was again introduced from abroad in the early part of the year. A number of cases occurred. The public health department pushed, therefore, vaccination measures. During April and May, 17,000 people were immunized in the city of Guayaquil, where vaccination was declared compulsory. This stopped absolutely the ravages of the disease. The necessary vaccine was furnished not only by the Vaccine Institute of Guayaquil but also the Vaccine Institute of Quito, which was opened recently. The latter, according to a statement of the assistant director of public health of Pichincha, Dr. Miño, furnished 60,000 doses that were used in the eastern part of the country.

It is to be regretted that the hookworm disease campaign, which began under such good auspices, had to be suspended temporarily because of lack of funds.

New Director of Public Health

The national congress has appointed Dr. Wenceslao Pareja general director of public health. Dr. Pareja is well known, and was one of the physicians who cooperated with the Rockefeller Foundation Commission in the yellow fever campaign. He is in great part responsible for the recent progress in public health work in Ecuador.

Marriages

WALTER H. WINTERBERG, Colonel, M. C., U. S. Army, to Mrs. Inez Koster Bauer, both of San Francisco, September 29.

CREED CORNELIUS GLASS, Meyersdale, Pa., to Miss Hazel McGilvery of Pittsburgh, at Meyersdale, recently.

EUGENE McCABE, Emerson, Neb., to Miss Anna V. Dougherty of Newcastle, Neb., September 7.

GEORGE EDWARD WELLS, Baltimore, to Miss Pauline Stotler Wilson of Keyser, W. Va., September 26.

LINWOOD C. GARDNER, Osceola, Iowa, to Miss Gladys Fletcher of Ochevedan, Iowa, recently.

CHARLES F. ULRICH, Valentine, Neb., to Miss Rose McGovern of Omaha, August 30.

GEORGE MARQUIS, Colfax, Iowa, to Miss Ola Rae Cook of Woodson, Kan., recently.

ROGER PINKERTON, Chicago, to Miss Gretta Ritchie of Sterling, Kan., August 18.

W. A. McNICHOLS, Osceola, Iowa, to Miss Ester Zook of Adair, Iowa, recently.

ALEXANDER J. GILLIS to Miss Helen Costello, both of Baltimore, September 28.

RUFUS E. LEFEVER to Miss Anne N. Regar, both of Reading, Pa., recently.

EDWIN G. DAVIS to Miss Dorothy Ballach, both of Omaha, September 20.

ORRIE GHRIST, Ames, Iowa, to Miss Eva Kurtz of Nevada, July 4.

Deaths

George H. Saltmarsh, Lakeport, N. H.; Dartmouth Medical School, Hanover, 1884; member and president, 1896-1899, of the New Hampshire Medical Society; former president of the Belknap County Medical Society; served as mayor of Laconia for two terms; member of the state legislature in 1895; former senator for the seventh district; president of the Laconia Hospital; died suddenly, September 28, from heart disease, aged 62.

Thomas Joseph Battle, New York; Bellevue Hospital Medical College, New York, 1897; member of the Medical Society of the State of New York; former member of the New York City Board of Health; clinical assistant, West Side German Hospital and School, and Polyclinic Medical School and Hospital, New York; died, September 28, aged 50.

Joseph George Savannah, Farmingdale, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1917; lieutenant, M. C., U. S. Army, during the late war; attending physician, Tuberculosis Preventorium for Children, Farmingdale; member of the staff of the Ann May Memorial Hospital, Spring Lake; died, October 1, aged 34.

Americ Goerge D'Amico, New York; University and Bellevue Hospital Medical College (Medical Department of the New York University), New York, 1919; died, August 28, from injuries received when the automobile in which he was riding was hit by a train, near Somerville, N. J., aged 25.

Samuel L. Engsminger, Crawfordsville, Ind.; Miami Medical College, Cincinnati, 1874; Civil War veteran; practitioner for nearly half a century; formerly surgeon to the Culver Union Hospital, Crawfordsville; died, September 25, from cerebral hemorrhage, aged 77.

Carl George Turner ☉ Canton, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1896; died, September 26, in an ambulance while being conveyed to the county Hospital, Denver, from heart disease, when on a motor trip to California, aged 51.

Orville C. Walker, Alliance, Ohio; Cleveland College of Physicians and Surgeons, Ohio Wesleyan University, Cleveland, 1913; member of the Ohio State Medical Association; was shot and killed by an unknown assassin, September 28, aged 33.

Charles W. Grimes, Norristown, Ga.; Eclectic Medical Institute, Cincinnati, 1884; Kansas Medical College, Topeka, 1899; was shot by the husband of a patient, and died in the Franklin Sanatorium, at Swainsboro, September 16, aged 60.

Joseph K. Crowder, Birmingham, Ala.; Memphis Hospital Medical College, Memphis, Tenn., 1912; member of the medical staff of the Birmingham Infirmary, where he died, September 22, following an operation, aged 43.

Clarence Stanton Ward, Warren, Ohio; University of Michigan, Ann Arbor, 1874; Bellevue Hospital Medical College, New York, 1875; died, September 5, in Los Angeles, from cerebral hemorrhage, aged 67.

Isabelle Mathison Rankine, Brooklyn; New York Medical College and Hospital for Women, New York, 1882; member of the Kings County Medical Society; died in Tappan, N. Y., September 26.

William Tidball, Sentinel, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1887; member of the Oklahoma State Medical Association; died, September 22, from paralysis, aged 64.

Samuel Coopersmith, Canton, Ohio; Western Reserve University School of Medicine, Cleveland, 1920; chemist for the city health department and the Mercy Hospital; died, August 16, aged 33.

Hiram Lee Smith, Geneva, Neb.; Eclectic Medical Institute of Cincinnati, 1857; practitioner for over fifty years; served as mayor of Geneva for three terms; died, September 18, aged 92.

Pleasant M. Haraway, Marlow, Okla.; Medical College of Alabama, Mobile, 1890; member of the Oklahoma State Medical Association; died, July 28, from cerebral hemorrhage, aged 59.

Joseph Wade Bone, Sapulpa, Okla.; Barnes Medical College, St. Louis, 1897; member of the Oklahoma State Medical Association; died, July 27, from cerebral hemorrhage, aged 54.

J. H. Morgan, Molena, Ga.; Atlanta Medical College, Atlanta, 1896; leaped from the roof of his residence while temporarily deranged, and was killed, in September, aged 51.

William R. Stover, Bristol, Va.; Baltimore University School of Medicine, 1900; died, September 14, from myocarditis, aged 45.

Benson E. Sager, Cleveland; Medical Department, Western Reserve University, Cleveland, 1892; member of the Ohio State Medical Association; died, September 26, aged 61.

William Henry Anderson, Louisville, Ky.; Medical Department, University of Louisville, 1872; practitioner in Louisville for over fifty years; died, September 23, aged 78.

John Leland Jones, Los Angeles; Louisville (Ky.) Medical College, 1872; Kentucky School of Medicine, Louisville, 1883; died suddenly, September 30, in his office, aged 71.

Charles Alexander McKay, Emerado, N. D.; University of Toronto, Ontario, 1905; was killed, September 26, by a rifle bullet through the mouth, self-inflicted, aged 44.

George W. Pettey, Grand Rapids, Mich.; Cleveland Medical College (Western Reserve University), Cleveland, 1873; was found dead in bed, September 21, aged 70.

Mark R. Nichols, Bellevue, Ohio; Medical Department of Western Reserve University, Cleveland, 1881; died, October 1, from carcinoma of the stomach, aged 67.

William Basil Levens, Creighton, Mo.; Barnes Medical College, St. Louis, 1893; member of the Missouri State Medical Association; died, August 14, aged 56.

Andrew Jackson Brewer, Coweta, Okla.; University of Louisville, Ky., 1879; member of the Oklahoma State Medical Association; died, July 14, aged 61.

Walter Bennet Cory, Cleveland; College of Physicians and Surgeons (University of Illinois), Chicago, 1901; died, September 24, from heart disease, aged 43.

Marian A. Dale, New York; New York Medical College and Hospital for Women, New York, 1884; died at Mount Vernon, N. Y., September 17, aged 72.

Melvin B. Squires, Flatwoods, W. Va.; College of Physicians and Surgeons, Baltimore, 1893; was killed, September 26, in a railway accident, aged 53.

William James Young ☉ Stockton, Calif.; Cooper Medical College, San Francisco, 1897; was found dead in the bath, September 22, from heart disease.

William A. Strother ☉ Boonsboro, Va.; University of Virginia, Charlottesville, 1905; was shot and killed, September 24, aged 37.

John C. Gill, Cleveland; Western Reserve University School of Medicine, Cleveland, 1860; died, September 20, at the home of his son, aged 84.

Joseph E. Dale ☉ Fort Collins, Colo.; Cincinnati College of Medicine and Surgery, 1894; died, September 23, from pernicious anemia, aged 52.

Sidney W. Dodge, Massena, N. Y.; University of Vermont, College of Medicine, Burlington, 1875; died, September 22, from diabetes, aged 76.

John W. Denison, Parsons, Pa.; University of Michigan, Ann Arbor, 1885; died, September 18, at the City Hospital, Wilkes-Barre, aged 60.

John B. Hershey, Trinidad, Colo.; Homeopathic Hospital College, Cleveland, 1879; died, September 19, from cerebral hemorrhage, aged 65.

Sherman M. Kline ☉ Scranton, Iowa; College of Physicians and Surgeons, Baltimore, 1900; died, September 22, from diabetes, aged 47.

Charles H. Smith, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1876; died, September 20, aged 67.

Thomas D. Ford ☉ Plainfield, Iowa; Rush Medical College, Chicago, 1871; died, July 19, from carcinoma of the throat, aged 73.

Wade Hampton Pevey ☉ Forest, Miss.; Tulane University of Louisiana, New Orleans, 1901; died, September 16, aged 52.

Hugh E. McCaw, Lincoln, Neb.; Rush Medical College, Chicago, 1879; died, August 20, at Hastings, Neb., aged 63.

Samuel A. Elder, High Shoals, Ga.; Atlanta College of Physicians and Surgeons, 1898; died recently, aged 57.

Claudius B. Bradford, Oklahoma City; Kansas City Medical College, 1882; died recently, aged 66.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THOMAS WEBSTER EDGAR

Tired Rabbits for Diabetes; Ring-Tailed Monkeys for Sex Stimulation

During the last two or three years THE JOURNAL has received inquiries regarding one Thomas Webster Edgar, M. D., of New York City, first, relative to his alleged treatment for diabetes and more recently about his "monkey gland" treatment for sex stimulation. Here is one from a physician in Washington:

"Have you any knowledge of the efficacy of a serum made from the pancreas of rabbits for the relief or cure of diabetes? It is made by Dr. T. W. Edgar of 766 West End Ave., New York City."

And this from a layman in Pennsylvania:

"Last year there was published in the *New York Herald* an account of the new treatment for diabetes in which a serum was injected in the veins and as a result it was claimed that over sixty-five per cent. of the treatments made were successful. The account further stated that they proposed to establish some sort of a sanitarium in New York City used especially for the treatment. The writer having mislaid the account, wrote the *New York Herald* as to the doctor who had charge of it and in return was given the name and address. Dr. Edgar in a letter under date of last year stated that the cost of the treatment was \$300.00, payable beginning of the treatment, and he gave very little information as to the success of it, with the exception that if the treatment did not give the desired effect after the end of three months, it would be continued without any further cost. The writer wrote and asked him the names of one or two of the patients who had been cured, because it seemed rather unusual that if the treatment were a success, it was necessary for a patient to pay the cost of the treatment in advance. To that letter I have never received a reply."

While a physician from Illinois writes:

"I am enclosing a clipping from a Chicago paper relative to Dr. Thomas Webster Edgar of New York and his operation for transplanting the glands of ring-tailed monkey. I note that he is a member of the New York County Medical Society! What is there to this? I have seen no mention of these wonders in THE JOURNAL."

Thomas Webster Edgar was born in 1889. The records show that he was graduated in medicine by the University and Bellevue Hospital Medical College in 1913, and was

A few days after the appearance of this article in the *New York Medical Journal* newspaper articles appeared regarding a cure for diabetes perfected by "Dr. Thomas Webster Edgar, 766 West End Avenue, New York City." According to these reports Edgar said:

"I tried the blood of rabbits and found what I wanted. In obtaining the blood I first put the rabbit upon a treadmill and keep it there until it reaches a stage of fatigue. Then I draw the blood, and after heating it to 60 degrees centigrade separate the corpuscles from the serum. When the serum has been treated after the method I have discovered I inject it immediately subcutaneously."

"I have attained success in 65 per cent. of my cases and I have had 100 cases. I do not say that the cure is infallible, but I am now certain that it will work in most cases, particularly when the patient observes the rules laid down and undergoes faithful treatment."



Photographic reproduction (greatly reduced) of a small portion of the publicity that has been given to Edgar relative to his operation for "sex stimulation" by the transplantation of the glands of ring-tailed monkeys!

In April, 1919, a physician in Kansas wrote to Edgar at the request of a diabetic patient asking for information about the "serum." Edgar replied that it would be impossible to send the physician any of the serum for administration unless the "patient is willing to pay me for the cost of same, which will be approximately the sum of \$25." He stated further that, in a few months' time, he hoped to be able to manufacture the serum in larger quantities which would "more than cut the expense in half."

In the same month a layman in Chicago who read the newspaper story wrote to Edgar and asked for details regarding terms and the arrangements that would have to be made to take the "treatment." Edgar replied that he expected to be in Chicago in a few weeks' time and would see the man in consultation with his regular physician, that he would administer the first injection and give instructions to the physician as to subsequent injections. Edgar added:

"My custom is to have all fees paid in advance and my charge is \$200.00 by certified cheque or money-order."

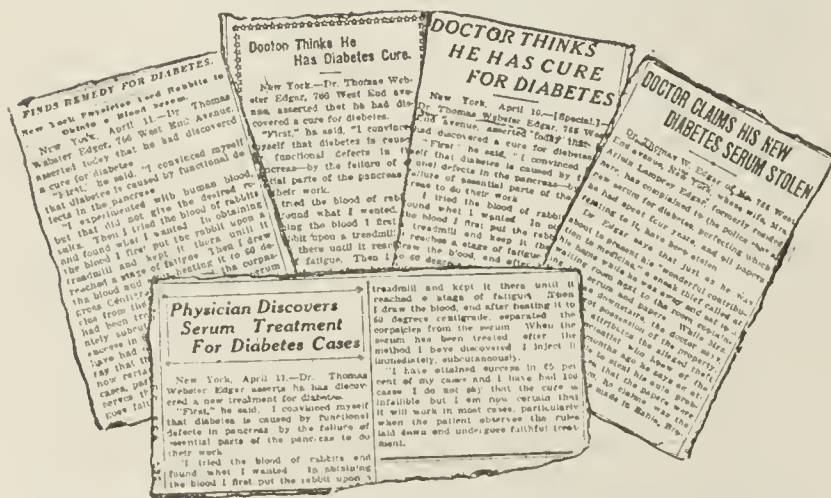
A layman in one of the smaller cities of New York wrote to Edgar in May, 1919, and received a reply from Edgar's secretary stating that the treatment extends "over a period of three months, cost \$150." He was also told that the serum could be sent to his physician for administration "for the sum of \$25 prepaid by money-order." The letter closed with the statement that Edgar "has been very successful with the serum."

A layman in South Carolina who wrote to Edgar in June, 1919, was told that the treatment as administered by Edgar "extends over a period of two months; fee \$300" and that if he wanted the serum administered by his own physician the cost would be "\$50 prepaid."

In May, 1920, Edgar had another article on diabetes, also in the *New York Medical Journal*. In this, too, he refers to his serum in the following words:

"In conclusion I may state that I have been able to produce some rather startling results by the use of my serum, which is prepared from the blood of rabbits after they have undergone a series of maneuvers capable of activating the various internal secretory glands to increased action. The serum contains the internal secretions in hormone form."

Gradually the newspaper publicity on Edgar's diabetic "serum" died down. Then, in November, 1920, there appeared—again in the *New York Medical Journal*—an article by



Photographic reproduction (reduced) of a few of the newspaper items that appeared in various parts of the country regarding Thomas Webster Edgar's alleged serum for diabetes.

licensed to practice medicine in the State of New York the same year. In March, 1919, an article by T. Webster Edgar appeared in the *New York Medical Journal* on "Diabetes Mellitus." In this Edgar gave a theory of the cause of diabetes mellitus and stated that he had "treated successfully, twenty cases of definite diabetes." In the article he spoke positively of the successful results he had obtained by the "intramuscular injections of my diabetic serum." No information was given regarding this serum except that he mentioned vaguely that it was "prepared from normal blood after the animal is exercised to the point of fatigue."

Edgar on "Sterility, Sex Stimulation and Endocrines." Edgar there stated that he wished to place himself "on record as being interested in sex stimulation" and that he wanted to notify the profession that he had another serum which he was using "with success in the treatment of this condition." Thus:

"... I feel entitled to state that I have a distinctly beneficial serum for the alleviation of presenile and senile deficiency; and that my product is capable of producing a new lease of life in those whose functions have been reduced to a minimum."

How long Edgar has been featuring his "serum" for "sex stimulation" it is difficult to determine, but during the last year the newspapers have carried sporadic reports of alleged remarkable results produced by "Dr. Thomas Webster Edgar of 766 West End Ave., New York," through the transplantation of the "interstitial gland" taken from "a special species of orangoutang." A layman who wrote to Edgar some months ago regarding this "gland implantation" received a letter from Edgar's secretary stating that the treatment "has been most successful in all cases" and assuring him that "the experimental stage has been passed, and the operation is advised in all cases presenting symptoms of presenility or age." A week later the same man received a letter written by Edgar himself in which was reiterated the claim that all of the operations had been successful. Edgar added that he was now treating all cases "by operation instead of the serum," and that "the fee for operation is \$500, inclusive of the sanitarium," the patients remaining in the "sanitarium" "for from two to three days." A month or two later the prospective patient received another letter signed "Thomas Webster Edgar, M.D.," assuring him that "the effect is permanent, and does not wear off. No ill effects can possibly result."

Commencing Oct. 1, 1921, a series of sensational articles appeared regarding one of Edgar's alleged monkey-gland implantations performed on an individual described as "one time lawyer and then a writer." These articles purport to be written partly by one of the newspaper staff, partly by the man undergoing the "operation" and at least one by Thomas Webster Edgar. The material is played up in the style typical of yellow journalism. In addition to repeated pictures of the individual who is being operated on, there also are given pictures of Thomas Webster Edgar and one of his ring-tailed monkeys." Doubtless the "story" has sold many newspapers. Its sensational character, the element of mystery and above all its sex slant will appeal to that large class of newspaper readers that hunger for stuff of this sort. Doubtless, too, it has proved a large advertising asset for Thomas Webster Edgar.

The statement that appears in the series to the effect that Edgar "is a member of the County Medical Society of New York" is incorrect. Edgar is not a member.

The further newspaper claim that Edgar is "an authority in glandular transplantation" should also be accepted with reservations. "Authorities" are created with ease in the pages of newspapers. Edgar may possibly be termed an authority in a newspaper or, shall we say, Pickwickian sense.

Correspondence

RESTAURANT TREATMENT IN INDUSTRIAL ACCIDENT CASES

To the Editor:—Histories of many industrial accident patients reveal loss of weight during the first few weeks following the injury. Convalescence from this point onward seems unduly prolonged with numerous orthopedic patients, specially with those who are unable to live at their own homes, so that malingering is suspected not infrequently. Inquiry will disclose that, among a considerable number of these patients, inadequate and poorly balanced diets are necessary in order to make the small sum of compensation money feed the entire family. Such injured persons are suffering from effects of mechanical injuries plus effects of efficiency peculiarities in diet. The latter defects appear

sufficient to retard the recovery of normal functions in injured tissues. For repair of damage there must be material at hand that will make repair possible. Numerous back strains and lesions about joints drag along indefinitely sometimes until better diets are secured. When "run down" persons can be put in hospitals that furnish a good variety and quantity of food, there will be noticed usually a slow increase in weight along with steady improvement in the person's general condition, together with progressive subsidence of pathologic symptoms and signs locally in the injured region. Insurance companies, however, object to furnishing expensive hospital care in nonsurgical cases for long periods of time, unless indications for hospital treatment are extremely clear.

Owing to this difficulty, it occurred to me that one square meal a day, supplied at any good low-priced restaurant, would yield variety and volume of additional food needed for quick repair in some instances, and that it could be furnished at a rate that would be attractive from an insurance business standpoint. Accordingly, with the cooperation of Mr. Dudley M. Holman, a first trial was made on a patient from the Bethlehem Shipbuilding Corporation, Limited. Arrangements can be made directly between a restaurant and the insurance company so that patients simply have to go regularly, as they would to a physician's office, and under these circumstances they may eat more liberally than when they are depriving their families at the home table. Diets are prescribed, of course, in most industrial cases when occasion demands; yet special attention to diets under the circumstances mentioned seems to have been neglected commonly among orthopedic patients. The method has such wide applicability that I venture to draw attention to the plan before a long series of patients has been collected. It is needless to predict that this may prove to be an exceedingly popular treatment with patients, and that it must be surrounded with proper restrictions to prevent its abuse. When rightly employed, it can prove of great benefit to patients and, simultaneously, to companies in which they are insured.

HERMAN W. MARSHALL, M.D., Boston.

HAY-FEVER PALLIATION: A NEW USE FOR THE INFLUENZA MASK

To the Editor:—Those familiar with the pollen therapy of hay-fever will agree that hay-fever is best treated by making skin tests with the pollens growing in the vicinity in which the patients live, and then treating them preseasonally by extract of the pollen of the plant to which the patient is sensitive. There are patients, however, who are not seen until after the hay-fever season begins, so that the preseasonal method of treatment is not possible. For patients seen only after their hay-fever symptoms are already present, the best treatment is to send them away to some place where the plant to whose pollen they are sensitive does not grow. This is the ideal treatment for this class of patients. Unfortunately, there are many of these patients who for one reason or another cannot get away. What is to be done for them?

It is well known that seasonal treatment by pollen extracts is about as unsatisfactory as preseasonal treatment by the same method is satisfactory. Palliation by medication too, either locally or internally, is in the great majority of patients also absolutely unsatisfactory. In these patients we have recently been using the influenza mask with a great deal of satisfaction. It should be made of three thicknesses of finest butter cloth, as described by Doust and Lyon (Face Masks in Infections of the Respiratory Tract, *THE JOURNAL*, Oct. 12, 1918, p. 1216), and we have found in practice that

it is best used moist, wrung out of ordinary tap water and put on to cover the mouth and nose in this moist condition; when it dries out it should be wet and wrung out again.

Many patients would not or could not wear this mask in the daytime; but, as is well known, the majority of hay-fever patients suffer most at night, after retiring. It is then that the nose stops up; it is necessary to open the mouth to breathe and, the pollen grains now being drawn into the trachea and bronchi, set up asthmatic symptoms. The influenza mask, properly made, moistened and put on at going to bed and worn during the night, will, in a majority of patients, greatly mitigate these symptoms and allow the patient to have a good night's rest.

SAMUEL H. WATSON, M.D.,
CHARLES S. KIBLER, M.D.,
Tucson, Ariz.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WILDBOLZ AUTO-URINE TEST FOR TUBERCULOSIS

To the Editor:—If the results of the auto-urine test for active tuberculosis are due to a reaction of antibodies in the circulation with, or in response to the stimulation of, antigens of the urine injected into the skin, is not this test merely a test for any antigen in the urine and its corresponding antibody in the circulation? Has the reaction been tested out in diseases other than tuberculosis? Has it been found that when supposedly there are in the circulation antigens and antibodies of other diseases alone, this reaction will be negative? If this has not been found, would not the results of the test as a test for tuberculosis approach reliability only when the injection of urine is made into the skin of a person known to have tuberculosis and tuberculosis only? For otherwise it would seem to be merely a test for the presence of any infectious disease whatever.

P. D. WOODBRIDGE, M.D., Boston.

ANSWER.—The questions brought up imply that "tuberculin" (in the Wildbolz reaction obtained from active foci and excreted in the urine) is an antigen in the accepted sense of the term, and in the second place that the skin reaction that is elicited is an antibody reaction.

Tuberculin differs from our common antigens in that it is probably a protein fragment of relatively small molecular size, relatively nontoxic and nonantigenic for normal animals and having peculiar physical properties (being coctostable, relatively diffusible, etc.).

While we may find no agreement as to the mechanism of the tuberculin reaction (the cutaneous reaction being under consideration), the experimental evidence is quite clear that the tuberculous skin reactions have no relation to the relative antibody concentration in the body fluids.

Properly to understand the questions involved, it must be kept in mind that the Wildbolz reaction differs in no essentials from the usual reaction obtained with tuberculin. The reaction is accelerated by iodids and by thyroid extract; it is usually negative during menstruation, pregnancy, acute infections and cachexia, as well as the terminal stages of tuberculosis. On the other hand, skin reactions elicited with bacterial and other antigens (typhoid, gonococcus, placenta, etc.) other than tuberculin are unreliable, and when present do not indicate the relative immunity or antibody concentration of the organism.

Therefore the test is not merely a test for any antigen in the urine and its corresponding antibody in the circulation.

The test has been tried in a number of acute infectious diseases and metabolic disorders and has been found negative. In leprosy the test may at times be positive with the patient's own urine, as well as with the urine of tuberculous patients, but is not as a rule as well marked as is the tuberculin reaction in the leprosy individual.

The test is not one that is positive in the presence of any infectious disease.

Perhaps a concrete example will best answer the general question raised in the inquiry. If we are dealing with a patient ill with both an active tuberculosis and typhoid fever, the urine will contain both antigens, but the auto-urine injection

will give a negative result (because of the common suppression of the allergic response during acute infections). With recovery of the patient from the typhoid infection the test may become positive, tuberculin being excreted and the allergic response becoming normal. There being no typhoid antigen present after the recovery, the reaction to it would be excluded. Even though we took pure typhoid antigen and made a skin test at this time (typhoidin reaction), the reaction to it would be found to be very irregular.

FUCHSIN-SULPHUROUS ACID TESTS FOR METHYL ALCOHOL

To the Editor:—Having occasion to test for methyl alcohol in ethyl alcohol, I used the U. S. P. method as given in the latest edition of Warren's translation of Autenrieth's "Detection of Poisons."

I followed the instructions precisely except in the preparation of the fuchsin-sulphurous solution. Being unable to obtain any sodium bisulphite, I substituted 11 gm. of dried sodium sulphite for 9 gm. of sodium bisulphite (containing the same amount of sulphur dioxide) and used 20 c.c. of hydrochloric acid as I had twice the amount of sodium to deal with. I obtained an orange colored solution.

On proceeding with the test I obtained a deep purple color, which did not fade, with the sample containing methyl alcohol, while the control containing only ethyl alcohol became almost colorless. In other words, the reaction described in the Simons-Denigès method was obtained.

The test as described seems quite sensitive. I wonder whether it is to be depended on. Any enlightenment you can give me on this subject will be appreciated.

In answering, please omit my name and address.

S. W. S., South Dakota.

ANSWER.—The substitution of sodium sulphite for sodium bisulphite in molecular amounts and doubling the amount of hydrochloric acid U. S. P. in preparing the fuchsin sulphurous acid test solution should not affect appreciably its reliability. In fact, the Elvove improvement of the U. S. P. fuchsin sulphurous acid test solution is as follows:

Dissolve 0.2 gm. of fuchsin in about 120 c.c. of hot water and cool to room temperature. Dissolve 2.0 gm. of sodium sulphite U. S. P. in 20 c.c. of water and mix this solution with the fuchsin solution. Then add 2 c.c. of hydrochloric acid U. S. P. and dilute with water to 200 c.c. (J. I. E. C. 9:295 [March] 1917).

The Denigès test depends on the presence of an aldehyd group; hence the liquid to be tested should be first treated in such a manner that aldehyds or other interfering substances are not present. After this is accomplished, the alcoholic solution is oxidized with potassium permanganate, thus converting any methyl alcohol to formaldehyd, which latter will then react with the fuchsin sulphurous acid solution giving the characteristic color. Under these conditions the test is both sensitive and dependable. The "Detection of Methyl Alcohol" was discussed in last week's issue in Queries and Minor Notes (THE JOURNAL, Oct. 8, 1921, p. 1199).

POTASSIUM MERCURIC IODID

To the Editor:—In THE JOURNAL, June 18, 1921, in an abstract on the effects of germicides on the gonococcus, potassium mercuric iodid was mentioned. Please inform me where this may be procured, and where I may be able to obtain data as to strength of solutions, etc.

P. O. BROWN, M.D., San Antonio, Texas.

ANSWER.—In the original article, Swartz and Davis (J. Urol. 5:235 [March] 1921) state that they prepared their potassium-mercuric iodid solution by dissolving mercuric iodid in an excess of potassium iodid solution, forming potassium mercuric iodid. As this is a reversible reaction, an excess of potassium iodid is necessary in order to maintain the mercuric iodid in solution. The dilutions of the potassium mercuric iodid were calculated on the amount of the double salt (K_2HgI_4) present. The authors found that solutions as dilute as 1:40,000 killed gonococci in twenty minutes and may be used at a concentration as high as 1:200. Clinical trials were not given; also the gonococcus is much less resistant than other organisms. The strengths which have been recommended by different authors for various disinfecting uses are from 1:1,000 to 1:10,000. The solution may be prepared in the manner indicated above, or by dissolving a definite amount of the prepared salt, potassium mercuric iodid, in water. In New and Nonofficial Remedies, 1921, two products are described: "Mercury and Potassium Iodide-Merck," Merck & Co., New York, and "Soloid Mercuric Potassium Iodide," Burroughs Wellcome & Co., New York and London.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homco. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

ILLINOIS: Chicago, Oct. 19-22. Director, Mr. W. H. H. Miller, Springfield.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

NEBRASKA: Lincoln, Nov. 9. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

THE EDUCATIONAL FUNCTION OF AN OUTPATIENT DEPARTMENT

GEORGE E. SHAMBAUGH, M.D.
CHICAGO

It has become generally recognized that the hospital in which the teaching function is emphasized is a better place for the care of patients than the hospital in which this function is neglected. In exactly the same way, the outpatient department which is a teaching center is capable of providing better care for patients than an outpatient department which is not at the same time a teaching institution. Indeed, one may even say that the greater the emphasis that is given toward utilizing the facilities of an outpatient department for teaching, the better the care, as a rule, that is given the patient. An ideal outpatient department is one organized for providing instruction in clinical medicine. In a broader sense, the properly equipped and properly conducted outpatient department becomes a valuable educational center for the entire community. The importance of this correlation between education and care of patient is sometimes overlooked.

The primary aim of a hospital or of an outpatient department is to provide the best possible care for the patient. It is only when this principle is kept foremost that the proper atmosphere exists for the teaching of medicine. The student who attempts to study disease without cultivating an interest in the patient himself is losing the first essential in his preparation to practice medicine. When the student has not the right attitude toward the patient, no amount of technical skill will ever suffice to give him a proper preparation. Educational institutions in passing on the requirements for admission to the medical course should find a more efficient method of recognizing this all-important principle. A student who is particularly clever in passing examinations may be particularly unfit, because of his attitude toward the patient, for a profession such as the practice of medicine.

The failure to give proper emphasis to the principle that the interests of the patient should always be foremost has brought a most harmful influence into the practice of medicine. For example, students have been taught the technic of operations, particularly in the specialties, who have acquired no adequate appreciation of the proper indications for these operations. Such training is oblivious of the best interests of the patient, who is constantly in danger of being the victim of unnecessary surgical procedures at the hands of men who have acquired technic of operations but who know

little of the much more difficult problem of recognizing their proper indications.

I wish to point out the features which are essential in an outpatient department before it is prepared to fulfil its rôle as a proper place for the care of patients or as a center for teaching the principles of medicine. The first is adequate equipment. Without this it is equally impossible to provide proper care for the patient or to give the student the means for building up his store of knowledge or of technical skill. The fundamental importance of a proper equipment has been sadly overlooked in our much neglected outpatient departments. Many of these exist with practically no equipment beyond the little that an attending physician or surgeon may feel forced to bring with him. It is not alone the patient who suffers from this lack of proper equipment. An outpatient department as an educational institution for the student of medicine and for the community at large requires a proper equipment. This should be not only an adequate equipment but also, for obvious reasons, as far as feasible, an ideal equipment. It should serve as a constant object lesson to the patient as well as to the student of medicine. For these reasons, it should be a model sanitary equipment.

The importance of hospital facilities both for providing care for patients and for the training of medical students should not be underemphasized; but I desire to call attention to the outpatient department as a proper place for the care of a great many patients who are now being hospitalized because of the neglected state of facilities in the outpatient departments. Unnecessary hospitalization of such cases incurs an enormous expense, a small fraction of which, if spent in providing proper facilities and equipment for the outpatient department, would render such hospital care superfluous. The proper study of many cases, both in diagnosis and treatment, can be carried out very largely in a properly equipped outpatient department. How this principle applies to the specialties is now pretty well recognized. The fact that it applies almost as fully to general medicine and general surgery is still largely overlooked. There seems to be a more or less widespread impression that general medicine and particularly general surgery can be taught only from patients confined in the hospital. This is a mistake. Many of the principles of diagnosis and treatment in general surgery and general medicine can be taught, on the whole, as satisfactorily in a properly equipped and properly organized outpatient department as can such specialties as otolaryngology.

It is absolutely necessary for the proper conduct of an outpatient clinic that definite hospital facilities be provided for each department for such cases as require hospital care. On the other hand, as already pointed out, an outpatient department properly equipped and with its work properly organized is able to accomplish much of the preliminary study as well as much of the subsequent care of cases which require hospital treatment. This cooperation of outpatient department and hospital will reduce the length of stay now required of a great many hospital patients.

Next in importance to proper equipment of an outpatient department is an adequate personnel of assistants. It is here that the value of the correlation of the care of patients and the teaching function becomes especially evident. A great deal of the work in an outpatient department is necessarily in the nature of routine work which can be carried out adequately, under direction, by more or less inexperienced medical assistants. The obligation on the part of the regular staff of keeping up such work becomes as tiresome as it is unproductive, with the result that there is a constant tendency to neglect much of this routine. With an outpatient department manned with a staff of clinical assistants, this routine work can be taken care of at the same time that it is providing the ideal training school for these medical assistants. The utilizing of graduate clinical assistants for carrying on

the work in the outpatient department facilitates such instruction of the undergraduate medical student as can properly be provided by this department. An outpatient clinic properly equipped and properly organized becomes the ideal training school for a large part of the graduate instruction in clinical medicine, such as is necessary in the preparation of the specialist, whether this be for the practice of ophthalmology and otolaryngology, or internal medicine and general surgery. In each outpatient department, in order that proper care may be given to the patient, it is necessary that there should be a suitable corps of clinical assistants, each serving for a definite period of perhaps not less than one year. These clinical assistants become an integral part in the organization of the outpatient clinic. It is important that the work of the department be organized so that the duties of these assistants may be progressive throughout their course, whether this be one year or longer, new assistants beginning each period as the work of the older assistants progresses. It is of the greatest importance in surgery and in the surgical specialties that the work of these clinical assistants in examination and diagnosis be pursued to the point at which they will be able to recognize the proper indications for surgical treatment, before they are taught the technic of operations or allowed to assist in operative work.

There is great need in this country for proper facilities for those graduates in medicine who desire to specialize in internal medicine, general surgery, or such subjects as ophthalmology or otolaryngology. Adequately equipped and properly organized outpatient departments are the proper educational centers, and the system of clinical assistants is the method of providing the proper foundation for such special preparation. Instruction by short intensive courses and clinics, as provided in our so-called postgraduate schools, does not provide the proper training, even when continued over a period of months or years. Proper training consists in the student's doing the actual work himself. When the student has finished his undergraduate medical course, the period for spoon-fed instruction should be over. From this time on he must do his work independently, under direction, but not by course taking.

A minimum of one full year spent as clinical assistant in an outpatient department, during which half of each day is devoted to the clinical study of cases, and the other half day to the fundamental sciences in the laboratories of the university, would form the proper foundation for those desiring to specialize in medicine. If this year's work can be followed by serving as resident in a special or teaching hospital for a period of one or more years, we may feel assured that much of the charlatanism that now impregnates the practice of general surgery and such subjects as ophthalmology and otolaryngology will largely disappear. Our aim should be to provide adequate facilities and proper equipment. The student must learn to do his work independently.

This cooperation of the teaching function with the care of patients gives the ideal outpatient department for the care of patients, and at the same time provides the proper method for training those who desire to do real graduate work.

122 South Michigan Avenue.

Missouri June Examination

Dr. Cortez Enloe, secretary, State Board of Health of Missouri, reports the written examination held at St. Louis, June 13-15, 1921. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 95 candidates examined, 88 passed and 7 failed. Fourteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville Medical Department.....	(1921)		80.9
Harvard University	(1920)		87.3

St. Louis University School of Medicine.....	(1921)	79.8,
80.1, 80.5, 80.7, 80.9, 81, 81, 81.1, 81.4, 81.7,		
81.7, 82, 82.1, 82.1, 82.3, 82.4, 82.7, 82.8, 82.8,		
82.9, 83.1, 83.1, 83.2, 83.2, 84, 84, 84, 84.3, 84.4,		
84.6, 85.3, 85.5, 86.1, 86.2, 86.2, 86.7, 87, 87, 87.1,		
87.1, 87.3, 87.4, 87.4, 88, 88.7, 88.7, 89.1, 89.4, 89.5		
Washington University Medical Department.....	(1921)	79.4,
80, 81.4, 82, 82.1, 82.1, 83, 83.1, 83.1, 83.8, 84.2,		
84.4, 84.5, 84.8, 85.2, 85.5, 85.8, 86.1, 86.1, 86.4,		
86.5, 86.6, 86.6, 87, 87.4, 88.7		
Cornell University	(1908)	88
Ohio State University College of Medicine.....	(1921)	82.1
Hahnemann Medical Coll. and Hosp. of Philadelphia..	(1921)	86.1
Jefferson Medical College.....	(1920)	80.1,
(1921) 76.1, 84, 84.7, 87.1, 90		
University of Pennsylvania.....	(1920)	84.1
Woman's Medical College of Pennsylvania.....	(1921)	83.6
FAILED		
Bowdoin Medical College.....	(1921)	64.2
St. Louis College of Physicians and Surgeons.....	(1918)	39.1
Meharry Medical College.....	(1917) 62.8, (1921) 70.3, 71.6, 73.1, 73.6	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University	(1920)		Georgia
Hahnemann Medical College and Hosp. of Chicago..	(1887)		Iowa
University of Kansas School of Medicine.....	(1920)		Kansas
University of Louisville Medical Department.....	(1915)		Virginia
Tulane University	(1908)		Oklahoma
Johns Hopkins University.....	(1912)		Maryland
University of Michigan Medical School.....	(1906)		Michigan
University of Minnesota Medical School.....	(1920)		Minnesota
St. Louis University School of Medicine.....	(1912)		Arkansas
John A. Creighton Medical College.....	(1896), (1910)		Nebraska
University of Nebraska.....	(1920)		Nebraska
Meharry Medical College.....	(1906)		Georgia
National University, Athens.....	(1905)*		Minnesota
* Graduation not verified.			

Mississippi June Examination

Dr. W. S. Leathers, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 21-22, 1921. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 15 passed and 2 failed. Nineteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1921)*		84
Tulane University.....	(1921) 77, 82, 83, 84, 85, 86,		86, 88
University of Pennsylvania.....	(1921)		89, 93
Meharry Medical College.....	(1912) 76, (1921)		83
University of Tennessee.....	(1921)		92, 93

FAILED			
Louisville National Medical College.....	(1911)†		
Tulane University	(1921)		72

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1919)		Dist. Colum.
Hahnemann Medical College and Hospital of Chicago.	(1908)		Illinois
University of Louisville.....	(1910)		Tennessee
Tulane University.....	(1903) Louisiana, (1914)		California
(1919) Louisiana, (1920) Alabama, Louisiana			
Cornell University	(1905)		Louisiana
Jefferson Medical College.....	(1919)		Penna.
Meharry Medical College.....	(1913)		Arkansas
(1916) Missouri, (1918, 2) Tennessee			
University of Tennessee.....	(1894)		Alabama
(1915) Tennessee, (1917) Arkansas			
Vanderbilt University.....	(1914) Tennessee, (1920)		Alabama

* This candidate has finished the medical course and will obtain the M.D. degree after he has completed a year's internship in a hospital.
† No grade given.

New Mexico January Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 1 candidate was licensed on diploma and 10 candidates were licensed by reciprocity at the meeting held at Santa Fe, Jan. 10-11, 1921. The following colleges were represented:

College	LICENSED ON DIPLOMA	Year Grad.	Number Licensed
University of Louisville Medical Department.....	(1915)		1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago.....	(1910)		N. Carolina
University of Illinois.....	(1916)		Illinois
College of Physicians and Surgeons, Baltimore.....	(1904)		Maryland
University of Michigan Medical School.....	(1919)		Michigan
University of Nebraska.....	(1902)		Iowa
Columbia University	(1914)		Alabama
Chattanooga Medical College.....	(1903)		Alabama
University of Texas.....	(1919)		Texas
University of Toronto.....	(1920, 2)		Canada

Book Notices

THE ASSESSMENT OF PHYSICAL FITNESS BY CORRELATION OF VITAL CAPACITY AND CERTAIN MEASUREMENTS OF THE BODY. By Georges Dreyer, C.B.E., M.A., M.D., Professor of Pathology in the University of Oxford. In Collaboration with George Fulford Hanson, with a foreword by Charles H. Mayo, M.D. Cloth. Price, \$3.50. Pp. 127, with illustrations. New York: Paul B. Hoeber, 1921.

This book aims "to supply medical men and others directly interested in the subject with a method, new only in the details of its application, whereby physical fitness can be assessed on the basis of a few simple physical measurements." The four measurements employed are: (1) body weight; (2) length of trunk; (3) circumference of chest, and (4) vital capacity, that is, the maximum volume of air exhaled in a single expiration following a maximum inspiration. On the basis of these four measurements on what may be called normal men and women the senior author has constructed a number of mathematical formulas by means of which body weight, vital capacity and chest circumference can be calculated from the length of the trunk. The greater part of the book (four fifths) is taken up by tables calculated from these formulas. These tables are ready measures, as it were, so that without calculation, but simply making the four measurements, it may be quickly determined whether the vital capacity of any individual is normal or below normal. The authors conclude that "if a person has a vital capacity 10 per cent. less than that of normal for his class, it is probable that he is suffering from some health depressing condition; if he is 15 per cent. below the normal limit it is practically certain that he is abnormal in this respect." People are divided on the basis of vocation into three classes as regards the relation of vital capacity to the three anatomic measurements. This classification seems highly arbitrary and of little practical value. The book is of interest to men and women concerned with physical education and race improvement. But the methods and deductions propounded by the authors must be taken tentatively or on trial. Hundreds of thousands of measurements of the kind outlined in the book may bring out facts of importance for prognosis or corrective therapy. But it must not be forgotten that none of these measurements reveal the quality of the individual protoplasm any more than the cubic space of a man's cranium reveals his brain power. Moreover, a smaller vital capacity can be compensated for by more rapid breathing. The book is suggestive but not conclusive.

THE PROSPECTIVE MOTHER. A Handbook for Women During Pregnancy. By J. Morris Slemons, Associate Professor of Obstetrics, the Johns Hopkins University. Second edition. Cloth. Price, \$2. Pp. 343. New York: D. Appleton and Company, 1921.

Systematic blood pressure determinations for safeguarding the health of the prospective mother have become firmly established during the past decade in the practice of obstetrics. Advances in the study of the endocrines have shown a better knowledge of their influence in the course of pregnancy. These and other factors, such as improved methods of infant feeding, have made wise a revision of this volume, already a standard exposition for the laity of the principles of midwifery. Furthermore, the author finds it well to draw lay attention to the fact that certain innovations of promise, such as the Abderhalden test and scopolamin-morphin analgesia, have not stood the test of a fair trial. In its arrangement the subject matter follows faithfully the outline of the first edition. The signs of pregnancy, the development of the ovum, the embryo, the food requirements during pregnancy, and general hygienic measures comprise the themes taken up in the early chapters. The complications of pregnancy, miscarriage, preparation for confinement, labor, and the lying-in period are next considered, all with painstaking explanatory detail well phrased for the woman not trained in medical terminology. The final chapter on nursing is exceptionally well written and, in some respects, the most important one of all. The author succeeds admirably in suppressing his personal views, thus avoiding didacticism. Hence the volume is one which the specialist as well as the general practitioner will find suitable to recommend to the client; yet hints at personal preference are occasionally seen.

It is interesting to note, for instance, that while ether and nitrous oxid gas are mentioned favorably as anesthetics, yet chloroform seems to be preferred and is included in the list of articles in preparation for labor. Advice to the patient who sleeps poorly during the terminal months of pregnancy is excellent and withal sympathetically expressed; likewise that concerning traveling, though that pertaining to travel by motor car might better have been given with some detail. Surely the character of the road and speed of travel are quite as important as the length of the journey. A somewhat too brief glossary and an adequate index are provided.

THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM FROM A PHYSIOLOGICAL VIEWPOINT. By Charles Manning Child, Professor of Zoology, University of Chicago. Cloth. Price, \$1.75 net. Pp. 296, with 70 illustrations. Chicago: University of Chicago Press, 1921.

This book, the eleventh in the University of Chicago Science Series, endeavors to apply the facts and principles of "axial gradients" to explain the evolution of the nervous system. The first five chapters are devoted to an outline or exposition of the facts of "gradients" and "gradient patterns" as now known, especially in the lower invertebrates. Science is indebted to Professor Child and his pupils for the development of this important field of biology. Hence, in these chapters the author deals mainly with experimental and, to him, familiar facts. The application of the gradient principle ("gradient and excitation patterns") as the cause or process of evolution of the nervous system is a more difficult performance, as in this field the author has virtually no direct experimental data to guide him. Man was not present when the initial differentiation took place and was fixed in the hereditary mechanism; nor have as yet any experiments been successfully carried out showing how differentiation of the nervous tissues may be brought about in the absence of hereditary impulses. The development of the main thesis of the book is therefore highly speculative and theoretical. But the points of view advanced are nevertheless interesting and worth careful study on the part of all medical men interested in the fundamental problems of living matter. Reduced to its simplest terms, Professor Child attempts to show that the differentiation and evolution of the nervous system is a continuous process due to reaction of primitive protoplasm to external stimuli. As the animal world appears today, the differentiation and development of the nervous system is to a large extent fixed by the hereditary mechanisms. Professor Child's thesis would thus seem to demand the inheritance of individually acquired characters, a view rejected by many competent biologists of our times. Biology and medicine would be greatly benefited if the brilliant author of this book would apply the test of experiment to the interesting speculations advanced.

TRATADO DE GINECOLOGÍA. Por el Dr. S. Recasens. Paper. Pp. 898, with illustrations. Madrid: Nicolás Moya, 1918.

This book, by the professor of gynecology and dean of the Medical School of Madrid, begins with an unusual historical introduction. Though succinct, the introduction is rather complete, especially as regards Spanish achievements. In this review we note that the first vaginal hysterectomy was made for cancer by a Spaniard, Andrés Cruce of Granada, in 1500. The most surprising part of it was that the patient recovered, although no forceps or ligature was applied and only 1½ pounds of blood was lost. In the first part, comprising twenty-five chapters, Recasens takes up successively the topography and development of the feminine genitalia, examination, etiology, symptomatology, treatment, both surgical and medical, and postoperative complications. Palpation (tactus eruditus) in his opinion is the best means of gynecologic examination, furnishing, as he says, a definite diagnosis while the other methods are merely confirmatory. In the chapter on examination he states that Europeans have little use for Sims' position, which Americans use so much, as it is considered inferior to the lithotomy position and the dorsal recumbent position. In the chapter on etiology, he classes women's genito-urinary diseases under five headings: inflammation, new growths, traumatism, abnormalities of position and direction, and malformations. In the second part, comprising thirty-one chapters, he considers separately the different diseases that affect feminine organs. The discussion is thorough, and is illustrated by references to personal cases of the author. One of the most valuable sections

the work in the outpatient department facilitates such instruction of the undergraduate medical student as can properly be provided by this department. An outpatient clinic properly equipped and properly organized becomes the ideal training school for a large part of the graduate instruction in clinical medicine, such as is necessary in the preparation of the specialist, whether this be for the practice of ophthalmology and otolaryngology, or internal medicine and general surgery. In each outpatient department, in order that proper care may be given to the patient, it is necessary that there should be a suitable corps of clinical assistants, each serving for a definite period of perhaps not less than one year. These clinical assistants become an integral part in the organization of the outpatient clinic. It is important that the work of the department be organized so that the duties of these assistants may be progressive throughout their course, whether this be one year or longer, new assistants beginning each period as the work of the older assistants progresses. It is of the greatest importance in surgery and in the surgical specialties that the work of these clinical assistants in examination and diagnosis be pursued to the point at which they will be able to recognize the proper indications for surgical treatment, before they are taught the technic of operations or allowed to assist in operative work.

There is great need in this country for proper facilities for those graduates in medicine who desire to specialize in internal medicine, general surgery, or such subjects as ophthalmology or otolaryngology. Adequately equipped and properly organized outpatient departments are the proper educational centers, and the system of clinical assistants is the method of providing the proper foundation for such special preparation. Instruction by short intensive courses and clinics, as provided in our so-called postgraduate schools, does not provide the proper training, even when continued over a period of months or years. Proper training consists in the student's doing the actual work himself. When the student has finished his undergraduate medical course, the period for spoon-fed instruction should be over. From this time on he must do his work independently, under direction, but not by course taking.

A minimum of one full year spent as clinical assistant in an outpatient department, during which half of each day is devoted to the clinical study of cases, and the other half day to the fundamental sciences in the laboratories of the university, would form the proper foundation for those desiring to specialize in medicine. If this year's work can be followed by serving as resident in a special or teaching hospital for a period of one or more years, we may feel assured that much of the charlatanism that now impregnates the practice of general surgery and such subjects as ophthalmology and otolaryngology will largely disappear. Our aim should be to provide adequate facilities and proper equipment. The student must learn to do his work independently.

This cooperation of the teaching function with the care of patients gives the ideal outpatient department for the care of patients, and at the same time provides the proper method for training those who desire to do real graduate work.

122 South Michigan Avenue.

Missouri June Examination

Dr. Cortez Enloe, secretary, State Board of Health of Missouri, reports the written examination held at St. Louis, June 13-15, 1921. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 95 candidates examined, 88 passed and 7 failed. Fourteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville Medical Department.....	(1921)		80.9
Harvard University	(1920)		87.3

St. Louis University School of Medicine.....	(1921)	79.8,
80.1, 80.5, 80.7, 80.9, 81, 81, 81.1, 81.4, 81.7,		
81.7, 82, 82.1, 82.1, 82.3, 82.4, 82.7, 82.8, 82.8,		
82.9, 83.1, 83.1, 83.2, 83.2, 84, 84, 84, 84.3, 84.4,		
84.6, 85.3, 85.5, 86.1, 86.2, 86.2, 86.7, 87, 87, 87.1,		
87.1, 87.3, 87.4, 87.4, 88, 88.7, 88.7, 89.1, 89.4, 89.5		
Washington University Medical Department.....	(1921)	79.4,
80, 81.4, 82, 82.1, 82.1, 83, 83.1, 83.1, 83.8, 84.2,		
84.4, 84.5, 84.8, 85.2, 85.5, 85.8, 86.1, 86.1, 86.4,		
86.5, 86.6, 86.6, 87, 87.4, 88.7		
Cornell University	(1908)	88
Ohio State University College of Medicine.....	(1921)	82.1
Hahnemann Medical Coll. and Hosp. of Philadelphia..	(1921)	86.1
Jefferson Medical College.....	(1920)	80.1,
(1921) 76.1, 84, 84.7, 87.1, 90		
University of Pennsylvania.....	(1920)	84.1
Woman's Medical College of Pennsylvania.....	(1921)	83.6

FAILED		
Bowdoin Medical College.....	(1921)	64.2
St. Louis College of Physicians and Surgeons.....	(1918)	39.1
Meharry Medical College.....	(1917) 62.8, (1921) 70.3, 71.6, 73.1, 73.6	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University	(1920)		Georgia
Hahnemann Medical College and Hosp. of Chicago..	(1887)		Iowa
University of Kansas School of Medicine.....	(1920)		Kansas
University of Louisville Medical Department.....	(1915)		Virginia
Tulane University	(1908)		Oklahoma
Johns Hopkins University.....	(1912)		Maryland
University of Michigan Medical School.....	(1906)		Michigan
University of Minnesota Medical School.....	(1920)		Minnesota
St. Louis University School of Medicine.....	(1912)		Arkansas
John A. Creighton Medical College.....	(1896), (1910)		Nebraska
University of Nebraska.....	(1920)		Nebraska
Meharry Medical College.....	(1906)		Georgia
National University, Athens.....	(1905)*		Minnesota
* Graduation not verified.			

Mississippi June Examination

Dr. W. S. Leathers, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 21-22, 1921. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 15 passed and 2 failed. Nineteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1921)*		84
Tulane University.....	(1921) 77, 82, 83, 84, 85, 86,		86, 88
University of Pennsylvania.....	(1921)		89, 93
Meharry Medical College.....	(1912) 76, (1921)		83
University of Tennessee.....	(1921)		92, 93

FAILED		
Louisville National Medical College.....	(1911)†	72
Tulane University	(1921)	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1919)		Dist. Colum.
Hahnemann Medical College and Hospital of Chicago.	(1908)		Illinois
University of Louisville.....	(1910)		Tennessee
Tulane University.....	(1903) Louisiana, (1914) California		
(1919) Louisiana, (1920) Alabama, Louisiana			
Cornell University	(1905)		Louisiana
Jefferson Medical College.....	(1919)		Penna.
Meharry Medical College.....	(1913)		Arkansas
(1916) Missouri, (1918, 2) Tennessee			
University of Tennessee.....	(1894)		Alabama
(1915) Tennessee, (1917) Arkansas			
Vanderbilt University.....	(1914) Tennessee, (1920)		Alabama
* This candidate has finished the medical course and will obtain the M.D. degree after he has completed a year's internship in a hospital.			
† No grade given.			

New Mexico January Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 1 candidate was licensed on diploma and 10 candidates were licensed by reciprocity at the meeting held at Santa Fe, Jan. 10-11, 1921. The following colleges were represented:

College	LICENSED ON DIPLOMA	Year Grad.	Number Licensed
University of Louisville Medical Department.....	(1915)		1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago.....	(1910)		N. Carolina
University of Illinois.....	(1916)		Illinois
College of Physicians and Surgeons, Baltimore.....	(1904)		Maryland
University of Michigan Medical School.....	(1919)		Michigan
University of Nebraska.....	(1902)		Iowa
Columbia University	(1914)		Alabama
Chattanooga Medical College.....	(1903)		Alabama
University of Texas.....	(1919)		Texas
University of Toronto.....	(1920, 2)		Canada

Book Notices

THE ASSESSMENT OF PHYSICAL FITNESS BY CORRELATION OF VITAL CAPACITY AND CERTAIN MEASUREMENTS OF THE BODY. By Georges Dreyer, C.B.E., M.A., M.D., Professor of Pathology in the University of Oxford. In Collaboration with George Fulford Hanson, with a foreword by Charles H. Mayo, M.D. Cloth. Price, \$3.50. Pp. 127, with illustrations. New York: Paul B. Hoeber, 1921.

This book aims "to supply medical men and others directly interested in the subject with a method, new only in the details of its application, whereby physical fitness can be assessed on the basis of a few simple physical measurements." The four measurements employed are: (1) body weight; (2) length of trunk; (3) circumference of chest, and (4) vital capacity, that is, the maximum volume of air exhaled in a single expiration following a maximum inspiration. On the basis of these four measurements on what may be called normal men and women the senior author has constructed a number of mathematical formulas by means of which body weight, vital capacity and chest circumference can be calculated from the length of the trunk. The greater part of the book (four fifths) is taken up by tables calculated from these formulas. These tables are ready measures, as it were, so that without calculation, but simply making the four measurements, it may be quickly determined whether the vital capacity of any individual is normal or below normal. The authors conclude that "if a person has a vital capacity 10 per cent. less than that of normal for his class, it is probable that he is suffering from some health depressing condition; if he is 15 per cent. below the normal limit it is practically certain that he is abnormal in this respect." People are divided on the basis of vocation into three classes as regards the relation of vital capacity to the three anatomic measurements. This classification seems highly arbitrary and of little practical value. The book is of interest to men and women concerned with physical education and race improvement. But the methods and deductions propounded by the authors must be taken tentatively or on trial. Hundreds of thousands of measurements of the kind outlined in the book may bring out facts of importance for prognosis or corrective therapy. But it must not be forgotten that none of these measurements reveal the quality of the individual protoplasm any more than the cubic space of a man's cranium reveals his brain power. Moreover, a smaller vital capacity can be compensated for by more rapid breathing. The book is suggestive but not conclusive.

THE PROSPECTIVE MOTHER. A Handbook for Women During Pregnancy. By J. Morris Slemons, Associate Professor of Obstetrics, the Johns Hopkins University. Second edition. Cloth. Price, \$2. Pp. 343. New York: D. Appleton and Company, 1921.

Systematic blood pressure determinations for safeguarding the health of the prospective mother have become firmly established during the past decade in the practice of obstetrics. Advances in the study of the endocrines have shown a better knowledge of their influence in the course of pregnancy. These and other factors, such as improved methods of infant feeding, have made wise a revision of this volume, already a standard exposition for the laity of the principles of midwifery. Furthermore, the author finds it well to draw attention to the fact that certain innovations of promise, such as the Abderhalden test and scopolamin-morphin analgesia, have not stood the test of a fair trial. In its arrangement the subject matter follows faithfully the outline of the first edition. The signs of pregnancy, the development of the ovum, the embryo, the food requirements during pregnancy, and general hygienic measures comprise the themes taken up in the early chapters. The complications of pregnancy, miscarriage, preparation for confinement, labor, and the lying-in period are next considered, all with painstaking explanatory detail well phrased for the woman not trained in medical terminology. The final chapter on nursing is exceptionally well written and, in some respects, the most important one of all. The author succeeds admirably in suppressing his personal views, thus avoiding didacticism. Hence the volume is one which the specialist as well as the general practitioner will find suitable to recommend to the client; yet hints at personal preference are occasionally seen.

It is interesting to note, for instance, that while ether and nitrous oxid gas are mentioned favorably as anesthetics, yet chloroform seems to be preferred and is included in the list of articles in preparation for labor. Advice to the patient who sleeps poorly during the terminal months of pregnancy is excellent and withal sympathetically expressed; likewise that concerning traveling, though that pertaining to travel by motor car might better have been given with some detail. Surely the character of the road and speed of travel are quite as important as the length of the journey. A somewhat too brief glossary and an adequate index are provided.

THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM FROM A PHYSIOLOGICAL VIEWPOINT. By Charles Manning Child, Professor of Zoology, University of Chicago. Cloth. Price, \$1.75 net. Pp. 296, with 70 illustrations. Chicago: University of Chicago Press, 1921.

This book, the eleventh in the University of Chicago Science Series, endeavors to apply the facts and principles of "axial gradients" to explain the evolution of the nervous system. The first five chapters are devoted to an outline or exposition of the facts of "gradients" and "gradient patterns" as now known, especially in the lower invertebrates. Science is indebted to Professor Child and his pupils for the development of this important field of biology. Hence, in these chapters the author deals mainly with experimental and, to him, familiar facts. The application of the gradient principle ("gradient and excitation patterns") as the cause or process of evolution of the nervous system is a more difficult performance, as in this field the author has virtually no direct experimental data to guide him. Man was not present when the initial differentiation took place and was fixed in the hereditary mechanism; nor have as yet any experiments been successfully carried out showing how differentiation of the nervous tissues may be brought about in the absence of hereditary impulses. The development of the main thesis of the book is therefore highly speculative and theoretical. But the points of view advanced are nevertheless interesting and worth careful study on the part of all medical men interested in the fundamental problems of living matter. Reduced to its simplest terms, Professor Child attempts to show that the differentiation and evolution of the nervous system is a continuous process due to reaction of primitive protoplasm to external stimuli. As the animal world appears today, the differentiation and development of the nervous system is to a large extent fixed by the hereditary mechanisms. Professor Child's thesis would thus seem to demand the inheritance of individually acquired characters, a view rejected by many competent biologists of our times. Biology and medicine would be greatly benefited if the brilliant author of this book would apply the test of experiment to the interesting speculations advanced.

TRATADO DE GINECOLOGÍA. Por el Dr. S. Recasens. Paper. Pp. 848, with illustrations. Madrid: Nicolás Moya, 1918.

This book, by the professor of gynecology and dean of the Medical School of Madrid, begins with an unusual historical introduction. Though succinct, the introduction is rather complete, especially as regards Spanish achievements. In this review we note that the first vaginal hysterectomy was made for cancer by a Spaniard, Andrés Cruce of Granada, in 1500. The most surprising part of it was that the patient recovered, although no forceps or ligature was applied and only 1½ pounds of blood was lost. In the first part, comprising twenty-five chapters, Recasens takes up successively the topography and development of the feminine genitalia, examination, etiology, symptomatology, treatment, both surgical and medical, and postoperative complications. Palpation (tactus eruditus) in his opinion is the best means of gynecologic examination, furnishing, as he says, a definite diagnosis while the other methods are merely confirmatory. In the chapter on examination he states that Europeans have little use for Sims' position, which Americans use so much, as it is considered inferior to the lithotomy position and the dorsal recumbent position. In the chapter on etiology, he classes women's genito-urinary diseases under five headings: inflammation, new growths, traumatism, abnormalities of position and direction, and malformations. In the second part, comprising thirty-one chapters, he considers separately the different diseases that affect feminine organs. The discussion is thorough, and is illustrated by references to personal cases of the author. One of the most valuable sections

is that devoted to treatment, as Recasens discusses authoritatively the results with various methods, basing his remarks on his own experience as well as that of others. He lays special stress on the present tendency to nonsurgical therapeutics, which he explains as due in part to the reaction against the abuse of surgery in recent times. He presents, however, with utmost detail the different surgical technics, specifying those cases in which operatory methods have no substitutes. He is firmly convinced as to the value of the roentgen rays, which he considers essential in the treatment of surgical carcinoma. In considering in detail the social aspect of venereal diseases, he finally comes to the conclusion that education is the only solution of the problem, as laws will inevitably fail unless supported by public opinion. The book is profusely and beautifully illustrated, many of the illustrations being from personal cases and several in colors. The style is clear, unpretentious and sometimes even entertaining. Altogether, the book, both in presentation and contents, must rank with the best works in its class in any language.

ORGANIC MEDICINAL CHEMICALS (SYNTHETIC AND NATURAL). By M. Barrowcliff, M.B.E., F.I.C., and Francis H. Carr, C.B.E., F.I.C. Cloth. Price, \$4. Pp. 331, with 24 illustrations. New York: D. Van Nostrand Company, 1920.

The book is divided into numbered sections, each of which is devoted to a topic, such as "narcotics and general anesthetics," "naturally occurring alkaloids and their derivatives," "antipyretics and analgesics," and "organic antiseptics and disinfectants." One section is entitled "Diuretics and Uric Acid Solvents," notwithstanding that critical medical thought denies the existence of "uric acid solvents" as practical therapeutic agents. The book chiefly describes methods for manufacturing organic medicinal chemicals which are taken almost entirely from German and English patents, American and French patents being generally ignored. The authors recognize the incompleteness of some of the descriptions, this being due in most cases to insufficiency of published accounts. The physical properties, tests for identity and purity and therapeutic application of the drugs are briefly mentioned, these being much less complete than are usually found in the various pharmacopeias, pharmacopeial commentaries, dispensaries and in New and Nonofficial Remedies. Many medicinal substances which are now manufactured under free names are described under the formerly protected names of German origin, the modern scientific and accredited names being conspicuous by their absence. Examples are salvarsan instead of arsphenamin; veronal instead of barbital; anesthesin rather than benzocain; atophan and novatophan instead of cinchophen and neocinchophen, and novocain in place of procain. The very considerable American literature on the chemistry of medicines is almost entirely overlooked, there being no reference (so far as noted) to American patents, the investigations of medicines by the Council on Pharmacy and Chemistry of the American Medical Association, to the Chemical Foundation, or to other American agencies interested in the development of medicinal chemical industry. It is not to be expected that a book which almost completely ignores the work of American chemists will be welcomed by them. It is of little value to physicians, but would find use in the manufacturing laboratory.

CHIRURGIE DE GUERRE ET D'APRÈS-GUERRE. Par Auguste Broca, Professeur à la Faculté de médecine de Paris. Paper. Price, 25 francs net. Pp. 479, with 545 illustrations. Paris: Masson et Cie, 1921.

This book is based on the author's experience as head of the hospital of the Institute of France during the war and the reconstruction period. His observations are of especial value because he was able to care for his patients from soon after the receipt of the injury until healing was complete, which in many cases extended over a period of years. He discusses the entire field of war surgery and considers it under the headings of primary, secondary, and late or tertiary surgery. No new principles were evolved for the special treatment of war wounds, and he is particularly opposed to the use of antiseptics, on the grounds that they diminish phagocytosis and destroy newly forming tissue. The chapters dealing with the treatment of war fractures are especially good and will be of practical service to those desiring information on the management of compound fractures in civil surgery.

Miscellany

PEYOTE, THE NARCOTIC MESCAL BUTTON OF THE INDIANS

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Peyote is a small, fleshy, spineless cactus which has been used for centuries by aboriginal Americans in connection with their religious rituals and as a magic plant believed to have the power of inducing supernatural visions. By most laymen the name cactus is loosely applied to almost any spiny plant of the arid regions of our Southwest. Indeed, the Greek *κάκτος*, from which Linnaeus adopted the name cactus, was the spiny wild artichoke, or cardoon (*Cynara cardunculus*) not at all related to the botanical family Cactaceae, which is essentially American and had no representatives in the Old World until after the discovery of America. Plants are classified by the structure of their flowers and fruit, not by their general appearance or their habit of growth; the peyote, though quite devoid of spines, is a true cactus. It was first referred to the genus *Echinocactus*, afterward to *Anhalonium*, and finally was made the type of a new genus, *Lophophora*. The various generic names are probably the cause of the erroneous idea that a number of species of narcotic cacti are used by the Indians. As a matter of fact there is but one species, *Lophophora williamsii*, so used. This species varies in the arrangement of its tubercles. One form of it was called *Anhalonium lewinii* by Hennings in 1888; but the latter was shown by Professor Coulter to be only a variety of *Lophophora williamsii*, a species first described under the name *Echinocactus williamsii* in 1845 by Lemaire, the distinguished authority on Cactaceae.

Dr. Thomas S. Blair,¹ chief of the Bureau of Drug Control, Pennsylvania Department of Health, recently published a paper in THE JOURNAL in which he states that he has not succeeded in finding a botanic description of the narcotic peyote plant in any of our American works on botany. For a description of this plant, of both the typical form *Lophophora williamsii* and its variety *lewinii*, I would refer the reader to a paper by John M. Coulter.² In this paper Dr. Coulter states that he found the form with irregularly arranged tubercles, named in honor of the chemist Dr. Lewin of Berlin, to be connected with the typical *Lophophora williamsii* by such complete intergradation that it was impossible to separate the two forms as distinct species. This intergradation was shown by a great number of living specimens in the Missouri Botanical Garden. Dr. Coulter's observations have since been confirmed by Dr. J. N. Rose of the Carnegie Foundation. I shall not here quote the botanic descriptions of the type and its variety. The intergradation between the typical forms *Lophophora williamsii* and the variety *lewinii* may be seen at a glance. The flowers of these two forms are indistinguishable.

The earliest description we have of the peyote plant is that of Hernandez, a learned Spanish physician sent in the sixteenth century by his sovereign, Philip II, to make a study of the resources of New Spain. He characterizes it as a root "of nearly medium size sending forth no branches or leaves above ground, but with a certain woolliness adhering to it"; and he adds: "Marvelous virtues are attributed to it by the Indians (if any faith can be given to what is commonly said among them on this point). It enables those eating it to

1. Blair, T. S.: Habit Indulgence in Certain Cactaceous Plants Among the Indians, J. A. M. A. 76: 1033 (April 9) 1921.

2. Coulter, J. M.: Preliminary Revision of the North American Species of Cactus, Anhalonium, and Lophophora, Contributions from the United States National Herbarium 3: 91-132 (June 10) 1894.

foresee and prophesy such things, for instance, as whether on the following day the enemy will make an attack upon them, or whether the weather will continue favorable; or to discern who has stolen from them missing objects, and other things of like nature which the Chichimecas really believe they have the power of divining. On this account the plant scarcely issues above the surface of the ground, but hides itself as though unwilling to harm those who may discover and eat of it."³

Peyote grew, and still grows, in northern Mexico in what is now the state of Zacatecas, and also in Chihuahua and on both sides of the Rio Grande not far from Laredo, Texas. Its collection was formerly accompanied by ceremonies recalling those observed by early herbalists of the Old World in collecting certain medicinal plants. It was dried and preserved either in longitudinal strips called *raíz diabolica* (devil's root) or in disks resembling mushrooms called *teonanacatl* (god's flesh, or sacred mushrooms). Padre Sahagun,⁴ writing in 1575, states that it was commonly eaten by the wild Indians of the north called Chichimecas, giving them courage to fight and rendering them insensible to the pangs of hunger and thirst, as well as protecting them, as they believed, from all danger. Padre José Ortega, writing before 1700, described the ceremonial of the peyote, accompanied by singing and dancing throughout the entire night and resulting in the intoxication of those who partook of the drug.

The early Catholic missionaries were opposed to peyote, not so much on account of its physical effects on the Indians as because it was connected with the rituals of their religion, and kept them from embracing Christianity. It was forbidden by law, and to partake of it was regarded almost as great a crime as cannibalism. In one of the early manuals for the administration of the sacraments to the Indians, the following questions were asked: "Hast thou eaten flesh of man? Hast thou eaten peyote?"

NARCOTICS AND INTOXICANTS USED BY INDIANS

In my investigation of the narcotics and intoxicants used by the American Indians, I have found that alcoholic drinks have been their greatest curse. The principal sources of these have been the Mexican maguey, or century plant, and the sotol of the southwestern United States and northern Mexico. In addition to these intoxicants, certain drinks called *tizwin* (from the Aztec *tehuino*, intoxicating) were formerly brewed in the Southwest from malted maize or other grain, and in South America fermented drinks were prepared from maize and the roots of mandioca. The effects of all these drinks were sometimes strengthened by the addition of narcotics. The use of the dried disks of peyote for strengthening the distilled liquor called *mescal* has given to them the name "mescal buttons," and has led the erroneous belief that these disks are obtained from the mescal plant, or perhaps that the mescal plant is a species of cactus. In inquiries relating both to maguey and to sotol, the plants so called are frequently characterized as "cactuses." As a matter of fact, the magueys are species of Agave, belonging to the botanic family Amaryllidaceae, and the sotols are species of Dasylirion, belonging to the Liliaceae. From both sources a sweet sap is obtained (the *nequatl*, or "honey-water," of the Aztecs), as harmless as sweet cider when fresh, but intoxicating like hard cider when fermented. This fermented sap, variously doctored with spices or perhaps with narcotics, is the well-known pulque of Mexico. The sap, in addition to sugar, contains albuminous substances, which after fermentation become ill smelling. These substances may be precipitated by the intro-

duction of certain roots or barks containing tannin, after which the clarified liquor is decanted. The action of the tannic acid on the proteins in the pulque may be compared to that of hops in the manufacture of beer. In addition to precipitating the albuminous material, the barks or roots used for the purpose impart a pleasant aromatic flavor to the drink.⁵

The first to study the chemical properties of peyote was Dr. L. Lewin, who in 1888 used in his investigations dried plants furnished by Parke, Davis & Co. of Detroit. A chemical analysis was also made by Erwin E. Ewell,⁶ who announced his results in a paper entitled "The Chemistry of the Cactaceae."

EFFECTS OF PEYOTE

Various accounts of the effects of peyote have been published. In some of these the drug is said to produce beautiful color visions; in others, no such sensation is recorded. From the testimony of Indians, the effects seem to be of a hypnotic character. Peyote has been called a habit-forming drug, and some writers have likened it to hashish, or Indian hemp. The latter, which has been introduced into Mexico and our Southwest under the name *marihuana*, is a most dangerous drug. Introduced clandestinely into prisons, it has been the cause of riots. Its use is now forbidden by the Mexican government. Peyote is never used habitually by the Indians, but is now used, as it was used four centuries ago in old Mexico, in certain ceremonials. It causes hallucinations, but its effect is quieting, and there is no tendency to commit acts of violence by those who partake of it. More than this, testimony was given by many of those who use it ceremonially in the so-called Peyote Church, that since joining the latter they have not only discontinued the use of all alcoholic stimulants but that they do not even crave them. The greatest harm caused by peyote is its use as a medicinal remedy by the Indians, who regard it as a sacred plant possessing magic curative properties. By the unwise administration of it to little children and to invalids it has in all probability been harmful and even fatal.

Its physiologic and therapeutic properties were investigated by Drs. D. W. Prentiss and Francis P. Morgan⁷ of the department of materia medica and therapeutics in the Columbian University. Illustrations of the mushroom-like mezcal buttons and of blooming specimens of both the typical form of *Lophophora williamsii*, with its tubercles in regularly radiating rows, and its variety *lewinii*, with the tubercles alternating or arranged diagonally, are included in an article⁸ of mine published in 1915.

Medicolegal

Revocation of License for Unprofessional Conduct or Deceiving Patient Into Submission to Treatment by One Not a Physician

(*Dilliard v. State Board of Medical Examiners (Colo.)*, 196 Pac. R. 866)

The Supreme Court of Colorado, in affirming a judgment that affirmed one of the board revoking respondent Dilliard's license to practice medicine, says that the respondent was charged with being guilty of unprofessional and dishonorable conduct in that he held out to a Mrs. Barber that one West was a trained and skilled physician and surgeon and licensed to practice medicine and surgery, and caused her to submit to treatment by the said West, whereas West was not a physician and not licensed to practice. The act under

5. Safford, W. E.: The Use of Timbe Barks by the Mexicans in the Preparation of Alcoholic Drinks, *Science* 29: 160, 1909.

6. Ewell, E. E.: The Chemistry of the Cactaceae, *J. Am. Chem. Soc.* 18: 624-643, 1896.

7. The results of their experiments were published in Volumes 19 and 20 of the *Therapeutic Gazette*, 1895 and 1896.

8. Safford, W. E.: An Aztec Narcotic, *J. Heredity* 6, July, 1915.

3. Hernandez: De Historia Plantarum Novae Hispaniae, Francisco Hernando Medico atque Historico Philippi II. Hispaniae et Indiarum Regis; et totius Novi Orbis Medico Primario, Auctore, Madrid 3: 70, 1790.

4. Sahagun, Bernardino: Historia general de las cosas de Nueva España, Edición Bustamente 3: 70.

which the proceeding was taken provides for revocation for various reasons, among others for "immoral, unprofessional or dishonorable conduct." The district court had no power to review the action of the board except for excess of jurisdiction or abuse of discretion. That the board had jurisdiction of the subject-matter of the case and of the person of the respondent could not be questioned.

It was urged that the legislature had no power to provide for the revocation of a license for conduct that was unprofessional or dishonorable unless it was also immoral, and that in charging and convicting the respondent with unprofessional and dishonorable conduct only, the board was exercising rights which the law could not give it, and hence was acting without or in excess of jurisdiction. The supreme court does not think that position was tenable. To say that the legislature cannot constitutionally provide for the revocation of a physician's license for unprofessional or dishonorable conduct involves the premise that he has a constitutional right to practice unprofessionally and dishonorably. It is essential that a licensed physician be possessed of professional honor. Counsel's most earnest argument, however, was that the expression "unprofessional" was too indefinite and uncertain, that it should have been defined by statute, that its definition could not be delegated to a commission, and so, since the clause "immoral, unprofessional or dishonorable" was in the disjunctive, it was void; with which the supreme court does not agree. The court holds that the words "immoral, unprofessional or dishonorable" are sufficiently definite, and that the board has jurisdiction to determine what constitutes unprofessional and dishonorable conduct, and to revoke a license on account of such conduct. However, although the board has power to decide in the first instance what constitutes unprofessional conduct, if it abuses that power the courts may review its decision and reverse it.

Did the board abuse its discretion? The supreme court does not think so. The evidence tended to show that the respondent did what he was accused of, and the supreme court cannot consider whether it was sufficient. The court can, however, determine whether to hold such conduct to be unprofessional and dishonorable is an abuse of discretion. It is evident that it is not. Can there be any doubt that it is an offense against which the public should be protected, and not a mere breach of professional ethics, to deceive a patient into submission to treatment by one not a physician by representing him to be such?

It must follow from what has been said of the power of the court to consider abuse of discretion, that it must in some cases consider the evidence in order to determine whether the facts shown come within the proper definition of that term as used in the statute, and consequently the board, when requested by the respondent, ought to permit and facilitate the taking of the testimony in shorthand and its incorporation into the record.

A motion made by the board for a modification of the opinion by the elimination of that portion which suggested review of evidence for abuse of discretion, on the ground that the opinion in that respect was contrary to the well-established law on that subject, was denied by the supreme court, as was also a motion for a rehearing.

Damages Allowed Physician for Personal Injuries

(*Baldwin v. City of Norwalk (Conn.)*, 112 Atl. R. 660)

The Supreme Court of Errors of Connecticut finds no error in a verdict for \$16,000 damages in favor of the plaintiff, a physician, for injuries which he sustained as the result of the overturning of his automobile, in February, 1918, owing to an obstruction alleged to have been negligently left in the street. It was contended by the defendant that the verdict was excessive, but the court says that at the time of the accident the plaintiff, although 63 years of age, was a man of unusual vigor and activity. He was married and required the net income of \$2,000, which sum he was then earning, for the reasonable support of his family. As a result of his injuries, he suffered a severe scalp wound and many bruises and contusions on his body, and also a fracture of the pelvis in the region of the acetabulum. As a result of that fracture, his left leg was shortened at the hip, and he

suffered from loss of motion in the leg so that he was unable to move about without the aid of a cane and crutch, and was unable to drive an automobile. By reason of his profession of medicine he had, prior to his injury, received a net income of about \$2,000 a year. As a result of his injuries, he was unable to practice his profession until about the month of May following, when he was able to attend to a few office calls, and since then, because of his inability to get about, his practice has been limited to office calls, and his income from his practice has not exceeded \$500 in any twelve months. His injuries and disabilities are permanent, and his ability to pursue the practice of medicine and to keep and maintain the patronage of his patients has been greatly and permanently impaired, and there is no other labor or calling in which he will be able to earn a livelihood. Moreover, the injuries suffered by him were exceedingly painful, and both the injuries and the treatment for them caused him to suffer great mental and bodily pain and anguish. His expectation of life at 63 years of age was about 12.81 years. The sum of \$13,000 at 6 per cent. would procure for him an annuity of about \$1,500 for twelve and a half years. Taking into consideration compensation for pain and suffering and discomfort during his life, the court does not find that the verdict was so excessive as to indicate that the jury was controlled by passion, prejudice, partiality or corruption.

Isolation Not Warranted by Suspicion of Disease

(*Ex parte Shepard (Calif.)*, 195 Pac. R. 1077)

The District Court of Appeal of California, Second District, Division 2, in ordering Mrs. Shepard discharged from the custody of the superintendent of a hospital who was the respondent to an application for a writ of habeas corpus, says that the respondent by his return to the writ alleged that the woman was isolated in the hospital "suspected of being infected with a contagious, infectious and communicable disease, namely, syphilis and gonococcus infection"; that, in his opinion, it was necessary to isolate her until an examination was made to determine whether she was afflicted with the diseases or either of them; that there was reasonable cause to believe that she was so infected, and that she refused to submit herself to the desired examination. If the respondent had any power to deprive the woman of her liberty, that power was to be predicated on the provisions of Section 2979a of the Political Code of California, which makes it the duty of health officers and others to take necessary measures to protect the public against the spread of certain diseases from persons whom such officers know or have reason to believe are afflicted with such diseases. But, paying just regard to the constitutional guaranties of the right to personal liberty and security, it must be asserted that more than a mere suspicion that an individual is afflicted with an isolable disease is necessary to give an officer "reason to believe" that such person is so afflicted. There was nothing in the record to show that the respondent knew this woman to be diseased, and the court cannot see that he had sufficient reason to believe that she was diseased, although she had been charged with keeping a house of prostitution and having agreed to indulge in sexual intercourse for a consideration.

Society Proceedings

COMING MEETINGS

- Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
- American Association of Railway Surgeons, Chicago, Oct. 18-20.
- American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
- American College of Surgeons, Philadelphia, Oct. 24-28.
- American Public Health Association, New York, Nov. 14-18.
- American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
- Hawaii, Medical Society of, Honolulu, Nov. 21.
- Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
- Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
- Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
- Radiological Society of North America, Chicago, Dec. 7-9.
- Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
- Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
- Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
- Virginia, Medical Society of, Lynchburg, Oct. 18-21.
- Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Dermatology and Syphilology, Chicago

October, 1921, 4, No. 4

- Pseudoxanthoma Elasticum. B. Throne, Brooklyn, and H. Goodman, New York.—p. 419.
Staining of Spirochaeta Pallida by Fontana-Tribondeau Method. C. Fuentes, Havana, Cuba.—p. 448.
Comparison of Ingredients of Ringworm Culture Mediums. F. D. Weidman and T. M. McMillan, Philadelphia.—p. 451.
Porokeratosis; Report of a Case. C. S. Wright, Ann Arbor, Mich.—p. 469.
*XXIV. Immunity Studies in Experimental Syphilis. II. Spirocheticidal Properties of Serums in Latent and Experimental Syphilis with Some Observations on Immunity. F. Eberson, St. Louis.—p. 490.
*Refractometric Studies in Human Syphilis with Special Reference to Changes During Treatment with Arsphenamin, and Neo-Arsphenamin. K. Tokuda, Philadelphia.—p. 512.
Streptococcic Dermatoses. E. D. Chipman, San Francisco.—p. 526.

Spirocheticidal Properties of Blood Serum in Latent Syphilis.—The blood serum from persons having latent syphilis Eberson found has spirocheticidal properties. Rabbits were protected uniformly against infection with virulent *Spirochaeta pallida* in combination with such serums. Protective properties were found in the serums of asymptomatic persons with latent syphilis with the following histories: infection with syphilis dating back from three to twenty-five years; patients who had received treatment until the Wassermann reaction had become negative; a number of patients who had no history of infection, who had taken no treatment, and who had a slight positive Wassermann reaction usually in the cholesterin antigen; a group of patients in whom the Wassermann reaction was slightly positive in the cholesterin and noncholesterin antigens, or strongly positive in either one, in inverse relationship; an infant whose mother's serum was found to contain spirocheticidal properties. Spirocheticidal activity of serums in latent syphilis is of such a character as to prevent the normal dissemination of *Spirochaeta pallida* from a primary focus. Failure to inoculate rabbits with mixtures of serums and spirochetes was correlated with negative inoculations with the blood from such animals. In the experimental animal, spirochetolytic serum may be developed in the course of from six months to one year after the infection. In the rabbit, as in man, protective substances are found at a time when the infection has attained a relatively latent state. The presence of these substances in given serums apparently depends on the stage of infection.

Refractometry in Syphilis.—Refractometric studies were made by Tokuda in thirty-two cases of untreated syphilis and the following observations were made: There is a marked increase in the refractive index of the serum and also in the globulins in syphilis, especially in active secondary cases. The refractive index of the serum is highest in secondary cases, lowest in the congenital and is intermediate between these two in the tertiary cases. The figures for total proteins, albumins, globulins and the relative amount of globulin are somewhat higher in secondary than in tertiary syphilis, the figures for congenital syphilis being somewhat lower than those of the latter. Considered in relation to the Wassermann reaction of the serums, before treatment, the strongly positive cases show values of total proteins, albumins, globulins and relative amount of globulins higher than the weakly positive cases. During a course of eight intravenous injections of arsphenamin from 0.4 to 0.6 gm. and neo-arsphenamin 0.9 gm., each drug being given at weekly and semiweekly intervals, the refractometric studies (made before each injection) show these results: Classified according to the Wassermann reaction of the serums before treatment, there are no sufficiently constant or striking differences to warrant differentiating between the strongly and weakly positive series. Considered according to the intervals of injection, the relative amounts of globulins show more rapid decline during weekly arsphenamin injections. During semiweekly periods of administration the changes are about the same. Classified according to the degree of resistance of the patients to antisiphilitic treat-

ment (as indicated by repeated Wassermann tests) it was observed that: when the Wassermann reaction remained persistently positive, the refractive index, the percentage of total proteins and the relative amount of globulins of the serum showed little or no tendency to drop below their original values. When the Wassermann reaction, on the other hand, became very readily negative, the curves fell, with more or less regularity during the course of injections.

Archives of Neurology and Psychiatry, Chicago

October, 1921, 6, No. 4

- *Calcification of Cerebral Vessels with a Clinical Picture Simulating Brain Tumor. P. Bassoe and G. B. Hassin, Chicago.—p. 359.
Intraneural Plexus of Fasciculi and Fibers in Sciatic Nerve. J. C. McKinley, Minneapolis.—p. 377.
*Hemihypertrophy and Mental Defect. A. Gesell, New Haven, Conn.—p. 400.
Eye Signs in Intracranial Tumors of Anterior Fossa. A. B. Siewers, Syracuse.—p. 424.
*Results in Two Hundred and Fifty-One Cases Five Years After Admission to a Hospital for Mental Diseases. E. D. Bond, Philadelphia.—p. 429.

Calcification of Cerebral Vessels.—Bassoe and Hassin report a case which is interesting in three respects: First, a diagnosis of brain tumor was clinically justifiable and several operations were performed in the hope of removing the supposed tumor. It was an example of so-called pseudotumor cerebri. Second, epileptiform attacks of petit mal and grand mal types were the principal symptoms, so the case shows what kind of changes occasionally may cause such attacks. Third, and chiefly, the case is of interest on account of the most unusual pathologic condition presented; namely, a large indurated area in the interior of the left hemisphere in which the capillaries were infiltrated with a hyalin, or colloid material and also calcified to such an extent that decalcification was necessary for the preparation of suitable microscopic specimens.

Hemihypertrophy.—Gesell records a case of total unilateral hypertrophy and reviews forty cases hitherto recorded in the literature. In a discussion of the etiologic theories for hemihypertrophy, preference is given to the view that hemihypertrophy is not a hereditary character but a morphogenetic anomaly dating back to an early embryonic stage. Hemihypertrophy is interpreted as a form of asymmetry due to a possible deviation in the normal process of twinning. The complication of mental defect is attributed to an abnormality in the process of bilateral twinning which involves a disturbance of normal tissue development. Possible relations of certain cases of mental defect to cranial asymmetry and intra-uterine meningitis are suggested.

Results of Treatment in Mental Cases.—Of the 251 patients studied by Bond sixty-eight have gone back to the community fully recovered, sixty-one have gone back to the community on a self-supporting basis, eight have shown marked improvement, in fifty-one the illness has progressed to death, and in sixty-three there has been essentially no improvement. The dementia praecox patients stay; the only deaths occurred in three who were taken home. The senile arteriosclerotic patients die. The manic-depressive death rate is not inconsiderable; deaths during excitement were always partly due to another disease. The unclassified, a group kept large in order to keep other groups pure, had an even distribution of results; most of them were unproductive, resistive patients with no signs of organic brain disease.

Archives of Ophthalmology, New Rochelle

September, 1921, 50, No. 5

- Ophthalmologic Findings in Traumatic Asphyxia with Report of Case. P. D. Berrisford, St. Paul.—p. 411.
Brief Notes on Some Ophthalmologic Conditions. H. Smith.—p. 422.
Report of Second Hundred Successive Extractions of Cataract in Capsule After Preliminary Subluxation with Capsule Forceps. A. Knapp, New York.—p. 426.
Melanosarcoma of Choroid Occurring in Brothers. A. O. Pfingst and S. Graves, Louisville, Ky.—p. 431.
Practical Points in Cataract Extraction Emphasized in Col. Henry Smith's Technic for Intracapsular Extraction. C. King, Cincinnati.—p. 440.
Treatment After Cataract Operations. J. W. Millette, Dayton, Ohio.—p. 446.
Glioma Retinae Treated by Roentgen Rays with Apparent Destruction of Tumor and Preservation of Normal Vision. F. H. Verhoeff, Boston.—p. 450.
Spontaneous Hypotonus in Juvenile Glaucoma. A. H. Riedel, New York.—p. 457.

Boston Medical and Surgical JournalSept. 29, 1921, **185**, No. 13

- *Two Cases of Carcinoma of Kidney, One with Invasion of Inferior Vena Cava and Right Heart. W. S. Quinland, Boston.—p. 367.
 Congenital Atelectasis. S. A. Cohen, Boston.—p. 374.
 *Calculus in Submaxillary Gland. F. S. Hopkins, Springfield, Mass.—p. 378.
 Massotherapy for Ear and Nose Treatment. J. Taylor, Worcester, Mass.—p. 381.
 Lead Pencil Lesions. F. J. Cotton, Boston.—p. 386.

Carcinoma of Kidney.—Quinland cites a case of carcinoma of the kidney with metastases to the liver, heart, lungs, suprarenals, lymph nodes and mesentery; tumor thrombus of inferior vena cava and right auricle. He also describes a specimen of kidney carcinoma. The cases indicate the origin of carcinoma from renal epithelial cells. The structure of the original tumor and its metastases approach very closely the structure of adenoma of renal cell origin.

Calculus in Submaxillary Gland.—The history of Hopkins' case is typical both in symptoms and in the condemnation of teeth as the supposed cause of trouble. The calculus itself is unusual both as to its mulberry appearance and as to its chemical composition, namely, calcium oxylate. Hopkins emphasized the importance of considering the possibility of salivary calculus in cases complaining of pain in the mouth, teeth, or jaws. The characteristic symptoms are swelling of the gland and pain induced by food. The diagnosis may be confirmed by roentgen-ray examination. The treatment consists in removal of the calculus, preferably through the mouth.

Canadian Medical Association Journal, MontrealAugust, 1921, **11**, No. 8

- Diagnosis of Chronic Cholecystitis. J. D. McEachern, Winnipeg.—p. 516.
 Generalized Neurofibromatosis. E. L. Pope, Winnipeg.—p. 519.
 *Fragilitas Ossium. C. W. Burns, Winnipeg.—p. 522.
 Multiple Polypi in Stomach (Gastric Polypsis). A. McPhedran, Toronto.—p. 524.
 Van Slyke and Palmer Method for Determining Approximate Degree of Acidosis in Diabetes Mellitus. I. M. Rabinowitch.—p. 526.
 *Bacteriology of Infectious Diarrhea. S. G. Graham, Toronto.—p. 529.
 *Case of Thrombosis of Aorta and Iliac Arteries Following Pneumococcal Infection of Umbilicus. E. G. Wheeler, Toronto.—p. 532.
 Asthma—Its Relation to Focal Infections. R. W. Irving, Kamloops.—p. 534.
 Tumors of Urinary Bladder, Diagnosis and Treatment. E. J. Boardman.—p. 539.
 Prevention of Mental Breakdown. C. A. Baragar, Brandon.—p. 542.
 Latency in Syphilis. J. J. Heagerty, Ottawa.—p. 548.
 Codliver Oil Without Phosphorus as Effective as Codliver Oil with Phosphorus in Rickets and Tetany. A. Brown, I. F. MacLachlan and R. Simpson, Toronto.—p. 552.
 Acidosis. C. R. Gilmour, Winnipeg.—p. 558.
 Repair of Bony Defects of Cranium. C. B. Shuttleworth, Toronto.—p. 562.

Fragilitas Ossium a Family Disease.—Burns cites the case of a man, aged 35, who had sustained four fractures, one of which, a fracture of the femur, remained ununited for nineteen years. He had seven brothers all alive, five of whom have a multiple fracture history, with malunion or nonunion. Of four sisters none has had any fractures. The eldest brother fractured both femurs two or three times; has also broken his right arm. He has been an invalid for 12 years, because of ununited fractures of both femurs. Another brother fractured the left femur 12 years ago. It is still ununited. A third brother has had at least five or six fractures of both legs and arms, all of which have united and are useful, except the last femur fracture five years ago, which has not firmly united (probably fibrous union). A fourth brother has had at least eight fractures of arms and legs. Both femurs are ununited. The father has had three fractures. One was an ununited fracture of the right femur. Every endeavor to induce union failed. The thigh was eventually amputated.

Bacteriology of Infectious Diarrhea.—In a series of twenty-nine cases of infectious diarrhea seen by Graham 62 per cent. were proved by cultural methods alone to be due to *B. dysenteriae*. The type prevalent in this series was the Hiss-Russell.

Bacteriology of Umbilical Infections.—Nine cases of umbilical infection are analyzed by Wheeler. The organisms recovered, by means of blood culture and cultures from the umbilicus and any metastatic areas of inflammation, have

been as follows: 4 cases, *Streptococcus hemolyticus*. 1 case, *Streptococcus mucosus-capsulatus*; 1 case, pneumococcus; 3 cases, *Staphylococcus pyogenes-aureus*. In the nine cases there were five cases of peritonitis, two of septicemia with no localizations, one of multiple abscess formation involving organs and joints and one with thrombosis of the hypogastric and iliac arteries and the abdominal aorta. In addition to these nine cases of umbilical infection there have been several cases of erysipelas originating on other parts of the body, cases in which the inflammatory process reached the region of the umbilicus and was followed by a fatal peritonitis, showing the umbilicus to be an open portal of entry for infection.

Florida Medical Association Journal, St. Augustine and JacksonvilleSeptember, 1921, **8**, No. 3

- Subconjunctival Injections in Eye Injuries. W. H. Adams, Jacksonville.—p. 43.
 Importance of Conserving Vital Powers in Rendering First Aid. M. Freeman, Perrine.—p. 45.
 Nursing Standards. M. L. Greener, Orlando.—p. 46.

Georgia Medical Association Journal, AtlantaSeptember, 1921, **10**, No. 16

- Plea for More Thorough Examinations Before Operations are Performed. E. C. Davis, Atlanta.—p. 653.
 Review of 1,000 Cases from Department of Diagnosis of Harbin Hospital. W. H. Lewis, Rome, Ga.—p. 657.
 Physicians of Georgia. W. A. Davis, Atlanta.—p. 662.
 Radical Versus Conservative Operation on Uterine Appendages. M. T. Benson, Atlanta.—p. 667.
 Case of Cesarean Section for Placenta Praevia. J. G. Earnest, Atlanta.—p. 670.
 Pelvic Infection in Female. L. J. Johns, Tallapoosa, Ga.—p. 672.
 Recent Improvements in Dietetic Treatment of Diabetes Mellitus. J. E. Paullin and H. M. Bowcock, Atlanta.—p. 676.
 Vaccines in Chronic Bronchitis. G. F. Klugh, Atlanta.—p. 678.
 Role of Tooth and Tonsil in Systemic Infections. E. S. Osborne, Savannah.—p. 680.

Iowa State Medical Society Journal, Des MoinesSept. 15, 1921, **11**, No. 9

- Special Field of Neurologic Surgery After Another Interval. H. Cushing, Boston.—p. 337.
 Melanosarcoma of Choroid. W. H. Johnston, Muscatine.—p. 342.
 Epilepsy a Symptom of Splanchnoptosis. C. A. L. Reed, Cincinnati.—p. 344.
 Traumatic Pulsating Exophthalmos. G. A. May, Des Moines.—p. 346.
 Torsion of Intra-Abdominal Membranous Folds. J. F. Studebaker, Fort Dodge.—p. 350.
 Principles of Basal Metabolism Determinations. W. H. Rendleman and J. I. Marker, Davenport.—p. 352.
 Lethargic Encephalitis: Report of Case. M. B. Call, Greene.—p. 355.
 Diffuse Subepithelial Infiltration of Upper Air Passages. H. E. Thompson, Dubuque.—p. 356.
 Late Development of Fusion Sense: Case Report. G. F. Harkness, Davenport.—p. 357.

Johns Hopkins Hospital Bulletin, BaltimoreSeptember, 1921, **32**, No. 367

- *Determination of Basal Metabolism from Carbon Dioxid Elimination. J. T. King, Jr., and R. Pearl, Baltimore.—p. 277.
 *Localization of Bacteria in Upper Air Passages: Its Bearing on Infection. A. L. Bloomfield, Baltimore.—p. 290.
 *Ice-Box Modification of Wassermann Test in Diagnosis and Treatment of Syphilis. A. Keidel and J. E. Moore, Baltimore.—p. 296.
 *Inability of Staphylococci to Form Indol from Protein, Peptone and Tryptophane. S. Bayne-Jones and P. Zininger, Baltimore.—p. 299.
 Hemolytic Exudates and Transmissible Bacterial Autolysis. J. Bordet, Brussels, Belgium.—p. 302.
 Pregnancy Following Implantation of Outer End of Only Remaining Fallopian Tube into Uterine Cornu After Resection of Cornual Pregnancy. H. N. Shaw, Los Angeles.—p. 305.

Determination of Basal Metabolism from Carbon Dioxid Elimination.—It is generally believed that carbon dioxid is eliminated in a manner less even than the absorption of oxygen. King found from the analysis of twenty-seven experiments with subjects in the chamber calorimeter that the co-efficient of correlation of carbon dioxid with calories is actually higher than that of oxygen with calories. So far, then, as this points the way, carbon dioxid furnishes a better index to the heat production (basal metabolism) than does oxygen—that is, under ideal conditions. Out of 157 observations on all types of normal subjects, except the very young, only two showed carbon dioxid figures that ran distinctly ahead of corresponding oxygen figures, and in these two the

deviation percentage was slight. King is convinced of the advantages of using carbon dioxid elimination instead of oxygen consumption as an index to basal metabolism. He describes a method and an apparatus which he uses. The method is "open." This prevents danger of possible respiratory infection, for which the "closed" methods have been criticized. By weighing the carbon dioxid output no corrections for temperature and barometric pressure needs to be made such as becomes necessary in using volumetric methods of oxygen consumption. The psychic effect on the patient is also helpful. Results of measurements of carbon dioxid obtained through the method suggested corresponded closely with those published by Benedict and associates. The practical application of the proposed method has been satisfactory in several hundred observations on all types of patients. The author says the method should not be used in diabetes because of the altered respiratory quotient in that disease.

Bacteria in Upper Air Passages.—Bloomfield asserts that aside from the normal flora, bacteria do not, as a rule grow free on the mucous surface of the upper air passages. Special conditions are necessary to account for the presence of foreign organisms—either a local infection, or a transient invasion.

Icebox Modification of Wassermann Test.—The study presented by Keidel and Moore is intended to demonstrate the results of the icebox method in cases well studied and not dependent for diagnosis on this method. It has demonstrated an important superiority in its selection of uncured treated syphilitics.

No Indol Production by Staphylococci.—In order to test the ability of staphylococci to produce indol, 115 strains of staphylococcus, isolated from pathologic lesions in man, from air, dust, human feces and putrid beef, were cultivated by Jones and Zininger in mediums containing proteins, peptone and free tryptophane. Numerous tests for indol with several reagents, particularly with Ehrlich's paradimethylamino-benzaldehyde solution, were made with the cultures at different intervals from forty-eight hours to three weeks. In no instance was a positive test for indol obtained. Although these results present only negative evidence, they are thought to be sufficient to warrant the conclusion that indol is not a product of the metabolism of staphylococcus.

Journal of General Physiology, Baltimore

Sept. 20, 1921, 4, No. 1

- Conductivity and Permeability. W. J. V. Osterhout, Cambridge, Mass.—p. 1.
- Stereotropic Reactions of Shovel-Nosed Ray, *Rhinobatus Productus*. S. S. Maxwell, San Francisco.—p. 11.
- Stereotropism of Dogfish (*Mustelus Californicus*) and Its Reversal Through Change of Intensity of the Stimulus. S. S. Maxwell, San Francisco.—p. 19.
- Chemical Stimulation of Nerve Cord of *Lumbricus Terrestris*. A. R. Moore, New Brunswick, N. J.—p. 29.
- Formation of Aster in Artificial Parthenogenesis. R. Chambers, New York.—p. 33.
- Organization of Starfish Egg. R. Chambers, New York.—p. 41.
- Selective Absorption of Potassium by Animal Cells. I. Conditions Controlling Absorption and Retention of Potassium. P. H. Mitchell and J. W. Wilson, Providence, R. I.—p. 45.
- Comparative Hydrolysis of Gelatin by Pepsin, Trypsin, Acid and Alkali. J. H. Northrop, New York.—p. 57.
- Donnan Equilibrium and Physical Properties of Proteins. IV. Viscosity. J. Loeb, New York.—p. 73.
- Reciprocal Relation Between Osmotic Pressure and Viscosity of Gelatin Solutions. J. Loeb, New York.—p. 97.

Journal of Biological Chemistry, Baltimore

September, 1921, 48, No. 1

- Methods for Direct Quantitative Determination of Sodium, Potassium, Calcium, and Magnesium in Urine and Stools. F. F. Tisdall and B. Kramer, Baltimore.—p. 1.
- *Rapid Method for Determination of Hippuric Acid in Urine. F. B. Kingsbury and W. W. Swanson, Minneapolis.—p. 13.
- *Possible Source of Error in Testing for Bence-Jones Protein. C. W. Miller and J. E. Sweet, Philadelphia.—p. 21.
- Acerin. Globulin of Maple Seed (*Acer Saccharinum*). R. J. Anderson, Geneva.—p. 23.
- Dietary Factors Influencing Calcium Assimilation. I. Comparative Influence of Green and Dried Plant Tissue, Cabbage, Orange Juice and Cod Liver Oil on Calcium Assimilation. E. B. Hart, H. Steenbock and C. A. Hoppert, Madison, Wis.—p. 33.
- *Method for Determination of Sugar in Normal Urine. S. R. Benedict and E. Osterberg, New York.—p. 51.

- Chemical Development of Ovaries of King Salmon During Spawning Migration. C. W. Greene, Columbia, Mo.—p. 59.
- Chemical Study of Certain Pacific Coast Fishes. D. B. Dill, San Diego, Calif.—p. 73.
- *Potassium Content of Normal and Some Pathologic Human Bloods. V. C. Myers and J. J. Short, New York.—p. 83.
- Chemical Study of California Sardine (*Sardinia Cerulea*). D. B. Dill.—p. 93.
- Estimation of Creatinin in Presence of Acetone and Diacetic Acid. N. F. Blau, New York.—p. 105.
- Structure of Thymus Nucleic Acid and on Its Possible Bearing on Structure of Plant Nucleic Acid. P. A. Levene.—p. 119.
- Creatinin and Creatin in Muscle Extracts. I. Comparison of Picric Acid and Tungstic Acid Methods of Deproteinization. F. S. Hammett, Philadelphia.—p. 127.
- Id. II. Influence of Reaction of Medium on Creatinin-Creatin Balance in Incubated Extracts of Muscle Tissue of Albino Rat. F. S. Hammett, Philadelphia.—p. 133.
- Studies of Thyroid Apparatus. IV. Influence of Parathyroid and Thyroid Tissue on Creatinin-Creatin Balance in Incubated Extracts of Muscle Tissue of Albino Rat. F. S. Hammett, Philadelphia.—p. 143.
- Studies of Acidosis. XVII. Normal and Abnormal Variations in Acid-Base Balance of Blood. D. D. Van Slyke.—p. 153.
- Preparation and Analysis of Animal Nucleic Acid. P. A. Levene.—p. 177.
- Liver Lecithin. P. A. Levene and H. S. Simms.—p. 185.
- On Numerical Values of Optical Rotations in Sugar Acids. P. A. Levene.—p. 197.
- Preparation and Standardization of Collodion Membranes. A. II. Eggerth, New York.—p. 203.
- *Direct Quantitative Determination of Sodium, Potassium, Calcium and Magnesium in Small Amounts of Blood. B. Kramer and F. F. Tisdall.—p. 223.
- Phosphoric Esters of Some Substituted Glucoses and Their Rate of Hydrolysis. P. A. Levene and G. M. Meyer.—p. 233.

Determination of Hippuric Acid in Urine.—By using 15 gm. solid sodium hydroxid in hydrolyzing the hippuric acid of 100 c.c. of urine at the boiling point for thirty minutes and subsequently acidifying, extracting, and titrating, results were obtained by Kingsbury and Swanson that were, in one experiment, 22 per cent. higher than the known titration value for this specimen of urine. It was also found that values from 10 to 33 per cent. higher than those obtained by the Folin-Flanders method resulted when urine was boiled with an equal volume of a mixture of concentrated nitric and sulphuric acids for thirty minutes in a process that gave 100 per cent. recovery when applied to solutions of pure hippuric acid. Oxidation of the urine with alkaline potassium permanganate after the plan of Hryntschak was tried and yielded promising results.

Source of Error in Testing for Bence-Jones Protein.—According to Miller and Sweet if urine, especially of dogs, containing a small amount of serum protein is allowed to stand at room temperature for from eight to twenty-four hours after voiding, it will occasionally give a typical Bence-Jones protein reaction the desirability of using fresh urine when testing for this substance is obvious.

Determination of Sugar in Urine.—In the method devised by Benedict and Osterberg the urine is diluted so that the specific gravity does not exceed 1.030. Fifteen c.c. is treated with about 1 gm. bone-black (smaller quantities of both may be used if desired). The mixture is shaken vigorously occasionally for from five to ten minutes, and then filtered through a small dry filter into a dry flask or beaker. From 1 to 2 c.c. of the urine filtrate is measured into a test tube which is graduated at 25 c.c., and if the volume used was less than 3 c.c. enough water is added to make the volume exactly 3 c.c. Then exactly 1 c.c. of 0.6 per cent. picric acid solution (best prepared from dry picric acid) and 0.5 c.c. of 5 per cent. sodium hydroxid solution are added. Just before the tube is ready to be placed in boiling water 5 drops of 50 per cent. acetone (this should be prepared fresh every day or two by diluting some pure acetone with an equal volume of water) is added taking care that the drops fall into the solution and not on the sides of the tube. The tube is shaken gently to mix the contents, and placed immediately in boiling water for from twelve to fifteen minutes. The standard solution is simultaneously prepared by treating 3 c.c. of pure glucose solution (containing 1 mg. of the sugar) exactly as described for the unknown solution and heating simultaneously. The pure glucose solution containing 1 mg. of the sugar in 3 c.c. of solution will keep indefinitely if preserved with a little toluene. The authors have not been able to find a colored solution which matches the colored product of the reaction and which is permanent.

Potassium Content of Blood.—The potassium content of normal human blood serum amounts to rather less than 20 mg. per hundred c.c., while for whole blood the figures are eight to twelve times this amount. In a series of seven cases of nephritis with marked nitrogen retention no increase in the potassium content of the serum or whole blood was noted by Myers and Short. On the contrary, the potassium content of the whole blood was diminished, apparently due in large part to an associated secondary anemia. In none of the pathologic cases were abnormal figures for the potassium of the serum found when the serum was separated within two hours after the blood was drawn.

Determination of Inorganic Elements in Blood.—A method is described by Kramer and Tisdall by means of which sodium, potassium, calcium, and magnesium may be quantitatively determined on only 7 c.c. of blood. The basis of this method is deproteinization by means of trichloroacetic acid. The quantitative determination of each of these elements is then made on aliquots of the supernatant fluid by modifications of procedures recently described for serum. The concentration of these elements in 100 c.c. of human blood were as follows: sodium, from 170 to 225 mg.; potassium, from 153 to 201 gm.; calcium from 5.3 to 6.8 mg.; and magnesium, from 2.3 to 4 mg. The concentration of these elements in normal blood varies more than in normal serum. This is due to the variations in the corpuscular content of the blood.

Maine Medical Association Journal, Portland

September, 1921, **12**, No. 2

- Nephritis in Childhood. J. L. Morse.—p. 39.
Study in Evolution. M. J. Worcester.—p. 48.
Report of Several Rare Cases of Skin Diseases. R. B. Josselyn, Portland.—p. 53.

Medical Record, New York

Sept. 17, 1921, **100**, No. 12

- *Pathogenesis of Dupuytren's Contraction of Palmar Fascia. W. H. Byford, Chicago.—p. 487.
Postsomatic Psychosis. B. Lemchen, Chicago.—p. 491.
B. Acidophilus: Its Bacteriological Characteristics and Possible Therapeutic Significance. L. M. Gompertz, New Haven, Conn, and M. G. Vorhaus, New York.—p. 497.
What State Demands of Its Sentinels of Mental Health. D. A. Laird, Iowa City.—p. 500.
Sixty-Five Cases of Cervical Ribs. I. S. Trostler, Chicago.—p. 504.
Lacerations of Cervix. I. W. Kahn, New York.—p. 506.

Dupuytren's Contraction Result of Infection.—Byford suggests that dupuytren's contraction is frequently associated with and closely allied to rheumatism and is probably due to bacterial action at some point other than the palmer fascia. The most common site of this infection is in the teeth.

Oct. 1, 1921, **100**, No. 14

- *Clinical Indications of Etiology of Diabetes. J. W. Mitchell, Morristown, N. J.—p. 575.
Cancer a Mutiny of Body Cells. L. D. Bulkley, New York.—p. 581.
Synergistic Analgesia with Nitrous Oxid-Oxygen and Magnesium Sulphate. J. T. Gwathmey and J. Greenough, New York.—p. 583.
Recognition and Correction of Enteroptosis in Children. C. G. Kerley, New York.—p. 584.
Gonorrhea in Women from Standpoint of Diagnostician: Its Complications and Treatment. W. H. Hoak, Baltimore.—p. 585.
Iron as a Growth Factor in Infancy. L. Berman, New York.—p. 588.
Etiology and Treatment of Gastric Hyperacidity. J. Katz, New York.—p. 591.
An Epidemic of Measles at an Indian Agency. E. Rice, Kelseyville, Calif.—p. 592.

Etiology of Diabetes.—The records of 229 diabetic patients have been analyzed by Mitchell with a view to suspected etiologic agencies. His study is based on 116 diabetics who could give reasonably trustworthy statements concerning diseases in their grandparents (exceptionally the great grandparents), parents, uncles and aunts, cousins, nephews and nieces, and children. It is known that some races and families are specially subject to infectious or toxic damage of certain viscera; the lesions are readily revealed by necropsies, and clinical histories show the high frequency of the hereditary association. When an individual, with or without hereditary susceptibility, becomes potentially diabetic through pancreatic injury, overeating (perhaps of carbohydrate especially) and obesity contribute to increase this tendency and develop an active diabetes, while abstemious living may keep the disorder latent throughout life. Because the degree of pancreatic damage which suffices for active

diabetes in an obese person is insufficient for producing it in a thin person, diabetes developing in thin persons is generally more severe than that which occurs in the obese. Prevention of diabetes, even in the susceptible families, may be expected more and more from prevention of the primary cause, through prevention and improved treatment of infections. Avoidance of gluttony (in carbohydrate or other food) and of obesity Mitchell says may be expected to prevent a large proportion of latent cases from developing. Precautions against infections (early removal of threatening foci in teeth, tonsils, appendix, gallbladder, etc.) and against dietary excesses are most important in the members of predisposed families.

Missouri State Medical Association Journal, St. Louis

September, 1921, **18**, No. 9

- Internal Podalic Version. L. Dorsett, St. Louis.—p. 303.
Problem of Posterior Position. B. G. Hamilton, Kansas City.—p. 305.
Radium Treatment of Uterine Cancer. C. O. Donaldson, Kansas City.—p. 308.
Clinical Manifestations of Gallbladder Infection. H. S. McKay and J. C. Lyter, St. Louis.—p. 311.
Cystitis: A Symptom or a Disease. C. K. Smith, Kansas City.—p. 313.
*Sarcoma of Brain with Secondary Actinomyces Simulating Lethargic Encephalitis. W. A. Clark, Jefferson City.—p. 321.
Burns. H. E. Pearse, Kansas City.—p. 323.

Cerebral Sarcoma Simulating Lethargic Encephalitis.—Headache and drowsiness were the first symptoms in Clark's case. This was followed by general weakness, listlessness and inarticulate speech. The patient was in a semistuporous condition with tendency to fall asleep when not talking but could be easily aroused and answered questions intelligently. His face had a peculiar masklike expression and gave the impression of some involvement about the seventh nerve. The tongue was coated with a peculiar sticky, whitish material and the breath was so bad that nothing could describe it except "rotten." The pupils were normal, as were also all reflexes. Spinal fluid Wassermann reaction was negative. After a few days, he made no effort to pronounce words right and would reply to questions in a very indistinct whisper. This whispering voice and frequent movement of the lips without a whisper persisted for the next two weeks, often though only when he was aroused by questions asked in a loud tone of voice. He took some nourishment but seemed to have no desire for food. For ten days, he slept practically all the time, only rousing up about 4 a. m., and became partially awake, at which times he seemed restless and gave evidence of some pain in the head. Hiccup was very troublesome during the entire sickness and almost invariably arose when anything entered the stomach, even water. Death occurred six weeks after the onset of these symptoms. At the necropsy, the chief lesion was a tumor, for the most part fairly circumscribed, located in the lateral ventricle of the left cerebrum. The tumor filled the pars centralis of the ventricle, and swinging around the thalamus, occupied a portion of the anterior and inferior cornua, but did not reach into the posterior cornu. In addition to the tumor mass, there was a large, irregular lesion of colliquative necrosis, located in the posterior half of the cerebrum, and embracing in depth approximately its middle third. This lesion, the most of which washed out when the cerebrum was opened, extended posteriorly into the lateral inferior portion of the occipital lobe, and reached anteriorly to the posterior margin of the lentiform nucleus and the cortex of the posterior insula. Sections from both the more circumscribed tumor and the edges of the necrotic lesion showed a mixed cell sarcoma, mainly of the large spindle cell type. The edges of the necrosed part particularly were complicated by the presence of a definite inflammatory reaction. The histologic complex was characteristic of certain forms of the infectious granuloma. Even under ordinary stains, a filamentous type of organism was visible, and by the positive Gram stain it appeared in characteristic thread-like and branching form, with frequent clubbed ends, both thickly scattered and in focal clumps. The minute yellow foci of macroscopic description could be identified with these clumps. From the gross yellow points, the anaerobic conditions of growth, and the greater thickness of the filaments (at least three micra, and visible under low power), the probabilities all appeared to be in favor of an actinomyces rather than a nocardia infection.

Neurological Bulletin, New York

July, 1921, 3, No. 7

- *Neuroses in Business Life. L. Casamajor, New York.—p. 237.
- Cyst of Left Cerebellopontine Angle. O. H. Strong, New York.—p. 243.
- *Dystonia Musculorum Deformans. H. S. Howe, New York.—p. 253.
- Atypical Forms of Epidemic Encephalitis. C. Rosenheck and L. H. Cornwall, New York.—p. 259.
- Case of Optic Atrophy. I. J. Sands, New York.—p. 265.

Neuroses in Business Life.—Casamajor presents illustrative cases which fall into three groups: (1) the inadequate; (2) the dissatisfied; (3) the generally maladjusted. The dissatisfied group is the largest, for it includes the great majority of the neuroses of business life. The neurosis arises in the individual who likes the remuneration he gets from his work but dislikes the work itself and the type of life it forces him to lead. The symptoms are not usually severe and most of these patients struggle on without applying for medical aid. However, should the patient suffer an accident for which the employer could be held responsible, a typical traumatic, litigation neurosis might easily appear. The difficulties of the generally maladjusted in business life are only a part of their general maladjustment. The maladjustment to the home life is of much greater importance, and the work is a means of escape from the home. The similarity between the neuroses of business life and the war neuroses is quite obvious. Dissatisfaction is ever rife throughout industrial life and the neurosis is a way out of a difficult problem.

Dystonia Musculorum Deformans.—One point of interest in Howe's case is that while in nearly all of the recorded cases the patients have been Jews; his patient's mother only was of Jewish blood. In most instances the first disturbance has been noted in one of the lower extremities, while this patient's symptoms commenced in the trunk with a shrugging of the shoulders. In but few of the reported cases has there been noted disturbance in the musculature innervated by the cranial nerves. In the patient whose history is here recorded, nine months after the onset the voice began to quaver, and six months later disturbance was so marked that her speech was almost unintelligible. This condition persisted for over three years and then improved. Nine months after the onset there were said to have been involuntary ocular movements. These, however, persisted only a short time and were not present while the patient was under Howe's observation.

Oklahoma State Medical Assn. Journal, Muskogee

September, 1921, 14, No. 9

- Plea for a More Thorough Examination in Diseases of Chest. J. W. Nieweg, Duncan.—p. 229.
- Problems of Heart Troubles from Standpoint of General Practitioners. J. H. Scott, Shawnee.—p. 231.
- Outline for Routine Examination of Heart and Circulatory System. F. J. Wilkiemeyer, Muskogee.—p. 233.
- Incisions Used in Gallbladder Surgery. W. P. Fire, Muskogee.—p. 237.
- Postoperative Tetany Dues to Sodium Bicarbonate in a Baby Three Weeks Old Following Rammstedt Operation. C. V. Rice, Muskogee.—p. 238.

Surgery, Gynecology and Obstetrics, Chicago

September, 1921, 33, No. 3

- *Mobilization of Elbow by Free Fascia Transplantation: Report of Thirty-One Cases. W. R. MacAusland, Boston.—p. 223.
- *Section of Anterolateral Tract of Cord for Relief of Intractable Pain Due to Spinal Cord Lesions. W. E. Leighton, St. Louis.—p. 246.
- *Bone Atrophy. Study of Changes in Bone Which Result from Nonuse. N. Allison and B. Brooks, St. Louis.—p. 250.
- Delayed Transfer of Long Pedicle Flaps in Plastic Surgery. V. P. Blair, St. Louis.—p. 261.
- Fractures of Transverse Processes of Lumbar Vertebrae. G. G. Davis, Chicago.—p. 272.
- *Cavernous Hemangioma of Left Lobe of Liver. C. H. Peck, New York.—p. 277.
- Linitis Plastica: Report of Case. E. P. Palmer, W. W. Watkins and H. P. Mills, Phoenix, Ariz.—p. 281.
- Interstitial Tubar Pregnancy: Report of Two Cases. S. Di Palma, New York.—p. 285.
- *Laminectomy for Meningitis. R. Hill, St. Louis.—p. 288.
- *Two Flap Low Incision Cesarean Section. An Operation Applicable After an Efficient Test of Labor. A. C. Beck, Brooklyn.—p. 290.
- Dangerous Intraperitoneal Hemorrhage from Uterine Fibroid. J. L. Ransohoff and M. Dreyfoos, Cincinnati.—p. 296.
- Surgical Treatment of Acute Pelvic Infections in Women. F. G. Dubose, Selma, Ala.—p. 299.
- Treatment of Gonorrhea in Lower Genito-Urinary Tract in Women. C. C. Norris, Philadelphia.—p. 308.

Free Fascia Transplants in Elbow Arthroplasty.—MacAusland reviews the various procedures that have been employed

in arthroplasties of the elbow and describes a method he has used in twenty-eight cases in which a piece of fascia lata is used as interposing material.

Section of Cord in Cord Lesions.—An experience in four cases in which Frazier's method was used, leads Leighton to believe that the operation will produce a permanent relief in any lesion below the thoracic level. In cases of gastric crises the section will have to be made higher than the sixth thoracic segment, and Leighton sees no reason why it should not be made as high as the second or third thoracic. He would also add to the operation section of the posterior nerve roots which are present in the field, as this would destroy sensory impulses which reach to a higher level and are not touched in the section of the anterolateral columns since this section includes only pain impulses which have crossed to the epinothalamic tract below this level. The removal of four laminae instead of two and removal of four posterior roots would bridge the gap not included by the section of the anterolateral columns. A bilateral operation should be done in all tabetics and in cases of inoperable tumor of the cord or such cases as reported by Beer of metastatic pelvic tumors. The advice of Spiller that the incision of the cord might be carried forward even including the anterior horn or motor root in the thoracic region would appear to be a good one as little harm could be produced by it. The greatest danger is in cutting too far posteriorly and thereby injuring the pyramidal tract.

Study of Bone Atrophy from Nonuse.—Three methods were employed by Allison and Brooks to prevent use of the foreleg of a dog: (a) section of the brachial plexus, resulting in partial or complete paralysis; (b) excision of upper end of humerus, resulting in a flail joint; (c) plaster-of-Paris fixation. In each group of experiments the results of nonuse for varying periods of time were studied. The degree of atrophy of the bone was directly proportional to the degree of nonuse regardless of the method used to produce the nonuse. There is no evidence warranting the assumption that any disease process plays any rôle in the production of bone atrophy other than its effect on use. That bone atrophy is not the result of diminished circulation of blood is shown by the fact that bone atrophy rapidly develops in the acute inflammatory diseases which limit the function of an extremity. Bone absorption is an active process and the circulation of the blood is necessary to its progress. The process of bone atrophy is not a change in the characteristics of bone as a tissue. The process of bone atrophy is not a change in the characteristics of bone as a substance. The process of bone atrophy is a change in the amount of bone present. This affects the size, shape, thickness, length, weight, and texture of the whole bone and accounts for its changes in gross anatomy, breaking strength, and chemical composition. The chemical composition, breaking strength and regeneration of bone remain unchanged.

Hemangioma of Liver.—In Peck's case the tumor weighed 3 pounds, 14 ounces. Extirpation of the entire left lobe of the liver was followed by recovery. The patient was a woman, aged 34.

Laminectomy for Meningitis.—Hill advocates laminectomy with free spinal drainage in cases of meningitis of streptococcus or staphylococcus origin. He cites two cases.

Two Flap Cesarean Section.—A modification of the operation first described by Kroenig is reported on by Beck. It has been done twenty-nine times by four operators without a fatality. The uterus is exposed through a transverse or mid-line incision below the umbilicus. The peritoneum is incised transversely about 2 cm. above the bladder. An inferior flap is obtained by stripping the bladder off from the anterior surface of the uterus, as in an abdominal hysterectomy. The upper flap is made by gently passing a pair of scissors under the peritoneum. The uterus is incised in the midline after exposing the denuded area by retracting the two flaps. Extraction of the child is accomplished by using one hand as a vectis, and making downward pressure on the fundus. If necessary, forceps may be used to facilitate the delivery. Before separating and removing the placenta, catgut-traction sutures are passed through the lower and upper angles of the uterine wound. Traction on these two sutures brings the entire wound into view and protects the peritoneal

cavity from spill while the placenta and membranes are being removed. The incision in the uterus is closed by two series of interrupted sutures. The first passes through the entire wall down to the endometrium, while the second goes through only the outer half of the muscle wall. Each suture, in the latter or superficial series, is placed midway between the deep ones. The upper peritoneal flap is brought down over the superior portion of the closed uterine incision and secured by several interrupted sutures. The remainder of the denuded surface is covered by bringing the lower flap about 1 cm. above the original incision. In this manner the peritoneal flaps are lapped and thoroughly seal the wound in the uterus.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

July-September, 1921, 18, Nos. 211-213

Case of Oxycephaly. B. Myers.—p. 113.

Rickets. J. Burnet.—p. 124.

Abnormal Metabolism in Infancy and Its Relationship to Symptomatology. W. McK. Marriott, St. Louis.—p. 129.

Paralysis of Eye Muscles Occurring in Connection with Mastoiditis; Recovery. W. M. Mollison.—p. 135.

British Medical Journal, London

Sept. 17, 1921, 2, No. 3168

*Renal Efficiency Tests. H. Maclean and F. D. Boyd.—p. 425.

Problems Presented by Hemorrhage in Connection with Operations on Tonsils. A. B. Kelly.—p. 431.

Conditions Predisposing to Hemorrhage in Tonsil Operations: Contraindications to Operation and Prophylactic Measures. J. F. O'Malley.—p. 433.

Influence of Operative and Anesthetic Technic on Serious Hemorrhage in Operations on Tonsils. H. Tilley.—p. 435.

Surgical Removal of Tonsils: Local Methods of Arresting Serious Hemorrhage from Tonsillar Bed. I. Moore.—p. 437.

Practical Considerations on Treatment of Hemorrhage During and After Operations on Tonsils. D. McKenzie.—p. 440.

Ligature of External or Common Carotid Vessels in Serious Tonsillar Hemorrhage. T. H. Just.—p. 441.

Treatment of Collapse Following Serious Loss of Blood in Operations on Tonsil. T. H. Just.—p. 442.

Place of Anesthetist in Operations on Tonsil. G. A. G. Barton.—p. 443.

Influence of Operative Technic in Prevention of Hemorrhage. E. M. Woodman.—p. 444.

An Artery Forceps for Ligatures in Tonsillar Bed. G. Chubb.—p. 445.

Use of Clamp in Treatment of Tonsillar Hemorrhage. E. Watson-Williams.—p. 445.

Observations on Ossiculectomy. J. Dundas-Grant.—p. 446.

Anthrax in Nasal Cavity. Z. N. Pasha.—p. 446.

Renal Efficiency Tests.—The importance of blood urea and nonprotein nitrogen estimations, the diastatic test, various dye tests, the "urea concentration test," Ambard's coefficient of renal excretion, urea concentration factor, salt tolerance tests, relation of blood pressure to renal damage are discussed by MacLean as being the most useful methods at present at our disposal for ascertaining the state of the renal function. He suggests the following scheme for the examination of a renal case; with the exception of the determination of blood urea and the estimation of diastatic activity, all the tests can easily be carried out by the general practitioner with the simplest of apparatus. All the information required can be obtained by means of the tests described without carrying out either the blood urea or diastatic tests. The presence of protein and casts is no evidence of the extent of renal damage. Albumin may be present, even accompanied by casts, in quite efficient kidneys. To the relative amounts of albumin and globulin little importance is to be attached, except perhaps occasionally in the case of children and young people. Boyd states that the estimating of the nonprotein nitrogen of the blood as an indication of renal activity, and as a guide to dietetic treatment in nephritis, cannot be overestimated. Speaking generally, it may be stated that if the nonprotein nitrogen rises above 100 mg. per hundred c.c. the duration of the illness may be reckoned in days—seldom in weeks. The consideration of the soluble nitrogen of the blood as a test of renal function is of the greatest importance from a therapeutic standpoint. Without a knowledge of the proportion of nonprotein nitrogen of the blood the adequate dietetic treatment of a case of nephritis is impossible. If the soluble nitrogen content of the blood is raised, a rigid protein-free diet will have a definite beneficial

effect in diminishing the waste products in the circulating blood and in relieving symptoms. But this rigid protein-free diet is not always either necessary or desirable, and it is only by a consideration of the soluble nitrogen content of the blood that one is able to say whether it be necessary or no.

Edinburgh Medical Journal

September, 1921, 27, No. 3

Subacute Bacterial Endocarditis. F. D. Boyd.—p. 129.

*Pituitary Gland in Children. J. Fraser.—p. 136.

*Case of Adenoma of Bile Ducts. D. M. Greig.—p. 145.

Pituitary Gland in Children.—On comparing the pituitary of the child with that of the adult, Fraser found that the variation in the size of the pituitary lake was apparently a feature distinctive to the child, or at least to the period between birth and adolescence. A series of forty pituitary glands obtained from children between the ages of 1 and 12 years were examined. The results have convinced Fraser that in children the pituitary gland has distinct periods of activity and rest. The capacity of the pituitary lake is closely related to the condition of the pars intermedia, for it has been found that when the pars intermedia is in active state, the pituitary lake is distended with content, while a pars intermedia in a resting state is accompanied by a slitlike and empty lake. While the pars intermedia is in a resting state the lake is small, and in certain cases practically empty. As the pars intermedia becomes more active, secretion begins to accumulate within the lake until it becomes distended to a considerable degree. The pars intermedia then returns to its resting state, and though the distention of the lake may continue for some time after the active condition of the pars intermedia has passed, its capacity gradually diminishes, and it returns again to a slitlike space. The active stage of the anterior lobe is synchronous with the active stage of the pars intermedia, and is partly preliminary to and partly synchronous with the distention of the pituitary lake. As the "active" stage subsides and the production of secretion diminishes, the vessels become capable of dealing with the condition, and the pituitary lake is gradually emptied in preparation for a succeeding cycle. The active changes in the gland are demonstrated in the pars intermedia, and in the anterior lobe. The changes have no relationship to any morbid condition. The specimens examined have been obtained from children who have succumbed from widely different types of disease.

Adenoma of Bile Ducts.—In Greig's case a series of closed cysts, in immediate relation to, but not in communication with, the bile ducts, had formed a tumor which not only compressed the common duct or the hepatic ducts, interfering with the excretion of bile from the liver, but had also prevented the influx of bile into the gallbladder. The appearances of the cyst wall are consistent with those of an adenoma of bile duct origin in which the lumina of several of the acini or bile ducts, have become dilated to form one large and several smaller cysts. In the wall of the large cyst a slow inflammatory fibrosis has taken place, causing compression atrophy of the gland elements at the base of the cyst.

Indian Medical Gazette, Calcutta

August, 1921, 56, No. 8

Glaucoma and Epidemic Dropsy. F. P. Maynard.—p. 281.

*Value of Sodium Morrhuate and Sodium Linate in Tuberculosis and Leprosy. C. Davies.—p. 283.

Four Years' Surgery in an Indian General Hospital in Mesopotamia. M. L. Treston.—p. 283.

Filariasis, Elephantiasis and Allied Conditions. S. Sundar.—p. 294.

*Unusual Case of Abdominal Injury. C. Davies.—p. 298.

Blackwater Fever in Khondmals, Orissa. K. Daleppa.—p. 299.

Case of Hemophilia. H. N. Bagchi.—p. 299.

Value of Sodium Morrhuate and Sodium Linate in Tuberculosis.—Davies is convinced that many of his patients have derived considerable benefit from sodium morrhuate. In two cases of pulmonary tuberculosis associated with fistula-in-ano, one treated with sodium morrhuate and the other with sodium linate, hemorrhage took place from the fistula after injection. Davies has used specimens of sodium morrhuate which were distinctly irritating on subcutaneous injection and did not seem to be of much therapeutic value. A specially prepared sodium linate was nonirritating and appeared to be of considerable therapeutic value in both tuberculosis and

prosy. Davies suggests that composition of these preparations as used at present, is not constant hence the divergence of opinion as to their therapeutic value.

Trauma of Liver.—Davies cites the case of a boy who was struck on the abdomen by a falling log. Protruding from the umbilicus, apparently, was a dark red mass about the size of a tangerine orange. It was found to consist of a piece of liver and a small piece of omentum. The aperture through which this passed was not the umbilicus but about three-eighths inch to the left and about the size of the tip of the little finger. The patient made an uneventful recovery despite the presence of a large extravasation of blood in the abdomen.

Journal of Tropical Medicine and Hygiene, London

Sept. 1, 1921, 24, No. 17

Etiology of Gangosa and Its Relation to Papulo-Circinate Yaws. F. Schmitter.—p. 229.

Blackwater Fever in Solomon Islands. N. Crichlow.—p. 231.

Case of Myopathic Muscular Atrophy in a Negro. J. F. Corson.—p. 234.

Myopathic Muscular Atrophy in Negro.—In Corson's case a negro boy, aged 18, the disease began suddenly, and was caused by a fall he had one day at an age shortly before puberty. His right arm, just above the front of the elbow, was first affected, and he lost his voice at the same time. The condition appears to correspond with descriptions of Erb's juvenile type of myopathic muscular atrophy. It has been stated that the negro seems to enjoy largely an immunity to muscular dystrophy.

Glasgow Medical Journal

August, 1921, 14, No. 2

Prolapse of Female Genitalia. J. N. Stark.—p. 65.

Radical Cure of Femoral Hernia in Children. A. MacLennan.—p. 83.

Post-War Surgical Disabilities. J. A. Wilson.—p. 88.

Radical Cure of Femoral Hernia in Children.—After freeing the neck of the sac from the canal, a space is made by MacLennan round about the inner aspect of the canal for the reception of the sac (Macewen method for inguinal hernia). The sac is transfixed and ligatured for the requisite amount, the excess being cut off, while one end of the ligature is threaded backward and forward till the neck is reached. Then the needle enters the canal to emerge on the upper side of Poupart's ligament. The ligature is then fixed by a hitch in the usual way. When completed the patent canal becomes very evident. A small retractor is placed inside the canal and made to drag the external border, with the femoral vein, outward. The ramus of the pubes is incised along its upper border, and the pectineus turned downward; the exposed ramus is freed from periosteum. A Jacoël's bone staple is pressed into Poupart's ligament so as to include some of the fibers between its prongs. The points of the staple are accurately pressed against the bone and the staple hammered in. The sac fixation suture is then utilized to approximate such firm structures as may be present.

Lancet, London

Aug. 27, 1921, 2, No. 9

Students' Guide — Session 1921-1922.—p. 423.

Sept. 17, 1921, 2, No. 12

*Respiratory Efficiency in Relation to Health and Disease. M. Flack.—p. 593.

*Spina Bifida. F. C. Pybus.—p. 599.

*Studies from St. Andrews Institute of Clinical Research. II. Case-Taking Methods. J. H. P. Paton.—p. 603.

*New Method of Investigating Gastro-Intestinal Secretion. E. C. Dodds.—p. 605.

Case of Malignant Pustule with Multiple Lesions. R. T. Grant.—p. 606.

*Two Unusual Cases of Abdominal Tumor. E. C. Bevers.—p. 607.

Case of Paralysis of Soft Palate Following Nondiphtheritic Tonsillitis. J. P. Gray.—p. 607.

Case of Scurvy in Adult of British Isles. R. S. McClelland.—p. 608.

Respiratory Efficiency in Health and Disease.—Physical inefficiency Flack asserts is frequently associated with a state of respiratory insufficiency. He discusses the causes of deficiency, respiratory efficiency conditioned by hygiene and sanitation, and reviews the present knowledge concerning respiratory function. He draws attention to the importance of the correct muscular movements of breathing in massaging the abdominal contents. The descent of the diaphragm

in inspiration, the contraction of the abdominal wall in expiration provide massage mechanism which plays an important part in the preservation of the tone of the smooth muscle of the abdominal contents. One of the present day evils is constipation, which does not occur when a good tone of the abdominal wall is preserved. Equally as important is the fact that the state of semiconstipation is abolished, the state in which the bowels, although acting daily, act only in insufficient fashion without the use of occasional purgatives. Good tone of the muscles constituting the natural abdominal belt play an important part in preserving a healthy condition of the abdominal contents.

Familial Spina Bifida.—In the course of a general discussion of this subject Pybus refers to four children in one family who had some degree of spinal defect. The eldest died at the age of 18 months with spina bifida, the type of which is unknown, and with hydrocephalus. The second child, now aged 10 years, has a spina bifida occulta, indicated by a scar and depression in the upper dorsal region and by slight scoliosis. The third child had a large meningocele in the sacral region. This was operated on with excellent results. The patient is quite well and without deformity, the only symptom present being that she is perhaps unable to hold her urine as long as usual. The fourth and last member of the family has the least defect, which is an exaggerated postanal dimple.

Case Taking at St. Andrews' Institute.—The general scheme of case taking in use at St. Andrews' Institute for Clinical Research is presented by Paton. The most essential part of the scheme is that dealing with after-history. Arrangements are made to ensure that each patient will be again seen from time to time, and the records of his condition and any subsequent illnesses are added to the case. In this way in the course of years the elements of a scientific system of prognosis will be built up—prognosis, that is to say, based on the outcome of actual cases, and not on the vague fears engendered by abnormal phenomena whose significance is not known. Special symptoms sheets are also used. Each practitioner on the staff has, in the institute, a private room which is reserved for two hours in the day for the examination of research cases. During the rest of the day he is at liberty to use it as his private consulting room. He selects cases suitable for research from his private practice and investigates them during his research hours. Each member of the staff is at liberty to consult any of his colleagues at any stage in the case; in order that the utmost benefit may be derived from this privilege, each member of the staff makes himself specially familiar with the literature of one particular branch of clinical medicine—cardiology, neurology, and so on. The necessary chemical, bacteriologic, hematologic and radiologic investigations are carried out by the special departments, and with each specimen or case full clinical notes are supplied to the special department. When the notes of each case are completed they are read at a full meeting of the staff and discussed in detail. Indices are kept of all symptoms recorded, and of the leading symptoms and provisional diagnosis of each case, and arrangements are made to ensure the return of the patient at regular intervals. Finally each case is considered in detail by a special committee, whose duty it is to classify and tabulate the findings, and to see that all cases are utilized for special investigations. If this committee finds that a case taken by one member of staff has some bearing on special work in charge of another it is its duty to inform the latter of the fact. This committee also keeps a note of the date on which each patient should return; and at the beginning of each month a list is sent to each clinician of the patients whom he should arrange to see during that month. In addition to the regular research work and the weekly reading of cases, one afternoon in each week is devoted to the discussion of some subject of interest which is chosen by the clinical staff and is introduced by the member who happens to be specially interested in it.

Investigating Gastro-Intestinal Secretion.—By taking samples of the alveolar air at intervals after a meal, Dodds was able to demonstrate that the tension of carbon dioxide undergoes certain definite changes in response to the amount of secretion poured out (a) by the stomach, (b) by lower portions of the alimentary tract. The curve of alveolar carbon

dioxid tension so obtained correspond closely with the curve of secretion of gastric hydrochloric acid. When acid is removed from the blood during gastric secretion the reaction of the blood tends to shift to the alkaline side. The shifting is prevented by retention of the volatile acid, carbon dioxid, the tension of which rises in the blood, and hence in the alveolar air. Later, when the alkaline intestinal and pancreatic secretions are poured out, the reaction of the blood tends to shift to the acid side, and hence acid in the form of carbon dioxid must be eliminated. This is brought about by a lowering of the carbon dioxid tension in the blood, and therefore in the alveolar air. This method has been applied to a number of pathologic cases, examples of which are given.

Splenic Cyst; Extraperitoneal Fibromyoma.—Bever reports a case of large splenic cyst in which a diagnosis of hydronephrosis had been made until after cystoscopy and catheterization of the ureters; even then a cystic tumor of renal origin could not be excluded. The second case was one of large extraperitoneal fibromyoma which may have originated from the apex of the bladder or the urachus; seeing that the tumor was firmly attached to the apex of the bladder and the umbilicus, the two attachments of the urachus, it is assumed that it originated in the latter structure.

Medical Journal of Australia, Sydney

July 30, 1921, 2, No. 5

Criticism on Modern Opinions and Erroneous Impressions Held by Profession and Laity Regarding Pulmonary Tuberculosis. A. Stewart.—p. 75.

Notes on Typhoid Carrier. C. T. Champion de Crespigny.—p. 79.

Reports of Cases. Torsion of Small Intestine. L. O. Betts.—p. 81.

Aug. 13, 1921, 2, No. 7

Heat Losses of Body Connected with Surgical Operations Under Ether Anesthesia. C. F. Corlette.—p. 115.

Aug. 20, 1921, 2, No. 8

Effect of Legislative Control on Incidence of Antenatal Syphilis. J. H. L. Cumpston.—p. 133.

Some Remarks on Dento-Alveolar Sepsis. W. B. Dight.—p. 136

Radiography and Dental Affections. J. G. Edwards and W. A. Edwards.—p. 138.

Aug. 27, 1921, 2, No. 9

Pulpless and Vital Teeth. H. C. Moxham.—p. 153.

*Intravenous Injections of Antimony Tartrate in Treatment of Bilharziosis. H. K. Pavy.—p. 155.

Antimony Tartrate Intravenously in Bilharziosis.—Ten cases have been treated by Pavy. The patients were not confined to bed nor dieted. Neither did they receive any other form of treatment before, during or after the injections. The solution used consisted of 0.06 gm. tartar emetic dissolved in 5 c.c. physiologic solution of sodium chlorid. This solution was injected slowly into a suitable vein well below the elbow joint. The initial dose in all cases was 2.5 c.c. of the solution (one-half grain tartar emetic). Patients who showed a good tolerance for the drug, were worked up to a 10 c.c. (2 grains) dose in from four to six injections and kept on this dose with occasional remissions to a smaller dose. Others had to be worked up more gradually, but in all but one 0.12 gm. was given continuously for a considerable period. Doses of 0.18 gm. were given in two cases, but as the majority of the patients had moderately severe attacks of coughing with nausea and occasional vomiting after administration of 0.12 gm., it was not thought advisable to push the dose further. The average among given was 1.8 gm. (27 grains). This usually meant that by the end of the course no ova were present in the urine for four weeks. The injections were given every other day at first, later on three days a week. The condition of the patient and the results of urinary examination were considered in determining the amount. No local effects followed the injections unless some of the fluid escaped the vein. The same vein could be used repeatedly. One of the most interesting and constant features of the treatment was the rise in the percentage of eosinophil cells which occurred, the highest percentage being 4. The average increase was 12 per cent.

Medical Journal of South Africa, Johannesburg

July, 1921, 16, No. 12

Syneresis of Agar. A. Pijper and G. J. Kraan.—p. 221.

Laboratory Aspect of Meningococcal Meningitis; Review of Infection and Immunity. S. Lister.—p. 228.

August, 1921, 17, No. 1

*South African Case of Mycetoma ("Madura Foot") Caused by "Nocardia Indica (Discomyces Maduræ)". W. Welchman and J. H. H. Pirie.—p. 6.

Treatment of Cerebrospinal Meningitis. A. P. Watkins.—p. 9.

Mycetoma in South Africa.—Welchman and Pirie claim that theirs appear to be the first recorded South African case of mycetoma due to *Nocardia indica*. Two interesting features were the spread of the causative organism beyond the limits of the foot to the subinguinal lymph nodes, and rapid disappearance of stump infection under neo-arsphenamin. This suggests the advisability of trying this drug for the primary infection.

Encéphale, Paris

July-August, 1921, 16, No. 7

*Foot Clonus. J. K. A. Wertheim Salomonson.—p. 337.

*Reaction of Meninges to Tuberculosis. E. Flatau and N. Zilberlast-Zand.—p. 344. Conc'n.

The Pineal Gland. Laignel-Lavastine.—p. 361. Cont'n.

Case of Erotic Perversion. J. Capgras.—p. 367.

*Bleuler's Conception of Schizophrenia. E. Minkowski.—p. 373. Conc'n.

Foot Clonus.—The mechanism of simple and alternating foot clonus is discussed, with illustrations.

Reaction of Meninges to Tuberculosis.—In this concluding instalment, Flatau and Zand warn that tubercles with giant cells are found in the meninges in syphilis as well as in tuberculosis, and that the vascular lesions in both are much alike. With a tuberculous lesion elsewhere, the meninges may show signs of transient irritation or mild inflammation. There may be acute or subacute hemorrhagic meningo-encephalitis in the tuberculous. When the tuberculous complain of obstinate headache or of a little stiffness of the neck, slight chilliness and slight fluctuations in the temperature, extra nourishing food and a change to the country or the mountains, with tonics, will often cure this transient meningeal reaction, even when the papillae already show signs of edema. This reaction of the brain and its meninges to the irritation from products generated in a tuberculous process in the bronchial glands or elsewhere is generally mastered by the organism in time, but this is hastened by general measures to improve the general tone. Lumbar puncture may aid. A circumscribed lesion of pachymeningitis or leptomeningitis may retrogress and heal. Traces of such have been found at necropsy. Lunz operated successfully in a case of the kind and Foerster reported 11 operative cases in 1911; 2 of Foerster's patients soon succumbed to spread of the meningitis, and 2 others later, after a few months of improvement. In 5 cases a complete or nearly complete cure was realized; some in this group were traced for up to two and a half years. Prince has also reported a successful case, Valkenburg 2 and Hasselt a case of improvement after the operation for circumscribed tuberculous meningo-encephalitis in a child of 4½, but fatal recurrence followed in a few months. Insular pachymeningitis is most amenable to surgical intervention, they say, but well limited leptomeningitis can also be given this treatment. In all cases, however, general treatment to tone up the whole organism should be instituted as early as possible. In short, a tuberculous process in the meninges must not be considered as inevitably incurable. The same principles of treatment should be applied here as with tuberculosis of other organs. A plate shows the microscopic findings in some cases of the kind, confirming the strictly localized character of the process, and the integrity of the rest.

Dementia Praecox as a Mental Disease.—Minkowski analyzes Bleuler's conception of schizophrenia and its import, quoting the latter to the effect that the evolution in the conception of dementia praecox represents a large part of the evolution of theoretic psychiatry in general.

Paris Médical

Aug. 27, 1921, 11, No. 35

*Traumatic Shock. J. Guyot and G. Jeanneney.—p. 157.

*Autovaccine Therapy. Buc and A. Jacquelin.—p. 169.

Traumatic Shock.—Guyot and Jeanneney analyze the nervous, circulatory and humoral changes which characterize traumatic shock. They are all of the insufficiency type, subnormal functioning and temperature, subnormal blood pressure, and insufficiency of the circulation in general, with resulting accumulation of waste products.

Autogenous Vaccine Therapy.—The grave staphylococcus septicemia in the two cases reported, with numerous purulent foci, had dragged along for two months when prompt improvement and a cure followed autovaccine therapy.

Sept. 3, 1921, **11**, No. 36

- Ophthalmology in 1921. F. Terrien.—p. 173.
The Prognosis with Acute Glaucoma. A. Cantonnet.—p. 181.
Ocular Complications of Erysipelas of the Face. P. Prélat.—p. 182.
Otorhinolaryngology in 1921. Dufourmentel.—p. 185.
Nasopharyngeal Fibroids. P. Sebileau.—p. 191.
*Fracture of the Nose and Its Treatment. Jacques.—p. 199.
Stomatology in 1921. P. Fargin-Fayolle.—p. 201.
*Malignant Tumors of the Jaws. J. Bercher.—p. 205.

Fracture of the Nose.—Jacques explains that a fracture of the nose is a lateral displacement of the two bones proper of the nose, and this has to be promptly corrected or it heals rapidly in a disfiguring position. The luxation is easily corrected when done early, but by the next or following day the edema and secretions impede this, and it is necessary to cocaine the interior of the nose and sustain the bones on each side with a stout tampon smeared with petrolatum. This holds the bones in place better than anything applied outside. The tampon is changed at the second or third day which allows the nose to be modeled more perfectly. Systematic and persevering massage is preferable to any prosthesis or other device to be applied outside. The reduction of the fracture is painful and far from easy when an interval of from two to seven days has elapsed, and by the end of the second week the outcome is uncertain.

Cancer of the Jaw.—Bercher gives an illustration showing the four tubes of radium fitting tight against the neoplasm for cross-fire exposure. They are held in the proper place by being embedded in a prosthesis made on a plaster cast by a dentist. It fits over the jaw—the teeth in the region having been previously drawn—like a plate for false teeth. His experience testifies that it is better after the neoplasm has subsided under the radium to defer as long as possible the wearing of false teeth or of a prosthesis to close any abnormal cavity. The irritation from anything of the kind is liable to invite recurrence of the malignant disease.

Presse Médicale, Paris

Sept. 3, 1921, **29**, No. 71

- *Acute Carbon Monoxid Poisoning. M. Nicloux.—p. 701.
Reconstruction of Nostril in Simple Hare-Lip. L. Ombredanne.—p. 703.
*Isolated Culture of Typhoid Group Bacteria. P. P. Lévy.—p. 704.
Intraspinal Injection of Drugs in Emergencies. L. Cheinisse.—p. 706.

Carbon Monoxid Poisoning.—Nicloux emphasizes that the blood corpuscles even saturated with carbon monoxid are not devitalized at all, but are ready to resume functioning with a little aid, that is, when supplied with oxygen. In a case described, seventy-five minutes after the poisoning, and after 650 liters of oxygen had been administered by the pulmotor, the blood still contained 9.08 per cent. carbon monoxid, showing that 41.3 per cent. of the hemoglobin was saturated with it. The oxygen was pushed, and in about an hour this percentage was only 25.4, and four hours later, 8.3. The survival of this patient after apparent death for twenty-five minutes shows that even 9.08 per cent. of carbon monoxid in the blood is not fatal. In the cases on record in which death occurred with poisoning of 0.1, 0.3 or even 0.4, Nicloux is convinced that some other factor than this poison was responsible for the fatality. Hartridge experimented on himself, and found that distressing symptoms did not follow until he had surpassed the figures reached in this case. The slightest movement is liable to bring on vertigo and loss of consciousness. This occurred twice in this case, the man saying he felt well and wanted to go home, and becoming unconscious when he started to get up. The pulmotor had been used beginning five minutes after apparent death which kept up for twenty minutes longer. About 650 liters of oxygen had been used and more was given in the hospital, for twenty minutes each hour, to a total of 1,500 liters. The headache and vertigo disappeared after the first inhalation.

Isolated Cultures of Bacilli of Typhoid Group.—These bacilli grow upward more rapidly than others when conditions are made especially favorable for them, as in a U tube with sand. A simpler device for the purpose is to make a deep groove in the slanting gelose medium, from the tip of the tube half way up. The cutting edge of the platinum

spatula is strong enough to make a groove 1 or 2 mm. deep. The tube is then turned till this grooved surface faces downward, and then the specimen of fluid stool is introduced to the very bottom of the tube, without touching the gelose until it reaches the bottom. The typhoid group of bacilli grow up into the groove before the colon bacilli have started to grow much.

Revue Franç. de Gynécologie et d'Obstét., Paris

June, 1921, **16**, No. 6

- *Certain Metrorrhagias. P. Dalché.—p. 321.
*Indications with Ruptured Tubal Pregnancy. J. Vanverts.—p. 330.
*Impacted Fibroma in Pregnant Uterus. A. Grosse.—p. 336.
Prophylaxis of Cancer of Uterine Cervix. G. de Rouville.—p. 342.
Slitting the Cervix During Labor. M. Bénit.—p. 352.

Certain Metrorrhagias.—Dalché refers to uterine hemorrhages for which overactive or abnormal growth is responsible, or prolapse of the uterus, or some hemophilic tendency. When a healthy girl has overprofuse menstrual hemorrhages and hemorrhages between the periods from overactive growth and exuberant vitality, the tendency rights itself spontaneously in time, and this class of girls become fertile mothers, with tardy menopause. But when the metrorrhagia is accompanied by orthostatic albuminuria, hypertrophy of the heart, scoliosis, or other anomaly, or by premature sexual and mental development, there is usually ovarian derangement, and it is generally accompanied by derangement of certain other endocrine glands. Girls of this class are generally sterile and have a stormy menopause. Dalché is inclined to ascribe the scoliosis also to malfunction of the glands that preside over bone production, the disturbances favored by vicious attitudes and fatigue. Such girls require out of door life and exercise, possibly a little ergot, but the main reliance is on organotherapy. With a familial hemorrhagic tendency, ovarian and thyroid treatment has often proved successful in curing these virginal metrorrhagias. Cholemia is common in them, which suggests the participation of the liver. The metrorrhagias of the menopause for which prolapse of the uterus is responsible may be arrested by reduction of the prolapse and radium exposures, or the wearing of a pessary.

Ruptured Tubal Pregnancy.—Vanverts discusses whether it is ever possible to temporize in these cases, inclining to the view that the shock may be so grave that intervention may be more dangerous than a little delay. Operations have shown that the shock is not necessarily proportional to the amount of extravasated blood; even a very small quantity may induce the severest reaction on the part of the peritoneum. The threatening clinical picture seems to indicate such a profuse hemorrhage that a fatal outcome is imminent, but then the condition begins to improve and the phenomena gradually become attenuated, and with a little strychnin or camphorated oil the patient can be tided along until she has recuperated to some extent from the shock. Then the operation should follow at once without further delay. The only fatalities in Vanvert's ten cases were in a woman who had refused to allow the operation until after a delay of seven hours, and in a case in which four hours and a half had elapsed before the woman reached the hospital.

Fibroma in Pregnant Uterus.—The special features of Grosse's case were the rapid growth of the fibroma during the pregnancy, and its becoming impacted in the small pelvis and forcing up the uterine cervix while compressing neighboring organs, compelling hysterectomy before the fourth month.

Schweizerische medizinische Wochenschrift, Basel

Aug. 18, 1921, **51**, No. 33

- *The Blood Pressure in the Tuberculous. N. Betchov and P. Farbargue-Vail.—p. 757.
*Operative Treatment of Pott's Disease. R. Scherb.—p. 763.
*The Mechanism of Coughing. F. Rohrer.—p. 765.
*Treatment of Cocain Poisoning. K. Mayer.—p. 767.
Etiology of Influenza and Encephalitis. J. L. Burckhardt.—p. 769.

The Blood Pressure in Pulmonary Tuberculosis.—The average blood pressure in 15 healthy persons living near the sanatorium (altitude 1,500 meters) was: systolic, 126 mm., diastolic, 75.5 mm. In 157 tuberculous patients, the corresponding averages were 119 mm. and 74.5 mm. But the averages in the cases with favorable outcome were 123 and

77. The averages in the 31 steadily progressing cases were 109 and 70. A fairly good condition was maintained in the 55 cases with systolic pressure averaging 119 and the diastolic 74.3 mm. Fully 61 per cent. of the cases with systolic pressure above the average ran a favorable course, as also 58 per cent. of those with normal pressure, but only 32 per cent. of those with pressure below normal. The systolic pressure was never found above normal in the cases with an unfavorable course, and it was normal only in 8 per cent. in this group, while in 33 per cent. it was below normal. The blood pressure thus varies comparatively little from normal. It was found absolutely above normal in 29 per cent. of the total tuberculous. One fact brought out by the research reported was that there did not seem to be any connection between the blood pressure and the tendency to hemoptysis. A tendency to tachycardia, however, was usually observed only in the cases with unfavorable course. The prognosis did not seem to be modified by hemoptysis.

Treatment of Pott's Disease.—Scherb relates that at about the same time that Albee published his bone grafting operation in Pott's disease, de Quervain had published an account of very similar intervention to reinforce the spine in two cases of luxation fracture. From the very start therefore, this bone graft reinforcement of the pathologic spine entered upon a broad field. Scherb denounces the original methods as too mutilating, saying that equally dependable results can be obtained by placing the implant at the side, in the niche between the vertebral arch and the spinous process, after scraping off the periosteum from each. He illustrates a case which demonstrates that this implantation at the concave side, without slitting the spinous process, answers every purpose and stands every strain. The implant lies nearer to the weight-bearing axis with this technic.

Mechanism of Coughing.—Rohrer explains that expectoration occurs only in the bronchi. In the narrower passages the secretions are moved along by the cilia or are resorbed by the lymphatics.

Treatment of Cocain Poisoning.—Mayer injected morphin before or after cocain in three frogs. The control frogs injected with cocain alone survived, while the morphin-cocain animals all died. He accepts this as evidence that morphin enhances the toxic action of cocain. The custom of injecting morphin before using cocain is therefore deleterious. Calcium chlorid, on the other hand, seems to inhibit the action of cocain. A small dose of cocain stimulates the frog heart while a large dose arrests its action, but calcium chlorid starts it to beating again. When the calcium chlorid was given first, the cocain had no toxic action. Further experiments showed that while calcium salts arrest the toxic action of cocain, potassium salts exaggerate it, in frogs at least.

Archivio Italiano di Chirurgia, Bologna

July, 1921, 3, No. 6

*Treatment of Chronic Empyema. M. Donati.—p. 517.

*Vaccine and Serotherapy in Gonorrhoea. L. Frassi.—p. 537.

*Reconstruction of Face. Q. Vignolo.—p. 649.

*Fibroma of Mesentery. F. Niosi.—p. 657.

Chronic Empyema.—Donati reports with nine illustrations a case of chronic empyema with persisting fistula in which a complete cure was promptly realized by decortication of the lung supplemented by fastening the lung at different points to the wall of the chest. This obliterated the dead space, and insured the permanent expansion of the lung. The intervention is comparatively simple, he says, and is free from the mutilation entailed by thoracoplastic operations. Access was from the rear through a triangular flap, including three ribs. Nine catgut U stitches were taken through the interspaces and lung tissue, one in the diaphragm.

Vaccine and Serotherapy in Diagnosis and Treatment of Complications of Gonorrhoea.—Frassi's monograph won the Paravicini prize. It is based on 146 cases of gonococcus orchitis-epididymitis treated with vaccine, twenty-three cases of joint complications, and other material, and the conclusions of the experiences of others the world around. There is a bibliography of five pages of titles. Everything tends to confirm, he says, the great value of the vaccine and serum in the diagnosis and treatment of the surgical complications of gonorrhoea, especially when used in connection with surgical

measures. Antibodies are found in the blood from the first days of gonococcus infection. The gonococcus passes early into the blood even when the infection seems a purely local process. Chilling, trauma, overexertion may favor the localization of a gonococcus infectious process. A general reaction to diagnostic injection of vaccine is not specific nor typical; a focal reaction is most common with complications in joints, the adnexa and epididymis. A negative reaction, however, is not conclusive, as the dose of vaccine may have been too small, or there may be mixed infection or the process may be so old that it is incapable of reactivation either by the skin, the intradermal or the ophthalmic reaction test. The deviation of complement test seems to be absolutely specific when positive, but is not conclusive when negative. Agglutination and precipitation tests are uncertain. As a rule, diagnostic tests with vaccine are more practical and have less inconveniences than serum tests, but the latter sometimes are surprisingly instructive, especially with joint complications. Autoserotherapy is giving good results, he says, and may be given a trial in suitable cases. During treatment with serums and vaccines new complications seldom develop. The pain and swelling in a joint may be relieved by a single injection, but the complete cure usually required from four to eight weeks, sometimes supplemented by other measures, especially radiotherapy. In orchitis or epididymitis the pain and swelling almost invariably subsided by the third injection, made on alternate days. The vaccine or serotherapy sometimes cures alone, but as a rule surgical measures are required to begin with. In the female, the pain and suffering from gonococcus adnexitis rapidly subside after the first injections. In recent cases the whole may subside, with resorption of exudates. The improvement under the vaccine may clear up an obscure diagnosis.

Reconstruction of the Face.—Vignolo's illustrations show the satisfactory outcome in a case which required reconstruction of the nose, lid region and cheek, after a shell wound.

Fibroma of the Mesentery.—The young woman developed fever and delirium the third day after removal of the fibroma plus 75 cm. of the small intestine. Torsion of the fibroma and ileus had hastened the operation. The tumor measured 11 by 18 cm. Niosi ascribes the fever and maniacal delirium for nine days to purely nervous factors as there was nothing to suggest an infectious process.

Pediatria, Naples

Aug. 15, 1921, 29, No. 16

*Thymus Stridor. O. Cozzolino.—p. 729.

*The Abderhalden Reaction in Rachitis. A. Corica.—p. 744.

*Postinflammatory Elephantiasis of Boy's Hands. C. Gallo.—p. 747.

*Congenital Atresia of Anus and Rectum. A. Vetri.—p. 749. Conc'n.

Stridor in Young Children.—Cozzolini has encountered 16 cases in which an abnormally large thymus was evidently responsible for the pronounced stridor observed in the infants from 1 to 11 months old. He applied radiotherapy to 8 of the infants, and a complete cure was realized in from one to four sittings, given twice a week with 3 mm. aluminum filter, and total of from 9 to 16 units. He explains that those who say that thymus stridor is not always curable in this way, mistake stridor of other origin for it. Finkelstein has reported a case in which necropsy revealed an unsuspected fistula between the trachea and esophagus. The rapid subsidence of the stridor is the touchstone in case of doubt. In one infant, after disappearance of the thymus stridor, a congenital larynx stridor became evident, which it had masked. In one infant the excessively large spleen subsided to normal outlines at the same time as the thymus. In 2 other children there was pronounced hyperplasia of the thymus but no stridor at any time. Enlarged glands and congested vessels may cooperate in the compression and induce a kind of erection in the thymus, exaggerating the stridor. In 4 of 7 cases examined with the roentgen rays, an unsuspected tracheo-bronchial adenopathy was revealed. The radiotherapy reduced the congestion in the glands and relieved the stridor even before the thymus felt much of an effect from it. The participation of the glands explains how the stridor can occur during both inspiration and expiration. The subsidence of the vascular-glandular-thymus congestion after sudden "thymus death" explains the paucity of the necropsy findings in many such cases.

The Abderhalden Reaction in Rachitis.—Corica found a positive response for suprarenal, thyroid and thymus tissue in six cases of florid rachitis, and for suprarenal tissue alone in two declining cases and in one after recovery. He thinks that this suggests that the suprarenals are predominantly involved in rachitis.

Congenital Atresia of Anus and Rectum.—Vetri reviews his extensive experience in this line and discusses the best technics for the various eventualities encountered.

Policlinico, Rome

Sept. 5, 1921, 28, No. 36

*Eosinophilia with Enlarged Prostate. A. Cassuto.—p. 1195.

*Surgery of the Spleen. N. Martelli.—p. 1199.

*The Renal Factor in Paroxysmal Hemoglobinuria. T. Silvestri.—p. 1203.

The Malaria Complexion. G. Capuani.—p. 1205.

The Eosinophilia with Enlarged Prostate.—Cassuto has been recording the eosinophil count in 30 urologic patients, including 20 with hypertrophy or tumor in the prostate. One man, with carcinoma of the prostate, had 14 per cent. eosinophils; in 2 other cancer cases, there was slight or no trace of eosinophilia. In this group of 3 cancer cases there was polynucleosis, but the figure dropped to normal after removal of the malignant tumor in the prostate. The findings in the 27 other patients were too inconstant and conflicting to have any diagnostic value.

Surgery of the Spleen.—Martelli reviews his experience with splenectomy in three cases; splenopexy in two, and splenostomy in three for resection of hydatid cysts. Eosinophilia of from 7 to 18 per cent. gave the clue to the echinococcus nature of the spleen disease. Albuminuria was pronounced in two of the cases, and it subsided after the operation. Albuminuria may therefore aid in the differential diagnosis. It is evidently, like the eosinophilia, of toxic nature. The cyst was sutured to the lips of the laparotomy incision and the cure was complete in from three to six months. In two other cases of much enlarged malarial spleen, the adhesions were too numerous and close to allow splenectomy, and he merely fastened the spleen by the Jaboulay method. The results were excellent in one case with torsion and menace of gangrene. The other patient with advanced Banti's disease succumbed a week later to septicemia. In the three other cases, torsion of the much enlarged spleen had compelled splenectomy. Martelli remarks that although the hospital is in a hotbed of malaria, only these few operations have been done on the malarial spleen during the last five years, and these only for torsion. Years of experience have failed to demonstrate that the liver becomes secondarily pathologic as used to be supposed. Under supplementary roentgen exposures and heliotherapy the malarial spleen tends to return to normal size. Reexamination of the splenectomized patients showed a normal blood count.

The Renal Factor in Paroxysmal Hemoglobinuria.—Silvestri presents arguments to prove that the pathologic kidney may secrete substances which have a destructive action on the erythrocytes inside the vessels in the kidney. Among his arguments is the absence of hemoglobinemia in these paroxysmal cases of hemoglobinuria brought on by chilling or long walks. There is much to sustain the assumption of auto-anaphylaxis. The nerve centers and vasomotor nerves seem to be exceptionally excitable in these cases.

Rivista Critica di Clinica Medica, Florence

Aug. 15, 1921, 22, No. 23

Diazo Reaction in Tuberculous Sputum. G. Granata.—p. 265.

*Motor Disturbances with Cerebellar Disease. G. Simonelli.—p. 267.

Cerebellar Disease.—Simonelli analyzes the motor disturbances in two persons with old cerebellar disease, especially the insufficiency of the postural activity.

Brazil-Medico, Rio de Janeiro

July 9, 1921, 1, No. 28

*Cladorchinae Parasites. L. Travassos.—p. 357.

*Toxicity of Chenopodium. A. Lellis.—p. 358.

The Question of Public Hygiene. G. Lessa.—p. 360.

Cladorchinae Parasites.—Travassos suggests a more correct classification for the group of parasites which includes

the cladorchis of African elephants. He advocates the use of phenol in studying the chitin parts of helminths. He has been using pure phenol in helminthology for fourteen years.

Toxicity of Chenopodium.—Lellis protests against the common assumption that chenopodium is highly toxic. He insists that any disturbances that have followed its use were due to the chloroform or other drug or vehicle given with it. His extensive experience has demonstrated, he says, that adults can take up to 50 drops, but this is not necessary, as 30 drops amply answer the purpose. He gives 10 drops to infants under 12 months and 15 drops up to 18 months; 20 drops from this to 4 years, and 25 drops between 4 and 10, with 30 drops after this. The amount of castor oil ranges from 15 to 35 gm. He has found chenopodium given alone—without chloroform—the best vermicide against different kinds of helminths, and superior even to naphthol for hookworm. He has never had the slightest mishap with it in the two years he has been giving it in this way at ten day periods.

July 23, 1921, 2, No. 2

*Prophylaxis of Tuberculosis. A. Fontes.—p. 13.

Prophylaxis of Tuberculosis.—Fontes cites an array of international statistics on the prevalence of tuberculosis and on the inherited predisposition and inherited resisting powers.

Archiv für klinische Chirurgie, Berlin

July 30, 1921, 116, No. 2

Late Results After Operations for Kidney Stones. K. Siedamgrotzky.—p. 201.

Roentgen-Ray Diagnosis of Kidney Calculi. M. Sgalitzer.—p. 231.

Resection of Large Intestine at More Than One Sitting. L. Moszkowicz.—p. 260.

The Intraperitoneal Pressure. J. Keppich.—p. 276.

Treatment of Fractures of Base of Skull. H. Brunner and L. Schönbauer.—p. 297.

Limits of General and Local Anesthesia. W. Denk.—p. 332.

*Cystic Disease of Kidney. O. Rumpel.—p. 344.

*Radiotherapy of Cancer. G. Perthes.—p. 353.

Cystic Kidneys.—Rumpel states that in two of his five cases the cystic degeneration was far advanced in both kidneys and both patients died. A third patient is in bad condition with his one cystic kidney; the other kidney had been removed long before. The fourth patient is still in good health twelve years after removal of one kidney for cystic degeneration. The other kidney seemed to be sound, as also in a second nephrectomy case. His experience testifies that cystic degeneration usually affects both kidneys, but generally in such different degree that operative measures may be justified. In a recent compilation of 127 cases of nephrectomy for this cause, the immediate mortality was 30 per cent. The results are growing constantly better with improved technic. The immediate mortality of nephrectomy has averaged 45 per cent.; partial operations have very rarely been done, and the outcome is not known. Decapsulation plus excision of the cysts has been followed by improvement in the few cases that have been published. Rumpel tried it in one of his cases, but found it was not feasible and concluded with nephrectomy.

Radiotherapy of Cancer.—This is Perthes' review of this subject to open the discussion at the recent German surgical congress. He reiterates that to date operative measures should not be discarded for radiotherapy except with certain carefully selected forms of malignant disease. There are many biologic problems connected with radiotherapy of cancer.

Beiträge zur klinischen Chirurgie, Tübingen

1921, 123, No. 1

*Peptic Ulcer. P. F. Müller.—p. 1.

*Fibromas in Abdominal Wall. B. v. Klot.—p. 28.

*Iced Intestine. P. Winnen.—p. 72.

*Hermaphroditism. A. Doenicke.—p. 82.

*Reflex Anuria. E. Stäheli.—p. 103.

Wound Diphtheria. F. Balhorn.—p. 122.

Wound Diphtheria. C. Rohde.—p. 132.

*Freezing of Nerve to Arrest Pain. Wiedhopf.—p. 158.

*Mal Perforant. M. Hofmann.—p. 173.

*Origin of Bone Cysts. D. Schuster.—p. 191.

Isolated Fracture of Os Multangulum Maius. F. Mandl.—p. 198.

*Signs of Fracture of Orbit. Kehl.—p. 203.

*Suture of the Esophagus. K. Tiesenhausen.—p. 212.

Lateral Dislocation of Spine. H. Burckhardt.—p. 221.

Causes of Bleeding in Kidney Bed. W. Peters.—p. 228.

*Unilateral Essential Hematuria. E. Keppeler.—p. 236.

Peptic Ulcer.—Müller discusses with two colored plates and an extensive bibliography the histology of peptic ulcer in the stomach and elsewhere. His conclusion is that embryonal factors are responsible for the tendency to ulcer. In the stomach it develops at the junction of normal mucosa and islands of intestinal mucosa, when the developing cells are not quite of the normal type; in the pylorus and duodenum, at the junction of gastric and duodenal mucosa; in the esophagus, at the junction of the esophageal mucosa and islands of stomach mucosa; and in the jejunum, possibly in islands of pancreas tissue. The secretion of glands located in these questionable areas may be abnormal and may digest the surrounding tissue.

Fibroma in Abdominal Wall.—Klot has compiled 408 cases of tumors in the abdominal wall, including 7 in children under 10. They were of twelve different varieties but the fibromas numbered 248; fibrosarcomas, 67; fibromyxomas, 17; sarcomas, 60, and only one endothelioma, angioma and angiosarcoma in the whole list. Recurrence is known in 38 cases; all but 6 were of the sarcomatous group. The differential diagnosis is discussed.

Iced Intestine.—Winnen compares seven cases from the records with a personally observed case of chronic fibrous encapsulated enteritis or *zuckergussdarm*. In his patient, the tough white coating on the bowel in the young woman had entailed several attacks of ileus. He was able to pry off the "icing" at certain points at a laparotomy, which gave great relief. In one case on record the shock from removing too much of the coating proved fatal.

Hermaphroditism.—Doenecke gives two colored plates to sustain his theory that the cause of hermaphroditism is some anomaly in ovum or spermatozoa, which alters the number of chromosomes.

Reflex Anuria.—Stäheli refers to reflex anuria following operations on the biliary apparatus. In his own case it proved fatal the third day after the cholecystectomy on the man of 52. In five similar cases on record the interval before death was from two to four days. Both liver and kidneys shared in the development of the anuria, and in all there had been septic infection of the bile passages. These experiences emphasize the importance of operating without delay.

Freezing the Nerve to Arrest Pain.—Wiedhopf reports clinical experiences and experimental research on the influence of cold on the blocking of nerves to arrest pain, especially after amputations. He uses a carbon dioxid applicator which allows a minus 72 C. temperature, in contrast to the minus 38 C. attainable with ethyl chlorid. The result was excellent, especially at amputations, when all the nerve trunks were thus systematically frozen to ward off operative and after-pains. The first application of the cold is extremely painful. The effect of the chilling extends about 4 cm. above the actually frozen segment. He has applied it to 12 patients. There were no after-pains in 6, but in 4 others they did not seem to be modified. The wound pains were entirely prevented in 3 of the 6 open treated cases; in 2 they were not influenced.

Malum Perforans Pedis.—Hofmann analyzes the reasons for the success or failure of surgical measures in 33 cases, under observation for from five to eight years or more. The underlying disease is usually beyond our reach, and as the tendency persists there is little chance for success with surgical measures. The lesion returns in newly implanted skin as readily as in the original skin. In 4 of the 33 cases the complications proved fatal. One of the patients has spent more than half of the eight years in the hospital.

Bone Cysts.—Schuster adds another to the list of cases in which a large bone cyst developed at the site of a trauma. There had evidently been hemorrhage in the bone marrow, followed by a rarefying and ossifying osteomyelitic process. Since curetting, the cavity seems to be filling up with spongiosa bone.

Fracture of Orbit.—The diagnostic import is emphasized of the way in which the extravasated blood spreads beneath the conjunctiva in case of fracture of the orbit.

Suture of the Esophagus.—Tiesenhausen succeeded in suturing the esophagus in seven cases after resection of a diverticulum or other operation on it. Different methods

were used in the experimental work and clinical cases, and four healed without fistula. The suture in tiers was taken first in the submucosa, turning in the mucosa, using catgut. To promote healing, the esophagus was left entirely at rest for a time, feeding with alimentary enemas or through a stomach fistula.

Essential Hematuria.—Keppeler ascribes the hematuria to the paranephritic adhesions found in his two cases. The kidney was removed in both but nothing could be found in it to explain the hemorrhages.

Deutsches Archiv für klinische Medizin, Leipzig

Aug. 30, 1921, 137, No. 3-4

*Outline of Heart in Diagnosis. W. Neumann.—p. 129.

*Alternating Heart Action. E. Koch.—p. 138.

*Ambard Index with Contracted Kidney. H. Guggenheimer.—p. 159.

*Bilirubin in the Blood Serum. J. S. Thannhauser and E. Andersen.—p. 179.

*Protein-Poor Diets. F. Rabe and R. Plaut.—p. 187.

*Arterial, Capillary and Venous Blood. E. O. Hess.—p. 200.

*Diabetes Insipidus. E. Meyer and R. Meyer-Bisch.—p. 225.

*Speed of Sedimentation of Blood Corpuscles. G. Leendertz.—p. 234.

Outline of Right Heart.—The shadow of the right heart is a smooth curve in normal conditions, and Neumann discusses the significance of the change when the outline shows two smaller curves instead of one single large one. The upper curve represents the enlarged left auricle and the lower the right auricle. This is a typical finding with mitral or aortic stenosis, as he shows by roentgenograms of typical cases, and also in arteriosclerotic contracted kidney. In all of these there is the enlargement of the left auricle which entails the double curve.

Alternating Heart Action.—Koch offers an explanation for the regular alternation of large and small heart beats, the force of the beat continuing unmodified. A case is described, with the modifications under drugs, and the necropsy findings.

The Ambard Index with Contracted Kidney.—Guggenheimer found a normal Ambard constant in 40 per cent. of 73 cases of stationary high blood pressure, that is, above 179 mm. mercury. The constant was slightly above normal in 42.47 per cent. and only in 16.43 per cent. did it reach 0.1 to 0.14. The Ambard index was estimated repeatedly in these cases over a period of about three years, and it kept at about the same figure throughout. The mild and stationary character of the benign nephrosclerosis responsible for the hypertonia was evidenced by the constancy of the Ambard index, which is such a sensitive gage of the functional capacity of the kidneys. In 30 cases of angiosclerotic kidney disease with albuminuric retinitis, the Ambard index was above 0.14 in 56 per cent. and the index kept constantly changing for the worse. The Ambard index therefore classes the cases in the benign or progressive form. His research further demonstrated that there was no direct connection between the changes in the fundus of the eyes and the retention of nitrogenous waste. This seems to prove that the fundus changes are independent of the kidney changes and are not—as hitherto assumed—secondary to the kidney lesions. It is much more probable, he says, that what we have been calling contracted kidney is merely one manifestation of a systemic pathologic condition, a progressive arteriosclerosis which may affect different organs, the retina, the brain or the kidneys, as the case may be. In his 30 cases of rapidly progressive contracted kidney, cerebral hemorrhage occurred in 14, that is, in nearly 50 per cent. while it occurred in only 10 of the 72 cases with stationary hypertonia.

Bilirubin in Blood Serum.—A modification of the Ehrlich-Pröscher test for bilirubin is described as superior to Hijmans van den Bergh's modification, and the chemical reaction involved is explained.

Protein-Poor Diet.—Rabe and Plaut record the metabolic and other findings in a man of 40 who had been a vegetarian for several years, and fasted periodically. The amount of calories regulated by the appetite was below that which the basal metabolism called for, and yet the man did not lose in weight or energy. He said that he became a vegetarian because he had noticed that in certain sport associations the members that excelled were vegetarians.

Comparative Simultaneous Research on the Arterial, Capillary and Venous Blood.—Hess reports research in this line

in the normal and in pathologic conditions, and under the influence of certain drugs, also in the interchange of fluids between the blood and tissues as the pressure was raised with epinephrin.

Diabetes Insipidus.—Tests of different kinds were applied to the young woman with diabetes insipidus of the hyperchloridemic type. The striking action of pituitary extract (posterior lobe) on the exchange of salt and water between the blood and tissues and between the blood and the urine were studied in particular, and the findings confirmed by experiments on dogs. The sodium chlorid content of the blood subsided to normal under its influence, while the percentage in the urine doubled, and the output of urine declined. The results show that pituitary extract acts on the tissues as well as on the kidneys. In a case of pure polydipsia, no effect from the pituitary extract could be detected, and there was no concentration of the urine—as occurs in true diabetes insipidus—during days of restriction of intake of fluid.

Speed of Sedimentation of Blood Corpuscles.—Leendertz noted more rapid sedimentation in cases of infectious diseases and of tumors, while it was much retarded in cyanotic conditions and with insufficiency of the kidneys. His research further demonstrated some connection between the presence of antibodies and the accelerated speed of sedimentation. It seems to be a general law that immune bodies in the blood plasma modify the physical-chemical conditions in a way which finds expression in acceleration of the sedimentation process as the suspension stability is affected.

Deutsche medizinische Wochenschrift, Berlin

Aug. 4, 1921, 47, No. 31

- Parenteral Activation of Cell Function. W. Weichardt.—p. 885.
Metabolism in Obesity. F. Rolly.—p. 887. To be conc'd.
*Carbohydrate Diet in Diabetes Mellitus. W. Falta.—p. 889.
Successful Treatment of Case of Gonococcus Sepsis with Meningococcus Serum. J. Citron.—p. 891.
*Pneumothorax from Perforated Gastric Ulcer. H. Schottmüller.—p. 892.
Systolic Wave of Venous Pulse. H. Gerhartz.—p. 893.
*Acute Thrombosis of Superior Vena Cava. H. Arons.—p. 894.
Hemoglobinophilic Bacilli in Distemper of Dogs. O. Olsen.—p. 895.
Catarrhal Infection of Eustachian Tubes Seemingly Akin to Swimming Pool Conjunctivitis. K. Amersbach.—p. 896.
Operative Cure of Painful Cracking Sound of Scapula. Görres.—p. 897.
*Roentgen Irradiation of Inflammation of Sweat Glands of Axilla.—J. Basch.—p. 898.
Induced Widening of Birth Tract During Birth. Blumreich.—p. 899.

Practical and Historical Aspects of Carbohydrate Diet in Diabetes Mellitus.—Falta gives a general survey of the treatment of diabetes mellitus, in which he agrees that the most important requirement is that the sugar content of the food intake shall be adapted, as far as possible, to the patient's ability to assimilate it. Whether proteins or carbohydrates should predominate, depends mainly on the degree of acidosis present; for carbohydrates have an antiketoplastic and proteins a ketoplastic effect (that is, when the carbohydrate metabolism is limited). If the assimilation of sugar is fairly good, we can give a large portion of the sugar content of the diet in the form of proteins, as sufficient sugar is assimilated to prevent the ketoplastic effect of the proteins from becoming operative. If the assimilation of sugar is weaker, the amount of protein must be reduced, and it is then advisable to alternate between periods with a diet poor in proteins and a moderate carbohydrate content, on the one hand, and periods with a strict diet, in order to keep down the acidosis, which naturally increases during the strict diet. If the assimilation of sugar is at a very low level, the proteins must be restricted more and more. It goes without saying that the protein equilibrium of the body must be preserved as long as possible, by intercalating periods of strict diet even though very short. In far advanced cases the protein must be reduced to a minimum. Falta considers it an error if, as was the case this year at the Congress of Internal Medicine, it is maintained that in such cases the albumin equilibrium should be continued to be preserved by an increased protein intake. He argues, on the contrary, that acidosis immediately increases and that the increasing elimination of acidosis products occasions an increased loss of calories; also protein metabolism is abnormally increased, as the storage of albumin with such minimal assimilation of carbohydrates is no longer possible. He refers to his work, "Die Mehlfrüchtekur bei Diabetes mellitus," for numerous examples of this.

Subphrenic Pneumothorax Resulting from Perforated Gastric Ulcer.—Schottmüller states that perforation of gastric ulcers with escape of gastric contents into the subphrenic space, occurs more frequently than was formerly supposed, without the formation of a subphrenic abscess. In two of the three cases he describes, no subphrenic suppuration occurred, but only what he terms a subphrenic pneumothorax, which disappeared spontaneously in a few days. From his observations on the three reported cases Schottmüller holds that the extensive adhesions that are so often encountered, in operations for gastric ulcer, between the liver, colon, omentum and stomach, are certainly the results of a perforated ulcer. In such cases, no doubt the formation of an ulcer is prevented by the germicidal action of the acid gastric juice.

Acute Thrombosis of the Superior Vena Cava.—Arons reports a case of acute thrombosis of the superior vena cava, which he states is exceedingly rare as compared with the chronic and subchronic forms. His case teaches that cyanosis developing suddenly, combined with swelling of the upper extremities, the head and the neck should lead one to suspect an acute thrombosis of the superior vena cava.

Roentgen Irradiation for Inflammation of Sweat Glands of Axilla.—Basch recommends that every case of inflammation of this character, irrespective as to what stage it is in, be treated with roentgen rays, as this is the preferred treatment for this affection. The symptoms disappear at once and with good cosmetic results, without the use of drugs or bandages. A cure is effected in much shorter time than by any other method of treating hidradenitis.

Medizinische Klinik, Berlin

Aug. 7, 1921, 17, No. 32

- *Genital Tuberculosis in the Female. Fuhrmann.—p. 956.
*The Myogenous Nature of the Heart Beat. L. Haberlandt.—p. 958.
Abdominal Operations on the Pregnant. H. Hellendall.—p. 962.
*Syphilis and Marriage. L. Kleeberg.—p. 962.
*Acute Ileus. Gottschalk.—p. 964.
*Secondary Alveolar Pyorrhea. B. Rosenthal.—p. 965.
Turpentine in Treatment of Skin and Genital Lesions. Isacson.—p. 966.
Sulphur Baths in Cardiovascular Disease. L. Weiss.—p. 967.
*Plant Nature of Neurofibromas. L. Merk.—p. 970.
Treatment of Genital Discharge. W. Benthin.—p. 971. Conc'n.

Genital Tuberculosis in the Female.—Fuhrmann remarks that tuberculosis is responsible for about 3 per cent. of the lesions of the female genital organs, but in 90 per cent. it is secondary to tuberculous lesions elsewhere. The prognosis therefore depends on the primary lesion, and treatment should be directed to this. The lesion may spontaneously retrogress, and operative treatment is called for only when the focus is primary or there is acute vital danger. We must bear in mind that fully 33 per cent. of all cases of tuberculous peritonitis heal spontaneously. If no tendency to healing is evident, he advises a simple median incision, suturing afterward.

The Vagus and the Heart Beat.—The experiments on frogs related apparently confirm anew the myogenous nature of the formation and conduction of the heart beat impulse in vertebrates.

Syphilis and Marriage.—Kleeberg's text is a woman of 39 who has been apparently free from manifestations of syphilis since 1903 when she was given a course of inunctions. She has passed through fifteen pregnancies, and nearly all the children and fetuses showed inherited syphilis, most severe in the fifteenth child. He emphasizes the vast difference between the effects of syphilis in the man and of syphilis in the woman, when it is a question of marriage. Every woman with a history of syphilis, regardless of the length of the interval since infection, should be given a course of energetic treatment when she becomes pregnant, unless there is absolute certainty that abortive treatment had eradicated the disease. Otherwise the woman is liable to transmit syphilis to her offspring throughout her entire reproductive life.

Acute Ileus.—In four of the five cases reported, the acute ileus yielded to injection of fluid high in the bowel and Priessnitz compresses to the abdomen, when an operation had seemed inevitable. The patients were three robust middle-aged men, one infant, and one woman. The woman was the only one in the group that required operative relief, a loop

of intestine having become incarcerated in the right inguinal canal.

Secondary Alveolar Pyorrhea.—Rosenthal remarks that pyorrhea has been held responsible for rheumatism, etc., but we must not forget that febrile rheumatism and certain constitutional diseases may entail alveolar pyorrhea secondarily. In some cases reported the alveolar disease fluctuated with the ups and downs of the primary disease. This was particularly evident in a case of glomerular nephritis, the pyorrhea ceasing completely as the general condition improved, but flaring up anew with every aggravation of the kidney disease.

Botanical Nature of Neurofibromatosis.—Merk has noted that some of the tissues forming the neurofibroma of Recklinghausen's disease take certain stains in a way that indicates a botanical nature. No human or animal connective tissue turns violet under sulphuric acid. This is a property of plant tissue.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

1921, 33, No. 5

- *Treatment of Exstrophy of the Bladder. R. Demel.—p. 533.
- *The Lanz Point in Appendicitis. V. E. Mertens.—p. 557.
- Treatment of Chronic Joint Disease. T. Finger.—p. 569.
- *Cerebrospinal Fluid in Diagnosis of Brain Tumors. C. Lange.—p. 582.
- *Underfeeding as Factor in Sciatica. H. Schlesinger.—p. 611.
- *Spontaneous Fractures from Underfeeding. A. Szenes.—p. 618.
- *Calcium in the Blood in Osteomalacia. A. Szenes.—p. 649.
- "Chronic Paronychia." J. Volkmann.—p. 661.

Results of Operative Treatment of Exstrophy of the Bladder.—Demel has been reexamining 5 of the 11 patients treated for exstrophy of the bladder in Eiselsberg's clinic since 1901. Four died in less than two weeks, and one survived for only twenty-eight months. In none of the cases was the incontinence cured, and only in one did the fistula finally heal, notwithstanding the repeated plastic operations. The Maydl operation had a high mortality; the age of the patients was generally unfavorable. Under 5 the mortality of 400 Maydl operations on record averaged 41 per cent.; over 20, from 50 to 72 per cent., but between 6 and 10 it was only 18 per cent. If no attempt is made to cure the incontinence, the danger of ascending nephritis can be practically excluded by implanting the ureters in the penis groove or making a ureter fistula in the lumbar region or in the anterior abdominal wall. The ultimate outcome is very good in one of Demel's cases nearly three years since the ureters were implanted in the rectum (Petersen-Kümmell) in the boy of 3. By leaving a circle of tissue around the ureter mouth, its sphincter function is retained. A series of plastic operations in 3 cases did not succeed in curing the fistula or only temporarily, and the incontinence is as bad as before. The other patients had the ureters implanted in the sigmoid flexure or rectum and all succumbed to infection of the kidney.

The Lanz Point in Appendicitis.—Mertens discusses the tenderness at the point of junction between the appendix and cecum, Lanz' point, as compared with McBurney's point. In 309 patients, 27 had tenderness at the latter point only; 88 at both points, and 194 at the Lanz point only.

The Cerebrospinal Fluid in Diagnosis of Brain Tumors.—Lange has examined over 5,000 specimens of cerebrospinal fluid in the last twelve years, including a large number of brain tumor cases. In 5 recent ones the diagnosis was confirmed by the findings in the lumbar puncture fluid. In 30 brain tumor cases as much as 20 or 30 c.c. of fluid had been sent in, and no instance of disturbance from withdrawal of such a large amount of fluid was known. The attending physicians were always surprised when told the actual amount. It is always underestimated, while 5 c.c. is ample for all tests of the fluid. On suspicion of a brain tumor, 1 or 2 c.c. will suffice. There is no specific change in the fluid from the presence of the tumor, but on account of the capillary hemorrhages the fluid shows changes which differ from those under other conditions. The cytodiagnosis is of no aid, and the Wassermann is useless or even misleading. The Lange goldsol reaction and the yellow tint are the only dependable criteria of a tumor.

Differential Diagnosis of Sciatica and Coxitis.—Schlesinger found an unsuspected hip-joint process responsible in a number of recent cases of sciatica at Vienna. In others a long latent hip-joint process had flared up. Localized changes in

the bones suggested foci of osteomalacia. The disturbances seem to be traceable to inadequate food, as they retrogressed under proper food and cod liver oil with phosphorus.

Spontaneous Fractures from Inadequate Food.—Szenes relates that 12 young people and 3 older ones with spontaneous fractures have recently been given treatment in Eiselsberg's service at Vienna. There was a history of rachitis in the family in 5, and in the patient himself in 6. The femur was the seat of the fracture in 5, the tibia in 8, including 2 cases with both. Pronounced osteoporosis was evident in all, and the inadequate food is evidently the explanation of this new clinical picture.

Calcium in the Blood.—While making the investigations recorded in the preceding abstract, Szenes determined the calcium content of the blood, finding it below the physiologic standard. This may possibly explain the delay in the coagulation of the blood noted in all these cases.

Münchener medizinische Wochenschrift, Vienna

July 29, 1921, 68, No. 30

- *Therapeutic Revulsion. H. Quincke.—p. 935.
- Treatment of Tuberculosis with So-Called Turtle Tubercle Bacilli. H. F. O. Haberland.—p. 936.
- Nonspecific Treatment of Tuberculosis. J. Weicksel.—p. 938.
- Investigations on Blood Coagulation. E. Wöhlisch.—p. 941.
- Experiences with Modified Mastic Reaction. W. Goebel.—p. 943.
- *Treatment of Gastric Crises in Tabes. Rembe.—p. 945.
- Origin and Treatment of Eclampsia. A. Greil.—p. 945.
- The Practitioner and the Appendicitis Question. H. Doerfler.—p. 946.
- Change in Position of Internal Organs in Different Attitudes as Aid in Diagnosis. Hügelmann.—p. 948.
- Spontaneous Pneumothorax After Futile Attempt to Effect Artificial Pneumothorax. P. Sedlmeyr.—p. 949.
- *Diphtheria Bacilli in Sputum. F. Port.—p. 949.
- Multiple Allelomorphism. W. Weinberg.—p. 950.
- So-Called Arthritic Spirochetosis. H. Reiter.—p. 950.
- Treatment of High Blood Pressure. Grassmann.—p. 951.

Therapeutic Revulsion.—While admitting that active revulsion has fallen into oblivion during the last generation, nevertheless Quincke is convinced of the effectiveness of the cautery in many cases of spondylitis. He describes his technic and reports good results in forty-seven cases. He employs the cautery only in severe and intractable cases, after other means have failed, burning with a hot iron under general anesthesia a strip from 8 to 14 cm. long and 2 or 3 cm. wide, about 4 cm. to each side of the median line of the back.

Treatment of Gastric Crises in Tabes.—Rembe describes a case of tabes in a man past 40, in which by means of paravertebral injections of antipyrin the gastric crises were checked, and have not reappeared during the nine months that have elapsed since the last injection. The patient feels perfectly well.

Diphtheria Bacilli in the Sputum.—In a previous article Port referred to the possibility of persons with diphtheria-like bacilli in the sputum becoming spreaders of diphtheria. He now states that his later experience has taught him that they do not constitute a menace to their surroundings, nor does the presence of such bacilli seem to be of any particular significance to those carrying them.

Wiener klinische Wochenschrift, Vienna

July 28, 1921, 34, No. 30

- Inaugural Lecture in Pathology Course. H. Pfeiffer.—p. 363. Cont'd.
- *Mange in Rats Used in Experimental Research. J. Fiebiger.—p. 364.
- Modern Methods of Wound Treatment. P. Albrecht.—p. 366.
- Treatment of Psoriasis. V. Pranter.—p. 368.
- Experience as Prisoner of War. F. Hutter.—p. 368. Cont'n.

Mange in Rats and Its Relation to Steinach's Rejuvenation Experiments.—Fiebiger takes issue with Steinach as regards the latter's statement that the bare spots on the backs of his experimental rats were to be regarded as signs of beginning senescence, and contends that such bare spots are the result of a circumscribed disease process; for example, an eczema. He says further that bald spots as indicative of age alone are not found in animals other than anthropoid apes. Since, then, fall of hair in rats is not due to senescence but to a pathologic process, the new growth of hair over the bare spots could not have been the result of the rejuvenation experiments but must have been due to the healing of the disease process. Fiebiger therefore insists that Steinach's experiments should be repeated with unobjectionable experimental animals.

Zentralblatt für innere Medizin, Leipzig

July 30, 1921, 42, No. 30

*Cardiovascular Disturbances in Congenital Syphilis. L. Hahn.—p. 601.

Cardiac and Vascular Disturbances in Congenital Syphilis. In connection with a study of a large number of cases of congenital syphilis, Hahn describes characteristic vascular processes, and claims to have demonstrated that the majority of the cases of vascular neuroses are referable to congenital syphilis and to syphilitic injuries of the fetus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 30, 1921, 2, No. 5

Experiences with Sulpharsenol. Papegaaij and Rinsema.—p. 560.

*Elimination of Hippuric Acid in Kidney Disease. I. Snapper.—p. 565.

*The Factors Responsible for Hemoptysis. H. B. Boekhoudt.—p. 573.

Occultism. I. Zeehandelaar.—p. 581.

Large Tumor in Diaphragm. C. P. van Nes.—p. 583.

*Fracture of Rib. C. ten Horn.—p. 587.

*Cause of Tabes, Dementia Praecox, etc. J. A. van Trotsenburg.—p. 591.

*Detachment of Retina in Nephritis. W. A. Weisfelt.—p. 595.

Neo-Arsphenamin in Malaria. J. M. H. A. Martens.—p. 601.

Present Status of Parenteral Protein Therapy. L. A. Faber.—p. 603.

Medical Impressions of Foreign Lands. C. D. de Langen.—p. 637.

Elimination of Hippuric Acid in Kidney Disease.—Snapper states that with disease in the kidney causing retention of urea, the elimination of hippuric acid after test injection of 5 gm. of sodium benzoate showed extreme disturbance in his 7 cases in this group. It proceeded normally in 3 cases of nephritis or nephrosis without retention of urea in the blood serum, and also in 6 cases of arteriosclerotic contracted kidney likewise without retention of urea. The details of the 16 cases are given in full.

Causal Factors in Hemoptysis.—Boekhoudt relates his own case history, as he has had symptoms of fibrous phthisis since the age of 26. He has made a special study of the circumstances attending each hemorrhage from the lungs, and has become convinced that, not high blood pressure, but stagnation in the blood vessels, especially in the bronchi, is the main factor in hemoptysis. On four special occasions described in detail, he had been angered, but had repressed his wrath, refraining from expressing it by word or deed—an inhibition along the whole line. After an interval of two to four hours came the hemorrhage. The blood was usually venous, and the inhibition must have induced stasis in the bronchial veins with consequent diapedesis if not actual rupture. This assumption is confirmed by the sensation of oppression and discomfort in the chest which had preceded the hemoptysis in each instance, and which others have noted in similar conditions. It suggests, he adds, that digitalis might relieve in cases of precordial distress under other conditions. Some clinicians make a practice of giving digitalis in case of hemoptysis, but from another reasoning, aiming to reduce the hypothetic high blood pressure which they accept as the cause for the hemorrhage, as necropsy has so often failed to disclose any rupture in any vessel.

The emotional and physical factors, which have hitherto been regarded as contributing to the assumed high pressure, may have cooperated, but by another mechanism, the shallower breathing, stasis, turgor and diapedesis induced. One young man, for example, had had a hemorrhage from the lungs nine days before a fall, hurting his back. Ten hours after the fall he had another hemorrhage from the lung. His physician assumed that a blood vessel had been ruptured by the fall, but Boekhoudt thinks it more probable that the dread of such a mishap from the trauma, the anxious keeping still to ward it off, and breathing gently, were what in reality brought it on by the stasis thus induced in the bronchial veins. Those who have never had hemoptysis are unable to imagine the anxiety and strain to avoid anything that can bring it on again. Another argument in favor of stasis as the main factor in hemoptysis is that it does not occur with acute bronchitis. The inflammatory hyperemia seems to prevent stasis. At least, he has never known of an instance of hemoptysis during an attack of acute bronchitis.

He argues further that the reason why the hemorrhage usually stops abruptly when the blood has been coughed up, is because the coughing has shaken up the parts and put an end to the stasis. The conditions are exactly the opposite in epistaxis. Blowing the nose starts it to bleeding again, but coughing corrects stasis and may arrest the hemorrhage. The

benefit from an emetic may possibly be due to the movements of the chest which accompany the effort to vomit, the forcible expiration that follows retching. Measures to prevent stasis and promote deep breathing and coughing will tend also to ward off aspiration pneumonia.

Occultism.—Zeehandelaar comments on the danger for the unbalanced from the prevailing cult of materialization of spirits, referring in particular to Kolb's report of a family of eleven persons who have all developed insanity recently, requiring internment. He adds that no one can expect to enlighten the public unless he knows something about the subject in hand, but we can be certain that in the near future much of these "occult phenomena" will be "deocculated."

Fracture of Ribs.—Ten Horn has found that fractured ribs free from complications heal better when no attempt is made to immobilize them mechanically. His main reliance is on morphin. This he gives in large doses, possibly up to the maximal dose. This relieves the pain, and respiration proceeds unhampered. Morphin also reduces the need for oxygen as the play of the muscles is weakened by it, but its greatest benefit is by allowing coughing without pain. The patient coughs up the secretions freely and the danger of pneumonia is thus warded off. Pneumonia is responsible for most of the deaths after fracture of ribs.

Cause of Tabes Dorsalis, Dementia Paralytica and Praecox.—Van Trotsenburg is inclined to explain the lack of success in these conditions from treatment for syphilis as the result of some superposed or underlying infection, most probably tuberculosis. With dementia praecox there is much to sustain the assumption that tuberculosis is the primary disease.

Transient Detachment of the Retina in Nephritis.—The boy of 14 seemed to have quite recovered from an attack of acute glomerular nephritis with edema, but four years later further symptoms developed, more of the nature of contracted kidney. During an exacerbation of the chronic uremia, bilateral detachment of the retina occurred but without choked disk. The uremic coma and convulsions persisted for eighty and forty-five hours on the two occasions; the detachment of the retina occurred at the second attack, not long before death.

Acta Medica Scandinavica, Stockholm

Aug. 23, 1921, 55, No. 4

*Râles After Healing of Lung. C. Löwenhjelm.—p. 323.

*Brain Sarcoma Successfully Removed. A. Barkman.—p. 333.

*Hypertonia and Kidney Disease. E. Kylin.—p. 368.

*The Blood Pressure During Sleep. C. Müller.—p. 381.

Râles Persisting After Clinical Healing.—Löwenhjelm remarks that at necropsies of persons with healed tuberculous processes, dying from other causes, more attention should be paid to the history of persisting râles. He describes three cases in which the clinical cure had been doubted on account of râles continuing to be heard, but necropsy confirmed the complete cure of the old pulmonary lesion. Söderberg published a similar case in 1909. In one of Löwenhjelm's cases the lumen of the bronchi was unusually large and the sclerous apex was clogged with desquamated epithelium, thus providing the physical conditions for râle production. A chronic bronchitis in the vicinity of the indurated healed process might also and probably often does perpetuate râles. What we call by this name may sometimes be in reality friction sounds from pleuritic processes or their relics. In short, he declares, we are inclined to ascribe too much importance to persisting râles. (In German.)

Successful Removal of Brain Tumor.—After five years of left jacksonian epilepsy came proximal paralysis of the left arm, cortical, abdominal, muscle, and bladder disturbances, and neuritis of the auditory nerve but no choked disk. After the removal of the brain tumor the muscles in the hand on the paralyzed side atrophied. The woman had also presented symptoms of chronic nephritis for several years. The sarcoma in the region of the posterior central convolution of the right frontal lobe was easily shelled out. It measured 55 by 45 by 50 mm. and the paresis gradually retrogressed and for eleven months the patient felt well and strong. Then came a chill and other symptoms indicating an abscess in the brain. The local tenderness of the skull had aided in differentiating the tumor from chronic uremia. The circumscribed atrophy of the smaller muscles of the hand from a lesion in the first central motor neuron is suggestive. (In German.)

High Blood Pressure and Kidney Disease.—Kylin asserts that the evidence to date does not prove that the kidneys are primarily responsible for a high blood pressure. Instead of incriminating the kidneys for the hypertonia, we must regard the kidney lesions as the result of the injury of the vessels which is caused by or possibly is the cause of the hypertonia, whether due to increased resistance in the arterial system or in the capillary system. With acute diffuse glomerular nephritis, the capillaries are sinuous and swollen, while they are seen to stretch out long in the so-called benign nephrosclerosis. The response to the water freshet test also differs in these two conditions, and likewise the capillary pressure. These facts sustain the assumption, he continues, that with glomerular nephritis the capillary system participates in the cause of the rise of the blood pressure, while with benign kidney sclerosis the arterial system alone is involved. Kylin's assertions have been confirmed by others in regard to the rise in blood pressure and edema as earlier symptoms of the kidney disease than the appearance of albumin, casts and blood corpuscles in the urine. This fact may throw light on the etiology of diffuse glomerulitis. His tests demonstrated that dilatation of the capillaries and rise in capillary pressure run parallel. The capillaries are regulated by a motor mechanism of their own, separate from the artery mechanism. If the capillary mechanism gets out of order and the capillaries become dilated and strained, edema may develop in consequence, in the same way as the edema in stasis from heart disease. In conclusion Kylin remarks that the primal cause of the hypertonia is still a mystery. His article is in English.

Measure of the Blood Pressure in Sleeping Subject.—Müller thinks that the drop in blood pressure during sleep has a diagnostic significance that has not been appreciated hitherto. The findings in thirty-three normal children under 15 and sixty-four adults are compared with the findings in twenty-five cases of high blood pressure with or without kidney disease. The difference between the amount of the day and night urine is also instructive, as well as the difference between the blood pressure waking and sleeping. The interesting and unexpected findings raise a host of questions which he is unable to answer. It is evident from this research that the blood pressure fluctuates during the twenty-four hours more than has been realized hitherto. Another fact brought out is that pathologic changes in the blood pressure long precede other symptoms from the kidneys or cardiovascular system. (In German.)

Hygiea, Stockholm

July 31, 1921, 83, No. 14

*Paroxysmal Hemoglobinuria. E. Salén.—p. 449. Conc'n No. 15, p. 497.

Apparent Cure of Paroxysmal Hemoglobinuria from Chilling.—Salén compares the results of his own research on paroxysmal hemoglobinuria with those of others, emphasizing that there are evidently different types, the only feature in common being the paroxysmal occurrence of the hemoglobinuria. He has had two typical cases under observation for a long time, in men of 50 and 46, the first a syphilitic. The hemoglobinuria in each is brought on by getting chilled. He noted that urobilin appeared in the urine of the first patient in the morning and persisted during the day but grew less and disappeared at night. A few hours after a cold foot bath, urobilin appeared in large amounts in the urine but without hemoglobinuria, albuminuria or any of the symptoms of the paroxysmal hemoglobinuria. If the patient was protected against chilling by being kept in bed, the reaction was negative. In the other case, the reaction for urobilin was negative on rising but if the man went out into the cold, urobilinuria followed. Given a cold foot bath, the reaction was strongly positive. Salén then ascertained the slightest degree of chilling that was followed by urobilinuria, and had the man take a foot bath at this temperature. Repeating this procedure, the man gradually became accustomed to the cold foot bath so that lower and lower temperatures could be borne without urobilin or hemoglobin appearing in the urine, and without hemoglobinemia. Salén found further that the number of erythrocytes diminished as the urobilinuria appeared. From 5,800,000 it dropped to 3,460,000 after the cold foot bath, but climbed to nearly the former figure in ten or eleven days.

These experiences showed that paroxysmal hemoglobinuria is made up of several elements beyond the mere presence of hemoglobin in the urine, and that the attack may occur even without the hemoglobinuria. In the "latent" form, the mechanism works more continually and more economically for the organism, and this is the more common form. His laboratory experiments demonstrated that different degrees of cold affected different classes of blood corpuscles, the older ones feeling the effect first. In ninety-five cases of paroxysmal hemoglobinuria reported since 1904 there was a history of syphilis in 85 per cent. of the cases in which the history was known, and the Wassermann reaction was positive in 95 per cent. It seems probable therefore that syphilis is responsible for the changes in the blood which make paroxysmal hemoglobinuria possible. Treatment as for syphilis therefore seems logical and has been often applied, but Salén does not know of any instance of its having restored the blood findings to normal. On the other hand, he has apparently completely cured his second patient by training him to hold one foot in cold water every day for a few minutes until now he can stand a foot bath at 9 C. for thirty minutes without any of the former symptoms or changes in the blood. He still keeps up his daily routine of a foot bath at 14 or 15 C. and has no further attacks, but time alone will show whether the cure is permanent.

Aug. 16, 1921, 83, No. 15

*Pulmonary Tuberculosis or Interlobar Empyema. G. Karström.—p. 517.

Pulmonary Tuberculosis or Interlobar Empyema?—The differential diagnosis was difficult in the girl of nearly 4 in Karström's case, everything pointing to an interlobar empyema except the diazo and tuberculin reactions, and the amphoric tone of the respiration sounds which were heard higher in the back. The course of the case and necropsy confirmed the pulmonary disease and showed that there was no trace of interlobar empyema.

Ugeskrift for Læger, Copenhagen

Aug. 25, 1921, 83, No. 34

*Match Box Dermatitis and Conjunctivitis. C. Rasch.—p. 1119.

*Calcium Phosphate Deposits Around Joints. B. Pontoppidan.—p. 1121.

*Chlorids in Blood. N. R. Christoffersen.—p. 1126.

*Pneumothorax. Von Thun.—p. 1130.

Safety Match-Box Dermatitis.—Rasch has encountered thirteen new cases of dermatitis from carrying or handling a box of safety matches, and relates that one of the more recent cases was quite severe, the dermatitis on fingers, neck and face lasting for two weeks and being accompanied by severe conjunctivitis, the eyelids swollen together. The aspect and course is like that with poisoning from *Primula obconica*. The matches were all of Swedish make with the trade mark of a ship, and the poisoning is ascribed to the phosphorus sesquisulphid (P_4S_3) used in them when amorphous phosphorus could not be obtained. In men the dermatitis generally corresponds to the trousers pocket, but women who smoke a great deal and use many matches are affected in the fingers and conjunctiva.

Calcium Phosphate Deposits.—Pontoppidan reports a case of subcutaneous nodules of calcium phosphate around joints. The patient was a woman of 64, and the nodules developed deep in the tissues and increased in size until they burst the skin and allowed the escape of a chalky fluid or a small mass of solid calcium phosphate. In some of the few similar cases on record there were symptoms suggesting a pituitary lesion. In this case, scleroderma had preceded the first appearance of the nodules, as also in Weber's case; Raynaud's disease in another.

Determination of Chlorids in the Blood.—Christoffersen describes how to apply the Bang micromethod to determine the chlorids in the blood with a dependable technic.

Tension Pneumothorax.—In two of Thun's cases, puncture relieving the local accumulation of air from the valve opening into the lung was followed by a cure. The changes in the opening after evacuation of the air prevent its functioning further as a valve. In the third case the effects of the trauma otherwise proved fatal. In another case the abdomen became enormously distended with odorless air in a man with heart disease. No cause for the pneumoperitoneum was found even at necropsy not long after.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 17

CHICAGO, ILLINOIS

OCTOBER 22, 1921

EPIDERMOPHYTOSIS *

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The old saying that "there is nothing new under the sun" is really very true, and there can be no better medical illustration of this aphorism than the example of epidermophytosis. Since 1910 to a certain extent, but principally since 1919 we have been trying to prove to ourselves that certain cases of several dermatoses hitherto regarded as intertrigo, eczema, psoriasis, syphilis, dyshidrosis, neurodermite, dermatitis infectiosa eczematoides, callositas and pruritus ani are in truth manifestations of infection with *Epidermophyton cruris* or various trichophytons.

The necessity for these endeavors has been due to our ignorance, let it be confessed, an ignorance due, in part to the inadequacies of former dermatologic textbooks which have never until within a year or two properly synthesized this large and important and growing subject, and in part to our forgetfulness of past literature. I may say, however, that we are not alone in our guilt and hence we feel called on to draw to the attention of our colleagues the salient points of this neglected subject; and yet all that this paper will emphasize has been demonstrated and proved in the past and then ignored or forgotten by most of us. Let us first stop a moment to review the writings of the past and then let us share our astonishment that after such repeated and clear cut statements we men of today should be so ignorant. Surely, never has any other chapter of science experienced greater neglect. In 1869, Hebra, to whom we all owe so much, described eczema marginatum, a disease which we moderns have been wont to associate only with the upper thighs, and yet, mark you, Hebra said that when this eruption had lasted a long time one would find analogous eruptions on the abdomen, thighs, sacrum, breasts and neck. Soon after Hebra's first clinical description, K6rbner, Pick and Kaposi demonstrated the "mycotic" nature of the disease. In 1870, Tilbury Fox proved that certain so-called eczemas of the palms were in truth of ringworm origin, and in 1888 Pellizari described the same disease on the lateral aspects of the fingers. In 1891, Arnozan and Dubreuilh and also Mansouroff demonstrated examples of these conditions before their

local medical societies. In 1892, Djelaleddin Mouktar wrote the most detailed and comprehensive paper on the subject which had thus far appeared, but limited himself to the disease on the palms and soles and fingers and toes. It was he who first noted that dyshidrosis and ringworm were indistinguishable clinically.

In 1905, Castellani proved that "dhobie itch" was in reality due to an unusual variety of ringworm fungus and gave the name of *Tricophyton cruris* to an organism which he isolated from some of his cases; at this time he recorded cases of this disease on the scrotum, in the axilla, and on the chest and abdomen, and even went so far as to say that the disease could exist anywhere except on the scalp. Two years later, that is, in 1907, Sabouraud showed that this fungus was not a trichophyton but belonged to another genus and he gave it the name *Epidermophyton inguinale*. Probably the correct name should be *Epidermophyton cruris*, since, according to the rules of nomenclature, an organism found to belong to a genus other than the one in which it was originally placed keeps its original specific name. In addition, the name *Epidermophyton inguinale* is an unfortunate one in that the organism, so far as we have observed, seldom occurs in the groin. Castellani has since reported two other species of epidermophyton, *E. perneti* (1907) and *E. rubrum* (1910). Both show the characteristics of the genus morphologically, but differ in the appearance of their cultures. We do not know of any authenticated cases of these new species having been found in this country. Castellani says that there is no doubt of the plurality of the species of epidermophyton producing tinea cruris in the tropics, but he does not state whether more than one has been found in temperate climates.

In 1902, Whitfield published his first observations. Later, in 1910, he discussed maceration between the toes, and three years later was sufficiently informed to classify the disease into three types: (1) the acute vesicobullous; (2) the chronic intertriginous of the toes, and (3) the hyperkeratotic of the palms and soles. In 1910 he gave us "Whitfield's ointment."

In 1910, Bang added further confirmation from Copenhagen of the rapidly increasing appreciation of epidermophyton infections. In 1913, Nicolau revived the study of the so-called eczema marginatum of Hebra, decidedly increasing our knowledge of the disease. In 1914, Kaufmann-Wolff published a paper based on twenty-five cases observed in Vienna, Paris and Berlin, and described for the first time the lardaceous type of infection between the toes. In the same year, 1914, we find the communication on this subject from an American source, Montgomery and Culver; followed, in 1915, by one from Hartzell. In

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1916, Ormsby and Mitchell published their striking paper corroborating the earlier claims of Mouktar that dyshidrosis is purely and simply an epidermophyton infection. In the same year another American appeared on the scene in the person of Dr. C. Guy Lane. During this period the field was given over evidently to our compatriots, and it was not until 1919 that France again came to the fore with a paper by Darier.

Perhaps the last lengthy communication on this subject, a paper based on the observations of 165 private cases, was read by one of us (C. J. W.) in 1919. Since then, two observers, an Italian and an American, have presented short notes on the disease in the scalp. Now, however, dermatologists are awake to this subject, and short papers and allusions are constantly appearing in the world's medical journals.

EPIDERMOPHYTOSIS

Basing our concepts of the disease epidermophytosis on knowledge gleaned from the writings of the past and on the results of an intensive study during the last three years, we feel justified in dividing the disease clinically into these varieties: (1) macular; (2) vesicular; (3) macerated; (4) hyperkeratotic; (5) papular, and (6) nail infections.

THE MACULAR OR ECZEMATOID TYPE

The first and best known macular type of the disease is, of course, the so-called eczema marginatum of Hebra. Here we find as a primary lesion one or more separate, slightly elevated, rather brick red, round, pin head or smaller macules, usually on the upper, inner thighs. In Boston the male sex is affected approximately four times as often as the female. Early and middle adult life are the favorite ages of incidence. Both thighs are usually involved, but when the disease attacks only one side the left side is the victim in the proportion of seven to one, a phenomenon easily explainable by man's method of dressing, i. e., the almost universal custom of carrying the scrotum up against the left thigh.

These early separate lesions grow, coalesce and form plaques which extend upward to the groin and almost always stop abruptly at that point. Occasionally the process may spread upward to the pubes and invade it to a greater or less extent. In its downward growth the infection is usually limited in the male to the lowest borders of the scrotum in relaxation, and in the female there seems to be no hard and fast custom; but one might say that approximately the same depth is reached in the two sexes. This downward limitation is the custom, but we can truthfully say that we have seen the infection spread down the thigh to all depths, even to the patella. In its backward progress the disease frequently involves the perineum, the anus and the intergluteal fold to the very top. In its lateral march the plant seldom progresses outwardly much beyond the limit of approximation of the neighboring parts, but inwardly it often implicates the scrotum, penis and labia. Despite these diverse wanderings, the thighs alone are affected in about three fifths of the cases.

The thigh eruption, as a whole, retains its original characteristics to a surprising degree, it may be, over years—even eighteen in one of our recorded instances. The lower border can be somewhat festooned and pos-

sibly a little more elevated than the interior of the plaque, but there are no other characteristics such as we find in *tinea circinata*. The affected area may clear up in the center to a certain extent, but usually it does not and the whole surface holds to this simple process of mere chronic, slightly elevated, brick-red maculation with a varying degree of delicate furfuration.

The aberrant varieties develop certain additional characteristics. On the scrotum there may be redness, rawness and consequent moisture; there may be dryness and an apparent increase in the thickness of the rugae; here may be peculiar, large, outstanding, dome shaped, dull red, moist papules. On the penis there may be a reduplication of the characteristics of the thigh, with or without serpiginous borders, or there may be superficial redness and rawness. On the glans penis and in the sulcus coronarius peculiar mahogany red, somewhat moist, sharply bounded, not appreciably elevated areas may be produced. On the labia the process produces redness and edema and probably infiltration, but comparatively little supracutaneous change; or there may be great dryness and thickening and stiffening. In the perineum the disease presents more or less a replica of the labial characteristics. The involvement of the anus leads to moisture and a reduplication and a curious browning of the anal folds. Between the buttocks the changes are those of maceration and will be considered under another heading.

In dealing thus far with the macular type of epidermophytosis we have been describing Hebra's original diseases plus its now better recognized extensions. Although the Vienna master very early spoke of the possible incidence of the disease in other parts of the body, the dermatologic world soon forgot his teachings; but now in this gradual modern revival of the subject we appreciate that this type can occur practically anywhere on the body, from the top of the head to the dorsum of the feet. Let us pause a moment and describe the characteristics of some of these various localized types.

On the scalp only three examples have been described, and they have all differed materially objectively one from another. Our own observation was as follows:

The hair follicles appeared as patulous mouths like the top of a fine pepper pot. In between many of these orifices and covering and obliterating others was a curious brick-red, rather glistening and seemingly fibrous, curiously tortuous, elevated tissue with no suggestion of scales. Here and there, apart from this extraordinary development, was noted a papery exfoliation somewhat like that of a partly extinguished favus.

In the axilla the plant produces a more exuberant growth than in any part of the body. The area is distinctly elevated, the color yellower than elsewhere, and the abnormal tissue presents to the eye the impression of moisture.

Under pendulous breasts the disease primarily simulates somewhat the conditions just noted in the axillae; but here secondary bacterial infection often occurs, and we may have macerated papulovesicopustules or, again, suggestions of streptococcic impetigo. On the large surfaces of the body, i. e., the anterior neck, the chest, the abdomen, the middle or lower anterior thighs, the tibial areas, the backs of the hands and wrists, the dorsum of the feet and the malleolar regions (and these are the only flat surfaces we have

ever seen affected), the eruption is very delicate, pink red or red, rather sharply bounded, usually curved, but rarely if ever serpigginously outlined, and, if scaling, only furfuraceously so. Comparatively innocent as this eruptive infection is, we have found it almost the most difficult to eradicate.

When this type of the disease is found on the back of the hands or of the feet, the careful observer will note that primarily the eruption will be merely an extension of the process from an earlier infection of the fingers or toes or crural region. From one or more of the interdigital spaces an ever widening arc will grow on to the dorsal surface of the hand or foot, and this primitive eruption has certain differences from the more mature, extensive, well developed and larger areas just described. The early eruption develops from the vesicular or macerated type common to the digits, and it seems to partake somewhat of its parental characteristics. It is a full red, it is primarily granular from its formation of minute papules and possibly papulovesicles, and it is fan shaped. In time, of course, two or more foci coalesce, and eventually when fully matured take on the characteristics of the generalized eczematoid type of the disease. In and around the umbilicus we find another localized subvariety of the infection. Here moisture seems to prevail, and we find merely full redness and a suggestion of subacute inflammation involving the whole cavity and extending out from its rim in varying degrees. All semblance of scaling is absent, and the moisture never seems intense enough to produce actual crusts.

Throughout all these various phases of the macular variety of epidermophytosis, itching plays an uncertain rôle, sometimes negligible and sometimes practically intolerable, and there seems to be no obvious rule regulating this subjective symptom of the disease.

THE VESICULAR OR DYSHIDROTIC TYPE

The vesicular form of the disease is limited to the hands and feet. Out of sixty-eight cases of epidermophytic infection of the feet, twenty-two were of the vesicular type; while on the hands the figures were twenty-two out of fifty-two—an average of 36 per cent. As a rule, the first appearances of the disease are on the fingers or toes, and in the majority of instances the disease remains limited to the digits. The initial lesions are usually on the lateral aspects, and only in the severer types does the process extend to the dorsal or ventral surfaces or to the web between two or more digits. The vesicle is generally a deep one and of good size. It is grayish, as a rule, often with a central bluish core. Actual inflammatory symptoms are usually absent. On the other hand, there is a less common type in which the vesicles are minute, decidedly superficial, very abundant and tend to group, and in this form the affected area assumes a decidedly angry aspect. In either case, pus is an exception on the digits. In drying, these vesicular varieties may sometimes produce a round scaling collarette, or the whole surface may become universally and delicately exfoliative, and this is peculiarly pronounced at the junction of the third phalanges and the sole. Generally it is the third phalanges which bear the brunt of the attack, but often the process may extend to the whole digit.

The palm and the sole may play a rôle in this variety of the disease, and in the former situation the vesicles

are scattered, as a rule, lie necessarily deep within or under the thickened stratum corneum, are flattened, and are very apt to become purulent and sometimes frankly pustular. On the under side of the foot the vesicles may be scattered; but they are far more often grouped, and these aggregations show a special predilection for the instep or the arch. Secondarily on the palms and soles collarettes eventuate more frequently than diffuse scaling. In these grouped types one must be sure to differentiate between epidermophytosis and dermatitis infectiosa eczematoides. In the latter case the individual lesions are prone to be larger, more superficial and exhibit a far greater tendency to spread peripherally and to fuse. Of course, the infectious organism is quite different and one must hunt for the epidermophyton or trichophyton, or for the staphylococcus or streptococcus, respectively. Both diseases are notoriously recalcitrant to treatment.

In the vesicular variety of epidermophytosis we have observed a peculiar tendency toward the subsequent production of hyperhidrosis, a feature which authors do not seem to mention. Previous writers on epidermophytosis would give one to understand that the vesicular type is peculiarly associated with summer; but in Boston, at least, there are so many exceptions to this rule that the maxim seems hardly tenable.

THE MACERATED TYPE

This variety in a certain sense represents a secondary process. All epidermophytic areas where surfaces touch and where heat and moisture are engendered may become macerated and at rare intervals invaded by pyogenic organisms. The true macerated type, however, is best exhibited between the toes, particularly between the fourth and fifth, and in the course of time the skin along the sides and in the web between becomes moist and white and swollen and wrinkled. This process may develop and grow to such an extent that a veritable lardaceous plug may form in the depths of the web. This ovoid body is clean and white and soft and malleable, and is freely detachable from its bed. Curiously enough, there are no concomitant signs of inflammation or of fermentation; in other words, there is no serious or purulent discharge or bad odor. If, however, one were to curet this macerated skin away, one would find an underlying reddened skin. Under this heading we must speak of maceration found in the intergluteal fold. We perceive a thin, white, soft, thickened line with reddened, angry edges beginning well behind the anus, never seeming to start from it, and running upward to, or nearly to, the uppermost intergluteal boundary. Several times we have noted in this white line one or more round holes looking for all the world as though made by a pin. Exhausting itching is apt to accompany this form of the disease.

THE HYPERKERATOTIC TYPE

The hyperkeratotic variety of the disease naturally affects the palms and soles most conspicuously and produces one of our greatest difficulties in differential diagnosis. One form seems to result from a primary vesicular infection, the increased horny tissue being cast up about previous single or grouped water blisters. When fully developed, all signs of fluid have vanished and we are confronted with the question as to whether we have to deal with epidermophytosis, psoriasis or

syphilis. This puzzling condition can be observed on the palms and soles. The other form of hyperkeratosis is limited in our experience to the soles. Here, most often on the ball of the foot, less frequently at the heel or along the outer border, one sometimes notes a good sized, oval, sharply bounded, hard, elastic area quite unlike other forms of hyperkeratosis in its curiously orange yellow color and in its peculiar translucence.

THE PAPULAR OR LICHENOID TYPE

The papular or lichenoid is the rarest variety of epidermophytosis, and when produced is evidently the result of long continued inflammation, irritation and scratching. It is not found in the pockets of the exterior of the body but has been observed on the inner aspects of the thigh, along the perineum and extending outward in a semicircle from the axilla. Just picture to yourselves the usual appearances of lichenification in its infiltration, its papulation, its harshness and dryness, its chocolate or even violaceous tint, its clear cut straight or curved boundaries, its intermittent and fierce pruritus, and you will realize the possibilities of this type of epidermophytosis. The presence of other and commoner types of epidermophytosis elsewhere on the same patient should suggest the possible parasitic etiology of such a plaque; but of necessity the microscope and the culture medium must decide this delicate diagnostic question.

INFECTIONS OF THE NAIL

Involvement of the nail in this disease, as in all other affections, entails great diagnostic difficulties, as is well appreciated. In epidermophytosis we are apt to find a thickened, friable, dirty orange, opaque, rough surfaced nail plate which does not grow and which may break off distally. This condition is frequently associated with a mild paronychia.

Throughout all the various descriptions it will be noted that involvement of the hair itself is never mentioned. Such an omission is assuredly intentional, for no observer has ever recorded any such fact.

TREATMENT

All features of epidermophytosis present their peculiar difficulties and intricacies—diagnosis, microscopic revelation, cultivation—and treatment is no exception to this rule. Chrysarobin and iodine seem to be the therapeutic mainstays of France, and Whitfield's ointment apparently plays a similar rôle in England. We have tried both methods and have succeeded poorly. There seems to be no guide as to prognosis—severe cases will at times unexpectedly disappear quickly, and seemingly mild examples will defy us to the uttermost. There are certain rules to follow in all instances. Soap and water are bad always. The affected parts must be kept cool and aerated as much and as frequently as possible, and bandaging, if permitted at all, must be kept down to the minimum. No gloves must be worn unless of a sterilizable nature. Woolen gloves, socks or underclothes must be tabooed. One rule, especially, must be enforced: Never stop treatment, even when all visible and appreciable symptoms have ceased. Continue just the same, and in the course of weeks gradually taper off. During the last three years we have tried all the accepted forms of medication and have lost faith in their dependability. As a result of much experimentation we feel that in very moist stages

pure crude coal tar is decidedly helpful as a temporary relief and that in anal itching this drug, incorporated in 5 per cent. strength in a zinc paste and applied carefully twice a day to the depths of each radiating sulcus, may be counted on to relieve and even to cure. In moist cases fomentations, fifteen minutes twice a day, of 1:5,000 potassium permanganate constitute one of our best methods of attack. Dr. E. Wood Ruggles has happily supplied us with two prescriptions which are by no means 100 per cent. perfect but which in our opinion are well worthy of trial:

	Gm. or C.c.
R Phenol	65
Zinc oxid	6
Tar ointment (Ung. picis liquid.).....	10
Ointment of rose water.....	20
	Gm. or C.c.
R Phenol	65
Tincture of iodine.....	4
Spirit of camphor.....	25

The ointment should be used first, and when the acute stages have passed the wash should be substituted and carried through to the bitter end. Remember that both may prove too strong and must be suitably diluted at first.

MYCOLOGY

We wish to define as accurately as possible the meanings with which we use the mycologic terms employed, since it has often seemed that considerable confusion has come from the use of terms which do not mean the same thing to each reader.

1. Hypha: The vegetative part of a fungus; a fungus filament; long, cylindric, branched filamentous cells which have a continued apical growth.

2. Mycelium: A mass of hyphae.

3. Spore: The primary reproductive body of the fungi; primarily a single cell separated from the lower plants for the purposes of reproduction. Spores perform a function in the fungi analogous to that of seeds in the higher plants. The majority of fungi produce more than one kind of spore. In the genera *Trichophyton* and *Epidermophyton* three types are produced: conidia of the sporotrichum type (microconidia), macroconidia (fuseaux, spindles) and chlamydospores.

4. Conidium: An asexual spore arising from the hypha by budding or septation. They may develop terminally or laterally or both; at first unicellular, they may become pluricellular.

5. Chlamydospore: A spore formed in the continuity of a hypha and encysted.

6. Among the conidia in this group of fungi is a type called by the French "fuseaux" (spindles), which is a larger and a peculiarly differentiated type. It is more or less spindle shaped, thick walled and sometimes septate transversely in these genera. It is a macroconidium. The shape of these spindles is characteristic in *Epidermophyton* and *Microsporon*, but less so in *Trichophyton*.

7. Ascus: A sac-like cell within which is formed a definite number of spores by a highly complicated process. Generally it contains two, four, eight or a multiple of eight spores.

It is usually considered that these genera—*Trichophyton* and *Epidermophyton*—when parasitic on man show only the vegetative form, i. e., the production of hyphae and mycelium. The decision as to whether the "sporoid bodies" found in the scales and scrapings from the host are spores or not depends on whether these apparent fragments of hyphae are definitely differentiated or whether the process is a simple fragmentation of the hypha. If we agree that a spore is primarily a single differentiated cell separated from the fungus for the purposes of reproduction, it might be

correct to speak of the "sporoid bodies" as spores. Sabouraud¹ considers them to be fragments of hyphae incorrectly called spores, and Rivas says, "In certain other fungi—Trichophyton, etc.—the mycelium is very fragile and under certain conditions may break into 'sporoid bodies' that have erroneously been called mycelial spores." Castellani considers that sporoid mycelium is a more correct expression than spores. It is not always possible, however, to draw a hard and fast line between conidial spores and portions of hyphae which become separated by fragmentation, since in certain instances—e. g., *Monilia sitophila*, the salmon colored mold of bread—the two are directly associated and pass one into the other as the plant matures.²

The principal characters of *Epidermophyton cruris* are that the fungus does not affect the hair and that it does not produce suppuration. The cultures on Sabouraud medium are very faintly yellowish at first, this color later becoming more pronounced. Sabouraud describes it as that of a half ripe lemon. In cultures protected from the light this is much more marked than in those grown in full light. In fact, the latter may not be yellow at all but a real tan color. All are rather powdery with delicate rays at the circumference, and comparatively early (three or four weeks) they show the pleomorphic transformation evidenced by tufts of white duvet.

In slide preparations from cultures and in hanging drop cultures, *Epidermophyton cruris* is characterized by its fuseaux and chlamydospore formation and the absence of microconidia, such as are found in Trichophyton. The chlamydospores are not characteristic taken alone, as they are found in other genera; but their presence in abundance in association with the characteristic fuseaux gives them confirmatory value. The fuseaux are small, club shaped or pear shaped structures about 9 microns in diameter in our experience, with varying lengths, septate at times, perhaps according to their age, and having no definite number of divisions. Their walls are not dense, as compared to the fuseaux found in Microsporon. There may be found several arising from the same stem, a condition which is unusual in other genera except Microsporon (*M. fulvum*). We have also observed in *Epidermophyton cruris* a spear head shaped terminal conidium with dense walls averaging 15 microns in diameter which we have not seen in other genera. Sabouraud says that microconidia are not found in Epidermophyton, and Castellani mentions their rarity. We have never seen them in our cultures.

It is therefore comparatively easy to distinguish *Epidermophyton cruris* from the trichophytons: (1) by culture, which does not very closely resemble any Trichophyton, and (2) by morphology: In *Epidermophyton cruris* the chlamydospores are usually many; in Trichophyton they are not so common. In *Epidermophyton cruris* the fuseaux are many and characteristic, in Trichophyton they are not numerous. In *Epidermophyton cruris* the microconidia are absent; in Trichophyton they are present.

Methods Used.—We have endeavored to follow the Sabouraud technic as closely as possible. Scrapings, scales and the roofs of vesicles were taken from the lesions and kept between sterile glass slides until

planted. The specimens were cut into small pieces and planted on the medium without treating in alcohol. In all cases we have made at least fifteen plantings—in some as many as sixty. Scales were planted from suspected cases whether the scales examined were positive or not. For mediums we have used Sabouraud's formulas made up with various brands of American maltose, dextrose and peptone. Three months ago we obtained through the courtesy of Mr. R. S. Hodges, of the State Geological Survey of Alabama, some of Sabouraud's sugars, peptone and filter paper. This gives a better growth than any of our sugars, and is more satisfactory to use, as the cultures correspond more closely to Sabouraud's descriptions.

During the early part of our work we used gentian violet in the medium (1:250,000 and 1:500,000). With the French sugars we have not used it, and from this limited experience we do not notice any marked difference in the amount of contaminations. In fact, our experience as to getting pure cultures of the fungi when we get any growth at all corresponds with Sabouraud's statements.

RESULTS OF CULTURAL EXPERIMENTS

	Scales		Cultures		Epi- dermo- phy- ton	Tri- cho- phy- ton	Micro- sporon
	Pos.	Neg.	Pos.	Neg.			
Feet	3	1	1	3	0	1	0
Toes	4	3	2	5	0	2	0
Hands	5	10	2	13	0	1	1
Groins	3	2	3	2	2	1	0
Axilla and groins	1	2	1	2	1	0	0
Axilla and toes.	1	0	1	0	0	1	0
Hands and feet	2	1	1	2	0	1	0
Toes and groins	3	0	2	1	1	1	0
Nails and groins	0	1	1	0	0	1	0
Generalized	1	2	2	1	0	2	0
Over coccyx....	1	0	1	0	1	0	0
Toes and penis.	1	0	1	0	0	1	0
Total	25	22	18	29	5	12	1

The morphology has been studied in hanging drop and in preparations taken from the cultures. We have found that the procedure of slicing some of the growth very carefully from the edge of the culture, including a little of the agar, and mounting in 95 per cent. alcohol, followed by distilled water and then by glycerin, gives satisfactory preparations with comparatively little distortion. To take up the preparation we employ a small knife of platinum foil mounted in a glass rod. This procedure was suggested by Dr. Roland Thaxter of Harvard College, to whom we are indebted for much information and many valuable suggestions.

We have not found any staining method very satisfactory, largely on account of the distortion produced; nor does it seem necessary, since satisfactory preparations for study and preservation can be obtained more easily.

Clinically, the cases from which cultures have been taken have been of the pure types or combinations of the types described above. We have not found *Epidermophyton cruris* in a simple hand case, but we have found trichophytons and, in one case of palmar mycosis, a microsporon (*M. lanosum*) (Sabouraud reports one case of palmar mycosis due to *M. audouini*). Our cultures have given us epidermophyton on other parts of the body only when preceded or accompanied by a crural lesion.

The accompanying table sufficiently itemizes the results of our cultural experiments. It will be seen

1. Sabouraud: Les teignes, p. 132.

2. Dr. Roland Thaxter, personal communication to the authors.

from this that out of forty-seven cases cultivated we obtained eighteen growths, and of these five were epidermophyton. Of course it is possible that the cases with positive scales and negative cultures may have all been due to the epidermophyton; but if this were so, the proportion would be only 50 per cent. of the positive cases. In our experience also, the epidermophyton grows comparatively easily when it is present in the scales—in one of our cases we obtained nineteen pure cultures from twenty-four scales planted; in another, thirteen pure cultures from fifteen scales planted. In all our positive cases we obtained several growths at least, while in trichophyton cases frequently there would be only one scale showing a growth from among twenty to fifty planted.

It does not seem to us that one is justified in stating that the doubtful cases are not mycotic because of several negative examinations or negative cultures. It frequently happens that continued and repeated examinations and cultures will finally give a positive result. One of our cases was positive after forty-eight scales had been planted, another at the sixtieth, and we feel that we could have obtained more positive cultures if more time could have been spent in microscopic and cultural work. Possibly more will be accomplished in future investigations by studying one case until convinced as to its being positive or negative rather than by taking a comparatively few cultures from the daily run of the clinic.

From the standpoint of mycology we do not wish to be considered as questioning epidermophytosis as a distinct dermatologic entity. From clinical appearances, however, we are not at present able to predict what genus will be found in the culture. Certainly, according to our experience, at least 50 per cent. are due to trichophyons, including the groin and intertriginous cases ordinarily considered always due to *Epidermophyton cruris*. While, however, because of the small amount of cultural work that has been done, we retain the title "epidermophytosis," it may well be that epidermomycosis is at present a more accurate name, and that future work will enable us to differentiate clinically between epidermophytosis and the dermatoses caused by other genera.

CONCLUSION

As a final word, we wish to enter a plea for the standardization of mediums used in this country. It is evident to any one who has worked with these fungi that their manner of growth varies greatly with the mediums on which they are grown. It is plain, therefore, that the results of various investigators, so far as the accurate identification of the species is concerned, will vary with the mediums used. Practically no American writers on the subject have specified the brands of maltose, glucose and peptone used, so that any comparison with their work is impossible. As it is now possible to obtain the Sabouraud peptone and an American dextrose closely approximating his maltose and glucose, and as long as his descriptions and nomenclature are accepted as the standards, each investigator should use his exact mediums and technic. It seems to us that results obtained from other mediums and technics are valueless when it is attempted to compare them with Sabouraud's. We must either work out the gross appearances and mycology of all the genera and species for each variety of medium, or hold

to the one already worked out and at present accepted. As a further complication of this subject it seems to us probable, certainly as far as the trichophytons are concerned, that there is a more or less distinct flora in this country.

TREATMENT OF RINGWORM OF THE SCALP BY THE ROENTGEN RAYS*

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One of the many benefits of the discovery of the roentgen rays has been to solve the problem of the treatment of ringworm of the scalp. Four years after the beginning of his epoch making studies, Sabouraud¹ expressed the opinion that no antiseptic would ever be discovered to cure ringworm of the scalp because "The root of the hair is inaccessible to antiseptics." One remedy after another was suggested which proved inefficient, and each year one would read in the medical press of the cure of ringworm by either an old or a new remedy which promised marvelous results. The list of better known remedies included tar, mercury, potassium hydroxid, phenol, the oleates, essential oils, iodine, chrysarobin and croton oil. All were unsatisfactory. The attempts to introduce antiseptics into the follicles by cataphoresis were also unsuccessful. To the statement of some authors that they had cured ringworm of the scalp in three weeks, Sabouraud answered that "they didn't know what they were talking about," and that it was "necessary to wait at least six weeks to affirm that a case is cured."

From the fact that no antiparasitic remedy could penetrate the follicles to any extent as long as the hairs remained, the rational treatment then appeared to be some form of epilation. Mechanical removal of hairs by forceps or other methods was successful in favus, though the process was long and tedious. It was unsuccessful, on the contrary, in ringworm on account of the much greater brittleness of the hairs. The only satisfactory solution of the problem was therefore to find a method that would cause a spontaneous fall of hairs, as they could not well be mechanically epilated on account of their fragility. This was first suggested by the experience in 1896 of Freund and Schiff, who observed a fall of hair in a nevus which they had treated with roentgen rays.

METHOD OF SABOURAUD AND NOIRÉ

For the next few years the attempts to elaborate a proper technic for ringworm were not very successful. The first great advance toward this goal was attained in January, 1904, when Sabouraud and Noiré² were able to announce the cure of 100 cases of ringworm by a safe method of treating each infected patch with a

* From the United States Public Health Service.

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Sabouraud, R.: *Maladies cryptogamiques, Les Teignes*, Paris, Masson et cie, 1910.

2. Sabouraud, R., and Noiré, H.: *Les teignes cryptogamiques et les rayons X*, Ann. de L'Inst. Pasteur 18:7 (Jan.) 1904.

single application of measured roentgen rays. The rays were at first measured by the device of Holzknecht, consisting of capsules containing a liquid of secret formula. When these were later unable to be obtained, Sabouraud and Noiré devised their radiometer X. This was a card showing two tints, one of which corresponded with the color of a pastil (of barium platino-cyanid) before exposure, and the other after exposure of enough roentgen rays to cause an epilation, without erythema. The entire scalp was exposed piecemeal over ten to twelve areas, preferably at a single sitting, the procedure requiring from three and a half to four hours. Circular disks of lead (localizers) of various sizes to fit the convexity of the head were applied and held in position by rubber bands. At the outset, static machines were used, but the apparatus later consisted of coils, self regulating tubes, etc. On the eighteenth day, the average time for the fall of hair, the scalp was washed and any remaining hairs were mechanically epilated. The head remained bald for two months, after which first downy and then normal hairs made their appearance. Any hair that had not returned in six months, it was considered, would never return.

KIENBÖCK-ADAMSON METHOD

The second important advance in ringworm therapy was made by Kienböck of Vienna, who devised a method by which the entire scalp could be irradiated at five separate points. This was shortly adopted, improved and popularized in England by Adamson.³ It has been spoken of as the 5 inch, five area, naked overlapping method. The technic consists briefly in locating a central point on a line drawn anteroposteriorly from the hair line of the forehead to the occiput. Four other points are then located at exactly 5 inches from the center. One point lies on this line 5 inches anteriorly and another posteriorly to the center, and one on each parietal region 5 inches from the center. Each of these four points is not only 5 inches distant from the center but also 5 inches distant from the two nearest points, and a tape passed around the scalp touching each of these points should measure 20 inches. Each of the five points should then be connected by lines drawn with a skin pencil and given successively one epilating dose of roentgen rays. The essential feature, as Adamson says, is to "direct each irradiation at right angles to the direction of the irradiation of adjacent areas." The surrounding parts of the face and neck and shoulders should be properly protected with lead foil, the scalp itself being entirely unshielded.

MEASURED DOSAGE BY ARITHMETICAL COMPUTATION (WITHOUT PASTILS)

The introduction of the Coolidge roentgen ray tube not only made possible a third improvement in the treatment of ringworm but has revolutionized radiotherapy in general. With the Coolidge tube and interrupterless transformer (of closed magnetic circuit type) it is now possible to standardize roentgen ray treatment and give precisely measured doses without the aid of pastils. Based on the work of Shearer on the physics of the roentgen rays, MacKee and his

associate Remer and later Witherbee have given us a method of standardized dosage by arithmetical computation.⁴

Briefly, it may be said that a definite quantity of ray may be given by proper control of the following four factors: milliamperage, spark gap (representing voltage), time and distance (from anode to skin). By means of a convenient formula these factors can be changed, when it is desired to modify the time of exposure, distance, etc. The method dispenses entirely with the use of pastils, the reading of which involves the question of personal equation and is difficult for some to learn. The method is also extremely simple and requires only reasonable care in its application and in keeping the apparatus in good working order (special attention being paid that the milliamperemeter functions properly). The dose that is given to cause epilation (one skin unit) is the equivalent of one Holzknecht unit with pastil at "skin distance," or four Holzknecht units with pastil at "mid-distance," or the equivalent of eight units of the Hampson scale.

PERSONAL EXPERIENCE

In our work with ringworm we have used a standard roentgen-ray apparatus with Coolidge tube, interrupterless transformer, etc., and have followed MacKee in adopting the modified Kienböck-Adamson method. This modification consists in simply dispensing with pastils and measuring dosage by arithmetical computation. We have used the following factors to obtain one skin unit (an epilating dose): 3 milliamperes, 6 inch spark gap, one minute and nineteen seconds and 6½ inch distance. By this method it has been possible to administer the entire treatment of five areas in half an hour, including the time consumed in mapping out the necessary points on the scalp, gaining the confidence of the child, etc. To facilitate the marking of the scalp, the hair has been closely clipped (not shaved) previous to treatment. To lessen the possibility of an erythema, no patient has been irradiated who had just previously been treated with irritating applications, such as iodine. They were not treated till at least two weeks had elapsed after such irritants had been applied.

The hair began to fall, as a rule, between the second and third week, the head remaining bald for a month or six weeks, after which the downy and then normal hairs made their appearance. When the hair began to fall, the scalp was washed daily and a 5 per cent. ointment of ammoniated mercury applied. The object of such an antiparasiticide was to kill the spores on the falling hairs and assist in preventing reinfection. The roentgen rays, it may be mentioned, merely cause

4. For those who are specially interested in this subject, the following references are given:

Shearer, J. S.: Factors Governing Photographic Action of Roentgen Rays, *Am. J. Roentgenol.* **2**: 900 (Dec.) 1915; The Physical Aspects of the Roentgen-Ray Measurement and Dosage, *ibid.* **3**: 298 (June) 1916.
Remer, J., and Witherbee, W. D.: The Action of the Roentgen Ray in Plac, Pastille and Skin, *Am. J. Roentgenol.* **4**: 303 (June) 1917.
MacKee, G. M.: Arithmetical Computation of Roentgen Dosage, *J. Cutan. Dis.* **37**: 783 (Dec.) 1919.
Witherbee, W. D., and Remer, J.: A Practical Method of Roentgen-Ray Dosage Without the Aid of a Radiometer, *Arch. Dermat. & Syph.* **1**: 558 (May) 1920.
Remer, J., and Witherbee, W. D.: The Cause of X-Ray Burns, *Med. Rec.* **98**: 183 (July 31) 1920.
Witherbee, W. D., and Remer, J.: Filtered X-Ray Dosage, *New York M. J.* **111**: 1105 (June 26) 1920.
Fox, Howard: Standardized Roentgen Ray in the Treatment of Skin Diseases, *New York M. J.* **112**: 837 (Nov. 27) 1920.
Lane, C. G.: Tinea Capitis: Roentgen Ray Treatment, *Boston M. & S. J.* **183**: 673 (Dec. 9) 1920.

3. Adamson, H. G.: A Simplified Method of X-Ray Application for the Cure of Ringworm of the Scalp: Kienböck Method, *Lancet* **1**: 1397 (May 15) 1909.

an epilation and are not parasitocidal in the slightest degree. Until the epilation was complete, the application of all irritants was avoided. Linen or other cloth caps were also worn until the completion of treatment as a source of protection to other children. Whenever the defluvium was not complete at the end of three weeks, the remaining hairs were removed as far as possible by adhesive plaster or mechanical epilation with forceps.

We have separately treated a total of ninety-eight cases, one of us (Anderson) having also irradiated nearly as many patients with favus by the same method, a report of which will be made later. One of us (Fox) treated thirty-five children (mostly colored) from the Harlem Hospital as ambulatory patients, while the others were treated (by Anderson) in the hospital at Ellis Island under the charge of the United States Public Health Service. Our total number of cases is small, but is enough to satisfy us of the efficacy as well as the safety of this method. While some of the children were not cured at the first treatment, at least no injury has been done in any case to our knowledge. Almost all of the cases were of the disseminated type of ringworm, requiring a complete epilation of the scalp to effect a cure.

Of the thirty-five ambulatory patients, the youngest was 3 years of age, the average being nearly 7 years. In all except two, the entire scalp was epilated. Of these, twenty-one have been followed for a period of three months to a year and were completely cured. Six of the patients did not return to show the final result of treatment, and six others are still under observation, the epilation having been good and a downy growth of hair having made its appearance. While it is possible that the six patients who failed to return may not have been cured, it is highly improbable that any permanent damage was caused, as in that event they would certainly have returned. The diagnosis in the majority of these cases was made clinically.

A marked change in color of the hair was noted in one case. This was in a girl of 3, whose hair before treatment was decidedly blonde. When the new hair appeared it was a brownish shade and had not changed at the end of eight months. In addition, her hair, which had previously been perfectly straight, was now somewhat curly. Curiously enough, her brother, who was treated at the same time, showed a change after treatment from wavy to straight hair. In six of the colored children the ordinary kinky adornment of the scalp was replaced by more or less straight or wavy hair, much to their delight and that of their parents. That this pleasing transformation was possibly not permanent would appear from the fact that in one patient at least, the hair had returned to its original kinky condition at the end of a year.

In two of the white children, a brother and sister of 6 and 7, respectively, rather alarming eruptions appeared about two and a half weeks after treatment. In the case of the girl this consisted of a generalized maculopapular eruption of the scalp, face and neck and parts of the trunk and extremities. At the outset it had somewhat the appearance of measles, but later presented a large number of pin head to pea sized vesicopustules. When subsiding, some of these lesions were larger and distinctly tender, and resembled furun-

cles. The eruption presented by the boy was similar in character, but less severe and extensive. At no time were there any constitutional disturbances. There was no radiodermatitis, and the fine hair at the time of writing is growing profusely. These two cases should perhaps be classed among the "trichophytids," as allergic phenomena similar to the cases described by Jadassohn, Block, Rasch and others. Such cases, however, have been reported in connection with deep seated kerion types of ringworm and have been accompanied by varying degrees of constitutional disturbance.

Of the sixty-three patients treated at Ellis Island, thirty-four have not been long enough under observation to judge of the ultimate result. Of the twenty-nine remaining, twenty-three were cured by the ray alone, and one by manual epilation after return of hair, while five others were failures. Two of the latter were given a second treatment at the end of six months. The diagnosis in every case was confirmed by microscopic examination. A cause of some of the incomplete epilations was the impossibility at times of obtaining sufficiently steady line voltage at the hospital. The youngest child in this group was 5 years old, the average being nearly 9 years. The large majority of the patients were Polish, Roumanian and Russian Jews.

Before being certified as cured, the Ellis Island patients were subjected to a rather rigorous test by so-called "sweat caps." These consisted of rubber tissue covered with layers of adhesive plaster, making a closely fitting covering, impermeable to air. After the normal hair had returned, they were applied on three successive occasions for periods of from three to seven days. At each removal of the cap a search was made for evidence of reddish patches, from which hairs were epilated and examined microscopically. By this means, cases of latent infection were detected which would otherwise have been considered cured.

EXPERIENCE OF OTHER INVESTIGATORS

Since the original publication of Sabouraud and Noiré's article in 1904, a large number of cases of ringworm of the scalp have been treated, particularly in France and England, by the roentgen rays. Adamson, in his original communication, reported the treatment of seventy-five cases with perfect results. Later, MacLeod,⁵ from an experience of 370 cases, stated that "all will agree that if successfully carried out the roentgen-ray treatment is the most rapid, effective and painless method of curing the disease." In Italy, Ceresole⁶ reported a series of 137 cases treated "with most satisfactory result, 94 per cent. being cured with not a single case of radiodermatitis." Emrys-Jones,⁷ in treating a series of ninety-three generalized cases by the Kienböck-Adamson method, found it necessary to cause a second epilation in twenty-six cases. There were no ill effects, as far as he could learn.

Writing in 1915, MacKee⁸ stated that he had employed the modern method of treatment for over

5. MacLeod, J. M. H.: The X-Ray Treatment of Ringworm of the Scalp, with Special Reference to the Risks of Dermatitis and the Suggested Injury to the Brain, *Lancet* 1: 1373 (May 15) 1909.

6. Ceresole, G.: Ambulatory Treatment of Ringworm by the X-Rays, *Arch. Roentgen Ray*. 18: 139 (Sept.) 1913.

7. Emrys-Jones, F.: Report on Two Hundred Cases of Ringworm Treated by X-Rays, *Brit. M. J.* 2: 849 (Oct. 4) 1913.

8. MacKee, G. M., and Remer, J.: The X-Ray Treatment of Ringworm of the Scalp, *Med. Rec.* 88: 217 (Aug. 7) 1915.

eight years "with only two bad results." In one case the hair failed to grow in one area, owing to faulty construction of the tube in association with half distance method of placing the pastil. In another the hair remained sparse in two areas, owing to the use of iodine after treatment. He condemned the old divided dose method, saying that it "is only employed now by those who will not or cannot modernize their technic. It precludes accurate direct measurement and cannot be employed to produce a defluvium of the entire scalp, at least not without considerable danger." In spite of such arguments, it is surprising to read a comparatively recent report of twelve cases treated by the old fractional dose method, the writer admitting that the "trend of opinion" was "to substantiate faith in the massive dose method." He appeared to believe that beneficial results were obtained by the rays without producing epilation, saying that "no appreciable amount of epilation was observed in any of the cases after treatment was begun; but, on the contrary, as the hair became more firmly rooted, instead of finding a broken off and branched condition of hair growing in the area, it approached normal."

That the Kienböck-Adamson method has not become as popular in France as in England would appear from the communication of Gouin⁹ in 1917, who stated that "in France this method is little or not at all employed." He had tried the method for six years, using it in the treatment of 300 cases.

Hazen¹⁰ has recently added a valuable contribution from his personal experience in treating 225 cases. In seventeen cases the epilation was limited to the affected areas, but in fourteen of these it was later found necessary to epilate the entire scalp, owing to the appearance of new patches of the disease. Of the cases completely epilated at the outset, there was a recurrence in one and a reinfection in six cases. There were two results which the writer characterized as "bad." One patient received an overdose because of the stopping of the timing clock, while in another case there was a slight thinning of the hair owing to the child's having moved during the exposure.

Dr. James H. Sequeira, in a recent letter (personal communication) has kindly given some statistics of his extensive experience with ringworm. He writes:

Six thousand one hundred and ninety-five cases of ringworm have been treated in my department at the London Hospital by the Kienböck-Adamson method. I have had an analysis made of the last thousand consecutive cases with the following results: In twenty cases, i. e., 2 per cent., the epilation was imperfect owing to an underdose, and a second application was necessary. The children who epilated well, viz., 980, attended the clinic from the date of treatment to the date of discharge as cured, on an average two months, and in twenty cases where a second application was necessary, the average of attendance was seven months. It must be remembered that some of the failures were due to the difficulty in keeping young children exactly in position during treatment. No children under 4 years were treated. Out of the 6,195 cases there has been no case of dermatitis and, so far as I am aware, there have been only four instances in which there has been deficient growth of hair, none, I am happy to say, having been observed for several years. I should add that since the autumn of 1913 the readings of the pastils have always been verified by the Corbet tintometer.

Dr. MacKee informs us (personal communication) that "over 1,000 cases have been treated in Dr. For-dyce's clinic without the use of pastils. As far as I am aware there has never been a case of permanent alopecia. Reinfection and recurrence amounted to about 5 per cent."

ECONOMIC VALUE OF ROENTGEN-RAY TREATMENT

The single dose roentgen-ray treatment of ringworm of the scalp has now been in use for the past seventeen years. During this time an enormous number of cases have been given the benefit of this rapid and effective method. Previous to 1904, the children at the L'Ecole Lailler in Paris (the school for ringworm cases) remained under treatment a little more than two years on an average. Today they are cured in three months. Similar results have been obtained at the ringworm schools in London under direction of the Metropolitan Asylum Board. The economic saving to the municipality from such an improved treatment is self evident. Under the old régime, according to Sabouraud, the cure of a child in a hospital represented an expense to the government of 2,000 francs as opposed to 260 francs when the roentgen-ray method was employed. In general, the time of treatment has been shortened from eighteen months to three months by the change in treatment. For the average child who is unable to obtain the advantage of a "ringworm school," the loss of time entailed by infection with ringworm is apparent. The longer duration of his affliction makes a child a greater menace to other children with whom he comes in contact.

In proportion to the very large number of cases that have been treated (chiefly in Europe), the amount of permanent damage that has been caused is extremely small. The possible danger of brain injury which would naturally suggest itself has proved by long experience to be wholly imaginary. Writing on this subject, MacLeod said: I have been unable to obtain any definite evidence of injury to the brain by this method of treatment from my own cases, from the literature on the subject or from any one with experience of this treatment whom I have asked; and the experiments I have done in this connection strongly negative the possibility." Whether from instinctive fear of injuring the brain or on account of natural difficulties in handling young children, the majority of operators do not frequently treat children under 3 years of age. Sabouraud at first refused to treat children under 2 years of age, namely, at the age when the fontanel is barely closed. Later, however, a rachitic infant with open fontanel was inadvertently treated. The patient was closely observed for six months after irradiation and suffered no apparent injury. Since then Sabouraud has treated many infants of 2 years, "always without ill effect."

CONCLUSIONS

1. From both a theoretical and a practical standpoint, the best treatment for ringworm of the scalp is by means of the roentgen rays.
2. With our present knowledge of exact measured dosage, without the use of pastils, the method is easy to learn.
3. With reasonable care it is safe, rapid and efficient.

114 East Fifty-Fourth Street.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. WHITE AND GREENWOOD, AND
FOX AND ANDERSON

DR. JAMES HERBERT MITCHELL, Chicago: Some men in the East have not the same conception of the clinical picture of ringworm of the extremities that we have in the West. It seems to me that some of the cases considered as ringworm in the East would be diagnosed as dermatitis venenata or toxic erythema in the West. Regarding treatment, we have had the same experience that Drs. Weidman and White have had. Chrysarobin is not always successful. Tincture of iodine is not always successful, and Whitfield's ointment is not always successful. As a rule, cases respond very promptly to any of these three, but in many cases there are frequent recurrences, due, I think, to reinfection from the original source. We must determine what is the original source. Probably the laundry is such in many instances. The wearing of socks that have not been sterilized in laundering, the use of unsterilized towels, and walking about the floor in bare feet are probably the three most common sources of infection. We ought to make studies to determine, if possible, how the sources of reinfection can be eliminated. Concerning the question of mycology, it seemed very simple at first to secure these organisms and then read Sabouraud and classify them. I have looked over the cultures of other men and they do not agree with what I believe to be certain organisms. It seems to me the important thing is to make descriptions of the fungi rather than to state that they are or are not certain organisms. In that way we can, perhaps, come to some agreement. It is very important that we interchange different types of fungi so that we may grow and compare them. Dr. Greenwood mentioned the occurrence of ringworm of the nails in conjunction with ringworm of the hands and feet. I have not seen such a case in my experience.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I think that much of the infection and reinfection that occurs is from second-hand socks and uniform clothing purchased in the second-hand houses and army stores. In several cases of infection in the groin I have been able to trace the infection to the wearing of drawers that have not been sterilized. As has been stated, you cannot kill the organism by boiling, so it is easy to understand how difficult it is to sterilize clothing. I have found Ruggles' mixture, a 12 per cent. solution of tincture of iodine in spirit of camphor, helpful. We can get rid of the blisters with strong salicylic acid and soap plaster, or even by means of thorough scrubbing with soap and water. Dr. Schamberg told me that he had found iodine far superior to, and several hundred times stronger than any other antiseptic employed in their experimental work, so it is easy to see why it is such an excellent application in infections of this character.

DR. CHARLES M. WILLIAMS, New York: Of course, usage controls; and if epidermophytosis is to be the name, that settles it. But why we should call lesions which we know are not caused by the epidermophyton by that name, I do not know. According to the opinions expressed, the epidermophyton causes not more than one third of the cases occurring on the hands and feet. I have never found it on the hands and Dr. White has never found it there. I have found it on the feet and in the groin and sometimes on the toes. Therefore, I think we should select some other name for this disorder. For the present I will call it *tinea*, which is non-committal. I wish Dr. White had emphasized one thing a little more: I have seen patients unable to work or walk. In one case the lesion looked more like a cellulitis, but the patient recovered very promptly. The quantity of serum has been spoken of. There is some moisture, but not by any means the amount that one sees in eczema. The absence of lesions on the scrotum has been commented on. Lesions do occur on the scrotum but not to the extent seen elsewhere. One interesting fact is that when they occur on the thigh, the upper border is not well defined, while the lower border is sharp and definite. This is characteristic of the occurrence on the thighs but not elsewhere. Dr. Greenwood spoke of the difficulty in differentiating between chronic ringworm and psoriasis. I have seen many cases in which the diagnosis could not be made until the organism was obtained. Some one said he had never seen the epidermophyton on the nails.

I think no one else has ever isolated epidermophyton from the nails. Usually, those are the trichophyton infections. Dr. Greenwood said soap and water should be avoided. That, to me, has never seemed to be a good plan. I have always allowed the patients to wash as much as they wished, provided they used an antiseptic at the same time. Whitfield's ointment has always proved very successful in foot cases, despite the fact that Dr. Schamberg has said that neither salicylic nor benzoic acid will affect the fungus. If it is used strong enough to peel off all the skin and get down to the growth you will get results. I have used salicylic acid up to 8 per cent., with 16 per cent. of benzoic acid, without causing any untoward reaction on the feet, and got good therapeutic results from this treatment.

DR. CLARA FITZGERALD, Worcester, Mass.: Last summer I had eight cases of this disease, all of which were caused by new woolen bathing tights. In these cases I advised soaking the affected parts for two hours in a boric acid wash and then painting several times with a solution of tincture of iodine, phenol (carbolic acid) and camphor. In some of the cases this treatment was not effective, and later I used Whitfield's ointment, which cleared up the cases in about two weeks. In another case, that of a young girl who had had repeated attacks of epidermophyton on the back of one hand, I ascertained that she had worn the same kid gloves during the winter for three or four years. The disease disappeared during the summer but recurred regularly in the winter until she discarded the gloves, and she has had no trouble since.

DR. FRED WISE, New York: It will interest Dr. Mitchell to hear that in New York we do get many cases of nail infection associated with the affection of the hands and feet. My own work has been too limited to say whether the slides from the nails and other regions presented the same organisms; but that they occur with relative frequency is a fact. Dr. Fox is acquainted with the statistics of the Vanderbilt Clinic, where more than a thousand cases have been treated without any bad results. The bad results do not occur any more nowadays in the hands of experts; MacKee and Remer and others have so standardized roentgenotherapy that even laymen can give the treatment with absolutely perfect results. Dr. Pusey made the statement yesterday that the ability of the physician to treat skin lesions with the roentgen rays was demonstrated in his ability to treat acne safely. That might be modified by saying that his ability depends on being able to epilate the scalp without getting any permanent alopecia; that is, giving the so-called suberythema dose without causing any visible reaction. I have a child with ringworm under observation who is only 4 months old. The mere sight of the roentgen ray apparatus makes it unruly, and therefore it is impossible to treat this baby. In some of these cases it is necessary to give an anesthetic in order to give the proper dose. The time needed is so very short that there are no ill effects from the anesthesia.

DR. ERNEST DWIGHT CHIPMAN, San Francisco: In the treatment of various cutaneous affections due to fungi one point needs emphasis. Just as the treatment of impetigo is greatly facilitated by the proper preparation of the field, so also in the treatment of the dermatomycoses we shall get quicker results if we pay particular attention to the removal of redundant tissue, such as macerated flaps and epidermal collarets, which furnish ideal sites for the propagation of fungi. Various keratolytic agents may be used, and some have suggested rough scrubbing. The most direct method is the careful trimming of all overlying dead tissue with knife or scissors.

DR. EVERETT S. LAIN, Oklahoma City: I fear that some present have failed to appreciate the importance of sterilization of all clothing that has come in contact with affected areas. Following our 1916 meeting, when Drs. Ormsby and Mitchell read a paper on trichophytic infections of the hands and feet, I treated patients by the methods suggested. I was successful in many cases but had many recurrences. I then made inquiries as to the methods of handling of their laundry. I found that very few laundries, private or public, attempt to use a sterilizing heat on hose. Even the cotton hose are rarely boiled, but are merely washed with soap and water and rinsed. I have since made it a rule, as in scabies, not to neglect to instruct patients that they must thoroughly sterilize all articles of clothing by immersion in gasoline for

from one-half to one hour. Since instituting this routine I have greatly reduced the number of recurrences of trichophytic infections in my practice.

DR. WALTER J. HIGHMAN, New York: I think the name "epidermophytosis," is too committing, but we could call it "dermaphytosis," as signifying that it is a fungus infection, or "phytodermatitis," which would be more descriptive. I have found it valuable, in order to cause the rupture of the vesicles in the hand and foot cases, to order a heterotonic salt water foot bath for about ten minutes. After the period of immersion, the salt water should be washed off with soap and water, plus a scrubbing brush, and then after that any local application may be made that seems indicated by the therapist. In this manner rather better results are obtained than if one attempts to use antiseptic preparations alone.

MR. ROBERT S. HODGES, University, Ala.: My interest in the ringworm affections came about from being a victim of ringworm of the nails for thirty-five years. A supply of Sabouraud's material for cultures was secured from Paris. The presence of the fungus has been demonstrated microscopically in sixteen cases of nail affection. Cultures have been attempted in thirteen of these cases, with success in twelve. Of these twelve cases one was found to be due to *Trichophyton gypsum*. The cultures from the eleven other cases, except for some minor variations, show similar cultural characteristics. On Sabouraud's glucose medium they are characterized by a purplish red color, more or less obscured by a white surface duvet which may show pink in places. On the peptone medium the cultures are yellowish, and with the exception usually of a central duvet are glabrous. Apparently this species is a frequent cause of ringworm of the nails in the South, and is usually associated with lesions on the hands and feet. It does not accord with any of Sabouraud's descriptions or to species that have been reported as causing the nail affection in Europe, namely, *Trichophyton violaceum*, *acuminatum*, *crateriforme* or *rosaceum*. From more recent observations I feel sure that it is identical with a species described almost simultaneously in 1910 by Castellani as *Epidermophyton rubrum*, and by Bang, working in Sabouraud's laboratory, as *Trichophyton purpureum* and believed by Bang to be of American origin. I hope to submit some cultures to Dr. Sabouraud for verification and to present additional evidence as to its identity and characteristics. With my limited opportunity for observation, aided by the interest of several local physicians, about twenty-four cases of the nail affection have been observed in a city of 12,000, indicating a ratio of at least 1:500 of population, a ratio ten times greater than that reported by Foster in 1914 among immigrants at Ellis Island.

DR. CHARLES J. WHITE, Boston: This is not a new subject. It was started in 1844 by Hebra and it is astonishing to read his old writings and find that he described these cases almost word for word; and yet this knowledge has all been forgotten. Hardly any of us knew anything about this disease ten years ago, and yet its description had been in print for a great many years. As to the name for this disease, it does not seem to be right to call it by its present title. I admit that "epidermophytosis" is a very poor name. Dr. Greenwood acknowledged that in many of our cases we were unable to find the epidermophyton. I cannot look on these cases as merely tinea trichophytina of the hands and feet, because they are so difficult to cure. We have always cured our ringworm cases easily enough before, but we cannot cure this new type. In regard to treatment, I have tried boiling the socks. My patients put on a pair in the morning and wear them all day and all night, changing them every twenty-four hours. The same rule is observed with running drawers and with towels and washcloths. But I do not often cure my patients quickly or absolutely. As to the methods of infection, there are many. One of my patients bought a pair of horsehide gloves and within a few days came in with his hands completely covered with the disease. Another man was driving a spirited horse, wearing no gloves but using new reins, and he had a serious infection. We all know the instance of many members of the same club being infected by the shower bath floor. The disease seems at times to be very infectious and at other times not so much so. The only criticism I have of the scrubbing brush method of removing the skin is that I do not see how you are going

to sterilize the scrubbing brushes, for their bristles are often made of hair, and I do not see how they can be kept from being infected.

DR. FRED D. WEIDMAN, Philadelphia: I have examined a much smaller series of cases of ringworm of the toe than Drs. Greenwood and White, and have not carried my clinical work quite so far. But I have examined fourteen cases culturally, and the results were very similar to theirs. There were six positive cultures out of the fourteen, but in my series none were epidermophyton. No doubt a larger series, like Greenwood and White's, would have yielded me a few epidermophytions; but our work shows clearly enough that there are other organisms at fault in these toe cases besides *E. inguinale*. Regarding the matter of maltose supply from France: I have recently received a letter from Dr. Sabouraud, who states that the original manufacturers have gone out of business. This means that we shall have to construct a brand new chemically pure maltose picture for ourselves or disregard maltose pictures entirely. This does not mean that we shall have to throw over Sabouraud's whole book. It will involve only a part—but an important one—of the section on gross cultural characters. I share Dr. Mitchell's skepticism in that we, too, find it difficult to diagnose on the basis of the gross cultural pictures. This is because we have not been able to secure sufficient genuine French maltose; and, therefore, we have been relying perhaps more on the microscopic cultures than on anything else. In this way we can at least put it into the proper group. Concerning Fox and Anderson's paper on the treatment of favus, we have just had five imported Russian cases which had been treated by the roentgen ray, and the resulting scarring and atrophy confused things so that it was uncertain whether the disease was still active. As far as I could determine, no fungus was present in the most suspicious hairs except for one case. Scrapings and suspicious hairs were planted and we recovered *Achorion schönleinii* in three of the cases, and *Trichophyton violaceum* in a fourth. Whether the last patient had also had favus is a question; but on clinical inspection, and from the fact that he was a brother of one of the positive cases the answer inclines strongly toward the affirmative. This little series showed us that whereas it may be impossible to detect active favus by simple microscopic examination of hairs, the simple culture of scrapings and hairs may result very conclusively, and be a useful means of clearing up doubtful cases.

DR. HOWARD FOX, New York: I agree with Dr. Wise that in New York we see ringworm of the nails associated with ringworm of the hands and feet with relative frequency. I do not think Dr. Wise would wish us to infer, however, that mycotic disease of the nails is common in New York. The only place where this condition can be seen in abundance is at the Ellis Island hospital. Here it is possible at almost any time to see a dozen cases of this disease. I was rather surprised at the prevalence of ringworm of the nails in the community referred to by Mr. Hodges. The best test of the correct technic of roentgenotherapy is not acne, but ringworm or favus of the scalp. If an underdose is given in these conditions, the hair will not fall; while, if an overdose is given, there will be a permanent alopecia.

Investigation Into Value of Respirators.—An investigation of the various types of respirators used by workers in numerous industries in preventing the inhalation of injurious dusts is to be undertaken at the Pittsburgh experiment station of the United States Bureau of Mines. Stone dusts and metal dusts that are breathed by miners, stone cutters and metal polishers have been the cause of much pulmonary disease, incapacitating many workers and at times resulting in early deaths. While the best preventive is to eliminate formation of dust or to stop it at the source, nevertheless numerous situations exist where respirators are serviceable in preventing inhalation of injurious dusts suspended in the air. Investigators have learned that the finest particles of dust, of a size far too small to be seen by the unaided eye, are the ones that lodge in the lungs and do most damage. In the proposed tests by the Bureau of Mines, fine particles such as compose tobacco smoke and fine mineral dusts suspended in air will be filtered with the different materials. The information obtained may be used to design more effective dust respirators.

LYMPHOCYTOSIS AS DIAGNOSTIC SIGN OF CHRONIC PERIAPICAL DENTAL INFECTION IN ADULTS *

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A study of the leukocytes in chronic focal infection has gradually produced the impression that lymphocytosis and leukopenia are of frequent occurrence. If this impression were true, it would not only constitute a valuable diagnostic sign of the probable existence of a focus of infection, but would also prove that the toxins or micro-organisms were entering and influencing the blood, even in the absence of any one of the many well recognized secondary manifestations, as, for example, arthritis, myocarditis, arteritis, nephritis, neuritis, neurasthenia and anemia. Moreover, lymphocytosis and leukopenia would make imperative the prompt removal of a focus of infection in a doubtful or unfavorable case in order to safeguard the patient from secondary manifestations, some of which could permanently impair the function of an important or vital organ.

Obviously, a local focus of infection, so situated that no toxins nor micro-organisms could enter the blood, would produce no change in the leukocytes.

With these ideas in view, a statistical study of the leukocytes was made in 100 cases of chronic periapical infection in adults; and in order to simplify the problem, all cases complicated by a focus of infection elsewhere were excluded, as different micro-organisms produce different effects on leukocytes.

A marked difference of opinion exists as to the normal number of leukocytes in health. Many pioneers in the study of the leukocytes were of the opinion that 10,000 per cubic millimeter was normal, whereas today, most observers consider that number pathologic. Physiologically, within certain limits, the number of leukocytes varies, so that no single number could be normal, and, furthermore, there may be individual peculiarities.

After much reflection, I believe that most authorities would agree that the following statements are conservative: In the adult, 7,500 leukocytes per cubic millimeter is average normal; the physiologic range is between 6,500 and 8,500; 10,000 per cubic millimeter or more represents leukocytosis, and 5,000 or less represents leukopenia. Thirty-eight per cent. of small and large lymphocytes represents the beginning of lymphocytosis; 80 per cent., or more, indicates the beginning of polymorphonuclear increase, and less than 65 per cent. represents the beginning of polymorphonuclear decrease.

Assuming that 38 per cent., or more, lymphocytes in adults represents lymphocytosis, in 100 cases of chronic periapical infection, lymphocytosis was present in fifty-four, chiefly due to an increase in the small lymphocytes. The lymphocytes in lymphocytosis varied between 38 and 62 per cent. The average percentage of small lymphocytes in the fifty-four cases of lymphocytosis was 40, and the average percentage of the large lymphocytes was 4, making a combined

average of 44 per cent. In four cases, the large lymphocytes were increased in number for unknown reasons. The increase in lymphocytes is usually associated with a corresponding decrease in the polymorphonuclear cells. Twenty-four of the fifty-four cases of lymphocytosis were associated with leukopenia. As the average number of leukocytes in the fifty-four cases of lymphocytosis was only 5,800 per cubic millimeter, in some cases, the increase in lymphocytes was relative and not absolute.

Leukopenia was present in fifty-four cases, assuming that 5,000 leukocytes per cubic millimeter, or less, represents leukopenia.

A study was made of the leukocytes in 100 cases of chronic disease in adults in whom *no* focal infection could be diagnosed and in only two was lymphocytosis present, one showing 38 per cent. and the other 38.5 per cent. Leukopenia occurred in six cases.

If a lymphocytosis is due to periapical infection, the lymphocytes should diminish or disappear if *all* infection be removed. In one case after the removal of infected teeth, the lymphocytes gradually decreased from 60 to 37 per cent. The possibility of infection of certain of the unextracted teeth could not be absolutely excluded. In another case, a decrease from 43.5 per cent. to 31.5 per cent. occurred in seven and one-half weeks. In cases complicated by advanced disease, such as cardiovascular sclerosis occurring in the aged and obese, the disappearance of lymphocytosis may require several months. As a rule, persistent lymphocytosis indicates the existence of an undiscovered focus of infection.

Chronic periapical infection shows the largest percentage of lymphocytosis and leukopenia. Multiple infections, based on a study of twenty cases, was next in frequency, showing lymphocytosis, 50 per cent., and leukopenia 25 per cent. Tonsillar infection showed lymphocytosis 40 per cent., and leukopenia 40 per cent., based on a study of twenty cases. Dental and tonsillar infection showed lymphocytosis 24 and leukopenia 44 per cent., based on a study of twenty-five cases. It would appear, therefore, that the percentage of lymphocytosis and leukopenia is greatest in periapical infection and almost as great in multiple infection, less in tonsillar infection and least in dental and tonsillar infection. As there were so few cases under the heading of multiple, tonsillar and dental and tonsillar, these comparisons are only suggestive and not final.

In thirty-three cases, cultures were made from the apex of the roots of the teeth and from material secured by curettage of the socket, and in twenty-three, *Streptococcus hemolyticus* was found, in nine *Streptococcus viridans* and in one a streptococcus. Frequently, the streptococcus was found in pure culture uncontaminated. It is, therefore, probable that most cases of chronic periapical dental infection are due to streptococci and that the hemolytic is much more frequent than the viridans. When a periapical infection is in communication with the mouth cavity, *Streptococcus hemolyticus* or *Streptococcus viridans* is usually replaced by a streptococcus, in association with *Staphylococcus aureus*, and other contaminating organisms from the mouth, and these organisms are usually less likely to produce systemic injury.

An area of chronic periapical dental infection not communicating with the mouth cavity is usually composed of streptococci and inflamed tissue and *seldom*

* Read before the American Climatological and Clinical Association, Lenox, Mass., June 4, 1921.

contains pus, contrary to the prevailing opinion that it is always purulent.

CONCLUSIONS

1. Small cell lymphocytosis with a corresponding decrease in the polymorphonuclear cells is an important diagnostic sign of periapical dental infection, the value of which is increased when leukopenia coexists.
2. Lymphocytosis occurred only twice in 100 cases of chronic disease when no focal infection existed.
3. Lymphocytosis indicates that toxins or streptococci, or both, are entering the blood.
4. Lymphocytosis usually disappears in from five to eight weeks after the removal of all foci of infection.
5. Lymphocytosis persisting after the removal of periapical infection usually indicates the presence of an undiscovered focus of infection.
6. The organism that produces lymphocytosis is usually *Streptococcus hemolyticus* or *Streptococcus viridans*.
7. Chronic periapical infection is usually nonpurulent.

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DUODENAL DIVERTICULA *

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CHICAGO

Our knowledge of duodenal diverticula falls naturally into two periods: first, the mortuary period, 1710-1910; and second, the roentgen-ray period, 1910-1917, marking a sudden enlargement of this field of knowledge, and also inviting its invasion by the surgeon.

In the first, or necropsy period, the condition was viewed as a rare and interesting anatomic deformity, like diverticula in other parts of the bowel, whose clinical significance was quite unknown. In the second, or present period, clinical evidence multiplied, and is still increasing, that these diverticula are important factors in the gastroduodenal ulcer syndrome. This is true whether we consider them as something to be sharply differentiated from ulcer or as sequelae of ulcer disease.

To this period, or perhaps to be classed as a coming third period, belongs the evolution of the operative cure of this condition which is only just beginning, and this in turn seems destined to involve rather wider problems than just operating on sacs and diverticula, the pathology often being as mixed and complex as is the etiology.

We are likely to find great need of borderline study and collaboration with skilled internists in the management of a condition which in one individual may be mere anatomic curiosities, of no clinical significance, and in another the key and sequel to long-standing disease such as eroding ulcer, while in still others it stands in a causal relation and is per se the origin and chief factor behind all the other symptoms.

HISTORICAL

In 1710, Chomel¹ reported finding at necropsies pouches or diverticula of the duodenal tube. It seems

uncertain whether Morgagni² in certain letters, 1762-1769, described true duodenal pouches or some sort of pyloric protrusions which he had found as a cause of death. Fleischmann,³ in 1813, reported true duodenal diverticula.

In England, Habershon, in 1857, described the condition accurately, as did Rokitsansky,⁴ in 1861. Klebs, in 1869, and Roth,⁵ in 1872, report other cases with their theories of etiology.

Herschel and Good,⁶ in 1880, also added cases, as did Seippel,⁷ in 1895, Le Tulle,⁸ in 1898, and Marie,⁹ in 1899. Hodenpyl,¹⁰ in 1900, found the deformity in connection with jejunal diverticula, and since 1900 many more cases have been recorded.

In the summary of all known cases made by Buschi¹¹ of Bologna in 1911, fifty-four instances, including three of his own, are compiled, with a list of sixty-two previous authors.

This brings us to the period when roentgen-ray investigations began to throw new light on the pathology of diverticulitis in vivo both in the duodenum and in other tracts. Bauer,¹² in 1912, comments on cases he had observed and attempts to evaluate their clinical significance. Rosenthal had already in 1908 asked the question whether duodenal diverticula were a cause of symptoms. Davis¹³ reports cases causing death. Baldwin,¹⁴ Wilkie,¹⁵ Fisher and others confirm this. Roentgen-ray interpretations now play an important part in most of the reports of this disease, and many illustrated papers have been appearing which prove the frequency of duodenal diverticulitis and its relation to other pathologic conditions.

Case,¹⁶ in 1913, showed four cases found in routine roentgen-ray work, and later, 1915, 1919 and 1920, he added another series found in routine roentgen-ray examinations. Akerlund,¹⁷ Linsmayer,¹⁸ Rosenthal,¹⁹ Secher,²⁰ Spriggs,²¹ and numerous others have made the subject more interesting by their recent timely papers.

Along with this, the problems of operative treatment in duodenal diverticula have been raised by recent interesting reports, notably those of Forssell,²² in 1914, Basch,²³ in 1917, Stewart, in 1916, Seigert,²⁴ in 1919, Murchison,²⁵ in 1920, Lewis,²⁶ in 1921, Moore and Ritchie,²⁷ in 1917.

EARLY PATHOLOGY

It was early noted that duodenal diverticula were acquired rather than congenital deformities, as they belong mostly to the latter half of life. Yet Shaw

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21. Spriggs, E. I.: Brit. J. Surg. 8: 18 (July) 1920.
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24. Seigert: Cor.-Bl. f. Schweiz Aertze 49: 47, 1919.
25. Murchison, D. R.: Duodenal Diverticulum with Pyloric Ulcer, J. A. M. A. 75: 1329 (Nov. 13) 1920.
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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Chomel: Histoire de l'Académie royale, Paris, 1710.

reported one case in a new-born infant. They were usually single and found most often near the papilla of Vater. Hence the term of French pathologists "*diverticules périvateriens*." They were commonly from 0.5 to 3 cm. in diameter. Often, as in the cases of Seippels and Völkers, they had a smooth lining of mucosa with Lieberkühns' glands covered by submucosa and muscularis, and Brunner's glands rather than with rupture of the muscular walls.

The direction has been various, forward, backward, upward or downward.

ETIOLOGY

The rôle of trauma, congenital defect, internal pressure, inflammation, etc., was little understood by the early pathologists, as is still uncertain in this disease. Analogous conditions in other viscera point to a great variety of causes. Klebs points out the anatomic weak points on the mesenteric side of the tube where the blood vessels enter its wall. Herschel found, on distending the duodenum, that furrows and even small pouches between the blades of the mesentery pointed to the possibility of false diverticula being produced by intestinal pressure. Roth, reporting five new cases, asserts that they are always of the false type and always on the concave side of the tube. Förster denies that this is universal. Fischer confirms Klebs' statement that small, pea-size diverticula appear beneath the serosa at location of blood vessels entering its wall. Grasser and Hansemann also find the foramina, especially of the veins, to be a *locus minoris resistentiae* in the muscular and fibrous coats. Nevertheless, a few definite cases of congenital origin are reported in which all the layers of the bowel completely surround the sac, as in Lewis' case.

That age is a most important factor in the etiology is plainly shown by Linsmayer's series, in which the youngest patient was 36.

RELATION OF AGE TO CAUSATION

Ages	Number of Cases
From 40 to 50.....	3
From 50 to 60.....	5
From 60 to 70.....	13
From 70 to 80.....	14
From 80 to 87.....	4

We cannot overlook the importance of inflammatory disease and round ulcer in producing these diverticula, nor, at the same time, ignore the fact of their frequency near the head of the pancreas where, according to Kath, the musculature is weakened possibly by the duct and large vessels penetrating its wall.

As evidence that these pouches are sometimes congenital may be stated the facts that they are often single, that they are met in association with other anomalies, such as Meckel's diverticulum and esophageal pouches, and that sometimes duodenal pouches occur near the pancreatic head containing accessory pancreatic tissue almost certainly a developmental anomaly. The obscurity which has existed and still exists about this pathologic condition is not strange when we consider that it is a condition likely to be overlooked at necropsy and which may be harmless and symptomless during life. It was only with advance of roentgenology that full recognition of its clinical significance began.

After seeing a few striking instances of duodenal pouches in connection with stomach surgery, I became convinced that duodenal deformity is a very constant

feature of medical and surgical diseases in the upper abdomen, and that pouches and diverticula form a constant if small proportion of these deformities. Some of these defects are only apparent, owing to outside pressure, spasticity or temporary exudate around callous ulcers. Some are transient and are relieved by medical management. A residue of permanent structural deformity is found, and of this number a smaller minority is found proved to have actual pouches which, in my opinion, call for surgical attention.

Linsmayer's 1,367 necropsies yielded forty-five cases of diverticula, or 3 per cent. Buschi found 2 per cent. in all his researches, or a total of seventy-three cases, only fifty-four of which had clinical symptoms. Up to this report, 1911, no one author had had more than five cases. Later, 1913-1920, Case added reports from 6,847 examinations yielding eighty-five cases, or 1.2 per cent., discovered by roentgen-ray examination.

I therefore reviewed all our available roentgen-ray examinations of the last ten years and found that in about 2,200 stomach cases more than 300, or 14 per cent., showed deformation of the duodenal canal, of which twenty-six, or 1.2 per cent., resembled diverticula.

INTERPRETATION OF DUODENAL DEFECTS

These deformities range all the way from slight kinks or angulation of the tube caused by dragging or outside pressure to total obliteration. They include eleven cases of diverticula, large or small. They also include "canalization" of the duodenum, a term employed by Dr. Sippy to define a uniform inelastic narrowing of the tube from any cause, as outside compression by a large gallbladder or head of the pancreas.

From the work of Sippy and Drennan I have learned the importance to the surgeon of seeing his fluoroscopic examinations personally. I feel sure that whether for medical or surgical treatment no laboratory report and no roentgenogram can teach him as much as viewing the moving, living picture with his own eyes.

The roentgenograms or still pictures also are of great value. Owing to their better definitions and their permanence, some features appear in them not visible with the fluoroscope.

How the future of operative treatment of these conditions will develop is an interesting problem. The pioneer work of Moore, Lewis, Ritchie and others mentioned above will probably result in standardizing our technic so that it will be much improved within the next few years.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. HARRY P. RITCHIE, St. Paul: I operated in one case in 1917. We have made every effort to find another case, without success, and I had come to believe the condition was very rare if not an accidental finding. Dr. Andrews' report and the number of cases creeping into the literature give evidence that this subject may be of wider application than is now evident. Diverticula are mentioned in the literature of pathology and roentgenology, but in surgery, until the last few years, there was little to be found. The discussion of the cause of diverticula is very interesting, but cannot be gone into at this time. We thought in our case that we had found one of congenital origin. The woman had for twenty-five years complained of abdominal pain; and, when a child, was permitted to leave school when an attack came on. At the operation, however, we found a definite duodenal ulcer almost symmetrically opposed to the opening of the diverticulum. The sac looked like a gas hernia with a thin walled sac of peri-

toneum which led down to a small opening through the muscularis into the duodenum. It was quite a problem what to do with it. I elected to use well known procedures, so I reinforced, tried to obliterate the cavity and performed a gastro-enterostomy on account of the duodenal ulcer. Excision is, of course, indicated, but those of you who find that this is impossible or carries too much risk may find some consolation in the report of my case. This patient had suffered for many years and was completely relieved of symptoms. She has been under constant care and attention since, and so I feel that symptomatically she has been cured. A year ago I endeavored to demonstrate a recurrence in the duodenum, because I felt at the time that I had done an incomplete operation. Fluoroscopically, this is no recurrence. I think we have here a surgical entity of probably not infrequent occurrence, but now that it has been proved to be one that can be relieved by surgery, it is one we surely cannot afford to overlook.

DR. JAMES T. CASE, Battle Creek, Mich.: I must confess to some disappointment in that most of the slides failed to show a characteristic roentgen-ray delineation of duodenal diverticula. Only in the last four or five slides were the roentgenograms really characteristic. In fact, in my tabulation of 6,000 gastro-intestinal cases for duodenal diverticula I did not include any that were not as clearly shown as in Dr. Ritchie's slides, and in the last five or six slides shown by Dr. Andrews. I found duodenal diverticula in 1.2 per cent. as shown by fluoroscopic and plate methods. It seems to me that, in the study of diverticula of the duodenum, fluoroscopy must be resorted to because it will show what cannot be shown in plates. Often there are large orifices, so large, indeed, that the barium leaves as rapidly as it enters. Other diverticula lie in the terminal portion of the duodenum, near the duodenojejunal junction, where they will be hidden by the overhanging shadow of the stomach, if one depends on plates. By fluoroscopic study a much larger percentage of diverticula can be demonstrated, especially if one employs a technic which I described last year. As to the duodenal irregularities and apparent sacculations shown by Dr. Andrews, I doubt whether they are of the same nature as the real diverticula found in the rest of the duodenum; I would not feel like classifying them as duodenal diverticula. In the majority of the diverticula, we have not felt that there were any surgical indications. Even in our dozen cases which have come to operation, some presented no surgical indication as far as the diverticula were concerned; there was some other pathologic condition for which operation was done, and the opportunity was improved to verify the diagnosis of diverticulum of the duodenum. Reference has been made to the diverticula which seem to be present in the roentgenograms but which are not found at operation. As I emphasized last year, many of the diverticula which arise from the lesser curvature of the duodenum lie within the substance of the pancreas or behind the pancreas. At operation, it is very difficult to verify those which lie within the substance of the pancreas; and in order to see those lying behind the pancreas, the duodenum must be mobilized. I like the method of Kanavel for mobilizing the duodenum. I may add that in many cases of duodenal diverticula, especially when the diverticulum lies at or near the point where we would expect to find the ampulla of Vater, the patient presents symptoms of biliary or pancreatic disease; and I would urge that when duodenal diverticula are found, especially in the upper portion of the duodenum, special study be made of the biliary and pancreatic functions.

DR. JOHN J. GILBRIDE, Philadelphia: One of the striking features of this subject is the marked disparity in frequency as noted by the anatomist and surgeon, on the one side, and the roentgenologist on the other side. I should hesitate to have a patient subjected to operation unless I felt reasonably certain the patient had a diverticulum. I think there is danger of interpreting symptoms to be due to a diverticulum when, perhaps, the condition is one of irregularity in the outline of the duodenum, as Dr. Andrews has pointed out. Therefore, I would be in favor of looking upon many of these cases as irregular in their outline. We know how bizarre structures may be made to appear sometimes by roentgen ray.

STUDY OF THE EARLY EFFECTS OF THE SIPPY METHOD OF TREAT- ING PEPTIC ULCER *

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For the last two years, the Sippy method of treatment has been used extensively with the cases of peptic ulcer in the medical service of Post-Graduate Hospital. An attempt has been made to follow and observe these cases for as prolonged a period as possible. This report is a study of the effects of this method of treatment on the clinical symptoms and signs, gastric secretion, evidences of occult bleeding, and roentgenologic findings in these cases. The series of twenty-eight cases here reported is not large, and the period of observation, from six months to two years in the longest case, is insufficient for drawing any final conclusions. But the effects that have resulted thus far seem sufficiently interesting to report in this preliminary way.

SELECTION OF CASES FOR STUDY

In selecting the cases for study, we have proceeded thus: Only cases giving a typical history of ulcer, and reported as having definite roentgenologic evidence of ulcer have been included. Our object has been to secure cases for study which, short of operation or postmortem examination, were as convincingly cases of ulcer as our present methods of diagnosis permit. All borderline or doubtful cases, that gave atypical histories or especially negative or inconclusive roentgenologic findings, were excluded. Cases of ulcer, complicated by other serious disease or by surgical conditions, such as organic stenosis, hour-glass stomach, perigastric adhesions, etc., were likewise omitted. Also patients that did not have the full three weeks preliminary rest treatment in the hospital, or that promptly disappeared from observation on leaving the hospital are, with two exceptions, not considered.

It is not always easy to follow these patients for a prolonged period. Some do not understand the importance of reporting regularly for further observation and treatment, particularly if they are having no ulcer symptoms. Some of them remain well for variable periods, even though, because of ignorance or carelessness, they relax their treatment. Sooner or later, these patients have a return of their symptoms, and they come back or drift elsewhere for relief. Many of them, however, particularly the more intelligent, are willing and glad to report as often and as long as desired, and cooperate completely in carrying out the treatment. This is the reason why the results of this or any ulcer treatment are so much better with private patients than with ward patients. The failures in a study of this kind are probably more likely to disappear from observation than are successes. We should, therefore, be very careful about any conclusions drawn from this, or any similar, study.

PLAN OF STUDY

The method of procedure is as follows: After making the diagnosis from the symptoms, results of the search for evidence of occult bleeding, examination of

* Read before the Section of Medicine, New York Academy of Medicine, April 19, 1921.

the gastric chemistry and roentgen-ray study, the patients are given the Sippy treatment for ulcer. Patients remain in bed three weeks, then get up gradually, and leave the hospital at the end of the fourth week to resume their normal life. At first, hourly feedings of a milk and cream mixture are given; later cereals and eggs are added, and still later, other soft, palatable foods, such as cream soups, custards, jellies and vegetable purées, are allowed. The diet is further slowly enlarged until, at the end of from nine to twelve months, it is unrestricted. From the beginning, alkalis are given hourly in sufficient amounts continuously to neutralize the free hydrochloric acid. The amount of alkalis required to accomplish this is determined by testing samples of the gastric contents aspirated with a duodenal tube, and increasing the amount until further testing shows that no free hydrochloric acid is present. They are continued from eight to twelve months. This is the distinctive feature of the Sippy method. All discovered foci of infection are eradicated if possible. In addition, those factors which influence gastric secretion and motility, such as mental or emotional strain and fatigue states, receive appropriate attention. Just before leaving the hospital, the gastric chemistry is again examined; occult bleeding again looked for, and a second roentgen-ray examination is made. The patients are then followed and studied in the same way, for one, two or more, years. These observations are not complete in some of the cases. The periods of observation vary from six months to two years.

EFFECT OF TREATMENT ON SYMPTOMS

Of the series of twenty-eight patients followed, twenty-two were cases of duodenal, and six of gastric ulcer. Eleven were followed from one to two years, seventeen from six months to a year. Twenty-two of the twenty-eight patients have remained free from pain and other ulcer symptoms since beginning their treatment. Of the remaining six who were unrelieved of symptoms, one has died and two have been operated on, one with complete relief and the other with partial relief. Of the eleven patients followed from one to two years, nine have remained entirely free from symptoms, one is only partially relieved, and the other only partially relieved after an operation. This leaves seventeen patients followed from six to twelve months: thirteen with complete relief, four with partial or no improvement. Symptomatic relief in the longer cases, from nine months to two years, means relief persisting when the diet was practically unrestricted, and the patient was no longer taking alkalis.

EFFECT OF TREATMENT ON THE CHEMISTRY OF THE STOMACH

Next let us consider the results of this form of treatment on the chemistry of the stomach, as shown by gastric analysis. Crohn and Reiss¹ reported the results of restricted diet in thirty-four cases during a period of from two to five weeks. They found that medical treatment reduced the acidity in less than half of the cases, and that more than 50 per cent. of the patients whose acidity was unaffected by medical treatment were discharged symptom free. They further showed that more than 50 per cent. of the patients discharged

free from symptoms retained their hypersecretion. My observations on these factors, unfortunately, are not complete and were not made in each case. Seven of the patients, followed from one to two years, have had comparative tests for acidity with the Ewald test meal. Three showed a distinct reduction in acidity and four did not. All of those showing no reduction in acidity, except one, have remained symptom free, as well as all those showing a marked reduction. Ten of the patients followed a year or less were examined for hypersecretion by the fractional method. It was present in six and reduced during medical treatment in two. Two of the four patients with persistent hypersecretion became symptom free and two did not.

EFFECT OF TREATMENT ON ROENTGEN-RAY

Evidence of slight bleeding, shown by the presence of occult blood in the stool, was present in six of the twenty-eight cases. All six happened to be in the group rendered symptom free by medical treatment. In each instance, the stool became negative for blood before the end of the third week and remained negative.

EFFECT OF TREATMENT ON ROENTGEN-RAY FINDINGS

Lastly, the effects of the treatment on the roentgen-ray findings are quite interesting. Friedenwald and Baetjer² first studied the effect of medical treatment on healing ulcers. They found that there is little roentgen-ray change in the first few weeks; but that after prolonged medical treatment, there are distinct roentgen-ray signs of healing. White³ and Hamburger⁴ have added further observations. White found in some gastric cases that the crater or niche along the lesser curvature disappeared entirely after sufficient medical treatment. In the duodenal cases, he found that the deformity of the cap was greatly reduced but rarely completely disappeared, because of remaining scar tissue or adhesions. In studying the effects of medical treatment of ulcer on the roentgen-ray findings, we have tried to pay particular attention to any change that occurred in the niche or filling defect, abnormal peristalsis, or emptying time of the stomach. Dr. Meyer of the roentgen-ray department made most of the roentgenologic studies here reported. Nineteen of our twenty-eight cases were studied with two or more roentgen-ray examinations, seven over a period of from one to two years, twelve from six months to one year. Thirteen of the cases were duodenal. In seven of them, comparative roentgenograms were made from one to two years after beginning treatment. Five of these seven patients showed marked improvement in filling defect, abnormal peristalsis and emptying time of the stomach; two probably showing complete disappearance of the filling defect of the cap, according to the evidence obtained. The other two patients, followed for more than a year, showed little or no roentgen-ray change. One was operated on; the other has remained symptom free, but shows the same duodenal defect and hyperperistalsis that he did originally. All of the six duodenal cases in which a comparative roentgen-ray study was made, covering periods of from

2. Friedenwald, J., and Baetjer, F. H.: On the Value of X-Ray Examination in the Diagnosis of Ulcer of the Stomach and Duodenum, *Tr. A. Am. Phys.* **28**: 157, 1913.

3. White, F. W.: Improvement in the Medical Treatment of Chronic Ulcer of the Stomach and Duodenum, *Medical Clinics of North America* **2**: 1431 (March) 1919.

4. Hamburger, W. W.: Roentgenological Studies in the Healing of Gastric and Duodenal Ulcer, *Am. J. M. Sc.* **155**: 204 (Feb.) 1918.

1. Crohn, B. B., and Reiss, J.: Effects of Restricted (So-Called Ulcer) Diets upon Gastric Secretion and Motility, *Am. J. M. Sc.* **159**: 70 (Jan.) 1920.

six to twelve months, showed improvement, namely, a decrease or disappearance of spasm, less abnormal peristalsis, smaller six-hour residue, and better filling of the duodenal bulb. Some showed only one, some several of these changes. With longer treatment and observation, further improvement occurred in the roentgen-ray findings, though it was not so rapid nor so pronounced as in the gastric cases. The factor that seemed to resist prolonged treatment most was hyperperistalsis, though it will be recalled that in only two cases did the duodenal bulb appear to lose its original defect. All the duodenal cases showing roentgen-ray improvement remained symptom free.

All six cases of ulcer of the lesser curvature of the stomach were studied with comparative roentgenograms, from six to sixteen months after beginning treatment. In all but one, the niche or pocket disappeared, and peristalsis and emptying time became normal and the patients remained symptom free. The single exception was a case of ulcer near the pylorus, with moderate stenosis, which was promptly relieved by operation.

SUMMARY

1. The effects on the symptoms, gastric chemistry, evidences of occult bleeding and roentgen-ray findings caused by the Sippy treatment were studied in twenty-eight cases of peptic ulcer, six gastric and twenty-two duodenal, over periods of from six months to two years.

2. Twenty-two of the twenty-eight patients have remained free of symptoms throughout the period of observation. Eleven patients were followed from one to two years with complete relief in nine, and unsatisfactory results in two. Of the seventeen patients followed for less than a year, thirteen have remained symptom free and four have not.

3. Of the seventeen patients studied with the Ewald test meal or the fractional method, ten showed no marked reduction in acidity, though all but two were rendered free from symptoms. Hypersecretion was detected in more than half of the cases examined. It was reduced by treatment in less than half of the cases, though some cases with persistent hypersecretion were made symptom free.

4. Six of the twenty-eight patients showed occult blood in the stool. It disappeared in all cases after three weeks.

5. In eighteen cases, comparative roentgen-ray studies were made from six months to two years after beginning treatment. Five of seven patients with duodenal ulcer, followed from one to two years, showed evidence of favorable roentgen-ray change. Two did not. All six duodenal cases followed from six to twelve months showed some favorable roentgen-ray change. Six cases of ulcer of the lesser curvature of the stomach were followed. The niche deformity and six-hour residue disappeared during treatment in five of these.

The purpose of this study is not to advocate the value of medical treatment in general, nor of the Sippy method in particular. It is merely to report some of the effects of this method. It is well known that with all the diagnostic help that has come in the last few years, the diagnosis of peptic ulcer, even in the hands of the most skilful, is still subject to error. Apparently, in some cases, nothing short of

opening the stomach or duodenum can settle the question. How large an element of error there is in this series of cases, I have no way of knowing. Furthermore, long remissions followed by recurrence of symptoms are so frequent in peptic ulcer that we should follow the cases for a much longer period than the average period of observation of this series before making any final conclusions. However, the effects of the Sippy treatment, even in this comparatively small series, are interesting, and this method of study should lead eventually to a better understanding of the value of the various medical and surgical procedures used in treating peptic ulcer.

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PULMONARY ABSCESS IN ADULTS FOLLOWING TONSILLECTOMY UNDER GENERAL ANESTHESIA

WITH REPORT OF CASES *

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AND

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PHILADELPHIA

In discussing the possible dangers of tonsillectomy, one is not likely to think of lung abscess as one of the complications. Hemorrhage, both primary and secondary, naturally looms foremost as one of the risks. Occasionally, one will recall the possibility of otitis media and its sequelae. Yet, when measured by the possibilities of fatal issue, pulmonary complications, such as lung abscess, would be of greater importance by far. Several cases which have occurred in this city recently, and which we had the privilege of observing, have served to emphasize this very thought. While it is true that pulmonary abscess is not a frequent complication, yet reference to the literature shows that it is by no means so rare as one would suppose. It is particularly noteworthy, also, that whenever a discussion on this subject is opened, a number of cases are presented that never find their way into the literature. Our own not too extensive search of the literature has revealed quite a formidable array of cases.

CASES IN THE LITERATURE

Richardson¹ was the first one to call attention to this complication by reporting three cases. Up to that time not a single case had found its way into the literature.

Bassin² reports a series of nineteen cases, with four deaths, from pulmonary lesions.

Manges³ reports six cases received at Mount Sinai Hospital, New York, for the treatment of pulmonary abscess following tonsillectomy, in a period of six months' time, with one or possibly two deaths. He also reports three other cases seen during a longer period, and one other seen during the last year, making a total of ten cases.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Richardson, C. W.: Washington M. Ann., May, 1912.

2. Bassin, C. G.: Les complications broncho-pulmonaires consecutives à l'adenoidectomie et à l'amygdalectomie, Paris, A. Muller, 1913.

3. Manges, M.: Am. J. S. 30:78 (March) 1916.

Ira Frank reports three cases seen by himself, and fifteen others reported in response to a questionnaire sent to fifty internists, surgeons and laryngologists.

Tewksbury states that he has seen fifteen cases in Washington alone in one year, following nose and throat operations. C. S. Dodd reports two, J. M. Williams, one, and L. Clendening, one.

W. B. Porter⁴ reports two cases of pulmonary abscess following local anesthesia.

In the five cases reported herewith, in which operation was performed elsewhere, the patients were later admitted to our services, their records thus being available for publication. They undoubtedly do not, however, represent the total number of cases of this sort occurring in our city.

REPORT OF CASES

CASE 1.—M. S., a woman, aged 24, several weeks prior to admission had undergone tonsillectomy under ether anesthesia, together with a submucous resection and treatment of the frontal sinus, for the relief of severe headaches of eight months' duration. Oct. 6, 1920, she was admitted to Mount Sinai Hospital, with painful breathing, cough and expectoration, headache, anorexia and fever. Physical examination showed the right lung to be involved with marked dulness over the base. The patient's condition improved under treatment until October 10, when râles and a friction rub were found over the left chest. October 12, there was expectoration of blood. Both sides showed involvement, and the patient grew steadily worse, developing abscesses over the buttocks, and later, a generalized furunculosis. October 23, the patient died, seventeen days after admission.

CASE 2.—J. R., aged 13, had undergone tonsillectomy under ether anesthesia. October 7, the patient was admitted to Mount Sinai Hospital, with pain in the right side, nausea, headache, fever, painful respiration, and greenish expectoration, which had appeared in mild form shortly after the operation. The previous medical history was negative except for repeated attacks of sore throat, for which tonsillectomy was performed. Physical examination showed dulness over the right base with no respiratory murmur, and an absence of vocal fremitus, crepitation and subcrepitation râles over the base of the left lung. The symptoms were violent cough, foul and profuse expectoration, high fever, and marked prostration. The patient died, October 12, six days after admission and twenty-two days after operation.

CASE 3.—I. H., a woman, aged 35, had undergone tonsillectomy six weeks previous to the time of coming under our observation. She was admitted to Eagleville Hospital, at Henry Phipps Institute, presenting pain in the chest, high fever, violent cough and profuse and foul expectoration. Hemoptysis occurred several times. The sputum was negative for tubercle bacilli. Diagnosis of pulmonary abscess of the right base was made, and was confirmed by roentgen-ray and fluoroscopic examination. Artificial pneumothorax was attempted, but proved unsuccessful. The patient left the hospital against advice, twenty days after admission, and is now practically a chronic invalid.

CASE 4.—J. B., a man, aged 48, had had a cough which had continued for several years, being worse during the winter. Tonsillectomy for its relief was performed under ether anesthesia. The cough became much worse immediately after the operation, and was accompanied by marked prostration and slight fever. The case was treated by the family physician for three weeks. The patient came under our observation at this time, and a diagnosis of abscess of the lung was made. Dulness was present over the right lower lobe; there was no evidence of trouble in the apexes. The temperature was septic; there was foul, profuse and bloody expectoration. An operation was suggested, but the patient refused. The case terminated fatally ten weeks after tonsillectomy.

CASE 5.—H. R., a man, aged 32, a Russian, with negative history, had undergone tonsillectomy under ether anesthesia, Oct. 22, 1919. October 29, the patient appeared at the dis-

pensary, complaining of severe pain in the right chest. Two days later he was admitted to the hospital. Thirteen days later, pulmonary abscess, situated in the left lower lobe, was diagnosed. The patient was in several hospitals after that and, for a while, in a sanatorium for tuberculosis. He came under our observation nine months later, suffering from a chronic cough, copious and foul expectoration and dyspnea. He was in a general way a chronic invalid. An operation was advised, but refused.

SUMMARY OF CASES

The foregoing cases present a total of seventy-six pulmonary complications, many of them fatal in outcome.

With the knowledge that such a complication is not rare, it is of more than passing interest to determine its possible causes as well as the practical way of avoiding them. A more detailed analysis of the reported cases, as far as the records will permit, brings out some interesting as well as important details:

1. Seventy-four of the seventy-six patients were operated on under general anesthesia, and, so far as known, ether was used.

2. All of the cases with the exception of four occurred in adults.

3. Of the cases in which detailed physical findings were available, the favorite site of the lesion was the right lung, either the midlobe or lower lobe being involved.

POSSIBLE CAUSES OF COMPLICATION

Among the causes advanced by the various writers are: (1) type of anesthetic used; (2) aspiration of blood, mucus or other detritus from the field of operation; (3) infective emboli carried to the lung from the field of operation through the vascular and lymphatic channels; (4) faulty technic, especially undue traumatism of site operation; (5) use of the motor-driven ether vaporizing apparatus (Clendening); (6) antecedent cause, either local or general.

1. *Type of Anesthetic.*—In considering the importance of the type of anesthetic as a cause for lung abscess, one is at once struck by the fact that of the seventy-six cases compiled, seventy-four occurred in cases in which operation was performed under general anesthesia. The anesthetic, per se, can hardly be considered as the determining factor in the production of a lung abscess, since in general surgery, where patients are subjected to prolonged anesthesia, lung abscess is an extremely rare complication. On the other hand, local anesthesia seems to play very little, if any, part. Only the two cases reported by Porter seem to have followed tonsillectomy under this method, and he states that both of them were definitely tuberculous.

2. *Aspiration of Blood, Mucus or Other Detritus from the Field of Operation.*—This is advanced by many who have written on the subject as a most frequent cause of lung abscess. T. A. McKenty says, "Aspiration accounts, I believe, for the majority of these cases." L. W. Dean explains his freedom from this complication as possibly due to the fact that all his patients taking general anesthetics are "operated on on their sides, with the mouth lower than the larynx." H. A. Allen says, "I refer no case of tonsillectomy to a nose and throat man who uses general anesthesia unless he guarantees to me that the patient's mouth and head will be held lower than the rest of the body."

There can be no doubt that the aspiration of infected material from the site of operation while under deep

4. Porter, W. B.: Virginia M. Monthly 47: 606 (March) 1921.

anesthesia is capable of setting up an infected area in the lung, but we do not believe that it is as frequent a cause of lung abscess as most of the authorities seem to think.

3. *Infective Emboli Carried to the Lung from the Field of Operation Through the Vascular and Lymphatic Channels.*—In nonoperative cases, and these are quite numerous, the most frequent cause of lung abscesses is infarction by infective emboli carried from distant parts of the body. Indeed, it is the most frequent cause given, with the exception of pneumonia. Of thirty-one cases compiled from the records of the Pennsylvania Hospital by Norris and Landis, covering a period of fourteen years, nineteen, or more than 51 per cent., were due to emboli brought to the lung through the circulation as follows: vegetative endocarditis infarct, 6; otitis media, 2; Otitis media and thrombosis of the lateral sinus, 2; mastoid disease, 1; thrombosis of the portal vein, 2; thrombosis of the iliac vein, 1; abscess of the kidney, 1; abscess of the hip, 1; abscess of the pharynx, 1; abscess of seminal vesical, 1; abscess of the skin, 1.

There have also been reported brain abscesses following tonsillectomy, which, of course, had their origin in metastatic emboli. When we recall the anatomy of the tonsillar area, its close association with the lung through the lymphatic and vascular circulation, as so well shown by Wood and others, and when it is remembered that the tonsil in the adult is almost always reeking with bacteria, both pathogenic and saprophytic—liberated and perhaps forced into the circulation during an operation on the tonsil—and that the field of operation can never be considered surgically clean, it would appear that infection through the circulation is the most likely and probable way in which lung abscesses occur.

In one case under our observation, not included in those reported above, a lung abscess developed during a rather mild course of Vincent's angina. The patient was not operated on, but the case illustrates how readily infective emboli are carried from the tonsil to the lung through the circulation:

A. A., an Italian laborer, aged 51, came to the dispensary complaining of hoarseness, sore throat and cough, extending over a period of five months. An examination showed no pulmonary signs, but the left faucial tonsil was indurated, thickened and partly ulcerated. A smear made from this region showed Vincent's organism. Suddenly the temperature rose to 102.4 F. He was admitted to the Eagleville Hospital. The temperature was septic, and a severe cough developed, with heavily streaked and foul smelling sputum. Ten days later abscess of the lung was diagnosed.

It is well known that in many cases of septic arthritis and osteomyelitis, the disease is ushered in with an acute tonsillitis, and here, of course, the infection must be hematogenous.

In tonsillectomies under general anesthesia, with a large infected area, laid wide open by the surgeon, and with the patient in a relaxed condition by the anesthetic, conditions are particularly favorable for infective emboli being carried to the lung.

4. *Faulty Technic, Especially Undue Traumatism of Site of Operation.*—Elements probably playing some rôle in the production of this complication are: length of time consumed in the operation, permitting the pharynx to fill up with an undue amount of blood and secretions; unnecessary crushing and laceration of tissue about the tonsillar region with the opening

of the additional blood and lymph channels and improper position of the head of the patient, favoring aspiration.

5. *Use of the Motor-Driven Ether Vaporizing Apparatus.*—This, as a cause, can probably be dismissed with very little consideration.

6. *Antecedent Causes, Either Local or General.*—Chronic bronchitis, or the presence of particularly virulent infection in the region of the operative field, such as Vincent's angina, peritonsillar abscess, or general debilitating conditions as diabetes or bronchiectasis, undoubtedly act as predisposing factors.

CONCLUSION

We have two important facts to consider: What is the most probable cause of this complication, and how are we to avoid it?

We do not believe that any one cause is operative in all cases to the exclusion of the others. It is undoubtedly feasible for a lung abscess to result from the aspiration of an undue amount of infective material; faulty technic certainly plays its part. There are undoubtedly other factors. In our opinion, however, the most potent cause of this complication is the introduction either through the lymph or the vascular circulation of infected emboli which find lodgment in the lung structure.

The intensely practical phase of the discussion, however, is how to avoid this unfortunate complication. If we are to profit by the experience of others, the one outstanding fact is that out of this series of seventy-six reported cases, seventy-four of the patients, or practically all, were operated on under general anesthesia. On the other hand, we have the experience of laryngologists, such as Wilkinson, who reports 1,000 consecutive tonsillectomies under local anesthesia without even so much as a case of bronchitis. Similarly, the experience of Albert Ochsner and L. S. Dean, as well as our own experience, covering a tremendous number of cases in which operation was performed under local anesthesia, without a single complication, seems to be convincing evidence that the general anesthetic, whether acting directly or indirectly, is the determining factor in the causation of this complication.

How, then, does the employment of local anesthesia operate to obviate this complication?

1. It removes the possibility of aspirating infective material.

2. It produces a marked constriction of the lymph and the blood channels in the field of operation, thus preventing the introduction into the circulation of infective emboli.

3. It reduces general shock, and the general ill effects which always ensue to a greater or less degree after general anesthesia, particularly ether.

4. It cannot possibly light up a quiescent lesion anywhere in the respiratory tract.

We deem tonsillectomy in the adult safest when done under local anesthesia.

1820 Spruce Street—1630 Spruce Street.

ABSTRACT OF DISCUSSION

DR. CHARLES W. RICHARDSON, Washington, D. C.: In 1910 I published the results of tonsillectomy and reported a case which was designated as a septic infarct of the lung. I believe that this is the first case of abscess of the lung reported as being secondary to faucial operation. Later I

published two or three papers on abscess of the lung secondary to faucial operation. The symptoms of abscess of the lung following faucial or other operations are very characteristic. The first characteristic symptom is pain in the lung, followed immediately by excessive expectoration of material which the patient will tell you is offensive. With those characteristic symptoms and a septic temperature, no one should make an error. The odor of the exudate becomes patent after a day or two. This is followed by more or less bleeding, sometimes actual severe pulmonary hemorrhages. In the early stages no characteristic signs in the lungs are noted because the abscess is so deep seated, usually, that one cannot detect the evidence of it. Roentgen-ray examination will reveal the abscess. The authors maintain that local as well as general anesthesia should be the cause of the condition, if we accept their theory of the causation. For a time I was of the opinion that the causes are embolic, either vascular or lymphatic. However, from the success of later treatment I have thrown this opinion aside. I believe that very few of these cases are of embolic origin, but that, if not entirely, they are in large part due to the inspiration of septic material which is squeezed out of the tonsil at the time of operation. This condition is as likely to occur under local manipulation, whether a general or a local anesthetic has been given. We are just on the eve of getting reports of a greater number of abscesses following local anesthesia. It was many years after general anesthesia had been employed before operators commenced to report pulmonary abscess secondary to general anesthesia. How to prevent this complication: From demonstration and the almost entire elimination of abscess of the lung in the last six or seven years in my operative work under general anesthesia, I feel that postoperative abscess of the lung can be prevented by placing the head of the patient well down and using suction apparatus. In operating under general anesthesia I elevate the foot of the bed and have the patient's head well dependent. Since following this plan we do not have lung abscesses following general anesthesia. In the last two years I have done more tonsillectomies under general anesthesia than ever before and have not had a lung abscess following these operations.

DR. THOMAS E. CARMODY, Denver: It is very important not to have the patient too deeply under the anesthetic. A number of men who have reported cases of this kind give a great deal of credit to gas and take a great deal away from ether, but, so far as my knowledge goes, no one has spoken or written of warm ether. Cold ether may chill the lung and give opportunity for infection, either embolic or by inspiration, but warm ether does not do this. We should warm the ether, not simply put it in warm water and have it evaporate, but have a warming apparatus that will warm the ether after it has vaporized. The motor driven ether vaporizing apparatus may have something to do with the condition under discussion because it may drive something in, but aside from this I do not see that anything could happen to produce infection by this cause. Dr. Richardson has spoken of the position of the patient, and I believe that is very important. For a number of years we have used the semi-Trendelenburg position, which is practically the same position as that described by Dr. Richardson. During the last few days some one mentioned that we never heard of lung abscesses when we operated with the patient in the old Rose position. The cough, under light general anesthesia or local anesthesia, prevents inspiration. As Dr. Jackson has said, the cough is the watchdog of the lung and probably prevents many of these cases of lung abscess, especially from the inspiration of septic material.

DR. GEORGE L. RICHARDS, Fall River, Mass.: I have had under observation three cases of this kind. One was a case of purulent pleurisy. The second case followed a double operation, first on the septum and then on the tonsil. The third case was one of infection probably due to direct inhalation. I believe that the main cause in these cases is inhalation directly from the diseased tonsil into the lung. How shall we prevent it? Is it due to local or general anesthesia? I do not think it is either. For many years I operated with the patient in the upright position and never had lung abscess follow. The first case I had was a pleuritic

abscess developing after an operation in the upright position. Of late years we have operated with the patient in the prone position, either the Trendelenburg position or with the head thrown away back. It does not make any difference which position is used. We have a suction apparatus, and as pressure is applied we watch the tonsil and if any septic material is squeezed out, it is sucked up by this apparatus. This keeps the septic material out of the lungs and requires only a few seconds more, and subsequent trouble is thereby avoided.

DR. GEORGE F. KEIPER, Lafayette, Ind.: I have investigated the matter rather carefully in order to determine, if possible, when and where and how this trouble begins, because I have had one case. The case referred to by Dr. Richardson was really the first one reported. Then came the report by Bossum in 1913 and that by Manges in 1916. Glendenning says the trouble is caused by the motor driven ether suction apparatus. If you use the proper motor driven suction apparatus you pump in warm ether. The Beck-Muelle motor driven apparatus is the best one. Cutler and Hunt, who are general surgeons, state that in from thirty to fifty of all kinds of cases in which operation is performed, one patient develops lung complications, and that one in from 150 to 185 patients dies from such complications. They believe that pneumonia, bronchitis, empyema and lung abscess so develop. Sometimes fatal pulmonary embolism may occur. According to Hedblom, symptoms may not appear for several months or years, no immediate symptoms being present. Hunt believes the trouble lies in embolism from the field of operation. If inhalation is the cause of this condition, why do we not have more trouble with lung abscess than now occurs, for the reason that many people go about in the upright position with very foul mouths, aspirating more or less at times the contents of the mouth? Experiments have shown that, after all, inhalation would not carry anything very much below the lower portion of the larynx, so that it would appear that inhalation can hardly be blamed for the condition. To prevent this trouble we must not operate in the presence of acute infections, syphilitic processes, advanced tuberculosis, advanced cardiovascular changes, in diabetes mellitus, or in the presence of delayed coagulation time and high blood pressure, and also in cases of status lymphaticus, in fever, particularly in children, because fever in children may be the premonitory of measles, scarlet fever and diphtheria.

DR. CULLEN F. WELTY, San Francisco: I believe that the complication of abscess of the lung is due to the fact that the patient is not completely anesthetized when operated on for the removal of tonsils and adenoids. When there is not sufficient anesthesia, the patient bleeds more, and there is more mucus and secretion, and all this has to be taken care of, and the chances are that some part of the blood and secretion find their way into the lung. Besides, following the anesthetic there is an interval during which blood and secretion get into the lung because of the anesthetic. I have never had a lung abscess develop in this way, and I have done many tonsil operations under general, as well as local anesthesia. I cannot offer an explanation as to how an abscess of the lung can develop following local anesthesia. I have had three cases of abscess of the lung following accessory sinus operations, and I think the infection takes place some time following the operative procedure; not during the time of operation. However, the nasopharynx is always plugged, and in future I am going to introduce a clean sponge into the nasopharynx following operation, to be removed in twenty-four hours, and this will probably remove some of the danger.

DR. MARGARET F. BUTLER, Philadelphia: In the reports of these cases, no mention has been made of the previous history. We have operated in thousands of tonsil cases, by every method, with and without ether. I had my first case of lung abscess last summer. The patient had suffered from asthma for five or six years, and it was evident that she had previously had a septic condition in the lung because she had had streptococci in the sputum and in the tonsil. She was a bad risk. For years she had been advised to have an operation, but had postponed it, and finally when operated on a lung abscess followed. There were no symptoms until a week

following the operation, when signs of lung abscess appeared. She was very ill for a month. An autogenous vaccine was made from her sputum, and following treatment with this she made a perfect recovery. She has had no asthmatic symptoms and is in better health than ever before.

DR. HENRY L. LYNNAH, New York: A point not mentioned in the discussion thus far is the condition of the patient prior to the time of operation. We have had nine cases of lung abscess following tonsillectomy at the Lenox Hill Hospital, and a careful history has shown that many of the patients suffered from postinfluenzal bronchiectasis and coughed up pus for some time before their tonsils were removed. Is it fair to blame the operation for this condition? As regards the embolic and aspiration cases, it seems that the great majority of them are due to aspiration, because they live long enough to require further treatment. In all so-called embolic cases the symptoms are so violent and the patient succumbs in so short a time that nothing can be accomplished by bronchoscopy. Undoubtedly all of the patients in whom bronchoscopy has been performed so far have had aspiration abscesses. Early bronchoscopy is a great aid in the relief of these sufferers. We have seen some very startling improvements after bronchoscopic evacuation. Of the nine cases referred to, two patients succumbed following thoracotomy.

DR. A. A. HAYDEN, Chicago: I am strongly of the opinion that the conditions are usually due to aspiration. I have seen one case, and two or three points that have been brought out in the discussion seem to be particularly apropos. Because a lung abscess develops after a tonsillectomy, it does not necessarily follow, on the reasoning of post hoc, ergo propter hoc, that it is due to the operation. Even with very careful lung examination, a small focus of infection may be missed. The case that occurred in my own experience was that of a patient who for some urgent personal reasons had a septal operation and a tonsillectomy done at the same sitting under a general anesthetic. Although suction was used very carefully, it is my belief that an undue amount of blood and infectious material was inspired into the lung, and the abscess followed. This was an aspiration case, and, as Dr. Lynnah has suggested, most of these patients get well. This man made an uneventful recovery and is in much better health now than he has been for some time. The ether suction apparatus, not only that devised by Beck but the apparatus in general, has been more productive of prevention of lung abscess following tonsillectomy than any other factor. I cannot see how an ether suction apparatus can be the cause of lung abscess. Certainly the pressure of the ether as it comes from the machine is never sufficient to blow anything down into the lungs. I wish to emphasize a point made by Dr. Richardson, that not all aspiration takes place on the operating table. When a patient is put to bed, especially if, as Dr. Welty has suggested, he has been deeply narcotized, it is very possible that a considerable amount of blood and mucus can be inspired into the lungs after the patient has been returned to bed. For that reason the elevation of the foot and the depression of the head of the bed is very essential.

DR. ROY P. SCHOLZ, St. Louis: In coming to a conclusion in regard to lung abscess complicating tonsillectomy, we should be slow to base our opinion on personal experience. It seems to me that we shall arrive at a correct solution only after a careful study of extensive statistics, gathered from many operators. Personal experience varies with the individual. Formerly I did at least 80 per cent. of my tonsil work under local anesthesia, with the patient in an upright position; now I do at least 90 per cent. under general anesthesia, using nitrous oxid and oxygen in adults and very light ether anesthesia in young children, with the patient recumbent. Some of us have been fortunate in escaping the experience of lung abscesses. I have operated using both extremes in anesthesia and posture, and have been one of the fortunate ones.

DR. ALBERT HIRAM HERR, Cleveland: I agree with Dr. Richardson that abscess of the lung after tonsillectomy is rarely due to metastasis but to inspiration of septic material which has been squeezed out of the tonsil during the opera-

tion. Hence, it is of the greatest importance to avoid too much manipulation of the tonsil during the operation. The tonsil should be handled very tenderly, not crushed or torn, but carefully enucleated in its entirety within its capsule, under direct vision, thus avoiding the leaving of pieces of tonsil or even pieces of the capsule behind in which bacteria may flourish and find their way from these foci to the lung. For the same reason the surrounding structures and the entire throat should be treated delicately, and carefully guarded against injury during a tonsillectomy. Dr. Butler is correct in what she says in regard to the previous history of these cases.

DR. LEWIS FISHER, Philadelphia: I suppose there is no method of operating that is absolutely so bad that we are bound to meet with disaster every time, and no method so good that we will never meet disaster. I have no doubt that with unusual care every one will get good results with any method. While it is an interesting academic question as to whether the abscess is produced by inspiration or by metastasis, it is, nevertheless, largely academic. I was impressed with the practical side of the question. In the cases we have reported, operation was done by skilled surgeons, and we are sure the suction apparatus was employed. The fact to remember is that these accidents do occur when ether is used. Whether due to inspiration or to septic emboli or to something else does not matter. What does matter is the sum total of experience. Thousands of tonsillectomies are done under local anesthesia, and only rarely do we hear of a complication of this sort. Whenever possible, it is much better to use local anesthesia rather than ether.

IMMUNE REACTIONS FOLLOWING INJURIES TO THE UVEAL TRACT*

ALAN C. WOODS, M.D.

BALTIMORE

In a previous paper¹ presented before this society, experimental findings were outlined which were thought to demonstrate the scientific possibility of the anaphylactic theory of sympathetic ophthalmia. It will be recalled that the cardinal points presented were these:

1. A practical repetition of Elschnig's² previous fundamental work, demonstrating, by complement fixation studies in properly immunized animals, the peculiar immunologic reactions of uveal tissues. It was shown, as had, indeed, previously been shown by Elschnig, that the pigment was the constituent of the uveal tract responsible for its peculiar properties, and that this pigment was, in its immunologic reactions, organ specific and not species specific.

2. By a series of perfusion experiments in properly sensitized dogs, using an ocular reaction as the index, the same peculiar antigenic properties of uveal pigment were again demonstrated.

3. In a relatively small number of dogs, and in a small percentage of the attempts made, an anaphylactic iridocyclitis was experimentally produced, using uveal pigment as the antigen.³ This experimental iridocycli-

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

¹ Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

² From the department of Bacteriology and Pathology, Johns Hopkins University Medical Department, and the Department of Ophthalmology, Johns Hopkins Hospital.

1. Woods, A. C.: The Anaphylactic Basis of Sympathetic Ophthalmia, Tr. Sect. Ophth. A. M. A., 1917, pp. 133-161.

2. Elschnig, A.: Studien zur sympathischen Ophthalmie, I, Wirkung von Antigenen vom Augeninnern aus, Arch. f. Ophth. 75: 459, 1910; II, Die antigene Wirkung des Augenpigments, ibid. 76: 509, 1910; III, ibid. 78: 549, 1911. Elschnig, A., and Salus, R.: IV, Wirkung des Augenpigments, Arch. f. Ophth. 79: 428, 1911.

3. Woods, A. C.: Ocular Anaphylaxis. V. Experimental Iridocyclitis, Arch. Ophth. 47: 161 (March) 1918.

tis was produced by creating a hypersensitiveness through sensitization by intravitreal injection in one eye, and intoxication by intraperitoneal injection. Both eyes participated in the resulting inflammatory reaction, which clinically and pathologically was an intense iridocyclitis with inflammatory deposits along the posterior corneal membrane. Histologically, the process was a round-cell infiltration of the ciliary body, processes and iris, with an extension along the pectinate ligament to the posterior corneal membrane. Whether or not this picture represented sympathetic ophthalmia, as it might be manifested in the dog, was an open question.

It was, therefore, the former observations that prompted the present study. Uveal pigment, a nitrogenous compound, possesses the peculiar antigenic properties of organ specificity and lack of species specificity. It is capable of acting as a foreign protein, an antigen, in the homologous animal. This can be clearly demonstrated experimentally by complement fixation and perfusion. Used experimentally, in a small percentage of cases, an apparently anaphylactic iridocyclitis may be produced. No immunologic studies were made in the latter experiment, and there was no explanation apparent why successful results attended only a small number of the attempts made to produce such an anaphylactic iridocyclitis. It was noted, however, that only those animals showing some underlying disturbance, such as a phlorizin glycosuria, showed the ocular reaction.

The study was, then, to investigate these questions:

1. Are the peculiar antigenic properties of uveal pigment, the ability to act as a foreign protein in the homologous organism, exercised in the organism either in injury or disease of the uveal tract?

2. If so, in what way does the organism react to the parenteral absorption of such pigment?

3. In what way may such a reaction be detected, and what is the clinical significance?

Previous attempts have been made to employ some laboratory maneuver in the detection of an immunologic reaction in sympathetic ophthalmia. Thus Kummell⁴ asserted that he had demonstrated uveal antibodies in a percentage of the serums of patients with sympathetic ophthalmia, using as his indexes the complement fixation reaction, and the doubtfully valuable epiphanin reaction. Wissmann⁵ also asserted that he had demonstrated uvea immune bodies in the serums of sympathetic ophthalmia cases by means of the precipitin reaction, but failed to substantiate Kummell's work with the complement fixation reaction. Fuchs and Meller⁶ were totally unable to demonstrate uveal antibodies in the serums of patients with sympathetic ophthalmia.

METHOD OF WORK

In the investigation of the questions under consideration, studies were made on the immunologic reaction of the blood serums of persons suffering from injury and disease involving the uveal tract of the eye. In the earlier part of the work, attempts were made to study these serums by the agglutination reaction, the precipitin reaction, and the complement fixation reaction, against the pigment antigen. The antigen, however, does not lend itself either to the agglutination or precip-

itin reactions. There is too much natural agglutination of the pigment corpuscles to make reliable readings, and it was practically impossible to get the antigen clear enough to make clear cut precipitin reactions possible. The complement fixation reaction lent itself well to the problem, however; was entirely satisfactory, and is used as the index throughout this work.

Antigen.—The antigen used throughout the entire study was a salt solution suspension of cow's uveal pigment, prepared as previously reported.⁷

CLINICAL RESULTS

For the purpose of classifying the results, the cases studied are divided into these groups, according to their varying clinical symptoms and immunologic reactions: (1) injuries to the uveal tract, which healed with the subsidence of inflammatory symptoms; (2) injuries to the uveal tract, which resulted, for one reason or another, in chronic inflammations along the uveal tract; (3) inflammatory disease of the uveal tract, either in the acute or healed condition; (4) retinitis pigmentosa, and (5) sympathetic ophthalmia.

TABLE 1.—CLINICAL RESULTS

Type of Case	Number of Cases	Results of Complement Fixation Reaction
1. Injury or wound of uveal tract; normal healing; no sympathetic disturbance	12	All positive
2. Injury or wound of uveal tract; continued inflammation (traumatic cyclitis, etc.); the second eye in every case having been removed for injury	5	All negative
3. Inflammatory disease of uveal tract (tuberculosis, syphilis, etc.)	28	All negative
4. Retinitis pigmentosa	7	All weakly positive
5. Sympathetic ophthalmia	6	All negative

The first general group studied comprised cases in which there had been penetrating wounds of the eye, involving the ciliary region of the uveal tract. The greater number of the serums studied were from cases at the Red Cross Institute for the Blind, and practically all were wounds of the eye received in battle. In every case, the wounds had led to either partial or complete loss of vision. In many cases, one eye had been removed, usually shortly after the time of the wound, in the fall of 1918. These cases, however, fell into two distinct groups. The first group consists of cases in which, although for one reason or another—detached retina, traumatic choroiditis, etc.—vision had been lost, yet the ocular wound had healed, and there was no evidence of any inflammatory activity. The eye condition was quiet. The second group consists of cases in which the traumatic uveitis or cyclitis caused by the wound persisted steadily from the time of injury. These eyes were all practically lost, although in several cases light perception remained. In every case, the fellow eye had been previously removed. The results of complement fixation reactions against pigment antigen in these groups are shown in Table 1, Groups 1 and 2.

Group 1 shows the results in the serums of cases in which the ciliary wound had healed with the subsidence of all inflammatory symptoms. In every such case studied, the serum showed strong complement binding properties with an antigen of uveal pigment.

4. Kummell, R.: Versuche einer Serumreaktion der sympathischen Ophthalmie, Arch. f. Ophth. **51**: 486, 1912.

5. Wissmann, R.: Ueber Versuche mit Augen-Extrakten, Arch. f. Ophth. **50**: 399, 1911.

6. Fuchs, A., and Meller, J.: Studien zur Frage einer anaphylaktischen Ophthalmie, Arch. f. Ophth. **58**: 280, 1914.

7. Woods, A. C.: Ocular Anaphylaxis. IV. The Antigenic Properties of Uveal Tissue as Shown by Complement Fixation, Arch. Ophth. **46**: 503 (Nov.) 1917.

Group 2 shows the results in the serums of cases in which the wounds had healed, but in which the traumatic cyclitis steadily persisted, with the usual sequelae. In every such case studied, the serums gave entirely negative results with the pigment antigen.

The number of serums reported in Groups 1 and 2 is not great enough to allow any sweeping conclusions to be drawn. It is regrettable that a greater number of serums from suitable cases could not be obtained. But even were the number larger and the results the same, one would hesitate, without additional evidence, to draw as a definite conclusion the very evident indication of these results.

The complement fixation test, as here employed, is essentially a test for pigment specific antibodies in the circulating blood, the principle being the same as that for which Bordet and Gengou devised the original reaction. The results shown in Tables 1 and 2 indicate, therefore, that in wounds of the uveal tract which heal with the subsidence of all inflammation, antibodies to uveal pigment are present in the circulating blood. In cases in which uveal inflammation persists, such pigment antibodies are absent. Antibodies to any protein in the circulating blood probably indicate an immunity on the part of the organism to that specific protein. It is an attractive hypothesis to interpret these results to mean that in the first case, in which inflammatory symptoms subside, an actual immunity to uveal pigment is developed, and that this constitutes a defensive reaction by the organism. And further, that when the inflammatory reactions persist, such a defensive mechanism, for one reason or another, is lacking. That the formation of circulating antibodies to uveal pigment does take place in the normal healing of a wound of the ciliary body is shown by the following case herewith reported:

CASE 1.—E. W., boy, aged 11, was struck in the left eye by a breaking spring on a mechanical toy, April 4, 1920. He was seen first, April 10, six days later. At that time there was an intense iridocyclitis; a cut on the outer part of the cornea, involving the root of the iris below, which was caught forward, forming an anterior synechia, and extending down into the ciliary body below. The tension was low. The blood serum, April 10, gave a completely negative reaction. Under atropin and rest, the iridocyclitis gradually subsided, and the tension improved to normal. By May 18, 1920, about six weeks after he was first seen, the eye was entirely free of all inflammation and pain. It has remained so up to the time the boy was last seen, Feb. 8, 1921. May 18, 1920, about seven weeks after the injury, when the eye had healed with the subsidence of all inflammatory symptoms, the blood serum gave a completely positive complement fixation reaction with pigment antigen. Coincident with the normal healing of the ciliary wound, pigment antibodies appeared in the circulating blood.

The third large group studied comprised cases of disease of the uveal tract, uveitis, choroiditis, etc., from whatever systemic cause. Twenty-eight such cases were studied, some in the active, some in the healed stages. Every case gave entirely negative reactions.

The results are shown in Table 1, Group 3. Evidently, in diseases of the uveal tract, there is no formation of pigment antibodies in the circulating blood.

The next group of cases presents an anomaly for which no explanation can be offered. It was found early in the work that the serums from a case of retinitis pigmentosa gave a weakly positive result with pigment antigen. Accordingly, seven such serums were run at various times, and the same phenomenon was observed. A more or less weakly positive reaction was

constantly obtained. All seven cases were classical retinitis pigmentosa, and all gave negative Wassermann reactions.

The next, and last, group of cases studied were cases of sympathetic ophthalmia. The first of these cases occurred in the ophthalmologic clinic at the Johns Hopkins Hospital, and had hardly proceeded beyond the stage of marked sympathetic irritation. Immediate removal of the exciting eye was followed by a complete clearing up of all symptoms. Three of the serums reported were furnished by Drs. Weeks, Zentmayer, and Dwyer, to whom I take this occasion to express my thanks. Two cases were old cases, occurring in private practice, in which a diagnosis of sympathetic ophthalmia had been made some years before, one in 1892 and one in 1917. To my mind, there was some doubt concerning the correctness of the diagnosis in this last case.

All of the cases gave completely negative results with the pigment antigen, indicating that in sympathetic ophthalmia there are no pigment antibodies in the circulating blood. In the first case occurring in the clinic at Johns Hopkins Hospital, an intradermal test with a 1:500 solution of the pigment antigen gave a strongly positive reaction. Three controls in normal people and four controls in inflammatory disease of the uveal tract, all gave negative results. The intradermal test is essentially a test for hypersensitiveness to a given protein. A positive reaction to such a test is accordingly supposed to indicate a definite cellular hypersensitiveness to the protein used. Such a cellular hypersensitiveness, with absence of circulating antibodies, existed in the only case of sympathetic disease in which the opportunity arose to make both tests.

As has before been emphasized, it is difficult to draw conclusions from such a limited number of cases, yet these results offer us ground to formulate at least a working hypothesis. Before reporting experimental work performed in the effort to substantiate the evident indications of the results already reported, it may be well to offer at least a tentative explanation, upon which to base the purely experimental work.

Wounds of the ciliary region of the eye in some way so alter the metabolism of the pigment containing cells that the pigment, with its potentially dangerous antigenic properties, is absorbed by the organism. In the normal, healthy organism this absorbed pigment leads to the same immunologic reaction as may be obtained in any experimental animal by the repeated injection of a foreign protein—an actual immunity with the presence of circulating antibodies in the blood stream, which may be demonstrated by complement fixation, the agglutination or precipitin reaction, as the case may be. In the case of ciliary wounds, the establishment of this immunity is closely associated with the normal process of healing, and appears to bear the relationship of a defensive mechanism of the part of the organism. In other cases, the formation of this pigment immunity is lacking, and with the absence of such an immunity, the normal process of healing is also absent. Long and continual inflammatory reactions result. In sympathetic ophthalmia, this immunity is also always absent, and in one case at least, there appears to be not an immunity, but a definite hypersensitiveness to the potentially dangerous pigment.

In the general run of inflammatory disease of the uveal tract, the pigment containing cells of the uvea are not so altered as to allow the absorption of the pig-

ment. Neither an immunity nor a hypersensitiveness results. The status quo is maintained. In retinitis pigmentosa, there is a certain amount of absorption with a resultant low grade immunity.

EXPERIMENTAL

The first point to be determined was to ascertain just what immunologic reaction results from the absorption of uveal pigment from within the eye.

In the previous work already reported upon the experimental production of an anaphylactic iridocyclitis, it will be recalled that a number of dogs were given a sensitizing injection of uveal pigment in the vitreous chamber of one eye. At a later date, an "intoxicating" injection was given intraperitoneally. A small number of these dogs gave an ocular reaction, in fact, four of several in which some underlying disturbance had been produced. No serologic studies were made of these dogs.

Accordingly, the same procedure was followed in this experiment. Three sound, healthy dogs were chosen, whose eyes were negative, both on external and ophthalmoscopic examination. The blood serums of these dogs were examined in the complement binding reaction against pigment antigen and were found completely negative. Under ether anesthesia, the anterior

TABLE 2.—EXPERIMENTAL RESULTS

Procedure	Results of Subsequent Complement Fixation Reactions	Results of Later "Intoxicating" Intra-Peritoneal Injection
1. Intravitreous injection of pigment (3 dogs)	Serums become positive within 14 days	None
2. Operation on one eye: excoriation and herniation of ciliary body; 6 dogs	Serums become positive within 14 days; strongly positive within 21 days	None
3. Operation on one eye: excoriation and herniation of ciliary body; 2 dogs	Serums remained completely negative	Bilateral ocular inflammation

chamber of one eye was tapped, and the aqueous humor drawn off to reduce tension. An injection of 0.5 c.c. of pigment suspension was then made into the vitreous. A few days later, two dogs were given an intravenous injection of phlorizin solution, 0.1 gm. of phlorizin per kilogram of body weight. This was done in these dogs to allow for any possible influence an underlying disturbance might cause. In these dogs, no effect was noted, however, on account of such injection. The blood serum of all three dogs were examined by the complement binding test at intervals for a period of three weeks. Two weeks after the vitreous injection an intraperitoneal injection of 8 c.c. of pigment suspension was given.

Following this intravitreous injection of uveal pigment, the dogs developed a positive complement fixation reaction against the pigment antigen which becomes manifest first within a week after the injection, and within three weeks becomes strongly positive. Further, dogs developing this pigment immunity are not susceptible to an "intoxicating" injection of pigment. No symptoms were produced by such an "intoxicating" injection. Whether the development of the pigment immunity and the protection against further injections of pigment stand in the relationship of cause and effect will be apparent later.

Injuries of the ciliary body as observed clinically, whether leading or not to the production of a sympathetic ophthalmia in the second eye, most certainly do not produce a similar intra-ocular condition as does the direct injection of pigment in to the vitreous chamber. To stimulate more closely the picture of wounds of the eye, this operation was performed on one eye of a number of dogs:

A conjunctival flap was made above, and laid back over the cornea. A small incision was made in the sclera, over the ciliary region. Through this opening a capsulotome was introduced into the vitreous chamber, and the ciliary region was excoriated in each direction. The capsulotome was then withdrawn, a pair of fine forceps introduced, the ciliary portion of the choroid grasped and brought through the wound. A stitch was then taken through the scleral lips and the incarcerated ciliary region, and tied. The conjunctival flap was then replaced and sutured.

Ten dogs, whose eyes were normal, both to external and ophthalmoscopic examination and whose blood serums gave completely negative results in a preliminary complement binding reaction, were operated upon in this manner. Only one dog developed any infection in the eye, and that dog is not included in the series reported. Following the reaction there was an intense iridocyclitis, which persisted for at least a week or ten days, in some cases gradually subsiding, and in others continuing, as is shown later. The blood serums of all these dogs was examined at intervals for several weeks after the operation. Two or three weeks after the operation, eight of the dogs were given an "intoxicating" intraperitoneal injection of 8 c.c. of pigment suspension.

These dogs fell into two groups, showing definitely different results, both in their complement fixations to pigment, and in their ocular reaction following the intraperitoneal intoxicating dose. The results in the first group are given in Table 2, Group 2. Six dogs, following operation as described, developed positive complement fixation reaction to pigment antigen. In every case, the operative wound healed with a subsidence of all inflammation within three weeks. In every case, with one exception, no ocular reaction of any kind in either eye followed the intraperitoneal injection. In this dog the ocular reaction consisted in a very slight flare up in the subsiding iridocyclitis the dog showed at that time in the operated eye, and this passed away within forty-eight hours. The fellow eye showed no reaction. Here the same relationship between the development of the pigment immunity and the protection against intoxication, already noted in Table 2, Group 1, existed again.

The results obtained in the second group of these dogs are shown in Table 2, Group 3. Three of the dogs operated on failed to develop positive reactions. One of these dogs was killed in a dog fight before any further observations were made. The other two dogs both received the intoxicating intraperitoneal injection of pigment suspension, and both, within forty-eight hours, developed frank symptoms of ocular inflammation. In the first dog, there was a very slight increase in the low grade ciliary inflammation persisting in the operated eye. The second, unoperated eye, showed a markedly contracted pupil within twenty-four hours after the intraperitoneal injection. This was accompanied by a pericorneal flush, which gradually deepened. The vitreous humor became hazy and a corneal haze devel-

oped, which progressed to a general clouding of the cornea. The fundus could not be seen. The pupil contracted to the size of a pin point. Four days after the onset of symptoms, the dog was killed by chloroform and the eyes removed for study. General necropsy was negative.

The second dog received the intraperitoneal injection of pigment on January 13. This dog was weak and had several days before developed multiple sores over his body. Blood culture was negative. The traumatic iridocyclitis following operation in the right eye persisted with violence. Tension was good. The left eye was entirely clear. On January 14, the day following intraperitoneal injection of pigment, the right (operated) eye showed an even more violent iridocyclitis, with a marked diminution in tension. The left eye showed a marked pericorneal flush, the pupil contracted to the size of a pin point, and the tension was low. There was marked photophobia. This dog died the following day. Necropsy revealed pneumonia of the lower lobes of both lungs in the stage of red hepatization. The eyes were removed for study.

The cardinal point of this experiment is this: The failure to develop circulating antibodies against pigment following operative wounds of the ciliary region is, in these dogs, accompanied by a susceptibility to intoxication by further absorption of pigment. This intoxication is manifested by symptoms of irritation and inflammation of the uveal tracts, not only of the operated eye, but especially of the fellow eye—apparently a sympathetic disturbance—but more probably an anaphylactic reaction in specially sensitized tissues.

Considering the results shown in Tables 8 and 9 together, it appears that the presence of circulating pigment antibodies denotes an actual immunity of the organism to pigment, a true defensive mechanism against a potentially dangerous protein. The absence of such a defensive reaction in injuries allowing primary absorption of pigment renders the organism hypersensitive to further absorption of the pigment. In such cases, further absorption of pigment may produce an intoxication.

COMMENT

The whole problem of hypersensitivity and immunity to uveal pigment is one of the resistance of an organism to parenteral introduction of a foreign protein. It has been shown, primarily by Elschsig, and later by others, that the pigment of the uveal tract in any organism possesses all the immunologic properties of a foreign protein. In the normal metabolism of the pigment containing cells of the uvea, the pigment apparently remains unabsorbed. But in the altered metabolism following wounds of the uveal tract, the pigment becomes liable to absorption by the organism. Such an absorption of uveal pigment is followed by a reaction on the part of the organism, similar to that following the absorption of any foreign protein.

Sensitization and immunization must be regarded as integral steps in the same process. If we follow the conception of Dale,⁸ we may visualize the general process somewhat as follows:

The absorption of a foreign protein by an organism is followed by a definite reaction on the part of the cells. This reaction consists in the formation of antibodies by the cells. If this reaction on the part of the

cells is general enough, or intense enough, the excess of antibodies is swept into the blood stream. Here they may be demonstrated clinically by various means. Should further absorption of the foreign protein, or antigen, occur at this time, the antigen-antibody reaction occurs in the circulating blood—the antigen is fixed by the circulating antibodies. The cells of the organism are protected. No antigen-antibody reaction occurs on the cells. There is no anaphylactic intoxication; the immunity created by the circulating antibodies has protected the organism from further absorption of the specific antigen. However, should further absorption of antigen occur at a time when there were no antibodies circulating in the blood stream, but when the antibodies formed by the primary reaction of the cells were still attached to the cells, then the antigen-antibody reaction will take place on the cells themselves, and cause a definite anaphylactic reaction of the organism. In this case, a hypersensitivity exists. In other words, to recapitulate, the absorption of foreign protein by an organism leads to a cellular reaction, the formation of antibodies. If, for one reason or another, this cellular reaction is weak, or not general, a hypersensitivity exists; the antibodies remain attached to the cells, and the organism is liable to an anaphylactic intoxication upon further absorption of the antigen. If the reaction is strong enough, the excess of antibodies is swept into the blood stream, where they stand as a barrier of defense against the antigen—an immunity is formed.

And this is exactly what appears to occur following the absorption of uveal pigment. Concerning what factors govern the absorption of the pigment, or what factors may influence the intensity or extent of the cellular reaction, we have no information. But both clinically and experimentally the same process appears to take place. Following the absorption of uveal pigment after a wound of the eye, there appears to be a definite cellular reaction (Case 2, Table 6). Normally this cellular reaction leads to the formation of antibodies to such an extent that they appear in the blood stream, and are demonstrable there. The formation of antibodies to this extent is accompanied by a quick and normal healing of the wound. However, should the formation of antibodies not be of such degree to allow them to appear in the circulating blood, they may still remain attached to the cells. The organism is then hypersensitive to pigment. Further absorption may lead to an antigen-antibody reaction on the cells themselves. Anaphylactic intoxication may take place. If the cells of the uvea are the site of the reaction, as they appear especially to be, the antibody-antigen reaction will be manifested clinically as to uveal disturbance. In one case (Case 2, Table 6), the only case of ciliary wound with a persistently negative blood which was available for such a test, an intradermal test with pigment indicated just such a cellular hypersensitiveness. It is of great interest that this man showed such symptoms of sympathetic irritation in the fellow eye as to necessitate the immediate removal of the injured eye.

The relationship of these findings to sympathetic ophthalmia is apparent. Following injuries of the uveal tract allowing parenteral absorption of uveal pigment, there results either an immunity or a hypersensitivity to the pigment. If an immunity results, normal healing of the wound follows. If a hypersensitivity results, further absorption of pigment will result in an anaphylactic intoxication—-analogous to that in

8. Dale, H. H.: Anaphylaxis, *Bull. Johns Hopkins Hosp.* 31: 310 (Sept.) 1920.

serum sickness (von Pirquet). If the site of this antigen-antibody reaction takes place on the uveal cells of the fellow eye, the anaphylactic intoxication is manifested as a sympathetic ophthalmia. Other factors may make the uvea of the fellow eye especially hypersensitive, thus predisposing to a sympathetic ophthalmia, rather than to more remote disturbances, such as have been reported. But the last is a matter of conjecture. The fundamental point to be emphasized is that the normal reaction to parenteral absorption of uveal pigment is the development of an immunity to the dangerous pigment. The failure to develop this immunity on the part of the organism is attended by a persistence of inflammatory symptoms and the liability to the development of a sympathetic ophthalmia.

SUMMARY

A study by means of complement fixation on the serums of patients suffering from injury and disease of the uveal tract, and on the serums of dogs given vitreous injection of pigment, and wounds of the ciliary body of one eye, has given these results:

Injuries to the uveal tract allow the parenteral absorption of uveal pigment. The normal reaction of the organism is to develop an immunity to this pigment, which not only leads to the normal healing of the wound, but also protects against further absorption of the pigment. The failure to develop this immunity is accompanied by the persistence of the inflammatory reaction, and the liability of the organism to sympathetic ophthalmia. In cases of sympathetic ophthalmia it appears that an actual hypersensitiveness to pigment occurs. In dogs failing to develop this immunity, further absorption of pigment leads to the development of the ocular inflammatory symptoms. This ocular inflammation is not confined to the wounded eye, but is bilateral, is apparently an anaphylactic iridocyclitis, and may represent sympathetic ophthalmia as manifested in the dog.

In disease of the uveal tract, with the exception of retinitis pigmentosa, no parenteral absorption of uveal tissue takes place. In retinitis pigmentosa a low grade immunity to uveal pigment appears to be constantly present.

ABSTRACT OF DISCUSSION

DR. JAMES G. DWYER, New York: The complement fixation test I have been using differs technically from that of Dr. Woods. I use the icebox method instead of the water bath, and in some of these cases in which he has had negative results I have obtained weakly positive reactions, which could easily be explained, however, on the hypothesis of the antigen, because the antigen in tissue work as compared with that in the Wassermann reaction is much harder to work with than otherwise. This conception of anaphylaxis is very old, and in starting the work I had the preconceived idea of explaining what happened in sympathetic ophthalmia when the other eye was injured on the ground that it was a true anaphylaxis. I do not believe that any more, because clinically we undoubtedly find the development of an antibody that is protective in character rather than destructive. In true anaphylaxis we get an injury to the other eye, whereas in the cases that clear up we get a protection, owing to the formation apparently of a true antibody. And in the future, just as now in the syphilitic or any other complement fixation tests, no doubt we can by devising a simpler method determine in advance whether or not we can leave the offending eye. Then again, practically in all complement fixation work, it is necessary to have present an albuminous body, and this is found in the uveal pigment. With regard to sympathetic ophthalmia, it was most surprising to me that no protection

whatever took place. It should be emphasized that many of the sympathetic ophthalmia cases occur years afterward while the offending eye is still in, and therefore no conclusions should be definitely drawn from any of the data until a vast amount of work has been done month by month and year by year on the serums of these patients. The probability is that if in the first few weeks after the eye is injured immunity develops, that immunity becomes a cellular protection rather than a serum protection; whereas in cases in which the antibody does not appear for weeks or months afterward, the eye should be taken out. Certainly this work offers the best explanation of what happens in injuries to the ciliary body and why the inflammations do not give reactions, whereas injuries to the uveal pigment do.

DR. HARRY S. GRADLE, Chicago: Dr. Woods' paper is an additional pillar to the upbuilding of the anaphylactic theory advanced in 1909, and it is a very pronounced step in the right direction. There are two types of pigment in the uveal tract: First, the ordinary pigment which remains present under all circumstances and which increases in amount when there is an increase of pigment due to inflammatory reaction. Second, a far more delicate type of pigment which disappears in very short order following any injury. I refer to the needle type of pigment. It might be possible to separate these two types by chemical means and determine whether one or the other forms the basis of the pigment that is antigenically absorbed to cause sensitization. Again, it would appear that the slow absorption of the pigment following injury is necessary. We all know that cases of sympathetic ophthalmia do not follow panophthalmitis. The slow absorption of the pigment from the uveal tract is necessary to produce the sensitization which may result in a sympathetic ophthalmia. In one other location in the body is there a similar type of pigment—that is, in the lining membrane of the labyrinth; and it is possible that there may be a destructive process in the labyrinth accompanying a sympathetic ophthalmia which would account for deafness in association with sympathetic ophthalmia. I wish to ask whether Dr. Woods has made investigation regarding the blood picture in his experimental animals, and if so whether he has found a lymphocytosis accompanying the sensitization, or whether the absence of immune bodies bears any relation to the absence of increase in the number of lymphocytes.

DR. ALAN C. WOODS, Baltimore: In regard to Dr. Dwyer's employment of the icebox incubation in the complement fixation test, this technic is somewhat more delicate, and slight differences in the reading of a very weakly positive or a very weakly negative reaction may result by such changes of technic. I think this probably accounts for the weakly positive findings occasionally encountered in disease of the uveal tract. I think that Dr. Dwyer's second point is extremely well made. As I understand it, in cases of delayed outbreak of sympathetic ophthalmia the immunization may last for a certain length of time and then gradually fade away. I have noticed that in early cases of injury, if the blood is examined at once, it will be found negative, while within a month or so it will become positive. Now, while cases which are examined within six or eight weeks after injury usually give a high fixation with the pigment antigen, even using one-fourth the normal quantity of serum, in the older cases, after over two or three years, the degree of complement fixation will not be so great. In other words, the protection may gradually subside. While we have no exact experimental data on this point, this is probably true. Regarding Dr. Gradle's reference to the two types of pigment in the uveal tract, I have often thought of the question of separating the various pigment granules and trying to determine whether the needle-formed spicule or the more numerous granular form is responsible. I have no idea whatsoever. We find both types of pigment, and I have never been able to separate them and I know of no chemical means of separating them. The blood picture was followed in a large number of dogs. Occasionally we got a lymphocytosis, but this was not constant. Our results were so conflicting that we could draw no conclusions whatsoever. We could not tell whether the insult of the operation or the immune reaction was the cause. We occasionally found the lymphocytoses which are so characteristic of sympathetic ophthalmitis but such findings were not constant.

QUANTITATIVE DETERMINATION OF
COCAIN AND ATROPIN ABSORP-
TION BY AQUEOUS HUMOR *

LAWRENCE POST, M.D.

ST. LOUIS

These experiments were undertaken to determine the most effectual method of administering cocain and atropin in order to produce intra-ocular effect. The recognized anesthetic action on the iris of a subconjunctival injection of cocain suggested that such a method might be most effectual for the intra-ocular absorption of both cocain and atropin. The test employed was a modification of the test with Tanret's reagent. This modification was described by W. Ramsden and I. J. Lipkin¹ in the *Annals of Tropical Medicine*, in 1918, as a test for quinin. At the suggestion of Dr. E. Kennerly Marshall, who had noted that the reaction was applicable for cocain, this test was found to be of service for both cocain and atropin. In this series of experiments, cocain hydrochlorid and atropin sulphate were used throughout, except in the cocain-castor oil solution, in which the cocain alkaloid was used.

EXPERIMENTS AND RESULTS

Our method of procedure was to administer the drug, and after a given length of time to wash the eye in running water for three minutes and to withdraw the aqueous humor by puncture of the anterior chamber at the limbus with a platinum needle fused into a calibrated glass tube. In cases of subconjunctival injection, care was taken to penetrate the cornea instead of the conjunctiva in order that the needle should not penetrate the injected area. All of these experiments were performed on rabbits. About ten rabbits were used, the rate of absorption varying somewhat in the different rabbits. It is obvious that it is impossible to argue that the results obtained with rabbits would be exactly similar to those in man.

It was found that practically the entire amount of aqueous humor could be withdrawn, so that it was unnecessary to make allowances for aqueous humor remaining in the anterior chamber in any but one of the reported cases.

The fluid thus obtained was tested in each case by this method: The quantity of the fluid obtained was carefully measured in the calibrated tube and placed in a very small, stoppered glass vessel. One drop of concentrated ammonium hydroxid was added. The liquid was shaken actively with 1 c.c. of ether, and the ethereal extract was withdrawn with a fine pipet. This was repeated four times.

By several tests, we found that four extractions were sufficient to withdraw all of the cocain or atropin.

The extracts were placed in a very small test tube and evaporated to dryness over a water bath. One c.c. of saturated ammonium sulphate was added and 1 drop of Tanret's reagent.

We found that the average amount of aqueous humor obtained was about 0.275 c.c. If cocain or

atropin was present, even in quantities as dilute as 1:200,000, a white cloud was formed. Tests showed that the aqueous humor from the control eye never gave any precipitate.

A series of standards was made with both cocain and atropin. These ranged from strengths of 1:1,000 to 1:200,000. As the precipitate was transient, it was necessary to prepare a fresh precipitate for each test. The density of the precipitate in the aqueous humor under consideration was compared with these standards, and the amount of drug read directly from the known strength of the standard which showed a cloud of like density. Due allowance was made for the dilution occasioned by increasing the aqueous humor obtained to 1 c.c. It was found possible to determine the amount of the drug in the aqueous humor with very fair accuracy.

That the amount of the drug recoverable in the aqueous humor is by no means a measure of the total absorption, is clearly evident. But when other factors are kept constant, it seems reasonable that this quantitative determination may be of value in indicating the relative absorption of different strengths of drugs and of different methods of administration.

Four methods of using the drugs were employed:

1. Instillations, drop by drop, over the cornea, as fast as absorption would permit, until the desired quantity of the drug had been used. The average amount used was a solution of about 0.14 c.c. The instillation of this required about fifteen minutes.

2. Subconjunctival injection of the entire amount at one time.

3. Instillation of the total amount of the desired solution at one time. The lids were held away from the globe to prevent overflow until the solution had disappeared.

4. The application of a cylindric tube, open at both ends, just the diameter of the cornea, held firmly against the limbus and filled with the desired amount of drug.

The last two methods were found unsatisfactory for general use and were employed only a few times to determine the relation of the various methods.

After preliminary investigations to discover the best manner of making the tests, thirty-eight experiments were performed.

CONCLUSIONS

These tests suggest that:

There is no great difference in the percentage absorption of cocain in any strength.

The percentage absorption of cocain is the same in aqueous and oleaginous solution.

The methods of subconjunctival injections and repeated instillations of cocain cause about the same absorption.

Quantitatively, cocain and atropin by instillation are absorbed about equally.

Atropin injected subconjunctivally is very poorly absorbed.

Absorption of cocain is greatest from one-half hour to one hour after beginning fifteen minutes of repeated instillation or after injection.

Absorption of atropin is greatest from forty-five minutes to seventy-five minutes after beginning fifteen minutes of repeated instillation.

Absorption is largely through the cornea when the method of instillation is used.

In general, the best method for the absorption of cocain and atropin into the aqueous is that of repeated instillations.

Metropolitan Building.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

* The experimental work reported in this paper was performed in the ophthalmologic pathology laboratory of the Washington University School of Medicine. On account of lack of space the detail of the experiments is omitted from *THE JOURNAL*. It appears in full in the Transactions of the Section and in the author's reprints.

1. Ramsden, W., and Lipkin, I. J.: Detection and Estimation of Quinine in Blood and Urine, *Ann. Trop. M.* 11: 443 (May) 1918.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. HARDY, St. Louis: Many of the experiments on which our present views are based were made fifty or sixty years ago; hence Dr. Post's work along these lines is most timely and welcome. The early work of de Ruiter indicated that after the instillation of atropin into the eye the aqueous acted like a solution of atropin of the strength of 1:120,000. Certain data regarding the absorption of drugs are fairly well authenticated. That solutions dropped into the eye do not reach the anterior chamber through the arterial system is amply demonstrated by the fact that the physiologic effect on the pupil is produced when solutions are instilled immediately after death. There are no preformed canals in the cornea to aid absorption. The removal of the corneal epithelium permits and with some drugs hastens absorption. Dr. Post's paper deals, not with the physiologic action of drugs, but rather with their ability to gain entrance to the anterior chamber and their recoverability from the aqueous. Dr. Post has endeavored to eliminate the conjunctiva as the portal of entry by puddling the solution on the cornea in an open tube, the tube fitting tightly about the limbus. The experiments carried out by the author indicate that subconjunctival injections possess no advantage over instillations. Clinically, at least, it has always appeared to me that we get better iris anesthesia and therefore presumably better absorption from subconjunctival injections of cocain than from repeated instillations. This is not in conformity with Dr. Post's findings, if I understand his figures correctly. One point brought out in the paper was a surprise to me, namely, that atropin is poorly absorbed when injected subconjunctivally. It may be that repeated experiments will demonstrate that this view will need revision, chiefly from the fact that animals' eyes differ markedly from human eyes, both anatomically and in their behavior to drugs. Consequently, results in animal experiments cannot always be accepted as true for human beings.

DR. WALTER B. LANCASTER, Boston: I would ask Dr. Post whether he thinks anesthesia of the iris with cocain occurs only by virtue of the cocain absorbed into the aqueous, or whether some of the anesthesia may be due to action on the ciliary nerves before they enter the sclera.

DR. LAWRENCE POST, St. Louis: I do not feel that the determination of the amount of the anesthetic absorbed into the aqueous indicates what the effect is on the iris. It was not possible in these experiments to determine the amount of the drug present in the iris.

SURGERY VERSUS ROENTGEN RAY IN THE TREATMENT OF HYPERTHYROIDISM

GEORGE W. CRILE, M.D.
CLEVELAND

Hyperthyroidism (C. H. Mayo) seems a more fitting name for a disease whose chief characteristic is a supernormal activation of the thyroid gland than does exophthalmic goiter, a term which signifies but one of the features of this complex syndrome.

RESULTS OF VARIOUS METHODS OF TREATMENT AS REPORTED IN THE LITERATURE

That great student of the thyroid gland, Marine, has stated that in the literature the cure of hyperthyroidism has been credited to each of 239 drugs and other methods of treatment. From among all the opinions in favor of one or another of these many therapeutic measures, the verdict in favor of physiologic rest, by itself, or combined with other methods, is practically unanimous; and only two other methods of treatment have emerged as worthy of particular consideration—surgery and roentgen rays.

To those who have not noted the increasing importance which is assigned by many physicians and surgeons, as well as by roentgenologists, to the use of roentgen rays in the treatment of hyperthyroidism, a study of the literature is illuminating. A brief survey reveals 105 papers, in which the favorable action of roentgen rays on hyperthyroidism is reported. Ludin¹ made a collection of 208 articles on this subject.

The general conclusions of the majority of these writers may be summarized briefly:

1. Pfahler and Zulick² say:

It is utterly impossible to draw conclusions from any collection of statistics on this subject, because the cases reported show such a variation and such indefinite technic that the reduction of the statistics would give us nothing accurate by which we could judge future results.

2. All writers agree that the pulse rate is nearly always reduced promptly; that usually the tremor and nervous symptoms are relieved at once; that the body weight usually begins to increase immediately.

3. There is a divergence of opinion regarding the effect on the gland itself, as the experience of different writers appears to have varied widely.

Seymour expresses the opinion of most advocates of the roentgen-ray treatment of hyperthyroidism in his summary of its advantages:³

1. There are no fatalities.

2. There is no resulting scar, as after operation.

3. It does not interfere with the patient's occupation.

4. It is painless and causes very little inconvenience to the patient.

5. If unsuccessful, an operation may be performed with less work because of the favorable action of the roentgen ray on the thymus gland.

Means and Aub,⁴ in a more recent report from the Massachusetts General Hospital conclude that "the chance of cure in exophthalmic goiter is as good with the roentgen ray as with surgery, in groups of equal toxicity; and that this being true the former method is preferable, for the danger of a fatal outcome is less." These authors believe that surgery should be employed only after the roentgen ray and other methods have failed.

On the other hand, we find Hildebrand⁵ concluding from his personal experience with thirteen cases that in none had he observed any real lasting effect; and that when the patients finally came to operation, the muscles, gland capsule and the gland had become so adherent that the difficulty and hazard of the operation were increased. Moreover, there were signs of necrosis in the superficial layers of the gland. He reports also that fatal cases of acute swelling of the gland, "thyroidismus," have resulted from roentgen-ray treatment.

In discussing a paper by Boggs,⁶ Waters made the following comments:

Before attempting the treatment of exophthalmic goiter or hyperthyroidism with roentgen rays, it is vitally necessary: (1) that it be known what histologic change takes place in

1. Ludin: *Centralbl. f. d. Grenzgeb. d. Med. u. Chir.* **18**: 205-235, 1915.

2. Pfahler, G. E., and Zulick, J. D.: *Am. J. Roentgenol.* **3**: 63-72 (Feb.) 1916.

3. Seymour, Malcolm: *Boston M. & S. J.* **175**: 568-569 (Oct. 19) 1916.

4. Means, J. H., and Aub, J. C.: *Basal Metabolism in Exophthalmic Goiter*, *Arch. Int. Med.* **24**: 645-677 (Dec.) 1919.

5. Hildebrand, Otto: *Arch. f. klin. Chir.* **111**: 1-70, 1919.

6. Boggs, R. H.: *Am. J. Roentgenol.* **6**: 613-619 (Dec.) 1919.

the gland; (2) that the superficial and deep structures of the skin be not injured by the roentgen rays; (3) that the effect on the vagus, sympathetic ganglion, and parathyroids be definitely known; (4) that it be known what effect on the thyroid gland is desired, that is, stimulating or inhibiting. Therefore, until these points are proven the work is being done not only unscientifically, but with extreme danger.

In 1916, Berkman⁷ reported from the Mayo Clinic that although in their experience the results of roentgen-ray treatment were good, they were temporary; that the results were delayed and required many repetitions of treatment; that practically no dependable beneficial results were obtained in less than a month, and that in the more serious cases, "the excitement and mobilization incident to roentgen-ray treatment usually offset whatever early benefits may be received."

In a recent article C. H. Mayo⁸ writes:

With roentgen-ray treatment, remissions may occur just as remissions occur without treatment or with several other methods of treatment. Our experience has been failure or but temporary benefit. It is possible that the ray treatment may destroy the gland and produce hypothyroidism. It is difficult to regulate the dosage, and its use adds to the difficulties of operation.

Most writers agree as to the beneficial effect of roentgen rays in adolescent hyperthyroidism; and many consider that this beneficial effect is due principally to the action of roentgen rays on the hyperplastic thymus, which, according to some reporters, is present in 90 per cent. of the cases of exophthalmic goiter. In our own experience, we have never had a single case of hyperthyroidism in which we had reason to consider an enlarged thymus a complicating factor. At the Mayo Clinic, a study of 100 necropsies of fatal cases of exophthalmic goiter was made to determine the possible relation between the thymus in adults and exophthalmic goiter.⁹ The investigators concluded that a hypertrophic thymus is present in all exophthalmic goiter patients under 40 years of age, and in half of those over 40 years of age. "Hypertrophy of the thymus is inversely proportional to the age of the patient and directly proportional to the duration of the disease."

As to the cause and effect of the enlarged thymus, however, these reporters make this comment:

Our records, in general, show that the most severe acute cardiac damage is seen in those violent intoxications in which the onset occurs after the age of 40; that is, in the "menopause" group. These as a rule have a small thymus or no thymus. In every case of cardiac damage in which a thymus was found, there was definite parenchymatous hypertrophy in the thyroid with no demonstrable thymus. . . . The findings indicate that a thymus hypertrophy, and lymphatic hyperplasia should be considered as a result rather than as a cause of the intoxication in hyperplastic or non-hyperplastic goiter. Hypertrophy of the thymus probably depends on the presence of vestigial tissue at the onset of disease which may regenerate under toxic stimulation.

Several writers, notably Means and Aub,⁴ base their judgment as to the efficiency of roentgen-ray treatment of hyperthyroidism on its effect on the basal metabolism. In Lakeside Hospital, Dr. Christie has made a series of comparative studies of the effects of roentgen rays, of ligation, and of thyroidectomy on the basal metabolism. He has found that bilateral partial

thyroidectomy reduces the metabolism more markedly and more promptly than either roentgen rays or ligation; and that roentgen rays reduce the metabolism more than ligation. Since ligation is employed only as a preliminary step to thyroidectomy, it need not be considered in this discussion. On the other hand, since Dr. Christie's findings appear to show that thyroidectomy exerts the greater immediate curative effect, it becomes necessary to determine whether or not there are other considerations which should prohibit the employment of thyroidectomy in preference to roentgen rays. To determine this, it is necessary to compare thyroidectomy and roentgen-ray treatment as to (a) the resultant discomfort; (b) the resultant period of disability; (c) the immediate mortality; and (d) the end-results. It is significant to note that many patients that come to operation have had roentgen-ray treatment.

OPERATIVE TREATMENT OF HYPERTHYROIDISM

Discomfort.—In Lakeside Hospital, in all severe cases of hyperthyroidism, the operation is performed in the patient's room, without moving the patient from bed. The patient is protected from worry, anxiety and fear by tactful management. No discomfort follows the preliminary ligation; and there is relatively little discomfort after the thyroidectomy. It follows that this plan of surgical management produces no greater subjective disturbance of the patient—probably less in the severe case—than results from transportation to and from the roentgen-ray treatment room.

Period of Disability.—In a recent series of 500 thyroidectomies, the average stay in the hospital before ligation was four and three-fourths days, after ligation, from three to five days. The average stay in the hospital before thyroidectomy was four and one-half days; after thyroidectomy, thirteen days. The total hospital period, therefore, averaged twenty-five and one-fourth days—broken by the period at home between the ligation and the thyroidectomy.

In the Massachusetts General Hospital series reported by Means and Aub,⁴ no data are given from which one may judge the length of stay in the hospital required for each roentgen-ray treatment or group of treatments. Nevertheless, it is obvious that the total loss of time and the inconvenience necessitated by repeated visits to the hospital exceed that occasioned by surgical treatment alone.

Mortality.—Among our last 500 thyroidectomies, there were five deaths, a mortality rate of 1 per cent.; among the last 500 ligations, there were two deaths, a mortality rate of 0.4 per cent. Our records show a series of 331 consecutive thyroidectomies, and 145 consecutive ligations; that is, 476 consecutive thyroid operations without a death. And among thyroid operations for exophthalmic goiter, the records show a series of 227 consecutive thyroidectomies and 180 consecutive ligations, that is, 407 consecutive thyroid operations for hyperthyroidism without a death. These series are not made up of selected cases. No patient was rejected, although the series included patients in every stage of hyperthyroidism, some with edema of the extremities and ascites.

As I have stated above, I have found in the literature no statistics which give a basis for comparison, although it is obvious that the immediate mortality of roentgen-ray treatment is hardly to be considered.

7. Berkman, D. M.: St. Paul M. J. 18: 300-303, 1916.

8. Mayo, C. H.: Surg., Gynec. & Obst. 32: 209 (March) 1921.

9. Blackford, J. M., and Freligh, W. P.: Collected Papers of the Mayo Clinic 8: 507-512, 1916.

Our statistics, however, show that the operative risk in cases of hyperthyroidism, under the type of surgical management indicated above, may be largely disregarded.

End-Results.—It is too early to report on the end-results of our recent series, as at least three years should elapse before the end-results may be considered as stabilized; but it is conceded that surgical reduction is altogether the most curative method.

CONCLUSION

From a study of the evidence offered by those who advocate the roentgen-ray treatment of hyperthyroidism and a consideration of our own experience, I am inclined to believe that the surgical treatment of hyperthyroidism combined with physiologic rest yields the most favorable results. Heretofore, the only valid objection to surgical treatment has been the mortality; but now surgical treatment is undertaken in every case; the mortality is practically eliminated; much time is saved, and a more certain cure is achieved.

When we consider those sixty patients who had no râles on admission but who developed them during their stay at the sanatorium, we find a very different picture, for only 61.6 per cent of these patients are working, while more than 21 per cent. are dead. The third class of patients studied in this table, i. e., those who had râles on admission but who were free from them on discharge, forms another very favorable group as regards prognosis, for in spite of the fact that 41 per cent. had a positive sputum, 82.4 per cent. are well and working, while only 3.7 per cent. have died.

TABLE 1.—TYPES OF PATIENTS

Râles	Cases		Positive Sputum		No. of Patients				Percentage of Patients			
	No.	Per Cent. of 980	No. of Cases	Per Cent.	Well	Living	Dead	Unknown	Well	Living	Dead	Unknown
0 0	77	7.75	25	31.6	66	4	6	0	87.3	5.1	7.6	
0 /	60	6.1	24	40	37	9	13	1	61.6	15	21.7	1.7
/ 0	108	11	44	41.6	89	14	4	1	82.4	13	3.7	0.9

From the standpoint of prognosis, the influence of the location of râles should be considered. The figures in Table 2 are based on the entrance examinations only. Approximately 12 per cent. of our patients have râles limited entirely to the right upper lobe, and 8 per cent. to the left upper lobe. In spite of the increased percentage of instances of râles of the right upper lobe over the left, and the higher number of positive sputums in the cases with right upper lobe râles (55 per cent. positive, as contrasted with 39.5 per cent. of positives in cases with left upper lobe râles) yet the prognosis is more favorable in the right upper lesions, as is shown by the fact that only 9 per cent. of these patients are dead, as contrasted with 16 per cent. dead of those patients whose disease was limited to the left upper lobe.

TABLE 2.—INFLUENCE OF LOCATION OF RÂLES ON THE PROGNOSIS

	Cases		Positive Sputum		Condition 1918				Percentage of Patients			
	No.	Per Cent. of 980	No. of Cases	Per Cent.	Well	Living	Dead	Unknown	Well	Living	Dead	Unknown
Right upper	116	11.8	64	55.0	91	13	10	2	78.5	11.2	8.6	1.7
Left upper	81	8.3	32	39.5	56	12	13	0	69.2	14.8	16.0	0.0
Both uppers	88	9.0	50	56.8	60	7	18	3	68.2	8.0	20.4	3.4
One base	34	3.5	15	44.2	25	7	2	0	73.5	20.6	5.9	0.0
Both bases	17	1.7	9	52.9	11	2	4	0	64.7	11.8	23.5	0.0
All others	507	51.7	372	73.4	279	73	150	5	55.1	14.4	25.6	9.9

The last, and by far the most interesting, class of patients are those, fifty-one in number, who entered the institution with râles limited to one or both lower lobes. In seventeen of these cases, the râles were over both bases, while in thirty-four, they were confined to one side. On looking up the discharge examination report of these fifty-one cases, we find that twenty, or 39 per cent. developed apical râles during their stay here (Table 3). The most interesting point to note in these fifty-one cases is the fact that although, as a general rule, basal râles alone are not considered to be due to tuberculosis, yet twenty-four, or practically half, of these patients had positive sputum. The importance of the development of apical râles in these fifty-one basal cases is clearly shown by the fact that

PRESENCE, ABSENCE AND LOCATION
OF RÂLES IN THE PROGNOSIS OF
PULMONARY TUBERCULOSIS

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This study is an analysis of 1,000 consecutive admissions to the Trudeau Sanatorium during the years 1907 to 1913. Twenty of these 1,000 cases, for various reasons, have not been used; thus the figures in the accompanying tables are based on the records of 980 patients. The condition of these patients in 1918, or from five to eleven years after discharge, has been looked up and reported under the headings: "Well," "Living," "Dead" and "Unknown": "Well" meaning that the patient has been working for two or more years; "Living," referring to that less fortunate group of patients who, in the majority of cases, have relapsed and are therefore still more or less invalids. This group also includes those patients concerning whom we can get no further information, except the fact that they are still living. It will be noted that less than 2 per cent. of our patients come under this heading.

In Table 1 three types of patients have been considered: first, those who had no râles either at the time of admission or discharge examination; second, those patients who came to us with no râles but who developed them during their stay at the sanatorium; third, those who had râles on admission which cleared up before leaving. In looking at these figures, the first thing that strikes one is that 137, or 13.85 per cent. of the patients in this series, were admitted to the institution without râles; seventy-seven of these, or 7.75 per cent. of the total, showed no râles on discharge, regardless of the fact that twenty-five, or 31.6 per cent. of them, had positive sputum at some time. The good prognosis in cases without râles, neither on admission nor discharge, is well shown by the fact that 87.3 per cent of these patients are well and working at the end of from five to eleven years after leaving the sanatorium, and only 7.6 per cent. are dead, although so many of them had a positive sputum.

sixteen out of twenty of these patients who developed apical râles had positive sputum, while only eight, or 26 per cent. out of the thirty-one patients who developed no apical râles showed tubercle bacilli in the sputum. Again turning to Table 2, it is interesting to note that the prognosis in cases of basal râles in this series of cases is very slightly different from that of the upper lobe lesions, as the "Wells" in the right and left upper lobe cases are 78.5 per cent. and 69.2 per cent., as compared to 73.5 per cent. in the single lobe basal lesions, while the "Deads" are 8.6 per cent. and 16 per cent. as compared to 5.9 per cent. In contrasting râles in both upper lobes with those in both lower lobes, we get 68.2 per cent. and 64.7 per cent. of "Wells," while 20.4 per cent. and 23.5 per cent., respectively, of these patients have died.

In reviewing these facts, let us not jump to the conclusion that in all cases with basal râles, 50 per cent. will show a positive sputum. We must remember that in the fifty-one cases referred to in this paper, the diagnosis of tuberculosis had been made by some one before these patients came to us, and they do not include the far commoner types of cases seen by the general practitioner, in which there are râles at one or both bases and in which the diagnosis of bronchitis is correctly made, and in which the patients are well and working again within a week or so.

TABLE 3.—OCCURRENCE OF APICAL RÂLES IN PATIENTS WITH RÂLES OF LOWER LOBES ON ADMISSION

Location of Râles	Cases		Positive Sputum		Negative Sputum		Apical Râles on Discharge		Positive Sputum on Discharge		Apical Râles on Discharge		No Apical Râle Cases, Sputum Positive in Discharge	
	Per Cent.		No.		No.		No.		No.		No.		No.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
One base...	34	3.5	15	44	19	56	13	38	10	77	21	62	5	24
Both bases.	17	1.7	9	53	8	47	7	41	6	86	10	59	3	30
Total basal	51	5.2	24	47	27	53	20	39	16	80	31	61	8	26

CONCLUSIONS

1. Cases in which no râles were found, either on admission or on discharge examination, show the highest percentage of "cures."
2. Those patients who entered the institution with râles but who lost them during their stay form nearly as favorable a group as those showing no râles at any time.
3. In patients who entered the institution without râles but who developed them during treatment, the prognosis is much more grave than in either of the two above mentioned groups.
4. In spite of the greater frequency and the more common findings of the tubercle bacilli in right upper lesions as contrasted with left upper, the prognosis is considerably more favorable in the former class of patients.
5. Basal râles should not be diagnosed as nontuberculous too lightly, for in nearly 50 per cent. in our series, tubercle bacilli were found in the sputum, and nearly 40 per cent. of these developed apical râles during their stay in the sanatorium.
6. The prognosis among our cases in which the râles were limited to one or both bases was not more grave than in those patients with râles over one or both upper lobes.

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THE VALUE OF DRUGS IN UROLOGY*

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The entire genito-urinary tract may be reached for treatment by drugs, so that the pharmacologic armamentarium is large. Many of the therapeutic usages have come about empirically and have slender foundation of a scientific nature, and yet one hesitates to throw out drugs in which many of the older practitioners of wide experience place great confidence.

In order to arrive at a basis for constructing this article, a list of drugs applicable to urology was prepared from "Useful Drugs" and "New and Nonofficial Remedies" and sent out to some thirty of the best known urologists in this country. It was requested that they indicate which of the drugs mentioned were in their opinion actually useful. The list, with the number of affirmative votes each drug received, is given herewith.

LIST OF DRUGS USEFUL IN UROLOGY

GIVEN IN ORDER OF POPULARITY AMONG TWENTY-SEVEN UROLOGISTS

1. Hexamethylenamin	27	36. Yellow mercuric oxid.....	6
2. Silver nitrate	26	37. Collargol	6
3. Potassium permanganate...	25	38. Buchu	5
4. Argyrol	24	39. Arheol	5
5. Potassium iodid	23	40. Mercurialized serum	5
6. Neo-arsphenamin	22	41. Sajodin	5
7. Arsphenamin	21	42. Mercurial oil	4
8. Boric acid	21	43. Sodium arsenate	4
9. Oil of santal.....	21	44. Arsenous oxid	4
10. Protargol	20	45. Calomelol	3
11. Mercuric chlorid	20	46. Iodocasein	3
12. Sodium acid phosphate...	20	47. Cresol	3
13. Tincture of iodine.....	17	48. Cubeb	3
14. Mercuric salicylate.....	17	49. Cargentos	3
15. Balsam of Peru.....	17	50. Neisser bacterin	3
16. Glycerin	17	51. Carbosant	2
17. Sulphate of zinc.....	16	52. Santyl	2
18. Phenol	16	53. Potassium mercuric iodid..	2
19. Mercurial ointment	13	54. Silver citrate	2
20. Ammoniated mercury	12	55. Silver lactate	2
21. Acridlavine	12	56. Solargentum	1
22. Aluminum acetate	11	57. Sophol	1
23. Hydrogen peroxid	11	58. Protargentum	1
24. Sodium iodid	10	59. Gonococcus bacterin	1
25. Gonococcus vaccine	10	60. Scomin	1
26. Calomel	9	61. Dubois' iodolein	1
27. Mercuric iodid	8	62. Red mercuric oxid.....	1
28. Zinc chlorid	8	63. Electr-Hg	0
29. Hydrastis	8	64. Iodalbin	0
30. Mercurous oxycyanid	8	65. Lipoiodin	0
31. Methylene blue	7	66. Iodalbin and mercuriol tablets	0
32. Alum	7	67. Mercuric benzoate	0
33. Copaiba	6	68. Mergal	0
34. Mercuric cyanid	6	69. Ammonium iodid	0
35. Mercuric succinamid	6	70. Arsenous iodid	0

The following are given as indicating preference in arsenicals:

71. Arsenobenzol	14	75. Neosalvarsan	9
72. Novarsenobenzol	10	76. Ncodiarsenol	9
73. Salvarsan	11	77. Arsaminol	3
74. Diarsenol	10	78. Neo-arsaminol	3

CRITICISM OF VOTE

It is interesting to note that only eighteen drugs receive the approval of 50 per cent. of the urologists, and only twenty-five, 30 per cent. It is safe to say that almost any one can get along without those after the first forty drugs (with the exception of a few new drugs like mercurochrome, benzyl benzoate and benzyl alcohol, which were not submitted to the vote). Hexamethylenamin stands first in the list, although it is safe to say that as usually given it is almost inert.

* From the Brady Urological Institute, Johns Hopkins Hospital.

Recent experiments by Burnam¹ and Hinman² have shown that, unless the urine is quite acid, formaldehyd is not liberated in the kidney in sufficient quantity to be germicidal or even inhibitory. Water should be drunk sparingly—the urine should not be too dilute—and acidifiers, such as acid sodium phosphate and sodium benzoate, 40 grains daily, should be taken along with large doses of hexamethylenamin (from 60 to 90 grains daily) to be of value. It is proper to insist on frequent tests for formaldehyd in the urine, as shown by Shohl.³

Silver nitrate is, of course, indispensable as being probably the most important antiseptic and caustic in chronic inflammations and ulcerations. But it is interesting to note that the next two in popularity, potassium permanganate and argyrol, have been shown experimentally to be very weak antiseptics. Their value undoubtedly is due to the fact that they produce little reaction and irritation. Potassium iodid, the arsphenamins and various mercurials are essentials, but it is interesting to note that mercuric salicylate has displaced the iodids of mercury, although the ancient mercurial inunctions still rank high. The gray oil used by the British and mercuric cyanid and the benzoate, so popular in France, are little used in America. This "plebiscite," however, is hardly fair or sufficiently thorough as to antisiphilitic drugs.

The rest of the list speaks for itself and is silent testimony to the fact that the urologist is not a polypharmacist, and that many widely heralded and much advertised preparations have not proved acceptable.

STUDY BY CLASSES OF DRUGS USED IN UROLOGY

Local Anesthetics.—So many fatalities and severe intoxications have followed the use of cocain (especially when previous instrumentation, traumatism or ulceration was present) that it has been abandoned by careful operators. Alypin proved to be safer than cocain, as did eucain; but procain (novocain), which is one-tenth as toxic as cocain, has been shown to be so much safer than either of these that it is now almost universally adopted, a 2 to 4 per cent. solution sufficing for the urethra, prostate and bladder for ordinary instrumentation, urethroscopy and cystoscopy—sometimes supplemented by morphin hypodermically in nervous patients or for very painful procedures. For urologic operations a 1:400 solution of procain infiltration is effective not only for minor operations, but for prostatectomies, vesiculectomy for tuberculosis, etc.

Saligenin has been recommended recently as a urethral anesthetic "only one fifth as toxic as procain" by Hirschfelder and associates.⁴ Macht⁵ has highly recommended benzyl alcohol as a local anesthetic of efficiency, nontoxic (only one-fortieth that of cocain) and antiseptic in 2 per cent solution. It has been tried in my clinic with success, but in some cases proved irritating. Investigations by Macht and Shohl⁶ showed that this was due to the formation of small amounts of benzoic acid when in alkaline glass containers, and that it

can be eliminated by use of "nonsoluble glass." It has also proved very satisfactory for infiltration anesthesia. Macht and Satani⁷ found that apothecin, eucain and holocain have also a slight antiseptic action, but not so great as benzyl alcohol, while cocain and procain were found by them to be entirely devoid of antiseptic properties. Apothecin has been shown by Eggleston and Hatcher⁸ to be much more toxic than procain which, however, is a vasodilator and should therefore be used in conjunction with epinephrin. Wesson has shown that by injecting a 10 per cent. solution of benzyl alcohol in olive oil into perineal prostatectomy wounds through the drainage tube and into the depths of the wound, the gauze packs may be more easily and almost painlessly removed.

Internal Urinary Antiseptics.—For many generations a great list of drugs have been recommended as urinary antiseptics, etc. We have not space even to name a small portion of them: santal, copaiba, cubebs, juniper, buchu, hexamethylenamin and methylene blue are among the best known. Of the first three, oleum santali is recognized perhaps to be the best. While modern scientific investigation has tended to discredit its value, our urologic plebiscite shows it still to be in popular favor—particularly in acute gonorrhea.

Hexamethylenamin is chiefly excreted in the urine and gives rise to formaldehyd in the presence of free acid. When urine is alkaline this decomposition does not occur and the drug is not effective. The drug should be given in good quantity (from 60 to 90 grains daily), water restricted and acid sodium phosphate (administered between doses of hexamethylenamin) from 5 to 10 grains every four hours to insure marked acidity of urine. Its main usage is to prevent instrumental infection of the bladder.

Investigations have been carried out at the Brady Urological Institute by Davis and White⁹ with the object first of producing a compound with phenol-sulphonaphthalein which would be eliminated in the urine as an antiseptic, and one such compound, chlor-mercury fluorescein, experimentally possessed all the required properties—produced antiseptic urine without injury to the animal.

Further experiments showed that both acriflavine and proflavine given intravenously in rabbits (5 mg. per kilogram) produce antiseptic urine without injury to the animal. The rabbit's urine is alkaline. The same drugs failed in dogs whose urine is acid. Davis¹⁰ has recently carried out similar studies with 204 anilin dyes, fifteen of which were efficient as antiseptics when added to voided urine, were excreted by the kidney and were nontoxic. Only two of these, acriflavine and proflavine, produced antiseptic urine (as previously shown). Clinical tests have not yet been made. There is great hope of accomplishing valuable results along these lines in the near future. Davis thinks that dyes of the triphenylmethane, xanthone, acridin and azin groups (particularly the latter) give more promise of success.

Local Germicides and Antiseptics in Urology.—Since most inflammatory diseases of the urinary tract consist, at least in their early stages, of a superficial inflammation of the lining mucous membrane, it was early

1. Burnam, C. F.: An Experimental Investigation of the Value of Hexamethylenamin and Allied Compounds, *Arch. Int. Med.* **10**: 324 (Oct.) 1912.

2. Hinman, Frank: Urinary Antisepsis, *J. A. M. A.* **65**: 1796 (Nov. 20) 1915.

3. Shohl, A. T., and Deming, C. L.: *J. Urol.* **4**: 419 (Oct.) 1920.

4. Hirschfelder, A. D., and Wynne, H. M. N.: Saligenin as a Local Anesthetic for the Female Urethra, *J. A. M. A.* **75**: 1770 (Dec. 25) 1920. Hirschfelder, A. D.; Lundholm, A., and Norgard, H.: *J. Pharmacol. & Exper. Therap.* **15**: 261 (June) 1920.

5. Macht, D. I.: *J. Pharmacol. & Exper. Therap.* **11**: 419 (July) 1918.

6. Macht, D. I., and Shohl, A. T.: *J. Pharmacol. & Exper. Therap.* **16**: 61 (Aug.) 1920.

7. Macht, D. I., and Satani, Y.: *J. Urol.* **4**: 347 (Aug.) 1920.

8. Eggleston, C., and Hatcher, R. A.: *J. Pharmacol. & Exper. Therap.* **13**: 433 (Aug.) 1919.

9. Davis, E. G., and White, E. C.: *J. Urol.* **2**: 107 (April) 1918; **2**: 257 (Aug.) 1918.

10. Davis, E. G.: *Am. J. M. Sc.* **161**: 251-257, 1921.

thought that they could well be treated by the local application of germicidal substances, which would destroy the causative organisms. Almost every germicide and antiseptic has been utilized in this manner.

In considering a given substance, its suitability must be determined according to (1) whether it forms a precipitate with albuminous material; (2) whether its germicidal or antiseptic power is diminished by the presence of albuminous material; (3) the strength at which it can be used without irritation, and (4) its ability to penetrate the tissues while retaining its germicidal or antiseptic effect. As urinary infections progress, they become more and more deep-seated, so that sooner or later they pass beyond the sphere of effect of drugs applied locally. For this reason it is difficult to estimate the extent of the germicidal or antiseptic action of a drug in a given case. It is still by no means clear how much of the favorable action of these drugs is due to their germicidal or antiseptic action, and how much to cleansing effects or local stimulation of tissue reactions. In addition, it seems probable, since in many cases the treatment is effectual while the infecting organism can still be found in the secretions, that antiseptic action is often an important element where complete destruction of the bacteria cannot be accomplished.

One of the first drugs recommended for its germicidal action in the urinary tract was mercuric chlorid. Owing to its irritant nature, it must be used in high dilutions, such as from 1:20,000 to 1:60,000. It precipitates albuminous matter, thus forming a more or less impermeable barrier to its own action, and losing at the same time a great part of its germicidal power. It has fallen almost entirely into disuse, and it seems probable that its good effects were almost entirely due to the cleansing effect of the large quantities which were used.

This principle of irrigation with a large quantity of solution was especially emphasized by Janet, who introduced potassium permanganate for the purpose. This drug is reduced by contact with protein material, giving up "nascent" oxygen. Its germicidal action is therefore transitory. It is usually employed in weak solutions, such as from 1 to 2,000 to 1:10,000, and it is not likely that such solutions are effective germicides, since it has been shown that a 1:4,000 solution fails to kill the gonococcus in twenty minutes. As a mildly stimulating and cleansing remedy it has value, however, and has won the most widespread use.

Lead acetate, zinc sulphate, aluminum acetate and copper sulphate have been extensively used, especially in gonorrhea, but their germicidal activities in suitable concentrations are nil, and they have their effects entirely by virtue of cleansing astringent or stimulating actions. Phenol also is inactive in the strengths recommended, failing to kill the gonococcus in a 1:400 dilution in twenty minutes. It has had some vogue as a prophylactic. Guaiacol has been used locally in cystitis. Its germicidal powers are comparable to those of phenol. Boric acid is practically devoid of germicidal action, and while it may have a certain antiseptic property, its solutions are useful only for their cleansing effects. It is now seldom used.

Silver nitrate has been used very extensively. It is a powerful germicide, but suffers from the same disadvantages as mercuric chlorid. As injection and irrigation in the urethra in acute cases it has been almost entirely replaced, and is used principally for topical

application or instillation, or in the bladder or renal pelvis, where its irritant and stimulant properties account for a large part of its effectiveness.

Efforts to produce a silver preparation free from the irritating properties of silver nitrate led to the introduction of collargol and the silver albuminates, many of which have been recommended under the names protargol, argyrol, silvol, cargentos, etc. While these drugs are nonirritating and are not protein coagulants, they have very weak germicidal powers. It is also probable that, owing to the fact that they are colloidal suspensions instead of true solutions, their penetrating qualities are slight. They may be used, however, in concentrated form, and they are certainly beneficial in many cases of gonorrheal urethritis. They are not by any means the best in cystitis or pyelitis, and while undoubtedly superior to silver nitrate in acute gonorrhea, do not represent the ideal of a local urinary germicide. Similar compounds of mercury and albumin have been produced and recommended, but apparently have no advantages.

The fact that certain dyes exercise powerful and often strongly selective effects on bacteria led Browning to try them in urinary infections. He found in brilliant green a useful treatment for gonorrhea, but later proflavine and acriflavine proved to be even better. Of these, acriflavine has had the most success. This dye is rather irritating to the urinary mucosa in strengths greater than 1:1,000. However, it does not coagulate protein, and it is stated that its germicidal action is not diminished in the presence of serum. This property distinguishes it from practically all of the other known germicides. The flavines apparently produce their germicidal effect by a mechanism entirely different from that of the metallic germicides. This is indicated by the behavior toward serum mentioned above, by the fact that very small factors, such as change in reaction or in the salt content of the test solutions, will alter greatly the germicidal activity, and by the results of experiments reported by Gray and Morrison.¹¹ They found that concentrations of acriflavine many times greater than necessary to kill a certain organism in the test tube were entirely without effect on the course of an experimental empyema produced by the same organism. The effect of acriflavine develops slowly, requiring a long exposure for the best results to be produced. Under favorable conditions acriflavine¹⁰ shows very high germicidal powers, and many observers believe it to be a most successful drug in the treatment of gonorrhea. In Germany, extraordinarily high germicidal powers are claimed for it. It is used as an injection at a strength of 1:1,000, or an irrigation at a strength of 1:5,000.

Recently Young, White and Swartz¹² have described a compound of fluorescein and mercury designed to have both the penetrative power of the dye and the germicidal activity of the mercury. This drug is known as mercurochrome. It does not coagulate albumin although, like all mercurials, its activity is somewhat reduced in the presence of serum. It is comparatively nonirritating, being borne in the urinary tract in strengths of 1 per cent. or even more, and is a powerful germicide. It is effective in a short time against all the ordinary organisms, and kills the gonococcus in

11. Gray, F. P., and Morrison, L. F.: *J. Infect. Dis.* 28:1 (Jan.) 1921.

12. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome 220," *J. A. M. A.* 73:1483 (Nov. 15) 1919.

twenty minutes at a strength of 1:16,000. In urine, 1:800 kills the colon bacillus in one minute. It has an intense red color. It has been used in pyelitis, cystitis, gonorrhea and other conditions with many very excellent results. The rapidity with which a 1 per cent solution will often sterilize a foul, badly infected bladder is remarkable. In gonorrhea, it is equally effective as argyrol and as acriflavine, which is probably the antiseptic of choice on account of its lack of staining quality.

Other drugs which have not been widely used have some interest in connection with urology. Chlorazene has been recommended for employment on the urinary tract. It kills the gonococcus in twenty minutes at a strength of 1:3,200. It has proved to be irritating, however, and has found little use. The tricesols, though much more effective germicidally than phenol, are still very weak, and would seem to have no place except possibly to replace phenol in prophylactic combinations. Potassium mercuric iodid is equal if not superior to mercuric chlorid as a germicide, and does not precipitate albumin at all. While rather irritating, it seems that it might be useful when an irrigation fluid having more lasting germicidal properties than those of potassium permanganate is desired. The effectiveness of soap in venereal prophylaxis has long been known, and it has recently been shown that sodium oleate, especially if combined with a little boric acid when albuminous matter is present, is quite an active germicide for the gonococcus, killing it in twenty minutes at a dilution of 1:3,000. Very weak solutions are effective in increasing considerably the germicidal power of other drugs against the gonococcus. It is tolerated by the urinary mucosa in strengths of 1:200. While entirely inert against *Bacillus coli* and the staphylococci, it would seem advantageous to make use of this gonococcicidal power of soap, in conjunction with its cleansing properties, in the urinary tract.

In the urethra, various methods of applying germicidal substances have been recommended. Some urologists, after introducing such drugs as argyrol or acriflavine in early cases of gonorrhea, have sealed the meatus shut, keeping the drug in contact with the seat of infection for many hours. Others have sought to attain the same end by mixing the drugs with viscid or greasy menstrums, such as one of the gums, lanolin, or aluminum hydroxid, which will remain in the urethra for some time. It would seem that if the most effective germicidal action is to be secured, the drug should remain in contact with the seat of infection for the longest possible time.

While many powerful germicides have been used in the urinary tract, no uniform success has attended any of them. It seems probable that this is due largely to the depths to which the inflammation extends in most cases. There is little doubt, however, that as our selection of suitable drugs increases, more and more cases are responding to germicidal applications. There is unquestionably a great future for germicidal treatment in venereal prophylaxis, in acute gonorrhea, and in other infections of the urinary tract.

An extended clinical study of various mercurial preparations which have been prepared by White in the chemical laboratory of the Brady Urological Institute is being conducted with the aid of funds from the Interdepartmental Social Hygiene Board. The first of these studies to be published is on mercurochrome, already referred to, which has been shown, by numer-

ous clinical investigators, to have a wide range of usefulness not only in urology, but also in gynecology, otolaryngology, ophthalmology and general surgery. It has proved a remarkable drug in the treatment of diphtheria carriers, Gray and Mayer reporting complete success in eighty-eight out of ninety such cases.

The chief objection to mercurochrome is its deeply staining quality which, probably contributing greatly to its germicidal action, makes it objectionable to patients, especially as an injection for gonorrhea. We have consequently been searching for a penetrating, highly germicidal drug which does not stain, and in two new mercury preparations, known at present merely as 245 and 253, we have powerful germicides, nontoxic, nonirritating and nonstaining, which are being tested out clinically with apparent success. But much has been accomplished already; and with silver nitrate, argyrol, protargol, acriflavine and mercurochrome, great success is now obtained in curing chronic infections of the renal pelvis, bladder, prostate, vesicles and urethra, which only a few years ago were considered beyond therapeutic assistance.

Sedatives and Antispasmodics.—The opiates morphin, codein by mouth or hypodermically and extract of opium by suppository have been widely used in urology, often in conjunction with belladonna or hyoscyamus. Recently other alkaloids of opium have been advocated, and Macht¹³ has made a study, here, to determine their respective value not only in relief of pain but also in spasmodic conditions of the ureter, bladder and urethra. It has been shown that while morphin and codein relieve ureteral and vesical colic through their action on the pain centers of the brain, their effect on the contraction and tonicity of the ureters and bladder is stimulating. Papaverin, however, while not being a powerful central analgesic, exerts a remarkable relaxing or antispasmodic effect on smooth muscle. On this account it has been used at this clinic to facilitate the passage of a ureteral calculus, a solution of papaverin being introduced by ureteral catheter.¹⁴

A combination of the different opium alkaloids, such as pantopon, contains a sufficient amount of papaverin alkaloids to counteract the stimulating peripheral effects of morphin on smooth muscle. For this reason pantopon has proved more efficient than morphin clinically in relieving colicky pains in general, and ureteral and vesical pains in particular.¹⁵

Likewise benzyl benzoate¹⁶ has proved efficient in these conditions. In subacute renal and vesical pains this drug may be given by mouth, from 2 to 4 c.c. of the 20 per cent. alcoholic solution, three or four times a day.

Recent experiments at this clinic show that the action of the different belladonna alkaloids (atropin, hyoscyamus, scopolamin) as antispasmodics for the bladder is not the same, and for this reason the galenical preparations of hyoscyamus are probably more sedative than those of belladonna. The ancient treatment which contains potassium citrate and tincture of hyoscyamus, each 2 drams, to water, 6 ounces; the dose 2 drams four times a day is of unquestioned value just as is the suppository containing each one-half grain of extract

13. Macht, D. I.: *J. Pharmacol. & Exper.* **11**: 389 (June) 1918.

14. Macht, D. I., and Geraghty, J. T.: *Bull. Johns Hopkins Hosp.* **27**: 119, 1916.

15. Macht, D. I.: *J. Urol.* **1**: 201 (April) 1917.

16. Macht, D. I.: *J. Pharmacol. & Exper. Therap.* **11**: 419-446 (July) 1918.

of opium and extract of hyoscyamus. Acetylsalicylic acid is of distinct value as an anodyne and sedative.

Heat applied to the perineum or by rectal irrigation or by sitz bath is important to relieve pain and spasm of bladder, prostate and urethra.

Diuretics.—Those which have had the widest usage are: water (forced), digitalis (infusion), caffein, theobromin sodium salicylate, potassium acetate, potassium citrate and heat. Of these the simplest and best is water given in large quantities by mouth (often from 10 to 12 quarts daily are taken in our clinic), and if necessary this is supplemented by saline infusions

caffein, but has less effect on the central nervous system and is therefore better as a diuretic. It is non-irritating to the kidney (dose from 5 to 15 grains three times a day).

Of the saline diuretics, potassium acetate and potassium citrate are the most useful. Potassium acetate is used as a diuretic in nephritis and to render the urine alkaline and less irritating. It is an effective diuretic, increasing the solids in urine without irritating the kidneys. The dose is 15 grains every three hours (for a limited time). Potassium citrate acts like the acetate, but is less readily absorbed and is more laxa-

CLINICAL USE OF VARIOUS DRUGS IN UROLOGY

DIAGNOSIS

- (a) Urine: analysis: usual reagents, stains, culture mediums (especially for gonococcus).
- (b) Urethral, seminal vesicle and prostatic secretion: acetic acid, stains, etc.
- (c) Kidneys: analysis of separated urines, as given (a). Function tests; phenolsulphonaphthalein (best); indigocarmine (rarely).
- (d) Roentgen ray: pyelograms, cystograms; thorium nitrate (15 per cent.), sodium bromid (15 per cent.).
- (e) Blood chemistry: reagents for blood urea, creatinin.

GENERAL

- (a) Local anesthetics: procain (1 to 4 per cent. urethral injection); benzyl alcohol (1 to 4 per cent.).
- (b) External antiseptics: soap and hot water; mercuric chlorid, alcohol; tincture of iodine; potassium mercuric iodid (Kalmerid).
- (c) Lubricants: liquid petrolatum; glycerin; tragacanth paste (KY); petrolatum; olive oil.
- (d) Coagulants, styptics: epinephrin; silver nitrate; copper sulphate; horse serum; blood transfusion; cephalin.

EXTERNAL INFECTIONS (BALANITIS, ULCERS, CHANCROIDS, BUBOES, CHANCRES)

1. Washes: boracic acid; potassium permanganate, silver nitrate, mercuric chlorid, mercurochrome, copper sulphate, phenol.
2. Dusting powders: lycopodium, boric acid, iodoform (rarely), calomel.
3. Ointments: boric acid; mercurochrome; zinc oxid; ammoniated mercury; balsam of Peru; scarlet R.
4. Caustics: silver nitrate; phenol; nitric acid; copper sulphates; cautery; fulguration.
5. Wet dressings: saline (chancres until discovery of spirochetes—later arsphenamin powder?).

INFECTIONS OF GENITO-URINARY TRACT

1. Urethritis: (a) Acute (anterior and posterior, prostatitis, vesiculitis, epididymitis)
 1. Diluents: internal antiseptics; water forced, sodium bicarbonate; potassium citrate and hyoscyamus; santal oil; hexamethylenamin(?).
 2. Injections: argyrol; protargol; acriflavine; mercurochrome; silver nitrate (later); zinc sulphate.
 3. Irrigations: potassium permanganate; mercuric chlorid; silver nitrate; acriflavine; mercurochrome; mercuric oxycyanid.
 4. Antispasmodics: hyoscyamus; belladonna; extract of opium (suppositories); morphin, papaverin.
 5. Heat: stupes; hot water bag to perineum; hot rectal douches; hot sitz baths, etc.
 6. Cold: ice applied to external genital or perineum, or by two-way rectal douche.
- (b) Chronic
 1. Same drugs as above, according to circumstances.
 2. Instrumentation: urethroscopic applications (silver nitrate, stick or in solution); instillations of silver nitrate 1 to 5 per cent.
 3. Mercurochrome, 1 per cent., after massage of vesicle and prostate and cleansing irrigation.

2. Prostatitis, vesiculitis (a) Acute: as above, 1 a, as circumstances may require, with rest in bed and frequent cold rectal irrigations.
(b) Chronic: as above, 1 b; also injections of vas deferens and vesicles through vasotomy or urethroscope with protargol, argyrol, collargol or mercurochrome.
(c) Tuberculous: injection (after epididymectomy) through vas; phenol (pure); iodoform oil.
3. Cystitis:
(a) Acute: 1. Internally: forced water; potassium citrate; hyoscyamus (if painful); if not painful, reduced water, sodium benzoate and hexamethylenamin. 2. Irrigations: salt solution; boric acid; potassium permanganate; mercuric chlorid; silver nitrate; mercurochrome; acriflavine. 3. Injections and instillations: silver nitrate; mercuric chlorid; argyrol; protargol; mercurochrome.
(b) Subacute: Same as above, more vigorously, to sterilize bladder; yeast; Bulgara tablets.
(c) Chronic: Same as above, more vigorously, to sterilize bladder; yeast; Bulgara tablets.
(d) Ulcerative and interstitial: cystoscopic applications; silver nitrate; phenol; cautery; fulguration; excision.
(e) Tuberculous: Gomenol; phenol (10 per cent. injection); iodine (gas); mercurochrome (1 per cent. injection); fulguration.
4. Pyelitis:
(a) Acute, febrile: forced water (internal); sodium bicarbonate (sometimes alkalis forced, especially in children).
(b) Acute, afebrile: (1) Water reduced (internal); acids forced (sodium benzoate; sodium acid phosphate); hexamethylenamin (60 to 90 grams each day). (2) Pelvic lavage: silver nitrate (1 to 5 per cent.); mercurochrome (1 to 5 per cent.). (3) Pyelogram: thorium nitrate (15 per cent.); sodium bromid (15 per cent., to determine advisability of operation).
(c) Pyelonephritis: Same as b 1 and 2 as circumstances may require; nephrectomy of unilateral.
(d) Ureteritis: Same as b 1 and 2 as circumstances may require; with dilatation of strictures, if present, using bougies and paraffin bulbs.
5. Kidney, hematuria:
 1. Internal: ergot, etc.; horse serum; blood transfusion; calcium chlorid; gelatin.
 2. Pelvic lavage: silver nitrate (1 to 5 per cent.); epinephrin (1 to 5 per cent.).
 3. Pyelogram: thorium nitrate (15 per cent.); sodium bromid (15 per cent.) to exclude neoplasm, stone or tuberculosis.
6. Kidney, impairment (back pressure from prostate, etc.):
 1. Relief of obstruction: catheter or suprapubic drainage; irrigations to prevent infection.
 2. Internal diuretics: forced water (6 to 12 quarts daily); saline infusions; transfusions; rectal drip.
 3. Cardiac stimulants: digitalis (infusions).
 4. Cardioresenal diet.
 5. Function test: phenolsulphonaphthalein; blood urea; creatinin.
7. Kidney, suppression (anuria):
 1. Water and diuretics as above.
 2. Bloodletting and simultaneous opposite intravenous saline.
 3. Application of heat; baths, stupes, hot water bottles, etc.; sweat baths.
 4. Pelvic lavage: sterile salt solution or mild antiseptic.

(beneath the breasts) or by salt solution by rectum. In severe cases intravenous saline infusion is practiced, occasionally with simultaneous bloodletting from a vein of the opposite arm (in severe uremia or sepsis). This forcible hydrotherapy often accomplishes wonders, and speedily. It is contraindicated in general edema, anasarca, cardiac distress, etc.

Of the drugs named above, caffein modifies the circulation by stimulating the heart and relaxing the vessels by direct action. The flow of urine is thus increased. It is most efficient in cardiac dropsy. Digitalis has a similar action, stimulating and greatly improving the heart output, which relieves congestion and dropsy and increases the flow of urine. Theobromin sodium salicylate has an action on the heart and kidney similar to

tive. Magnesium sulphate is not only an active saline cathartic, but a valuable diuretic from the small portion absorbed. This should often be the purgative chosen in cases of uremia. Heat is most valuable and may be applied as hot stupes over the kidneys to stimulate action, or as sweat baths, tubs, etc.

Aphrodisiacs.—This subject is still obscured with the mists of antiquity which have enveloped the search for the fountain of youth. Cantharides has always occupied a hallowed place, but its usage has never been scientifically directed, although recent experiments in the pharmacologic laboratory here indicate that it is still one of the most valuable aphrodisiacs so far known. Yohimbin has been highly commended, but experiments do not seem to confirm the claims made. Strych-

nin is of value, but phosphorus, damiana, saw palmetto, etc., have been found to be of little use. Further study is required and is in progress in this clinic.

As a rule, sexual impairment (either in desire, erections or ejaculation) is due to an inflammatory condition of the verumontanum, prostate and vesicles, and is best treated by massage, and applications of silver nitrate to the verumontanum through the urethroscope, etc., instillations of mercurochrome, etc.

Anaphrodisiacs.—These are mainly necessary to prevent priapism following operations on the penis, or chordee in acute gonorrhea. Potassium bromide in large doses (from 20 to 30 grains) repeated frequently are often required, and may not be successful. In other cases scopolamin has been found useful, and some have recommended the use of vanillin. Ice packs may also be very helpful.

Antisyphilitics.—For many years syphilis has been one of the few diseases in which it was known positively that drugs were of definite value. With mercury and potassium iodid remarkable results were obtained, but many sad examples of blasted hopes of permanent cure constantly occurred, and after the demonstration of *Spirochaeta pallida* as the causative agent, it was shown that chronic diseases of the central nervous system and spinal chord were nearly always due to syphilis.

Hope was restored when Ehrlich brought out arsphenamin, and in the wild claims of quick sterilization by a few intravenous injections, each of which amounted to a surgical operation (with "appropriate" prices), all discretion and the experience of years (based on the sure foundation of generations of experience with mercury and potassium iodid) were cast to the winds—resulting in great harm to the medical profession from which it has not yet recovered.

At last a realization is dawning that the arsenicals alone rarely cure, and that great reliance has to be placed in mercury and potassium iodid. Although investigations by the score are going on, there is little that is certain about the drugs or definite as to clinical usages. During the war, the Allies and Germany were agreed on one thing—the treatment of syphilis. All used neo-arsphenamin and mercury simultaneously or intermittently. With the American army, we so simplified the technic that only 2 c.c. of sterile distilled water was used and the solution was made in the neo-arsphenamin ampule itself, and injected with an ordinary hypodermic needle, in the field hospitals at the front.¹⁷ In civil life such simplification is not necessary, and recent laboratory experiments with syphilitic rabbits show that arsphenamin is definitely more positive in results, and most authorities think it should be preferred. Mercurial oil and calomel, so popular in Europe, have recently been shown to be far inferior in absorption to the salicylate. For quick effect the cyanid, used intravenously, is to be preferred. Inunctions remain very popular, despite drawbacks. The benzoate is little used in America. The Wassermann test has been somewhat discredited and the luetin test completely so. There is no agreement among "authorities" and "experts," and spinal punctures show an increasingly greater number of infections. The need of continuous treatment for many months is again being strongly urged.

Improvements in drugs, both arsenicals and mercurials, are badly needed. Many experiments are being conducted, and we may hope for important announcements in the near future.

Organotherapy.—The pituitary gland has furnished useful drugs for the urologist. The posterior lobe substance, when given hypodermically, increases peristalsis by direct action on the musculosa of the intestine. We have found it of great value in abdominal distention which so often follows suprapubic or kidney operations and which may be so fatal. The drug may be used repeatedly and is almost always followed by a large escape of gas through the rectal tube, which should be employed simultaneously. (Physostigmin, given before and after operation, has not proved very helpful in our cases).

The anterior lobe of the pituitary has been shown to have a close relationship to genital development. In Goetsch's experiments with young white rats, fed on the anterior lobe, the testicles rapidly became much larger than in control animals of the same age. We have therefore employed it after operation in cases of undescended testicle and in other cases of poor genital development and sexual impairment. No adequate study of results obtained has been made.

The testis has been the subject of much experimentation, and successful transplantations followed by extraordinary sexual changes (even crossed sexes) have been reported. The testicular substance has also been used as a drug, as has also the prostatic substance. The therapeutic uses and limitations of these substances have not been sufficiently studied, and offer an excellent field for research.

Diagnostic Agents.—Certain drugs, while not of therapeutic value, are of the utmost importance in urologic practice as diagnostic agents and therefore must be named among the useful drugs. We need only mention the invaluable information given as to the kidney function by phenolsulphonephthalein and the diagnostic value of sodium bromid and thorium solutions in connection with pyelography. Radium has a wide field of usefulness in urology, as it may be applied through so many portals: the urethra, bladder and rectum, by perineal puncture (needling), and by suprapubic incision with insertion of tubes of emanations. The various drugs of clinical and bacteriologic laboratory usage are very needful in urology, which, with blood chemistry, renal function tests, the cystoscope and roentgen ray, has become one of the most exact of medical sciences.

Snow-Blindness.—Light which contains an excess of ultra-violet rays is more irritating to the eyes than light consisting of visible light rays only, and naked arc lamps, when being tested photometrically, produce definite pathologic effects on the eyes of those carrying out the experiments and exposed to their influence. The ultraviolet rays are of intense chemical activity, and it is these rays which produce the symptoms associated with electric light conjunctivitis, either by stimulating the nerve ends in the conjunctiva or by some direct chemical irritation of that membrane. The consensus of opinion would indicate that in electric light we have an illumination that is capable of greater injury to the eye than gas, and very much greater than that of an oil lamp. In incandescent lamps used for house-illumination there is an irritating effect from long-continued exposure to the visible chemical rays; an oil lamp is less rich in actinic rays and gives a yellower and softer light.—A. W. Ormond, *Guy's Hosp. Rep.* 71:195 (April) 1921.

17. Young, H. H.: Preventive Medicine as Applied to Venereal and Skin Diseases, J. A. M. A. 73:1668 (Nov. 29) 1919. Young, H. H., et al.: Manual of Military Urology, Paris, 1918.

Clinical Notes, Suggestions, and New Instruments

A CASE OF VERONAL (BARBITAL) POISONING

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A. N., a Swede, aged 48, was admitted to the service of Dr. J. W. McConnell in the neurologic wards of the Philadelphia General Hospital, May 16, 1921, with an outside diagnosis of locomotor ataxia and drunkenness. He had been picked up from the sidewalk, where he had fallen for the fourth time in the attempt to walk. When admitted, he was unable to stand or walk. Examination was not made until the following day, when the patient was apparently clear mentally, answers being given readily and without inconsistency. Questioning revealed the fact that two weeks before admission to the hospital he began to take barbitol to give him ease from a stomach disorder of six years' duration (history quite suggestive of gastric ulcer—pain after eating, hematemesis, melena). The first day, 15 grains was taken in the forenoon, and by evening, this being found ineffectual, 30 grains more was used. The dosage of the second day totaled 90 grains. On the twelve succeeding days till admission here, 30 grains was taken four times in twenty-four hours. After each dose, he would sleep from five to six hours (about an hour longer after six 5-grain tablets than after the drug in powder form.) He would then get up, eat, and go out to the drugstore for more "veronal." During the two weeks, he averaged ten whisky glasses of straight whisky, except on the day of admission, when only one glass was drunk. He did not suffer from vertigo or confusion, and never staggered or fell. He had the idea that every one on the street was watching him.

Physical examination revealed no abnormalities, except slight dilatation of the conjunctival vessels and contusions of the knees. The patient's physique was good. Neurologically, he was able to stand (May 17) with moderate swaying, slightly increased by closing the eyes. Walking developed marked incoordination, he being unable to walk a crack, look up, or close his eyes without falling over to the left. Coordination of the upper extremities, however, was unimpaired. There was no asynergy, dysmetria or adiodokokinesis. There were no other motor disturbances.

Examination of the eyes revealed no ptosis. There was a barely perceptible nystagmoid movement on extreme lateral motion of the eyeballs, the movement occurring in the same direction. There was muscular imbalance of the left eye, with weakness of the lateral rectus. The right pupil was larger than the left; both were slightly irregular, but responsive to light, accommodation and convergence.

The tongue was normal, except for a fine tremor.

The reflexes were normally present throughout, with the exception of the patellar tendon reflex, which was moderately exaggerated.

Epicritic, protopathic and deep sensation was unimpaired throughout. The heel to knee test was well carried out.

The spinal fluid and blood Wassermann tests were negative to all antigens. The spinal fluid, blood and urine contained no products of hemoglobin decomposition—particularly hematorporphorin and methemoglobin. The colloidal gold curve was negative.

By May 25, the patient was perfectly comfortable, except for occipital headache on sitting up in bed, and objective vertigo on standing. The incoordination was very slightly improved, but still severe. He had shown neither somnolence nor restlessness since admission. May 27, he undertook work in the ward. His headaches became less severe and less constant. His vertigo and incoordination continued to improve.

By June 2, when he was discharged at his own request, he showed no anisocoria and no extra-ocular palsies. He was able to walk a straight line forward and backward, looking up or with the eyes closed, with only moderate unsteadiness. Headaches and vertigo had nearly disappeared. A coarse, rapid tremor of the fingers alone remained.

The interest in the case lies in the facts that:

1. The daily amount of barbitol taken was equal to the average lethal dose as given by Bastedo, and that this amount was taken for twelve successive days without gross symptoms of injurious effect until the end of that period.

2. Difficulty might arise as to differentiation between barbitol poisoning and cerebellar disease, alcoholism and spinal ataxia.

3. The case did not suggest, aside from the eye signs, the diagnosis of lethargic encephalitis, as has been commented on in recent reports in which the dosage of barbitol was smaller.¹

Philadelphia General Hospital.

A CASE OF CEREBELLAR ABSCESS WITH VERY UNUSUAL FEATURES; OPERATION; RECOVERY *

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P. W., a boy, aged 10, admitted to my service at the New York Eye and Ear Infirmary, Dec. 6, 1920, had suffered from pain in the right ear, which began six days before he entered the hospital. The right drum was incised four days before entrance. Following this there was a profuse discharge from the ear. He had had mastoid pain and tenderness for six days.

Physical examination revealed the right drum red and thickened; it had a fair size perforation, and the canal wall was sagging. The canal was filled with a profuse discharge and there was mastoid tenderness. The temperature was 102 F. The pulse registered 96, and respiration 22. A smear of pus showed a diplococcus resembling pneumococcus.

December 7, the urine was negative; the blood count revealed 4,000,000 red cells, 22,000 white cells and 79 per cent. polymorphonuclear cells.

FIRST OPERATION

December 9, it was decided to open the mastoid. Before this was done, however, a lumbar puncture was made and the spinal fluid obtained for examination. It was clear looking. The globulin was positive; Fehling's positive, and there were 230 cells to the cubic millimeter. These cells were of the mononuclear type. On cultivation the fluid was negative.

The pathologic findings at the operation were: Free pus in quantity on removal of the cortex; a large perisinus abscess necessitating the removal of the entire sinus plate; and a large area of dura, exposed in the middle and posterior fossa. The antrum was filled with granulations, and a part of the posterior canal wall had been destroyed by disease.

The wound was partly sutured and drained with gauze, and the patient was returned to bed in good condition.

The general condition improved for the next four or five days, the temperature and pulse gradually returning to normal, which was reached on the fifth day after operation. On the morning of this day, the patient developed a spontaneous nystagmus, which was variable in direction and which was vertical in direction when the patient looked upward. When I saw him at 3 p. m., December 14, his mentality was good but drowsy; there was adiodokokinesis in the right hand, and he demonstrated ataxia with finger to finger and finger to nose tests. When looking forward, he had no nystagmus. A coarse nystagmus developed on turning the eyes in all directions, right, left, up and down. On turning the eyes to the right, he had a marked horizontal nystagmus to the right; on turning the eyes to the left, a moderate horizontal nystagmus to the left; on looking upward, a vertical nystagmus upward, and on looking downward, a rotary nystagmus downward and to the left. He touched with the left hand and past pointed 3 inches to the right with the right. On douching of the right ear with cold water with the head back, he developed a small horizontal nystagmus to the left and past pointed 3 inches to the right with the right hand and touched with the left after sixty-five

1. Hassin, G. B., and Wien, M. S.: A Case of Acute Veronal (Barbitol) Poisoning Simulating Epidemic ("Lethargic") Encephalitis, *J. A. M. A.* 75: 671 (Sept. 4) 1920. Macleod, E.: *Med. Rec.* 98: 985 (Dec. 11) 1920.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

seconds. On douching of the left ear in the upright position he developed a small rotary nystagmus to the right after twenty-five seconds. With the head back he had a large horizontal nystagmus to the left and past pointed 5 inches to the left with the right hand and 3 inches to the left with the left hand.

A blood count made that morning revealed 4,800,000 red cells, 9,200 white cells, and 76 per cent. polymorphonuclear cells.

Examination of the eyes disclosed the left eye to be normal as regards the iris, pupil and disk; also the choroid and retina. The right eye showed that the iris was normal, and the pupil reacted to light and accommodation promptly. The disk was definitely hyperemic. The nutrient vessels were engorged and the margins were equally indistinct in every meridian. No elevation was present, but the physiologic cup could not be made out. A tentative diagnosis of cerebellar abscess was made.

SECOND OPERATION

The patient was operated on at 5 p. m. The cerebellum was exposed by removal of the cortex well down and toward the base, and was entered at its lowest point. About $\frac{1}{2}$ inch from the surface and slightly forward a capsulated abscess was found. It seemed to be about $1\frac{1}{4}$ inches long and about $\frac{1}{2}$ inch wide, and from it about 1 dram of pus was obtained. A smear from this pus showed a diplococcus resembling pneumococcus. Immediately following this a double drainage tube of rubber was inserted into the cavity, and it was flushed with surgical solution of chlorinated soda (Dakin's solution) every four hours through the smaller inner tube. The boy was returned to bed in good condition.

The next day he was found to be extremely drowsy all the time, being aroused with difficulty. His temperature had a slight rise to 100.8 F., but dropped the following day. His pulse gradually grew slower, and on the day following the operation it reached 60. The next day it reached 48. With this condition of extreme drowsiness and slow pulse, he developed a double Kernig's and a double Babinski's sign. The spinal fluid was examined, December 16. It was clear, and was negative on culture. There were 70 cells of the mononuclear type. The globulin was positive. The patient remained in this drowsy condition, and at the same time lost weight rapidly, so that within a week he was quite emaciated.

December 19, he was seen by the neurologist, Dr. Neustaedter, whose examination revealed: intellect not clouded; patient remarkably somnolent and aroused with great difficulty; pupils extremely dilated and hardly reacting to light; accommodation could not be tested; double choked disk present, with retinal hemorrhages; paralysis of both abducens nerves, more marked on the right side; considerable lateral nystagmus, more pronounced to the right; reflexes: abdominal absent, cremasteric present, patellar exaggerated on the right side, normal on the left; Achilles tendon reflex present, extension toe phenomenon with Babinski's method present on both sides; Kernig's sign present; neck rigid, no Macewen's sign present; pin prick and touch sensation present, seemingly normal; right spastic hemiparesis present; right foot extended and spastic.

These signs and the blood and spinal fluid pictures pointed to an involvement of the midbrain and cerebellar hemispheres. As a result of the inflammatory process there was an internal hydrocephalus giving rise to intracranial pressure and a choked disk. The right hemiparesis with the spastic foot extension was the result of cerebellar inflammation on the right side. The clonus and Babinski's sign were the result of pressure on the pyramidal tracts by the hydrocephalus. Lethargic encephalitis was diagnosed.

TRANSFUSION AND SUBSEQUENT CONDITION

December 20, it was decided to do a blood transfusion, and 500 c.c. of blood, furnished by the patient's brother, was skilfully transfused by Dr. Lester Unger. Atropin in $\frac{1}{150}$ grain doses, was given three times a day for his slow pulse. It was felt that the slow pulse was the result of pressure on the depressor fibers of the vagus and that the atropin would paralyze these depressor fibers and allow the heart to act more rapidly. This was what happened. From that time on

he showed a slow but steady improvement. His somnolence remained for at least six weeks. His spinal fluid was examined, December 20, 24 and 31, and each time proved to be normal except for a few cells.

The eye grounds were repeatedly examined. Examination, December 17, revealed the disk of the right eye to be edematous, showing from 1 to $1\frac{1}{2}$ diopters elevation. The optic disk on the left showed that the disk had an indistinct outline.

December 22, examination of the right eye showed the disk elevated from 2 to 3 diopters, and hemorrhage present at the upper temporal quadrant. The left eye showed 1 to 2 diopters elevation of the disk and the outline was completely lost. December 24, the right eye showed an elevation of the disk of about 5 diopters. The left eye showed a slight increase in the elevation of the disk and more hemorrhage on this disk. December 30, the elevation of the right disk began to recede and showed about 4 diopters elevation, while the left showed about $2\frac{1}{2}$ diopters elevation.

The improvement continued so that on January 18 there was slightly less than 1 diopter elevation in each disk.

In the meantime the wound was dressed daily and showed a slight amount of cerebellar hernia. Improvement was slow and gradual. About February 26, examination revealed: eye grounds practically normal; nerve head pale; right abducens weak; spontaneous nystagmus present, horizontal and more marked to the right; no Kernig's or Babinski's sign, nor any other extension toe phenomena present; abdominal, cremasteric and patellar reflexes positive; no clonus; motor weakness in the right arm and leg, spastic grasp. The patient staggered to the right on attempting to walk; there were no other sensory disturbances.

SERUM TEST AND FINAL DIAGNOSIS

February 8, Dr. Neustaedter made the following tests of the serum: Two c.c. of the blood serum was mixed with 2 c.c. of a 5 per cent. suspension of the brain and cord of a monkey that had died of poliomyelitis, and was incubated at 37 C. for two hours, then left in the refrigerator twenty-two hours.

March 1, a rhesus monkey was injected intraspinally with the entire mixture.

March 12, the animal was well and had not shown any ill effects to the present time.

February 28, 2 c.c. of Wassermann negative blood serum of cataract patients was mixed with an equal amount of the same 5 per cent. suspension poliomyelitis virus used in the foregoing test and prepared in the same manner.

March 1, a monkey was injected intraspinally with the entire mixture.

March 10, the animal was paralyzed in the lower extremities, breathing was shallow and there was evidence of suffering.

March 11, all four extremities were paralyzed. The animal was anesthetized and necropsy was performed. Clinical and macroscopic manifestations characteristic of poliomyelitis were present.

From the foregoing test it would be reasonable to infer that the patient was suffering from encephalitis lethargica.

SUBSEQUENT EXAMINATION AND OUTCOME

Examination, March 12, revealed the pupils dilated, responding to light promptly; accommodation slow; marked lateral nystagmus to right; vertical nystagmus marked, more so in the right eye than in the left; gait spastic but steady, and no deviation. The patient walked and stood quite well with the eyes shut, but deviated to the right slightly while walking backward; there was slight motor weakness in the flexors of the right arm and leg; otherwise everything was normal.

April 5, examination of the eye showed there was no apparent muscular paralysis. The pupils reacted to light and accommodation fairly well. There was a horizontal nystagmus, more marked to the right. A paralysis of convergence indicated some third nerve trouble. The patient still had diplopia. The paralysis of the sixth nerve had apparently gone. The nerve heads were normal. Vision in the right eye was 20/40; left eye, 20/50.

April 7, the pupils were dilated, regular and equal. They reacted to light fairly well, with hippus following. The

accommodation and convergence response was prompt. Abdominal, cremasteric and patellar reflexes were present. There was no clonus and no Babinski's sign. Oppenheim's reflex was present on the left side, but absent on the right. Chaddock's sign was absent on both sides. Gordon's sign was also absent. Pin prick and touch sensations were normal. There was slight swaying on standing with eyes closed. The finger to nose test was normal; finger to finger normal; heel to knee test normal. There was slight horizontal nystagmus to right, also a vertical nystagmus when the eyes were turned slightly upward. Weakness of the sixth nerve on the right side was noted. At times there was diplopia. The motor power in both arms and legs was intact.

The wound healed slowly and the hernia gradually subsided until there was complete healing about April 10, when the patient was discharged from the hospital entirely cured.

157 West Seventy-Third Street.

ABSTRACT OF DISCUSSION

DR. MARCUS NEUSTAEDTER, New York: In the case reported by Dr. McCoy, with right hemiplegia and double choked disk, there was a suggestion of a possible abscess on the opposite side, which is very frequent in these cases. The blood picture, however, did not indicate pus anywhere. There remained the question of choked disk and profound somnolence without disturbance of mentality of the patient when awakened. After careful observation of the patient, through the kindness of Dr. McCoy, we have concluded that we are dealing with an encephalitis of the midbrain, and that an augmentation of the cerebral fluid in the lateral ventricles produced the intracranial pressure. It was decided to test for the possibility of a lethargic encephalitis by neutralizing poliomyelitis virus with the serum of the patient. Dr. McCoy fully reported this test in his paper. The result tended fully to confirm our diagnosis. During last year I was able to neutralize in vitro poliomyelitis virus with serum of patients recovering from lethargic encephalitis and have completely protected six monkeys from infection. In addition we have injected intracerebrally a rabbit with the spinal fluid of the patient. The animal died after sixty-eight hours, having been lethargic during the last few hours of his life, but not paralyzed. The necropsy revealed a hemorrhagic encephalitis in the injected hemisphere. Cultures on four different mediums with smears from the brain were made. Two remained sterile and two grew a staphylococcus, which we also found on sections in the blood vessels. The microscopic picture of the rabbit's brain sections showed a mild perivascular infiltration of lymphocytes and a marked focal infiltration of cortical areas with lymphocytes. Part of this rabbit's brain preserved in 59 per cent. glycerin was examined by Drs. Strauss and Loewy. They report that pure cultures were grown from the filtrate of the brain suspension. They have injected the filtrate and culture into three rabbits. While the cultures yielded a coccus similar to that of lethargic encephalitis, they are not yet in position to report any positive results characteristic of lethargic encephalitis.

DR. JOHN B. POTTS, Omaha: The point that struck me as being of particular interest in the management of the early stage of the case was the method of draining the cerebellar abscess. It is usually with considerable difficulty that we secure drainage of a brain abscess. The author's technic in introducing the two drains is the logical method. The practice of using two drains in puncture wounds has been recognized in military work, and while in France it occurred to me that this would be the logical way to drain a brain abscess. I have not had opportunity to try it out; therefore I am particularly interested in this part of Dr. McCoy's technic. There has been a feeling against the use of surgical solution of chlorinated soda when the brain tissue itself is exposed, but the case reported by Dr. McCoy would seem to explode this bugaboo. The marked intracranial pressure, as shown by the choking of the disk, could possibly have been relieved by puncturing the lateral sinus with a needle, thus reducing the danger of blindness due to the extended pressure on the optic nerve.

DR. GEORGE W. MACKENZIE, Philadelphia: I do not wish to contradict the diagnosis of lethargic meningo-encephalitis, but every symptom the patient presents can be explained on the ground of a cerebellar abscess. For instance, emphasis was laid on the lethargy, which is a most characteristic symptom of cerebellar abscess. Politzer and others emphasize the fact that intracranial complications of middle ear suppuration rarely come singly; they are generally multiple. Now, this patient could have had, and very probably did have associated with the abscess of the cerebellum a meningo-encephalitis, and this could account for the ankle clonus, the Kernig sign and numerous other symptoms pointed out. During the course of the disease, and even after operation, this patient was in a subnormal condition, which is most characteristic of cerebellar abscess, as MacEwen pointed out in 1893 and others have since confirmed and which is not so characteristic of lethargic encephalitis. The sensory nerves seem to have been involved in this case as evidenced by the optic nerve changes, whereas the motor nerve changes were not mentioned particularly. In lethargic encephalitis the motor nerves are particularly affected. This patient did not have any ptosis. Of course, he had some third and sixth nerve involvement, but no involvement of the seventh cranial nerve, at least it was not mentioned, and no involvement of the tenth or twelfth. For that reason I am inclined to the belief of the old condition having been a cerebellar abscess with a surrounding zone of meningo-encephalitis complicating it. No matter what the encephalitis may be, whether the specific form or complicating a brain abscess, the symptoms are likely to be very much the same. It seems that this patient presented horizontal nystagmus to the right. Some years ago Dr. William H. Sears and I made the mistake of operating on a cerebellum for a temporal lobe abscess. Immediately after making the incision into the cerebellum, the patient exhibited a wide excursion horizontal nystagmus to the same side, in contradistinction to the mixed rotary and horizontal nystagmus that is encountered in labyrinthine troubles. Furthermore, I believe this was a right-sided lesion, as the patient manifested a nystagmus to the right. Some authors maintain that the patient must necessarily have a nystagmus to the left in a right-sided cerebellar lesion, but the excursion can be to either side. In the irritative stage, the nystagmus will be toward the lesion, while in the destructive stage there will be the same type of nystagmus in the opposite direction, just as in irritative conditions of the labyrinth the nystagmus is toward the lesion, while subsequently, in the destructive period, the nystagmus is to the opposite side. Reasoning after the same method, we have the same thing occurring in the case of the cerebellum as was pointed out by Neumann about 1907.

DR. WILLIAM B. CHAMBERLAIN, Cleveland: I should like to ask Dr. McCoy to tell us his method of treating cerebellar hernia. Some time since, in a case occurring in the practice of my associate, Dr. Pitkin, there was a large cerebellar hernia. As the patient came to him after the hernia had occurred, we were somewhat at a loss to know how to proceed. In seeking counsel we seemed to get as many forms of treatment advised as there were individuals consulted, both among surgeons and otologists. One man told us that the proper way to treat the condition was to put a cage over this hernia and relieve it of all pressure; another told us that the best way to proceed was to have as much pressure as possible. Finally, by the use of continuous pressure, Dr. Pitkin succeeded in reducing the hernia and getting the epithelium to cover it.

DR. JOHN MCCOY, New York: I feel that draining the abscess by means of inserting two rubber drains in the wound was very largely responsible for the successful outcome. The point mentioned by Dr. MacKenzie, in regard to the type of encephalitis, is one to which we gave considerable thought. In other words, we tried everything in our power to differentiate between simple meningo-encephalitis and lethargic encephalitis. A point that I did not bring out in my paper is that in this boy's family a short time before had occurred a case of lethargic encephalitis, showing the possibility of contagion. Another point which I think might largely account for the favorable result in this case was the blood transfu-

sion from a boy in the same family who did not at any time develop lethargic encephalitis and who, therefore, was presumed to be immune. In other words, the patient was given a transfusion of immune blood. I think Dr. MacKenzie was mistaken about the nystagmus to the right. It was a variable nystagmus; it occurred in all directions. As regards the treatment of hernia cerebelli, in this case there was no particular attempt to control the hernia other than by the application of a bandage which covered the wound. There was no attempt to interfere with it. It was allowed to slough off of itself, which it slowly and gradually did. I think it a mistake to cut away particles of the hernia. We should allow it to take care of itself, which nature seems to do very well.

Special Article

ANESTHESIA IN NOSE AND THROAT WORK

FURTHER REPORT OF THE COMMITTEE ON THE ADVANTAGES AND DISADVANTAGES OF THE VARIOUS LOCAL ANESTHETICS IN NOSE AND THROAT WORK *

EMIL MAYER, M.D., NEW YORK, CHAIRMAN; ROSS HALL SKILLERN, M.D., PHILADELPHIA; ROBERT SONNENSCHN, M.D., CHICAGO, AND WILLIAM B. CHAMBERLIN, M.D., CLEVELAND, COMMITTEE

Your committee, which was continued from last year, has the honor to report that on Jan. 15, 1921, the following letter was sent to each member of the section who had been registered within the last five years:

Dear Doctor:—At the 1920 Annual Session of the American Medical Association, the section's Committee on the Advantages and Disadvantages of Local Anesthesia presented a report.

The committee was continued and, by a unanimous vote of the section, requested to communicate with and enlist the cooperation of each Fellow who, during the last five annual sessions, has registered in the section, in order that there may be secured further individual experiences regarding toxic effects following the use of local anesthetics.

In accordance with the above you are asked to supply the committee with the following information:

1. Have you during 1919 and 1920 noted any toxic effects, fatal or not, following the use of a local anesthetic? Yes, No.
2. If so, please submit a case report of each instance; record among other facts data regarding the patient's general condition, the occasion for using the local anesthetic, the drug employed and the dose administered.
3. Kindly inform the committee of the name and address of any physician known by you to have had such experience.

Appreciating the cooperation you will give the committee by making an early reply, which may be made on the reverse of this sheet of paper, and should be mailed to,

Yours very truly,

WILLIAM B. CHAMBERLIN,
Secretary of the Section.

Fourteen hundred letters were thus sent, with 315 replies.

Question 3, asking for the name and address of any physician known to have had any toxic effects, was the most valuable in the matter of replies.

The alleged deaths thus reported were thirty-two, and in each instance attempt was made toward verification. Five of these were reported as errors, but twenty-seven of them have been substantiated. From twenty-two of these, details were sent by the physicians written to, while five of them have failed to respond in any way, although repeatedly written to in the name of the section and Association, as also in the name of humanity.

Of the twenty-two deaths, eleven were from cocaine (three mistakes of nurses), five from procaine and cocaine, three from procaine only, one from apothecin and cocaine, one from apothecin only, and one from alypin and cocaine. All of these fatalities have occurred within the last two or three years, and with the exception of three, none have been reported in the medical journals.

The amount of epinephrin used was carefully gone into, and in no instance could this preparation be considered as an agent in causing death.

SUMMARY OF DEATHS

A brief summary of these deaths is herewith presented:

COCAINE DEATHS

CASE 1 (mistake).—*Tonsil case.*—Spring of 1919, woman, aged 18. Injection of 4 per cent. solution of cocaine substituted by nurse for 1 per cent. procaine; one tonsil was removed, mouth could not be opened after that; patient sitting up, convulsions within five minutes, death in twenty minutes.

CASE 2.—*Tonsil operation.*—June, 1920, girl, aged 16. Probable goiter, morphin with atropin with $\frac{1}{60}$ strychnin by hypodermic before operation. Tonsil injected with 0.2 per cent. cocaine solution to which 20 minims of epinephrin, 1:1,000, was added to each ounce of the cocaine solution. Tonsil easily removed. Second tonsil injected and removed without pain. Patient was told she could walk to her room, but just as she started she turned pale and immediately went into a rigid spasm, then relaxed and was dead. Sitting in chair during operation and injection.

CASE 3.—*Nose case.*—July, 1919, woman, aged 23. Cotton soaked in 10 per cent cocaine solution pressed fairly dry, and packed in the nose. Packing left for thirty minutes, when patient was brought to the chair for operation. She said she felt sick, fell forward, had a convulsion and in four minutes was dead. Sitting.

CASE 4.—*Tonsil case.*—Spring, 1919, woman, aged 50. One-third per cent. of cocaine solution with a few drops of epinephrin chlorid used hypodermically in tonsils. Operation consumed fifteen minutes; patient became nervous and irritable before operation was completed. Five minutes later was returned to her room; died on the cart before being lifted to bed: Upright.

CASE 5 (mistake).—*Tonsil case.*—Spring, 1920, woman, aged 26. Throat swabbed with 10 per cent. cocaine-epinephrin. One per cent. solution of procaine was poured into glass with 8 drops of epinephrin solution. Within two minutes patient went into one convulsion after another and died. It was ascertained that a nurse had poured 20 per cent. solution of cocaine into the procaine solution without the knowledge of any one. Upright.

CASE 6.—*Tonsil case.*—November, 1920, man, aged 35. Pharynx painted three times with 10 per cent. cocaine solution. A small amount of 0.2 per cent. of cocaine with 5 minims of epinephrin solution, 1:1,000, injected. After the right tonsil had been seized and a small cut made with scissors, patient became pale, seemed fainting, became unconscious, had convulsive spasms, and although every attempt at resuscitation was made, patient was pronounced dead at the end of three hours. Symptoms of distress within two minutes of injection; patient was sitting up during injection. Postmortem: arteriosclerosis of coronary arteries and obstruction as contributory cause, and acute dilatation of the heart.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* This investigation has been made with the assistance of a grant from the Committee on Therapeutic Research, Council on Pharmacy and Chemistry, American Medical Association.

CASE 5 (mistake).—*Tonsil case*.—October, 1919, woman, aged 27. Ten per cent. solution of cocain injected by mistake of nurse for 1 per cent. procain. No operation performed. Toxic symptoms immediate; death did not ensue until eight hours later, during which time there was a period of rallying. Patient sitting up.

CASE 8.—*Larynx case*.—August, 1920, man, aged 28.—Papilloma vocal cord. Throat sprayed with a 10 per cent. solution of cocain. Papilloma removed. No toxic symptoms during and immediately after the operation. Patient went home. One hour later returned complaining of feeling faint; convulsions fifteen minutes later and death. Postmortem showed all organs normal.

CASE 9.—*Cystoscopy*.—August, 1920, man, aged 36. Eight cubic centimeters of 4 per cent. solution of cocain injected into the bladder. While cystoscopy was being performed he complained severely of pain, the instrument was removed, convulsions followed, simulating epileptic convulsions; cyanosis and death.

CASE 10.—*Tonsil case*.—September, 1919, woman, aged 18. One-sixth grain of morphin injected one-half hour before operation. Brought to operating room in wheel chair. Injection of about 30 drops of a 2 per cent. solution of cocain-epinephrin, a smaller amount being used on the left than on the right side. Right tonsil removed; patient said she felt queer; was placed on the table and allowed to inhale aromatic spirit of ammonia. She said she felt better. Without further infiltration of the left tonsil this was removed, and this was not so painless. At the end of the operation of the left tonsil, her eyes began to turn toward the right and upward, with a jerking, twitching of the face, then involving extremities, of a severe type. Patient became cyanotic. This lasted about one minute, when she went into a deep coma; from this she rallied, when there was a recurrence of spasm, followed by coma. These repeated themselves about every three or four minutes, and at no time was she clear in her mind between the attacks. Death ensued. There was a suspicion of epilepsy in this patient.

CASE 11.—*Nose operation intended*.—Man, aged 25. Deviated septum. In the office, septum brushed with 1:1,000 solution of epinephrin; five minutes later cocain powder made into mud with epinephrin, rubbed over septum. Five minutes later remaining tender spots on septum touched with same cocain preparation, and patient placed on couch for ten minutes. He then walked to operating chair not more than ten steps when he said he felt faint, was assisted to the couch, had a slight convulsion, and death ensued.

MIXED DEATHS—COCAIN AND PROCAIN

CASE 1.—*Tonsil operation*.—May, 1920, girl, aged 16. "Cocain mud" was applied to pharynx with patient sitting upright. This was followed by injection of 0.5 per cent. solution of procain, 10 c.c. in all used. The procain solution had been prepared four days previously. Two or three minutes after injection, patient had a convulsion, following which all the muscles of the body were taut, eyes rolled upward, head jerked back, and she became markedly cyanotic; patient had marked air hunger, and died one hour and ten minutes after administration of anesthetic. Patient upright.

CASE 2.—*Tonsil case*.—September, 1920, woman, aged 26. Throat swabbed with 20 per cent. solution of cocain, to which 10 to 15 drops of epinephrin to the ounce were added. Ten minutes later injection of 1 per cent. solution of procain, using about 3 drams on each side. Fifteen seconds after last injection, patient had convulsions with marked cyanosis. In one hour patient was pronounced dead. Postmortem showed no abnormality, except the thymus, which weighed 50 gm. Status lymphaticus; patient sitting up during injection. No operation performed.

CASE 3.—*Tonsil operation*.—September, 1920, woman, aged 25. Throat swabbed with a 10 per cent. solution of cocain. Left tonsil injected with 1 per cent. solution of procain. Following this, right tonsil injected, when patient went into convulsions and died in about ten minutes. Patient upright.

CASE 4.—*Tonsil case*.—July, 1918, girl, aged 15. Two applications to pharynx of a 10 per cent. solution of cocain swabbed. Injection of 2 drams of 0.5 per cent. solution of procain. After

three minutes, left tonsil operated on and it was nearly freed; and as it was finally removed, patient jerked her head back as if she was about to have some sort of seizure. Convulsions followed. Death ensued within a very few minutes, by the time she was placed on the operating table. Patient sitting up during injection and operation.

CASE 5.—*Tonsil case*.—March, 1921, man, aged 22. Operated on one year previously for appendicitis under ether. Morphin, $\frac{1}{4}$ grain, with atropin, $\frac{1}{50}$ grain, injected half hour before. Throat swabbed with 10 per cent. solution of cocain twice at five minute intervals. Tonsillar infiltration with 0.5 per cent. solution of procain with 2 drams to each tonsil, one drop of a 1:1,000 solution of epinephrin in each dram. As soon as the second tonsil was injected, patient was nauseated and vomited; two minutes later had a convulsion; never regained consciousness. Death in twenty minutes. This was the second operation using the same solution. In the first case immediately preceding there was no toxic symptoms whatever. Patient upright.

PROCAIN ONLY

CASE 1.—*Tonsil operation*.—September, 1920, woman, aged 29. Injection of a 0.75 per cent. solution of procain with 1 drop of epinephrin solution to each cubic centimeter. Slowly 5 c.c. was injected on the right side. She complained of vertigo with some precordial distress, which soon passed away. Left tonsil was then injected slowly; when possibly 3 or 4 c.c. had been injected, she complained of vertigo with violent retching and inability to swallow, immediate cyanosis, collapse and unconsciousness. From fifteen to twenty minutes from the time of collapse, no heart movements could be detected. Respiratory paralysis was the first significant symptom. Total amount of procain used less than 1 grain. Patient sitting up.

CASE 2.—*Tonsil operation*.—December, 1920, man, aged 24. Five-tenths per cent. solution of procain, 12 c.c. in all, with 9 drops of epinephrin solution were injected. Three minutes thereafter convulsions followed and death ensued. Patient sitting up during entire time.

CASE 3.—*Tonsil case*.—June, 1920, man, aged 36. Four drams of a 2 per cent. saline solution of procain used. Toxic symptoms within four minutes of injection, convulsions and cessation of respiration. Patient reclining in a dental chair. One-sixth grain morphin injected half hour before injection of procain. No cocain whatever was used.

APOTHESIN AND COCAIN DEATH

CASE 1.—*Tonsil case*.—May, 1920, woman. One-eighth grain of morphin given in doctor's office; tonsils swabbed with a 4 per cent. solution of cocain, using two applications. Five minutes later injection of 2 drams of a 0.25 per cent. solution of apothetin. This remained for ten minutes. Just as the first incision was about to be made she fainted and was carried to the recovery room. Heart never responded. Patient had taken enormous amounts of coal tar preparations within the last five years. Was sitting up during injections and operation.

APOTHESIN DEATH¹

CASE 1.—*For Gastrostomy*.—August, 1920, man, aged 43. Because of dysphagia, due to tuberculosis, gastrostomy was advised. On account of profound cachexia and unfavorable pulmonary condition, spinal anesthesia was advised. Puncture in second lumbar space. Seven c.c. spinal fluid withdrawn, and added to a solution of apothetin in which $1\frac{1}{4}$ grains of apothetin was dissolved; at the end of three minutes patient became ashy, complained of tightness in the chest, announced that he was dying, respirations became labored and ceased. The author has little doubt that apothetin was indirectly responsible, because of the very definite and rapidly ascending paralysis, culminating in cardiac and respiratory failure, which could be due only to diffusion into medullary centers. It seems also to be clear that cardiac failure preceded a respiratory failure. Patient sitting while being injected.

ALYPIN AND COCAIN DEATH

CASE 1.—*Tonsil case*.—March, 1920, woman, aged 19. Throat swabbed with 10 per cent. cocain solution. About 2 drams of

1. Duboff, W. S.: Death from Apothetin Spinal Anesthesia, J. A. M. A. 75: 605 (Aug. 28) 1920.

alypin solution, strength not stated, injected. Epileptiform convulsions immediately ensued; all attempts to resuscitate failed, and in half an hour she was pronounced dead. Patient sitting up during injection.

Of these twenty-two deaths, 14 were in females, eight in males. One occurred in 1918, five in 1919, fourteen in 1920, one in 1921, and one date was not given.

It will be noted that we have made a new classification of deaths occurring when both cocain and the synthetic drugs were used in the same patient.

We do not feel that these should be placed solely as occurring after the use of the synthetic drug, especially when the latter was used in very low percentages.

Experiments have shown (Hatcher and Eggleston) that all of the local anesthetics are quantitatively synergistic, so that if one injects 50 per cent. of the fatal dose of each of any two of these at once, the effect is the same as that of injecting 100 per cent. of the fatal dose of one of them.

There is one remarkable case, Case 8 of the cocain series, in which the throat was sprayed with a 10 per cent. solution of cocain, a papilloma removed, the patient went home, returning one hour later feeling faint, when convulsions and death supervened.

Of the cocain deaths, seven patients were injected hypodermically, one had an injection in the bladder, one spray in the larynx and two had packing in the nose. Three of these were due to avoidable mistakes.

The cocain-procain deaths had the former drug applied in strengths varying from 100 to 20 and 10 per cent., respectively, just prior to the injection of the procain.

The procain deaths, three in number, had the solutions injected in 0.75, 0.5 and 2 per cent., respectively.

In the cocain-apothesin death there was a preliminary swabbing of a 4 per cent. solution of cocain, followed by the injection of the apothesin solution.

In one apothesin death the patient was so far advanced in tuberculosis that any slight shock would have killed him, and we are not inclined to accept the death as being solely due to apothesin.

In the cocain-alypin death, a 10 per cent. cocain solution was first applied.

Deaths from this drug are not more frequently recorded because alypin has been so rarely used in this country. In our previous report² we called attention to this drug as being very highly toxic, more than twice as toxic as cocain, and it is moreover the least efficacious of all synthetic preparations.

In practically all of the cases convulsions occurred within three minutes of the administration of the local anesthetic, and death ensued anywhere from twenty minutes to several hours afterward. In none was there any return to consciousness from the first symptom, although every known method of resuscitation was used in each instance.

In our previous report of twenty-one deaths, fifteen followed the administration of cocain and six of procain. In our present series eleven were from cocain, eight from procain, with and without cocain, two from apothesin and one from alypin, showing an apparent increase in the number of deaths from local anesthetics, and it is interesting to note that deaths from these drugs are here reported as having occurred more fre-

quently in 1920 than in any previous year. This observation may be due to our more rigid investigation.

POSITION OF PATIENTS

Nineteen of these were in the upright position, three reclining or semi-reclining.

In our former report we recommended the reclining posture throughout, from the beginning of the use of the anesthetic, and in this connection call attention to a report of toxicity received from one of our members and a careful observer.

Man, aged 36. Tonsillectomy. One per cent. procain solution injected, to each ounce of which was added 10 drops of the epinephrin solution. Right tonsil anesthetized and removed before anesthetizing left. I then started to inject the left tonsil, made one injection, and the patient suddenly became unconscious, developing right-sided hemiplegia, and remained this way for twelve hours. Respiration embarrassed, resembled Cheyne-Stokes slightly. Patient recovered fully. Position of patient during operation on a table, semi-reclining; previous administration of morphin, $\frac{1}{6}$ grain, with atropin $\frac{1}{150}$ grain; amount of anesthetic used, 4 drams and approximately 5 drops of epinephrin solution. No cocain used.

May we not venture the opinion that the position of the patient, at the time when the toxic effect was the greatest, relieved all strain of the heart and enabled it to carry on, in spite of the effect of the poison on his system?

This question of position of the patient is very firmly held by those who have followed the reclining method for years, and there seems to be a reasonable amount of logic in its favor.

We have no real conception of time when it comes the seconds, and can value it only as we do in a slow motion picture of a running horse. In this the action, which ordinarily flashes by so rapidly that we cannot express it in terms of time, now shows every detail. May we not by analogy feel that the heart's action in these toxic cases is tremendously affected in that flash of a second, and contend that the relief from all strain of that organ may help it tide the patient over when overwhelmed by the poison?

ALKALINE SOLUTIONS

In our previous report we called attention to the alleged advantages of adding 0.5 per cent. solution of sodium bicarbonate to these local anesthetics, but we have no evidence that this method has been tried.

SUMMARY

We have now given this most important subject closest study during the last two years, and the forty-seven cases that we have been able to compile is the best answer to the query of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

Our own investigation has been limited to members of the section, and the majority of cases coming to our knowledge have been in throat and nose cases.

We can deduce, therefore, that there are many more fatalities occurring among surgeons generally, among other specialists, as also among dentists, and we believe it necessary that there should be further investigation of these occurrences and that some definite action should be taken toward the prevention of fatalities.

We report again one fourth of the cocain deaths due to avoidable mistakes. We also note the varying strength used of this powerful drug, but we do not

2. Anesthesia in Nose and Throat Work, J. A. M. A. 75: 315 (July 31) 1920.

feel that recommendations as to doses, stringent rules governing the handling of these powerful drugs by totally irresponsible persons, as in the cases marked "mistakes of nurse," or regulations for testing these drugs before being placed on the market, should be made by any committee of a section of the American Medical Association.

The question of having ampules made by the manufacturer containing solutions of synthetic drugs used has also been favorably considered by this committee.

SUMMARY OF RESULTS OF INVESTIGATION OF FATAL CASES FOLLOWING THE USE OF LOCAL ANESTHETICS

Deaths from local anesthetics for last two years*.....	27
April 1, the committee has received answers to letters inquiring as to foregoing deaths from 22. These are:	
Cocain (3 mistakes of nurse).....	11
Cocain and procain.....	5
Procain only	3
Apothesin and cocain.....	1
Apothesin only	1
Alypin and cocain.....	1
	22
No response from members repeatedly written to.....	5
Total deaths, 1919-1921.....	27

* These are reported to the committee as a result of 1,400 personal letters from 315 members; only three of those were recorded in medical journals.

CONCLUSIONS

A study of these untoward happenings enables us to reach the following conclusions:

1. Deaths from the administration of local anesthetics are vastly in excess of the number reported in the medical journals.
2. In most instances convulsions are the first indication of toxic effects; consciousness is never regained and death ensues within a comparatively short time.
3. The customary dosage of local anesthetics varies from small amounts to very large ones.
4. There is no check on the manufacturer as to the comparative toxicity of the various batches of drugs that are placed on the market.
5. The freedom from ill effects noticed by so many who have used these drugs has made them oblivious to the likelihood of danger.
6. The presumption of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, that there are many unrecorded deaths, is thoroughly substantiated.
7. The appointment of a commission to investigate further these deaths and take action thereon is vitally necessary.

RECOMMENDATIONS

We unanimously recommend that this report be sent at once to the chairman of the Council on Pharmacy and Chemistry of the American Medical Association, with the request that he secure the consent of the Board of Trustees to the appointment of a commission, consisting of men active in various fields of medicine, who shall investigate the question of toxicity of local anesthetics; who shall also determine the causal factors of deaths as far as is possible, and report what measures shall be adopted by the medical profession to prevent occurrence of these fatalities, the report of this commission to be made to the Therapeutic Research Committee of the American Medical Asso-

ciation, and when endorsed by the latter referred to the Board of Trustees and the House of Delegates for official action. Finally that this committee be discharged.

Your committee feels that this subject is a vastly important one and although no member thereof has been unfortunate enough to have witnessed a fatality, yet it is very much impressed by the reports of these dreadful occurrences, and deeply sympathize with its colleagues who have had such misfortunes. We take this occasion to express our sincere thanks to those twenty-two members of the profession who have answered our queries and given detailed accounts of fatalities, and regret that the length of this report does not permit a detailed account in each instance. Many of their reports contain data as to the full examinations that have been made of their patients before anything had been attempted, as also detailed accounts of measures used to resuscitate, which for lack of space we feel compelled to omit.

DISCUSSION

DR. ROBERT A. HATCHER, New York: While substances less toxic than cocain have been produced, therefore safer to use, apparently none has been capable of completely replacing cocain in the technic now employed. When a clinician has had the misfortune to sacrifice a life while using a local anesthetic according to the technic approved by the leaders of his profession, he has been under the impression that he would be unjustly blamed for the accident, and so it has seemed to him that no good purpose would be served by reporting it. Therefore, the custom has grown up of not reporting these accidents. Dr. Mayer's committee has certainly performed a very great service by pointing out that any blame for such effects lies at the door of members of the profession as a whole, rather than that of the individual, and that he can report these cases without any feeling that he will be unjustly blamed. I do not believe that the clinician, the pharmacologist, the pathologist, alone, can explain the cause of death in such cases. Dr. Mayer has said that the train of symptoms in these fatal accidents seem closely similar to those seen in the laboratory experiments. I will add that the amounts of the anesthetic which have caused death in these accidental cases are relatively very, very much less than those which cause death in animals, in proportion to their size. In other words, laboratory experiments would not lead us to suppose that death could possibly occur when such small amounts have been used. Obviously, therefore, we are dealing with a problem which is extremely complex, and it is for this reason that the problem demands the cooperation of a number of men in different fields of medicine. I sincerely hope that the members of this Section will feel a justifiable pride in pushing this work to its logical conclusion, and that they will earnestly endeavor to have a suitable commission formed for cooperative study of the problem in its various aspects. It would be nothing less than a calamity to have a continuance of these accidents if the cause can be determined and removed.

A Lay Criticism.—The real pest among reputable physicians is the young man who expects his patients to pay for his needlessly high overhead expenses. He may be known by his spacious and elaborate offices and waiting rooms, buttoned door boys, sleek secretaries, fluttering office nurses and powder monkeys of both sexes and an all-pervading shimmer of white enamel, mechanical novelties and glittering metal work. Not infrequently the young practitioner who indulges in all these fripperies is trying to put over a poor piece by means of costly stage effects. He sometimes forgets, and his patients still oftener fail to realize, that what he really has for sale resides in his own cranium, and that mere style, atmosphere and scenery are poor substitutes for knowledge, experience and technical proficiency.—*Saturday Evening Post.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, OCTOBER 22, 1921

FOOD PROTEINS AND BREAST MILK

"Happy the baby who enjoys his inalienable right to Nature's food supply—his own mother's milk!" This apt quotation would doubtless meet with approval in any medical audience. Differences of opinion begin to assert themselves, however, when physicians are pressed for directions which will assure the integrity of this food supply, perfect in quality and adequate in quantity. For other species it is customary to say that breed rather than feed is the foremost factor in determining the character of the milk supply. In dairy practice, liberality of feeding may insure a larger yield of milk; but the quality of the secretion of the mammary gland seems to be influenced to only a small extent by the nature of the fodders employed. It is the current consensus that this dictum applies likewise to the lactating mother, and that particular foods have no specific effects on the character of the milk. Any wholesome diet, ample in fuel and building materials, is considered suitable for good milk production.

Nevertheless there are persistent traditions that the quality of milk may be altered in some respects by unusual diets of the nursing mother. There is substantial evidence that drugs taken into the body may pass into the milk and then affect the well being of the suckling. Nor are the products thus transferred necessarily only noxious products. Ehrlich showed long ago that when a female animal has been immunized against certain toxins and has in consequence produced antitoxins in its blood, they may pass over into the milk, where they have been assumed to have distinct importance for the young. In this way not only nourishment but also a certain measure of passive immunity may be furnished with mother's milk.

On the legitimate assumption that disturbances of digestion may react unfavorably on the milk-secreting mechanism, dietary regulations are often made a part of professional advice to lactating women. The foremost intent in such cases is to preserve and promote normal conditions in the alimentary tract. Shannon¹ has recently described a striking instance in which the

presence of foreign protein of dietary origin in human milk has been sufficient to cause obscure skin manifestations in the infants consuming it. The anaphylactic character of the phenomena resembling chronic urticaria was suggested by several considerations. Revision of the mother's diet resulted in speedy improvement of the suckling. Furthermore, the milk itself was demonstrated to give specific precipitin reactions with certain food proteins known to have been included in the maternal diet during the period of the skin sensitiveness in the infant. Finally, the demonstration was further made that the anaphylactic quality of the milk could be altered by changes in the diet of the lactating mother.

There is probably no warrant for stating that food protein is often present in breast milk or that infants are frequently sensitized so as to experience disturbances in health as the result of dietary factors in the regimen of the mother. The alimentary tract in both mother and child doubtless furnishes a barrier usually sufficient to prevent migration of antigenic protein. But even physiologic mechanisms may fail at times; and the phenomena of sensitization are perhaps more frequent than we suspect, because their manifestations are not yet readily recognized. Some aspects of this were recently discussed in *THE JOURNAL*,² in connection with Duke's studies of food allergy as a cause of abdominal pain. The fact that one infant will thrive on breast milk that another cannot tolerate may have a variety of explanations, among which the unlike sensitization of the two children is a possibility. Without unduly magnifying the significance of occasional food allergy, there may still be propriety in the admonition to watch the diet of nursing mothers from the standpoint of the discovering of unexpected offending foods when otherwise inexplicable situations arise.

DOES TUBERCULOUS INFECTION IN ADULTS COME FROM OUTSIDE OR FROM WITHIN THE BODY?

It is something of a shock to find one of our most serious students of tuberculosis³ making the statement that "today we find that students of pulmonary tuberculosis are in complete accord on only one fact, established thirty-nine years ago, namely, that pulmonary tuberculosis is due always to the presence of tubercle bacilli in the lungs." Obviously this extreme statement is made to emphasize the need for further study, for he soon says, "We know that a large proportion of the urban population, at least, harbor the tubercle bacillus by the time they reach puberty. This might be stated as a second uncontrovertible fact." He also admits eventually as an established view that ordinary ulcerative pulmonary tuberculosis usually, if not always, means reinfection, whether from outside or

1. Shannon, W. R.: Demonstration of Food Proteins in Human Breast Milk by Anaphylactic Experiments on Guinea-Pigs, *Am. J. Dis. Child.* 22:223 (Sept.) 1921.

2. Food Allergy and Abdominal Pain, editorial, *J. A. M. A.* 77:790 (Sept. 3) 1921.

3. Brown, Lawrason: *Am. Rev. Tuberc.* 5:518 (Aug.) 1921.

from existing lesions, in a person whose reaction to infection has been altered by a previous infection, the admitted infection of childhood. As a matter of fact, when we review current tuberculosis literature we find that the points least definitely agreed on are whether this reinfection is usually or rarely a new infection from without, what the influence of heredity may be, by what route pulmonary infection occurs and why childhood infection may attack any part of the lung, whereas in adults the lesions manifest themselves chiefly in the apexes.

The importance of the question whether reinfection is exogenous or endogenous lies particularly in its bearing on the danger of exposure to infected persons. We are fortunate in having two careful discussions of this problem from the clinics and laboratories of Saranac Lake, where the problem has been given careful clinical consideration and experimental investigation. Baldwin and Gardner⁴ attempted to reproduce in animals as far as possible the conditions obtaining in human tuberculosis. Guinea-pigs were infected by inhalation of tubercle bacilli of low virulence, and reinfected by the same route after about a year of arrested disease in the lungs and regional lymphatic glands. The reinfected animals suffered from a less extensive and slower type of the disease than control animals not previously infected, a result which corroborates the prevailing view of the inhibiting influence of existing infection on new infections. Such observations, however, merely indicate that a reinfection of an already tuberculous person is unlikely to occur unless the bacilli are received in extremely large doses, so that sufficient numbers can escape the natural mechanical defenses of the lungs as well as the cellular resistance of the immunized tissues. It must be admitted that we have no evidence that massive infections are likely to occur through inhalation, for investigation of dust and sputum droplets has always shown that while bacilli may be present in these materials the numbers are never large, and the virulence is often low.

Brown brings up many interesting observations that bear on this point. During the thirty-six years that the Trudeau Sanitarium has been in existence, but one among many hundreds of employees has developed tuberculosis, despite the demonstration in their environment in the sanatorium of tubercle bacilli on the eating utensils, in the dust on the floors, in the sputum spray in the air, and in the sewage. Also, for ten years, no native of Saranac Lake (population about 5,000) has died of pulmonary tuberculosis. So, too, many statistical studies of the frequency of tuberculosis in the husbands or wives of patients have shown that there is little, if any, greater tendency to tuberculosis among them than in persons less subject to infection. Moreover, according to Ward,⁵ when

infected such persons make a more speedy recovery than most tuberculous patients. The recent decided increase in tuberculosis that has been observed in countries suffering from undernourishment during the war can scarcely be accounted for by any increased chance for exogenous infection, but undoubtedly is due to activation of existing infections, that is, to endogenous reinfection. In Germany, the tuberculosis mortality is said to have risen to what it was twenty or thirty years ago. As Baldwin remarks, this fact does not accord with the idea that the steady fall in tuberculosis before the war was the result of suppression of the tubercle bacillus through the various agencies that were at work for this purpose. In general, these two studies tend to emphasize the probable correctness of the prevailing view that childhood is the time of infection and youth the time of superinfection; but both investigators accept as possible a certain danger from reinfection from new doses of bacilli in adult life. The evidence, notwithstanding, seems to support the opinion that this is probably less often responsible for adult phthisis than is reinfection from inactive earlier lesions. Baldwin and Gardner conclude:

"To sum up our study of this problem, we believe that the lesson to be learned and applied is that, hand in hand with efforts to safeguard the young from infection, more attention should be paid to safeguarding both young and old from disease. Without sputum and dairy hygiene, the supply of dangerously infected young people will be kept up; without earlier diagnosis, education, and favorable conditions of life for the prospective victims, clinical tuberculosis will continue at an irreducible minimum."

DUODENAL DIVERTICULA

In 1710, Chomel reported finding pouches or diverticula of the duodenum at necropsy. Later, others made similar observations, and in 1911 Bushi compiled fifty-four instances, including three in his own experience. At this time, with the introduction of the roentgen ray, as pointed out by Andrews in this issue of *THE JOURNAL*, it came to be recognized that diverticula of the intestine were far more frequent than had been previously thought to be the case.

These diverticula have usually been classified from the standpoint of their origin as congenital and acquired, whereas the student of their structure has frequently distinguished between "true" and "false" diverticula. Those abnormalities of intestinal structure represented by hernial protrusions of the mucosa through defects in the muscularis of the intestine have been designated as false diverticula. The latter, thus including only mucosa and serosa, are usually of the acquired type; consequently, some writers have advocated the view that the terms "congenital" and "true,"

4. Baldwin, E. R., and Gardner, L. U.: *Am. Rev. Tuberc.* 5: 429 (Aug.) 1921.

5. Ward, Ernest: *Brit. J. Tuberc.* 15: 5 (Jan.) 1921.

and "acquired" and "false" should be used synonymously in relation to intestinal diverticula.

Wilkie,¹ in particular, has championed the belief that these anomalies of structure are congenital in origin. He has pointed out that the duodenum in the course of normal development gives off hepatic and pancreatic buds; consequently, developmental anomalies might be expected to occur more frequently in this than in other regions of the intestinal tract. The latest observations of Bell² furnish good anatomic evidence, however, that many instances of duodenal diverticula are not developmental in origin, although the so-called Meckel's diverticulum, possessing musculature of the intestine, presumably is congenital in character. The others occur at points in the muscularis which are weakened by the passage of ducts and blood vessels or by pathologic processes. Increasing age and unusual muscular activity are factors in their production.

The point of practical importance is the question whether the discovery through fluoroscopy or roentgenographic examination of such diverticula warrants surgical operation tending to their removal. As pointed out by Dr. Case in the discussion of Dr. Andrews' paper, the diverticula show few pathologic symptoms, and in twelve patients operated on at the Battle Creek clinic the operations were performed for other conditions, no surgical indications being present as far as the diverticula were concerned. Andrews also notes that in many instances such diverticula are harmless and symptomless during life. On the other hand, they are distinctly abnormal from an anatomic point of view, and constitute an interesting problem for study by the internist and surgeon as well as by the pathologist.

THE LATEST ALTITUDE RECORD

Lieutenant Macready succeeded in attaining a world altitude record in aviation, September 28, by ascending in an aeroplane to a height of 40,800 feet at Dayton. This distance of approximately eight miles up into the air far exceeds the altitude record secured by Schroeder about one and one-half years ago, when he reached a height of slightly more than 38,000 feet. These performances are looked on by most persons as essentially feats of skill and endurance, combined with exceptionally successful mechanical perfection of the flying apparatus. To the medically trained who bear in mind the limitations of the human machine at high altitudes, these aeroplane records awaken appreciation of scientific acumen and technical ingenuity in overcoming the handicaps which unaided nature has placed upon man as a flying animal. High altitudes or low barometric pressure are well known to interfere with physiologic functions. What is true of mountain sickness is equally applicable to the other more modern forms of altitude sickness

which the balloon and subsequently the aeroplane brought into scientific prominence.

The experts¹ of the Medical Research Laboratory of the War Department's Air Service have pointed out that men differ greatly in their power of adjustment to changes of environment. Hence, it is found that mountain sickness befalls some individuals at a lower, others at a higher altitude; but it is also certain that no one who proceeds beyond a certain elevation—the critical line for him—escapes the malady. An elevation of 10,000 feet or even less might provoke it in some; others may escape the symptoms up to 14,000 feet, while only a very few, possessed of unusual resisting power, can without much distress venture upward to 19,000 feet. The symptoms of mountain sickness, we are further reminded by the army workers, depend not only on the nature of the individual and his physical condition, but also on various intricate contingencies, especially on the amount of physical exertion made in ascending; that is, on whether the ascent is performed by climbing or by passive carriage on horse, on railway train, or in an aeroplane.

There are authentic records of balloon ascents to a height of 30,000 feet, but the effects on the balloonists were invariably distressing. Schroeder's record aeroplane ascent found its limitations in the physiologic distress resulting from an accident to the protective devices. At a height of six miles the content of oxygen in the air has been reduced from approximately 21 per cent. found at sea level to 6 per cent.; at a height of eight miles reached by Macready it must be less than 5 per cent. The breathing of an atmosphere containing only 10 per cent. of oxygen, equivalent to an altitude of 19,400 feet, is a venture which only a few possessed of unusual resisting power can undertake with any hope of success.

These facts attest the physiologic significance of the devices which have been perfected to supply oxygen successfully in the flights at great altitudes. In addition to the respiratory problems are the perhaps less formidable but nevertheless immediate needs of conserving body temperature in the cold environment of the higher atmosphere. In this respect, too, the difficulties have been overcome. The mastery of the upper air has involved not only the perfection of the devices for locomotion but also the successful establishment of a physiologically endurable environment in the immediate vicinity of the aviator while he is being transported through the thin, cold air of far away heights.

1. Manual of Medical Research Laboratory, War Department, Air Service, Division of Military Aeronautics, Washington, 1918.

1. Wilkie: *Edinburgh M. J.* 11:219, 1913.

2. Bell, H. H.: *Diverticula of the Duodenum*, *Anat. Rec.* 21:229 (May 20) 1921.

Value of Laboratory.—Laboratory methods enable us to select, out of that raw and heterogeneous material which clinical examination provides, cases which are more nearly homogeneous—in other words, better material for experiment.—A. Wright, *Lancet* 2:645, 1921.

Current Comment

FROM CURE TO PREVENTION

President George E. Vincent¹ of the Rockefeller Foundation has emphasized in a recent report the unwisdom of expecting too much from public officials who are placed in charge of the health problems of our communities. Knowledge about the causes of disease and its dissemination is one thing; cure of the afflicted and effective control of the spread of maladies is another. We may often be able to apply our hearts unto wisdom more successfully than we can make our activities and our environmental conditions subject to the dictates of the mind. Vincent has remarked that if all available knowledge about the causes of disease were actually applied the world over, millions of lives could be saved every year. But, he sagely adds, the thing is by no means so simple. The public authorities at best can control wholly or in part only about 20 per cent. of the diseases by which people are crippled or killed. Typhoid, scarlet fever, smallpox and malaria can be either entirely prevented or kept from spreading; but tuberculosis, measles, diphtheria, pneumonia, influenza and many other maladies are either less perfectly understood or do not respond so readily to control efforts. As a consequence, the large residual group of menaces to human health and welfare must be attacked through the agencies of public education rather than official action. It does not follow that the sphere of usefulness of those medically trained is decreased because their experience cannot be brought to bear directly on disease; on the contrary, it emphasizes anew the importance of "shifting from cure to prevention." For the physician, the future has new responsibilities in store.

FACTORS IN DIURESIS

Owing to a low arterial pressure or to some resistance interposed in the circulation, the blood sometimes flows more slowly than usual through the renal vessels and the secretion of urine becomes greatly diminished. This fact led Heidenhain and subsequently other physiologists to the conclusion that the rate of blood flow through the kidney vessels is one of the foremost factors in regulating the extent of urine formation. It has been a natural inference that diuretics might function by promoting the renal circulation in the same way. Improved circulation in the kidney would be likely to improve the nutrition of this organ and thus the secretory functions. Modern pharmacologic studies have by no means always demonstrated this assumption to be correct. In the most recent investigations of Cushny and Lambie² at the University of Edinburgh, it has been observed that among the diuretics examined, the increase in the urine appeared to depend directly on the blood flow through the kidney in only one instance—with pituitary extract. Here the diuresis set in with the acceleration in the venous flow

and passed off as it disappeared, and the action may thus be attributed to the improved circulation in the kidney. It is quite conceivable, however, that drugs may act not only indirectly through changes in the blood or circulation but also directly on the kidney itself. From the latest tests of the Edinburgh pharmacologists it appears that under caffeine, a substance representative of the group of diuretic drugs most widely used at present, the diuresis begins before the accelerated flow and lasts long after it has become normal. The action is thus not dependent on changes in the blood supply but on changes in the renal cells. Cushny reminds us that the chief effect of the purin diuretics is by common consent an increase in the water of the urine, while the solids are relatively slightly augmented. This seems, he adds, to point to an action on the glomerular capsule rather than on the tubules, whatever view is held of the division of labor among the renal elements. The simplest view which reconciles the observations is that caffeine causes diuresis by reducing the resistance to filtration through the glomerular capsule by a specific action on its cells. Of course, factors and substances which promote a condition of hydremia through dilution of the blood, as happens after the administration of certain salts, also may bring about diuresis; but that is another matter.

ALCOHOLISM AND HEREDITY

The problem of the inheritance of acquired characters has been vigorously debated for many years. For a time the possibility seemed to be denied by the accumulation of carefully sifted records and numerous investigations in heredity. Further progress in the study of genetics, however, has tended to encourage the attitude of an open mind toward the broadest aspects of the subject. Today it would be rash, indeed, to deny that inheritance cannot be controlled or modified to some extent. For example, there are experimental evidences that the effects of lead poisoning on parents may be apparent in successive generations which have not been exposed directly to this form of intoxication. Changes are apparently produced in the germ plasma so that its hereditary qualities are permanently changed. Something similar has been reported in the extensive studies of Stockard¹ and others on the effects of alcoholism in successive generations of non-alcoholized offspring. Anatomic changes, often leading to monstrosities, have actually been transmitted hereditarily. The studies in this field by Macdowell and Vicari² of the Station for Experimental Evolution at Cold Spring Harbor, Long Island, have penetrated somewhat farther experimentally into the problem of modifying inheritance. They have attempted to study the habit-forming abilities of rats of successive inbred generations following one generation treated with alcohol. The details involve the

1. Stockard, C. R., and Papanicolaou, G. N.: A Further Analysis of the Hereditary Transmission of Degeneracy and Deformities by the Descendants of Alcoholized Mammals, *Am. Nat.* **50**: 65, 144, 1916; Further Studies on the Modification of the Germ Cells in Mammals: The Effect of Alcohol on Treated Guinea-Pigs and Their Descendants, *J. Exper. Zool.* **26**: 119, 1918.

2. Macdowell, E. C., and Vicari, E. M.: Alcoholism and the Behavior of White Rats, I, The Influence of Alcoholic Grandparents upon Maze-Behavior, *J. Exper. Zool.* **33**: 209 (May 20) 1921.

1. Vincent, G. E.: The Rockefeller Foundation: A Review for 1920, The Program for 1921, New York, 1921.

2. Cushny, A. R., and Lambie, C. G.: The Action of Diuretics, *J. Physiol.* **55**: 159 (Aug. 3) 1921.

latest procedures of the modern science of experimental psychology as investigated through the field of animal behavior. They showed that from the standpoint of learning to overcome certain obstacles specially devised for such tests, the descendants of alcoholized progenitors were less successful than comparable control animals of related stock. As the alcoholism of the grandparents was the only basis for the distinction of the animals in the two experimental groups, the alcoholic treatment appears to be responsible for the inferiority in habit formation shown by the one group. If this is true, as Macdowell and Vicari conclude, a modification of the genetic basis of inheritance will be further demonstrated; and the possibility that inheritance can be modified to a certain degree by alcoholism is again brought into prominence. There may be a very wide divergence between the behavior of rats in a maze and the moral behavior of man, but somehow one cannot refrain from thinking about the possible analogies presented.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Personal.—At a meeting of the state board of medical examiners, held, October 4, at Phoenix, Dr. Albert L. Gus-tetter, Nogales, was elected president.

CALIFORNIA

Personal.—Dr. Joseph Smith has been appointed superintendent of the Kern County Hospital, Bakersfield, to succeed Dr. Clarence W. Kellogg, who recently resigned.

Hospital News.—The St. Francis Maternity Hospital, San Francisco, was opened, October 4. The building was constructed at a cost of \$600,000, with a capacity for 325 patients, and is equipped with all modern improvements, including an isolation ward for children.—A \$25,000 addition will be made to the Ross Sanatorium, San Anselmo, including a roentgen-ray apparatus. Dr. Alfred C. Reed, assistant professor of medicine, Leland Stanford Junior University, San Francisco, is medical director of the sanatorium.—Plans have been completed for the St. Francis Hospital Annex, Santa Barbara, which will be constructed at a cost of \$200,000.

COLORADO

Personal.—Dr. Horace G. Wetherill, Denver, will sail in November, to spend some months in northern Africa, France and England.

State Medical Meeting.—The annual meeting of the Colorado State Medical Society was held, October 5-7, at Pueblo, under the presidency of Dr. Frank R. Spencer, Boulder. Drs. James C. Masson, Rochester, Minn., John F. Golden, Chicago, and Frederick W. Bancroft, New York, were among the visiting physicians. The following officers were elected for the ensuing year: president, Dr. Harry A. Smith, Delta; president-elect, Dr. Jacob C. Epler, Pueblo; first vice president, Dr. Oliver Lyons, Denver; second vice president, Elden L. Sadler, Fort Collins; third vice president, Dr. Lee T. Richie, Trinidad; fourth vice president, Wilbur T. Little, Canon City; secretary, Dr. Frank B. Stephenson, Denver (reelected), and treasurer, Dr. William A. Sedwick, Denver (reelected).

DISTRICT OF COLUMBIA

Personal.—Dr. Royal H. McCutcheon, chief of the tuberculosis section of the U. S. Veterans' Bureau, has been appointed medical officer in charge of the War Veterans' Hospital, Mont Alto, Pa.

Modern Health Crusade.—The President has presented Frank W. Ballou, superintendent of schools, Washington, the silver cup given by the National Tuberculosis Association to the school children of Washington for having the highest enrolment of Modern Health Crusaders in the intercity tournament.

Club Members Organize.—It has been announced that the physicians and surgeons who are members of the University Club, Washington, organized a society, October 9, which will hold luncheons weekly, and a brief program will be given twice monthly. The following officers have been elected: president, Noble P. Barnes; vice president, George T. Vaughan, and secretary-treasurer, Everett M. Ellison.

GEORGIA

Georgia Tuberculosis Association.—A reorganization meeting was held, October 7, at Atlanta. Dr. Alexander Miller, president of the National Tuberculosis Association, Dr. Jesse M. Anderson, U. S. Veterans' Bureau, Columbus, and Dr. Charles J. Hatfield, Philadelphia, were among the speakers.

Medical Society Meeting.—A new organization, to be known as the Tri-County Medical Society, was formed, September 13, at Dalton, under the auspices of the Whitfield County Medical Society. The following officers were elected for the ensuing year: president, Dr. Samuel A. Brown, Eton; vice president, Dr. Evan O. Shellhorse, Calhoun, and Dr. Zeb Johnson, Red Bud, secretary.

ILLINOIS

Personal.—Dr. Daniel Coffey has been appointed superintendent of the Chicago State Hospital, Dunning.

Illinois Tuberculosis Association.—The twelfth annual meeting of the association was held, October 15-18, at Champlain, under the presidency of Dr. George T. Palmer, Springfield.

Hospital News.—The new tuberculosis sanatorium for Tazewell County, near Mackinaw, was formally dedicated, September 10. Addresses were given by Dr. J. W. Petit, Ottawa, Dr. William A. Balcke, Pekin, and Dr. James M. Masters, Mackinaw.

Chicago

Tag Day for Children.—Ninety thousand dollars was raised by street collections in the city, October 17, for the benefit of fifty-one charitable organizations for children.

Marshal of France Will Dedicate Hospital.—It is reported that Marshal Foch, commander of the Allied armies, will dedicate the new Speedway Hospital for Soldiers on the occasion of his visit to this city, November 6.

Institute of Medicine Holds Opening Session.—The first meeting for the session 1921-1922 of the Institute of Medicine was held October 21. The Pasteur Lecture was delivered by Dr. Theobald Smith on "Theories of Susceptibility and Resistance in Relation to Methods of Artificial Immunization."

Chicago Ophthalmological Society.—A meeting of the Chicago Ophthalmological Society will be held October 24 at which papers will be read by Dr. Robert von der Heydt and Professor Van der Hoeve of Leiden, Holland. A dinner in honor of the foreign guests will be given at the Hotel Sherman at 6:30 p. m.

INDIANA

Schools Close for Epidemic.—According to a report of the county health officer, two schools in Blackford County have been closed owing to the diphtheria epidemic, and no public gatherings are allowed.

Personal.—Dr. John E. Bickel, medical examiner of the Pennsylvania Railroad, Fort Wayne, has resigned after twenty years' service, effective, October 1.—The mayor has appointed Dr. Homer C. Glock, Fort Wayne, as a member of the board of health, to succeed the late Abraham J. Kessler.

IOWA

Physicians' Building.—A building exclusively for physicians will be erected at Fort Dodge, at a cost of \$125,000, containing offices and clinics, and incorporated as the Physicians Building Company.

KENTUCKY

State Board of Charities and Corrections.—The commissioner of the board held a conference with the superintendents of the seven state penal and charitable institutions,

September 17, at Frankfort, and authorized the employment of an additional resident physician in each state institution where necessary for complete examination of the inmates. Local physicians will assist in emergencies.

Personal.—The President has appointed Dr. John Glover South, Frankfort, former president of the Kentucky State Medical Association, as minister to Panama.—Dr. Avonia E. Kiser, Paris, has been made resident physician at the Richmond City Hospital, Richmond, Ind.—Dr. Wallis W. Durham has been appointed superintendent of the Western State Hospital, Hopkinsville, to succeed Dr. Frederick G. Larue.

MARYLAND

Campaign Against Cancer Planned.—Definite plans for the anticancer campaign to be conducted in Maryland during "cancer week," October 30 to November 4, have been finally settled. It is the belief of the medical profession that many lives can be saved by the publicity of facts in regard to cancer, and the campaign was decided on for this reason. The executive committee is composed of physicians representing the American Society for the Control of Cancer; the State Board of Health of Maryland; the School of Hygiene and Public Health of the Johns Hopkins University; the Medical and Chirurgical Faculty of Maryland; the Baltimore City Medical Society; physicians representing the western counties of Maryland; the counties on the eastern shore; the southern counties of Maryland; the county health officers, and representatives of the Maryland State Dental Association, as well as a member of the press.

Personal.—Dr. Sydney Robothan Miller, associate professor of clinical medicine in the Johns Hopkins Medical School, and president of the American Congress of Internal Medicine, has joined the staff of the University of Maryland School of Medicine. His acceptance of this position at the University of Maryland will not interfere with his duties at Johns Hopkins.—Dr. Karl H. Van Norman, first assistant director of the Johns Hopkins Hospital, has resigned to become director of the new Miller Hospital at St. Paul.—Dr. James Craig Potter of the Johns Hopkins Hospital staff has just returned from Guatemala, after having completed a survey of that country, to determine whether medical missionary work among the natives, similar to that done by Dr. Wilfred T. Grenfell in Labrador, was possible. Dr. Potter reports that there is an immense field and need for it, far greater than on the coast of Labrador, where he worked with Dr. Grenfell in the summer of 1920. The survey was made at the request of W. C. Townsend, in charge of the San Antonio Mission Station in Guatemala.—Dr. James J. Mills of Baltimore has recently returned from a visit to Syria.—Major M. L. Todd, M. C., U. S. Army, formerly of Baltimore, has gone abroad to remain some time, in connection with the American Graves Registration Service, with headquarters in Paris.—Dr. René Ledoux-Lebard of Paris lectured on roentgen-ray therapeutics at a meeting of the medical societies of the Johns Hopkins Hospital, October 17, in the medical amphitheater.

MASSACHUSETTS

Harvard University Appointments.—Dr. Charles Morton Smith has been appointed clinical professor of syphilology for a five-year term at the Medical School of Harvard University, Boston. Dr. Francis W. Peabody, who is now in China, has been made professor of medicine, and Dr. James H. Means, assistant professor of medicine.

Sons of the Revolution.—The Massachusetts Society, Sons of the American Revolution, held its annual field day and lunch, October 12, at Lexington, and visited all the historic places. Among the speakers were Dr. J. Odin Tilton, chairman of the Lexington board of park commissioners, and Dr. Frederick S. Piper, former president of the Historical Society.

Cancer Commission.—The Harvard Corporation has appointed Dr. Robert B. Greenough director of the cancer commission and surgeon in charge of the Collis P. Huntington Memorial Hospital, Boston, Dr. Channing C. Simmons, secretary, and Dr. Roger Pierce, treasurer. Other members of the commission are: Drs. James H. Wright, Henry Lyman, Stuart Mudd and William T. Bowie.

State Law Constitutional.—A decision rendered by the supreme court of the state affirms the constitutionality of the statute which provides that the board of registration in medicine may revoke the registration of a practitioner who has been guilty of gross misconduct in the practice of his pro-

fession. This decision was written by reason of a petition for a stay of proceedings based on the contention that the conferring of medical registration implied a contract affecting the relations of the state and the individual registered under the legal provisions in force at the time of the registration, and further that qualifying laws enacted since the granting of registration could not be invoked for the purpose of revoking the registration of a physician who might be found to come under the restrictive or disciplinary features of subsequent legislation.

MICHIGAN

New Faculty Appointments.—The following appointments have recently been made at the Detroit College of Medicine and Surgery, Detroit: assistant professor of pathology, Dr. Donald Beaver, formerly of the pathologic department of the University of Minnesota, Minneapolis; professor and director of the department of gynecology, Dr. R. Ernest Cullen; associate professor of pathology, Dr. Paul G. Wooley, former professor of pathology in the University of Cincinnati, and pathologist to the Herman Keiffer Hospital, Detroit.

MINNESOTA

Special One Year Course.—The Graduate School of the University of Minnesota, Minneapolis, has announced a special one-year course in ophthalmology and otolaryngology, which began, September 28.

Personal.—Dr. Walter S. Broker, superintendent of the Otter Tail County Sanatorium, Battle Lake, has been appointed to the U. S. Public Health Service at Minneapolis. Dr. Broker will be succeeded by Dr. W. Berry, Massachusetts.—Dr. Sidney A. Slater, superintendent of the Southwestern Minneapolis Sanatorium, Worthington, has been elected president of the Minnesota Tuberculosis Association.

Hospital News.—The new Northern Pacific Hospital, St. Paul, is now open. The building is four stories high, and completely equipped with all modern improvements, the fourth floor being made up entirely of single rooms for special cases. A nursing school, affiliated with the University of Minnesota, will be operated in connection with the hospital, of which Dr. Arthur W. Ide, Brainard, will be chief surgeon.

MISSISSIPPI

Personal.—Dr. David Walley has been appointed superintendent of the State Charity Hospital, Jackson, to succeed Dr. Francis M. Sheppard, who resigned recently.—Dr. Robert R. Kirkpatrick, in cooperation with the Union County Health Unit, gave 435 Schick tests in two weeks among the schoolchildren of the county. Children not showing immunity were given toxin-antitoxin.

MISSOURI

Personal.—Dr. Lysle M. Sellers, Kansas City, has been awarded the \$100 prize offered by the Jackson County Medical Society for his paper on "Vertigo," which was considered the best paper read before the society during the year.

NEW MEXICO

Personal.—Dr. R. J. Boatman, Carlsbad, has been appointed assistant collaborating epidemiologist of the U. S. Public Health Service. Dr. Boatman will collect morbidity reports from physicians, and make scientific research of contagious diseases.

NEW YORK

Personal.—Dr. Vernon M. Parkinson has been appointed superintendent of the Herkimer County Tuberculosis Sanatorium to succeed the late Dr. Patrick J. Hirst.—Dr. Charles F. Kivlin, district supervisor of the U. S. Public Health Service, and Dr. John T. Hopkins Hogan, both of Troy, have resigned from the service.—Dr. Walter C. Deull has resigned as superintendent of the Niagara Sanatorium, Lockport.

New York City

Lutheran Hospital Opens Addition.—A new building providing fifty additional beds at the Lutheran Hospital of Manhattan, Convent Avenue and One Hundred and Forty-Fourth Street, was open to visitors, October 9, and will be formally dedicated, October 16.

New York Academy of Medicine.—At a meeting of the academy, held October 20, in New York, Sir Harold Stiles,

K.B.E., M.B., F.R.C.S. (Edin.), was the guest of honor and read a paper on "Surgical Tuberculosis in Children and Its Relation to the Milk Problem."

Dinner to Prof. Dessauer.—Dr. Charles H. Yaeger gave a dinner on the evening of October 14 at the Plaza Hotel for Prof. Fredor Dessauer. Professor Dessauer is in this country on the invitation of the American Roentgen Ray Society to read a paper at its recent congress in Washington, D. C. The dinner guests included the attending physicians and surgeons of the Lenox Hill Hospital.

Physical Examination of Vagrants.—Steps have been taken toward a program to examine physically every man of the 40,000 now classed as "vagrants" in New York. On the theory that a large percentage of the homeless men in the parks here are diseased, the department of public welfare is making arrangements to have these men arrested and taken to the health department, where they will be examined. The department of public welfare is making arrangements with the city hospitals for commitment of many men.

Gifts to Columbia.—Of the \$37,209.32 in gifts recently accepted by the trustees of Columbia University, the following are of interest from the medical standpoint: The Borden Company has given \$10,000 for research in food chemistry. Mrs. Elizabeth Coolidge has given \$2,400 for the maintenance of the Coolidge fellowships in medicine. Dr. and Mrs. Edward Lee Meierhof have given \$1,000 to establish the Dr. Harold Lee Meierhof Memorial Prize in pathology. Alfred E. Marling has given an unnamed sum for the general support of the medical school.

United States Government Acquires New Hospital.—The United States government has purchased the Roman Catholic Orphan Asylum at Kingsbridge Road and Sedgwick Avenue, Bronx, which it plans to convert into a hospital for the care of war veterans. This makes it possible for the U. S. Public Health Service to return the Polyclinic Hospital to the trustees of that institution. The new hospital will not only provide for the 300 patients now cared for in the Polyclinic Hospital, but also will furnish accommodations for a large part of the 1,000 in the Fox Hills Hospital on Staten Island. It will be the largest government hospital east of the Mississippi, having a capacity of from 1,000 to 1,200 beds.

Anthrax in New York.—The death of Michael F. Farley, former representative from the Fourteenth Congressional District, from anthrax believed to have been caused by a shaving brush, has brought out the fact that the health department has been waging a campaign for several months to prevent the spread of anthrax here through the importation of foreign hair and hides. The division of industrial hygiene has barred the entry of 10,000 shaving brushes from Japan, and has compelled the return of the shipments on the ground of anthrax infection. During the last nineteen months there have been thirty-four cases of anthrax here, twenty of which were shaving brush infections. There was a total of eleven deaths in this group, nine of them shaving brush victims. One of the two other deaths was caused by an anthrax tooth brush; the other resulted from an infected scrubbing brush. According to the statement of the health department, the serum treatment has been most successful in these cases when begun in time.

Public Health Lectures Resumed.—Lectures free to the public on health education and prevention of disease will be given by the Public Health Education Committee of the Medical Society of the County of New York in cooperation with the New York Academy of Medicine, from October 14 to December 14. The first half of these lectures are as follows: October 14, 8:15 p. m., "The Proper Care of the Expectant Mother," Dr. Ralph Lobenstine; "The Necessity for Proper Care for the Mother After the Delivery of Her Child," Dr. George W. Kosmak. October 19, 4 p. m., "The Need for More Care of the Preschool Child," Miss Mary Arnold; "Practical Methods for Supervising the Health of the Preschool Age Child," Dr. Louis C. Schroeder. October 28, 8:15 p. m., "Prevention of Mental Disorders," A. J. Rosonoff; "Individual Differences in Children," Dr. Mary MacLaughlin. November 2, 4 p. m., "What the Public Should Know About Cancer—Delay in the Treatment of Cancer and Its Effect on the Cure," Dr. Charles E. Farr; "The Importance of the Early Diagnosis of Cancer," Dr. Elise S. L'Esperance. November 11, "Health of the Schoolchild—Evidences of Some of the Disabilities of Children which Should Be Known to Parents and Teachers," I. H. Goldberg and Dr. Adela J. Smith. November 16, 4 p. m., "How to Answer Children's Questions—How Life Begins," Dr. Josephine Hemenway Kenyon.

OHIO

Personal.—W. T. Barger, Cleveland, who for the last two years has been with the Red Cross in Europe and Siberia, has been appointed house physician at the American Hospital of Paris, Neuilly-sur-Seine, France.—Dr. John Oliver has resigned as professor of surgery in the University of Cincinnati College of Medicine.—Dr. Willis A. Whitman has been appointed physician at the Ohio penitentiary, Columbus, to succeed Dr. Oren M. Kramer, who recently resigned.—Dr. Frank F. Schmidt, Columbus, has gone to Paris to study reconstructive surgery. Later he will take a postgraduate course in Vienna.

OKLAHOMA

Personal.—A home for the American Legion has just been completed in Mangum, and Dr. Frank H. McGregor has been elected to the post commandership of the Mangum American Legion. Dr. McGregor received several decorations during the late war while in France as an aviator.

Medical Fees.—At a recent meeting of the Kiowa county commissioners, a resolution was adopted to arrange fees which would be allowed for medical attention rendered to indigents and persons unable to pay for service. Proviso was attached requiring the person interested in summoning the physician to make affidavit setting forth inability of the patient to pay.

PENNSYLVANIA

Philadelphia

Will Examine Babies for Contagious Diseases.—An observation department at 1833 Vine Street, for babies suspected of having contagious diseases, was opened by the Welfare Department, October 18.

Personal.—Prof. J. Van der Hoeve, of Leiden, Holland, addressed the Section on Ophthalmology of the College of Physicians, October 20, his subject being "The Development of the Lacrimal Canal in Normal and Abnormal Conditions."

Death of Dr. M. H. Fussell.—As we go to press word is received of the death of Dr. M. H. Fussell, professor of applied therapeutics in the University of Pennsylvania and a member of the committee on revision of the U. S. Pharmacopeial Convention. The regular obituary notice will appear in our next issue.

House for Epileptics.—The council's committee on public health has approved the use of an old abandoned administration building, formerly used by the health department, for the housing of epileptics and feeble-minded persons. Many of these persons are now in the Home for the Indigent at Holmesburg, and it is desirable to segregate them.

Discuss Work for Crippled.—A conference of the representatives of the Industrial Division of the Federal Board for Vocational Civilian Education, at which eighteen states were represented, was held at the Local Bureau of Rehabilitation, 1519 Arch Street, October 13-14. Through the efforts of this board the productive power of 85,000 maimed persons valued at \$425,000,000 is being restored each year.

VIRGINIA

Hospital News.—The cornerstone of the Marshall Lodge Memorial Hospital, Lynchburg, was laid, October 1, under the auspices of the Grand Lodge of Masons of Virginia. The building is being erected at a cost of approximately \$250,000.

WASHINGTON

Amalgamation of Medical Societies.—At a meeting of the Whitman County Medical Society, held, October 4, at Pullman, a consolidation of the society with the North Idaho Medical Society was effected under the name of the Inland Empire Medical Society. The following officers were elected for the joint society: president, Dr. Edgar L. White, Lewiston, Idaho; vice president, Dr. Elmer G. Braddock, Lewiston, and secretary-treasurer, Dr. Matthew J. Beistel, Pullman.

WISCONSIN

Personal.—Dr. Gustavus I. Hogue, Milwaukee, has been appointed president of the recently created state bureau for the care of the blind.

Tri-State District Medical Meeting.—The annual assembly will be held, November 14-17, at Milwaukee. Among the speakers will be: Drs. George Armstrong, professor of surgery, McGill University, Montreal; Edward William Archibald, professor of clinical surgery, McGill University,

Montreal; Arthur Dean Bevan, professor of surgery, Rush Medical College, Chicago; Hugh Cabot, dean and professor of surgery, University of Michigan, Ann Arbor, Mich.; John G. Clark, professor of gynecology, University of Pennsylvania, Philadelphia; William P. Graves, professor of gynecology, Harvard University, Boston; William J. Mayo, Mayo Clinic, Rochester, Minn.; Alfred Stengel, professor of medicine, University of Pennsylvania; John Bentley Squier, professor of urology, Columbia University, New York City; Commander William Seaman Bainbridge, M. C., U. S. Navy, and Capt. Archibald M. Fauntleroy, M. C., U. S. Navy, Naval Hospital, New York.

CANADA

Alberta Medical Association.—The annual meeting of the Alberta Medical Association was held recently in conjunction with the clinical congress of the Alberta section of the American College of Surgeons, at Calgary, Alta. Addresses were given by Drs. Franklin Martin, Chicago; Charles Hunter, Manitoba University, Winnipeg, and Thomas L. Gilmer, dean of oral surgery, Northwestern University Dental School, Chicago.

Personal.—Dr. William J. Stevenson, London, Ont., has recently been appointed a life member of the Academy of Medicine. Dr. Stevenson is the only practitioner in London who enjoys this distinction.—Dr. Ebenezer Ralph Hooper, Toronto, who gave up his practice in Toronto about a year ago to engage in evangelistic work in the churches of Ontario, will sail for Barbados early in November, where he will engage in evangelistic mission work during the winter.

Public Health News.—A decided decrease in the number of cases of smallpox, diphtheria, measles and whooping cough, as compared with September of last year, is shown in the monthly report of communicable diseases just issued by the provincial board of health. Typhoid, which is generally more prevalent in the months of August and September, than in any other months, shows an increase over last year, there being forty-five more cases. Toronto provided twenty out of a total of 120 cases.

GENERAL

American College of Surgeons.—The annual convention will be held, October 24, at Philadelphia, under the presidency of Dr. John B. Deaver.

Resolution to Investigate Hospital Board.—An investigation of the consultant board of physicians, appointed by Secretary of the Treasury Mellon to select sites and make recommendations for the expenditure of \$18,600,000 appropriated by Congress at its last session to provide hospital facilities for former service men, is ordered in a resolution introduced in the House by Representative Fitzgerald of Ohio.

Health Among the Eskimos.—An expedition will be sent in May, 1922, by the School of Hygiene of Johns Hopkins University, Baltimore, to study the problems of dietetics, nutrition and sex among the Eskimos in Labrador. Plans have been outlined by Dr. Victor E. Levine, professor of biochemistry and nutrition, Creighton School of Medicine, Omaha, who is going in advance for a preliminary survey, as to climate conditions. The expedition plans to penetrate parts of the Eskimo region never before visited by white people. The main expedition will spend the summer of 1922, and part of the winter of 1923 in the North.

Bequests and Donations.—The following bequests and donations have recently been announced:

Western Reserve University, School of Medicine, Cleveland, \$500,000, for the construction of a new medical school building, by Samuel Mather.

John H. Burns Memorial Hospital, \$150,000, for the construction of a hospital with the foregoing name, by John H. Burns, Laurel, Neb.

Juliette Fowler Orphan's Home, Dallas, Texas, estate, value about \$14,000, by the will of the late Dr. Lewis C. Page, Dallas.

Seton Hospital, Spuyten Duyvil, N. Y., Columbus Hospital and St. Joseph's Hospital, New York, the Society for the Relief of Incurable Cancer, Hawthorne, N. Y., each \$10,000, by the will of Mrs. Mary Galvin Reynolds.

Pottsdwn Hospital, Pottsdwn, Pa., \$5,000, for the endowment of a room to be known as the Kate S. Potts Room, by the will of George H. Potts.

Buffalo Association for the Relief and Control of Tuberculosis, Buffalo General Hospital, Children's Aid Society, Buffalo Orphan Asylum and the District Nursing Association, each \$2,500, by the will of Frank Sibley, Buffalo.

Children's Hospital, Philadelphia, \$2,500; Chestnut Hill Hospital, Philadelphia, \$1,000, by the will of Robert Toland.

National Organization for Care of the Eye.—A new organization has recently been formed under the name of the Eye Sight Conservation Council of America, with headquarters in

New York City. The council is supported by voluntary contributions, and its purpose is to create a greater appreciation of the importance of eye care. Dr. Cassius D. Wescott, Chicago, chairman of the Committee on Conservation of Vision of the Council on Health and Public Instruction of the American Medical Association, is vice president of the organization. On the board of councilors are: Drs. Frederick R. Green, secretary of Council on Health and Public Instruction of the American Medical Association, Chicago; Thomas D. Wood, New York City; Allan J. McLaughlin, U. S. Public Health Service, Washington, D. C., and Watson S. Rankin, Raleigh, N. C., state health officer.

LATIN AMERICA

Tuberculosis Conference in Argentina.—The Third National Antituberculosis Conference was planned to meet at La Plata, October 23-28, and the *Semana Médica* gives a long list of institutions and corporations that have appointed delegates, besides societies and other organizations. In addition to addresses on the various aspects of the disease, its prevalence and prophylaxis, compulsory insurance against sickness and the necessity for cheap homes and means to provide them for the tuberculous, are to be discussed, and the internment of the tuberculous.

Personal.—Dr. Joseph H. White, Asst. Surgeon-General, U. S. Public Health Service, has arrived in Lima, Peru, to inspect the work of sanitation commissions in Peru and Ecuador. Dr. White is special yellow fever commissioner for the International Health Board of the Rockefeller Foundation. No cases have been reported in Ecuador for a year, and no new cases in northern Peru for two months, where a thousand deaths occurred during the epidemic in the spring.

—Dr. Pedro Escudero has been appointed to the chair of clinical medicine left vacant by the retirement of Professor Güemes at the University of Buenos Aires. Professor Escudero has published works on insufficiency of the liver and thyroid, hydatid cysts of the lungs, etc.—Prof. M. Labbé is being fêted in Buenos Aires where he was invited to lecture. The Facultad de Ciencias Médicas gave a public reception in his honor, closing with an address by Dr. P. L. Balaña on 142 cases of leprosy he has had under observation in about ten years.—Dr. E. Weinberg of the Paris Pasteur Institute is also lecturing in Buenos Aires at the medical school. His topics are associations of anaerobes in infectious processes and serotherapy of polymicrobial infections.

—Dr. E. Bertarelli, professor of hygiene at the University of Parma is at present in Brazil where he has been delivering two public lectures on venereal diseases and on new points of view in nutrition.—Dr. Afranio do Amaral was presented recently with a bronze, representing "Medicine," and a silver souvenir plate by the personnel of the Butantan Institute as a tribute to his work in managing the institute.

FOREIGN

German Losses in the War.—The *Deutsche medizinische Wochenschrift* states that the corrected lists, August, 1921, show a total for Germany of 1,808,545 killed in the World War and 4,247,143 wounded. The medical profession lost 1,675 by death and 2,200 were wounded.

Helferich Foundation.—An exchange relates that the city of Eisenach, where the surgeon Helferich is now residing, on the occasion of his recent seventieth birthday, organized a foundation to be called by his name. The initial capital is 25,000 marks, and the income from the fund is to be devoted to aid the sick poor of the city.

German Relief Expedition to Russia.—The steamship *Triton* is said to be loading at Bremerhaven with food and hospital supplies for a mission to Russia. The expedition is in charge of Professor Mühlens of Hamburg and is well equipped with automobiles, etc. Among the physicians with the party are three from Hamburg hospitals and the chemist, Dr. Halberkann, from the Tropical Institute.

British Expedition to Study Sleeping Sickness.—It is reported that the Colonial Office of Great Britain is organizing an expedition for research on the serotherapy of sleeping sickness in Africa. The research is to include both men and animals, and plans for a two years' stay. The expedition is in charge of Drs. Marshall and Bassolo of the Uganda public health service, with two assistant physicians and two veterinarians.

The French-Polish Medical Congress.—The *Presse Médicale* relates that over 100 French physicians responded to the

invitation of the profession in Poland and arrived at Posnan, September 12, where they were met by a special train and were fêted, and then proceeded to Warsaw for the First Franco-Polish Medical Congress. It was a success in every way, it is said, and a second is already planned, to be held at Paris in 1923.

The Strasbourg Medical Congresses.—The *Presse Médicale* reviews in a recent issue the long medical history of Strasbourg; it dates from the fifteenth century, but the official academy, which had two professors for teaching medicine, was inaugurated in 1566. The latest chapter in its medical history was the congress week there this year, early in October, when the Twenty-Fifth French Medical Congress; the Thirtieth Surgical Congress; the Twenty-First Urologic Congress, and the Third Orthopedic Congress all convened there, in addition to a number of other organized branches of science which had arranged to gather there at the same time.

Berzelius Medal Awarded to Abderhalden.—The *Medizinische Klinik* states that the famous Swedish prize known as the Berzelius medal has been conferred on Prof. E. Abderhalden for his research on the defensive ferments and in other lines of biologic chemistry. Abderhalden has taken a public stand in late years in matters affecting the public health in addition to his more strictly scientific work, and our exchange expresses appreciation of his recent declination of an invitation to the chair of physiologic chemistry at the University of Basel. He has long been in charge of the Physiology Institute at the University of Halle, where his research on physiologic chemistry has been done. As a test for pregnancy, his ferment method has proved disappointing so far, but otherwise it has opened new fields for research.

Child Welfare in France.—The American Red Cross, in cooperation with the American Committee for Devastated France, the Bordeaux Training School for Nurses, the French Red Cross, and the Jardin des Enfants, has just terminated a five months' "Child Health Exposition" held since May in the various cities of the devastated regions of France, as well as Paris. The exposition presented educational propaganda on numerous subjects related to the rearing of children; such as child bathing, clothing and feeding, physical examinations, dentistry, and included baby contests, health cinemas, posters, educational charts, and lectures on child health subjects. In each city the quarters for the exposition were furnished by the municipal authorities, and the local physicians gave their services free in the examination, measurements and judging of the babies. It is expected that the exposition will be continued next summer under the exclusive management of the French child health organizations.

Medical Congresses in Italy.—The week of October 25-28 will include the Italian Congress for Internal Medicine and also the Congress for Surgery, both at Naples. A joint meeting has been planned to discuss the treatment of purulent pleurisy. The main topics to be discussed by the internists are tuberculosis, to be introduced by Maragliano, and epidemic encephalitis, while the surgeons will discuss visceral ptosis and renal tuberculosis. The organized orthopedists also hold their annual meeting the same week, discussing in particular osteochondritis in the young, and spondylitis. The Italian committee for the International Congress for Urology, which is to convene in Rome in 1924, has issued an appeal for those interested in urology to organize an Italian urologic society. Prof. R. Alessandri of Rome and Prof. G. Losio of Milan are taking the lead in the matter. The former is to preside at the international meeting in 1924. The *Policlinico* of September 26 gives the details of the above meetings.

Baltic International Cholera Conference.—Through the kindness of Dr. R. Adelheim, a member of the faculty of the University of Riga, information has been received with reference to the conference which was held in Riga, July 25-27. Owing to the state of famine existing in Russia for some time past, the inhabitants of the districts affected are emigrating in large numbers to other sections, where they expect to find food. Naturally, infectious diseases, especially cholera, typhoid and scurvy, are common among these people. Cholera is rapidly spreading over the entire country. According to the official Russian newspaper, *Izvestia*, 27,779 cholera cases were registered from Jan. 1 to July 1, 1921. In June, there were 24,000 cases, and of this number, 4,512 were found on railways. Most of the cases occurred in the Volga district, but the Don and Kuban districts are also affected. In July, 400 cases were registered in the town of Samara. July 6, six cases were registered in Petrograd. Moscow at that time had 500 cases. To prevent the spread

of the disease in Moscow, the authorities ordered a general vaccination of the inhabitants of the city. Certification of vaccination was marked on the individual's bread card, and if such certification was missing no ration was issued to the holder of the card. In order to check the spread of cholera to other countries, three Baltic states—Latvia, Esthonia and Lithuania—united to take measures against cholera. The idea of a Baltic conference was suggested by Lieut.-Col. Edward W. Ryan, M.D., of the American Red Cross, the commissioner to western Russia and the Baltic states. This conference was held in Riga, July 25-27, under the honorary presidency of Colonel Ryan. The presiding officer was the assistant director of the Latvia health department, Dr. Kivitzki. The decrees of the Convention of Paris were adopted by the conference as being binding on the three Baltic states. The three Baltic states agreed to direct a questionnaire to the Soviet government, asking for information with regard to the existence of cholera in Russia. It was agreed that whatever reply was received from the Soviet government, provided the existence of cholera is confirmed, all of Russia is to be declared as infected by cholera, and action will be taken according to Article 8 of the Paris Convention. All Russian provinces bordering on the Baltic states will be considered as cholera infected. The right of railway communication is to be extended to such persons only as possess a certificate of health issued by a local authority. While vaccination is not made compulsory, the health officer in charge is authorized to act according to his judgment. Cholera infected individuals are not to be returned to their homes, but will be permitted to travel to the next town or station in which adequate hospital and medical facilities are available. Health officers will be permitted to enter contiguous territory for a distance of 20 kilometers (12½ miles) in order to secure necessary data on cholera which will aid in checking the disease. It was decided that the bacteriologic institutes of the three Baltic states should confer on epidemiologic and bacteriologic observations made by each for mutual benefit. It was decided to request the governments of the allied powers to convoke periodic sanitary conferences and to form a permanent central bureau consisting of representatives of the three Baltic states, which will have in charge all matters relating to public health. Harbor regulations were adopted in conformity with the convention of Paris. As soon as Russia is declared cholera infected, the Baltic states will close their Russian frontier; the exchange stations for flax and salt will be closed; likewise, all other transit stations except those at Schogowo, Silupi, Egaline and Narwa. All traffic will be subjected to the closest scrutiny by health officers, quarantine regulations will be strictly enforced, preventive vaccinations insisted on and health offices given wide powers. All efforts to provide the separate transports now in Russia with medical aid have been without avail for the reason that the Soviet government apparently makes every effort possible to interfere with the efficacy of these measures. Even the International Red Cross failed to accomplish what it set out to do.

Deaths in Other Countries

Dr. A. Loxton, surgeon, Birmingham (England), Skin and Urinary Hospital, September 20.—T. B. Stedman, deputy coroner for N. E. London.—J. W. Cousins, author, and inventor of several surgical instruments, former physician, City of London Hospital for Diseases of the Chest.—A. S. Leyton, professor of pathology, University of Leeds, England, bacteriologist consultant to the Northern Command, contracted trench fever while engaged in research work and died, September 21.—Dr. José Celso Barbosa, a prominent physician and legislator of Porto Rico, member of the senate of Porto Rico, a graduate of the University of Michigan, died recently at San Juan, aged 63.—Dr. A. D'Alessandro of Buenos Aires.—Dr. J. C. Teixeira Brandão, professor of clinical psychiatry at the University of Rio de Janeiro, at one time member of the lower house from the state of Rio de Janeiro and long a leader in the care of the insane.—Dr. N. Colajanni, an Italian parliamentarian and editor who began his career as a physician but soon turned to the economic-social sciences.—Dr. J. Köhler of Berlin, an authority on insurance and accident medicine.—Dr. G. Gennerich, a pediatricist of Klausenburg, aged 55.—Dr. L. Girard, physician to the hospital at Cannes.—Dr. A. Clarens e Ibern of Havana, succumbed in this country to a chronic pulmonary affection.—Dr. F. J. de Sant'Anna of S. Paulo, Brazil.—Dr. Blas Lázaro Ibiza, dean of the pharmacy faculty of the University of Madrid, member of the Real Academia de Medicina, and author of various works on medicinal plants.

Government Services

Legislation to Commission Officers in Public Health Service

Representative Dyer of Missouri has presented a bill in the House calling for the commissioning of 550 reserve officers of the U. S. Public Health Service in the regular corps of commissioned officers. For a long time the status of reserve officers in the service has been uncertain and unstable. Such a measure as introduced by Congressman Dyer has been advocated as a means of advancing the morale and efficiency of the Health Service. The measure also fixes the grade and rank of the commissioned personnel with the pay and emoluments, and it also prohibits the commissioning of persons in the service to a rank higher than assistant surgeon unless they have served during the war in either the army, the navy or the U. S. Public Health Service. The term of the office of the Surgeon-General is established at four years and his appointment invested in the President of the United States with the approval of the Senate with the stipulation that he must be selected from among the commissioned officers of the service. The establishment of a corps of nurses, dietitians and reconstruction aides is also proposed in the Dyer bill.

Board to Coordinate Government Hospital Work

The creation of a permanent board to coordinate hospital work among the various health organizations of the government has been the subject of several recent conferences held at the White House. Brig.-Gen. Charles E. Sawyer suggested the establishment of a permanent committee representing about a dozen government agencies which deal with hospitalization and similar functions. Attending these conferences with President Harding were included Dr. Sawyer, Surgeon-General Ireland, Surgeon-General Stitt, Director Forbes of the Veterans' Bureau, Commissioner Burke of the Indian Bureau and Dr. Lavender of the U. S. Public Health Service. Reports compiled by the conference and submitted to the President showed that more than 7,000 beds now are available in government hospitals of various kinds throughout the country. The national executive was asked to name a board to coordinate use of hospital space and to work together toward standardization of hospital equipment. It has been indicated that such a board will be appointed in the near future.

Consolidation of Army Medical Establishments

The project of Surgeon-General Ireland to consolidate the Army Medical School, the Medical Museum and Surgeon-General's Library at the Walter Reed General Hospital in Washington is meeting with enthusiastic approval among the members of the Medical Corps. The move will enable the combination of clinical facilities of the hospital with the theoretical instruction of the schools, which will prove of unquestioned value to the service. As outlined, the consolidation, including schools for dental and veterinary work, will when completed mark this institution as one of the greatest army medical teaching centers in existence. It is expected that the teaching staff of the combined schools will lend their services to the more complicated work of the hospital, particularly in matters pertained to advanced laboratory work, blood chemistry and higher roentgen-ray experiments.

Veterans' Bureau Purchases Hospital

Director Forbes of the U. S. Veterans' Bureau has announced the purchase of the Roman Catholic orphanage in New York to be used for the care of neuropsychiatric cases among the ex-service men. One thousand patients will be accommodated by the new institution. The establishment of an immense hospital in the South to be used exclusively for the care and treatment of disabled negro soldiers is also among the plans of the Veterans' Bureau. Tuskegee, Ala., is being considered as the most available site because of its proximity to the center of the greatest density of negro population. The Tuskegee Institute has offered the United States government a tract of land for this purpose.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 26, 1921.

A Crisis in Panel Practice

The widespread financial depression, the general fall in prices, salaries and wages, and the crushing taxation, with the more or less futile attempts of the government to economize, have, as might have been expected, led to the raising of the question of a reduction of the capitation fee of panel physicians. Before the war, this fee was nearly \$2. In consequence of the increased cost of living, it was raised after the war to \$2.75. Now the minister of health, Sir Alfred Mond, proposes to reduce it to \$2.25, an intermediate position between the old and the new fee. He would thus effect a saving of \$10,000,000 a year. The threatened reduction has been received with marked disapproval by physicians, who declare that the cost of living has declined very little in the interval since the increase was granted and that the fee now paid is insufficient for the work done, especially as the ministry of health has again inaugurated a troublesome system of record cards which consumes much time. On the other hand, severe criticisms of the panel physicians have come from the leaders of the friendly societies, who declare that they often give a very perfunctory service. There is also the suggestion, unofficial as yet, that the panel system should be abolished and, instead of the annual capitation fee, payment made for each service rendered. In order to avoid, on the one hand, the abuse of patients making too much of trivial symptoms and, on the other hand, of physicians running up bills by overattendance, it is suggested that the patient should pay one third of the fee for each service. Further, the right of every one to choose one's physician at any time, which is largely lost under the panel system, would be restored. The system would, of course, be based on an agreed tariff. It has been calculated that the minister of health would save as much as \$20,000,000 by adopting this system. Some adjustment in the scale of contribution by the patients would be necessary in view of the fact that they would have partly to pay for medical attendance. The "something for nothing" (putting aside the small annual contribution paid by the patient as an insurance against illness) of the present system is one of its greatest blots. It leads people to take advice and medicine (the working man or woman is never satisfied unless he gets medicine whether he is ill or only thinks he is ill) under conditions that they never would if they had to pay. The time spent on such trivial cases often means want of time to examine thoroughly serious ones.

The War Work of the Red Cross

A report on the work of the British Red Cross Society, which has just been issued, shows the magnitude of the services rendered during the war. When the army medical service had to organize at short notice for casualties on an unprecedented scale, the Red Cross proved an invaluable help. It rapidly supplied additional stores, personnel, ambulances, hospital trains, fully equipped hospitals and convalescent homes, and provided for the after-care of disabled men and succored prisoners of war. Perhaps its greatest service was in supplying a large number of motor cars and ambulances with drivers. It provided supplementary accommodation for treatment by electric and orthopedic methods which had never been at the service of an army in the field before. At the time of the armistice, the total staff of the Red Cross at home and abroad amounted to 9,234 persons, and there were 126,000 members, of whom 90,000 were women. The cost of

administration was less than 8½d (17 cents) in the pound (\$5). To the funds the public subscribed \$82,500,000 and gave the equivalent of \$5,000,000 in stores—the largest voluntary effort ever made in this country. In addition, the farmers sent \$5,000,000 and the mine owners \$2,500,000. The expenditure included over \$25,000,000 for hospitals and stores, apart from local support to some 3,000 auxiliary home hospitals, and over \$10,000,000 for the transport of sick and wounded. Parcels for prisoners of war cost \$25,000,000. Grants to post-war schemes for after-care amounted to \$13,500,000.

Cooperation Between Veterinary and Human Medicine

The value of cooperation between veterinary and human medicine has often been pointed out, and has recently been insisted on by Sir Clifford Allbutt, but has never been carried out. Mr. Scott, president of the Mid-West and South Wales Veterinary Medical Association, has drawn up the following proposals: (1) A veterinary officer should be attached to the medical department of the ministry of health. (2) A whole-time veterinary officer should be appointed in all large cities to work in conjunction with, but not subordinate to, the health officer. (3) In provincial towns a part-time veterinary officer should be appointed to work with the health officer on the same basis. (4) Research work in comparative medicine and pathology should be carried out in research institutes and universities open to researchers following human or comparative medicine. (5) The older universities should found chairs of comparative pathology. (6) The universities should grant degrees in veterinary science, and postgraduate courses should be arranged. (7) A list of diseases communicable from animals to man should be fully drawn up by physicians and veterinarians, and a closer study of these instituted, particularly prophylactic. (8) The medical and veterinary societies should hold joint meetings to exchange views on matters of mutual scientific import.

Three Deaths Caused by a Mistake in Dispensing

In dispensing nine aperient drafts which he thought consisted of glycerin and cascara to inmates of the Worcester-shire Lunatic Asylum, one of the medical officers gave glycerin and belladonna. Belladonna poisoning resulted and proved fatal in three cases. At the inquest it was stated that the asylum was understaffed and that the physician never expected that belladonna would be among the bottles on the shelf with castor oil and other simple remedies.

Tuberculosis and Emigration to Australia

In reply to a communication from the Scottish Board of Health as to the conditions under which emigrants from the United Kingdom who have suffered from tuberculosis will be admitted to Australia, the government of the country states that, while desiring to exclude immigrants who are suffering from active tuberculosis, it is willing, subject to certain conditions, to admit persons in whom the disease has been arrested, if they have received treatment in a sanatorium and thus been educated as to the precautions necessary to preserve their own health and to protect that of others, and if there is an unequivocal history of freedom from symptoms during the preceding twelve months. The conditions of admission include certification by an expert in tuberculosis. The procedure suggested is that the medical referees responsible for the examination of all intending emigrants to Australia shall report to the chief health officer of the commonwealth in London all cases in which traces of tuberculosis are discovered or suspected. This officer will refer such cases to the health officer of the district in which the person resides, with the request that the case be examined and a report furnished by the local tuberculosis officer. The commonwealth government will pay to the local authority a fee of \$5 for every such examination. Those persons in

respect of whom a satisfactory report is furnished by the tuberculosis officer will be admitted to Australia subject to certain conditions—that the formal consent of the commonwealth minister for home and territories is obtained; that the disease does not become active during the voyage; that the emigrant passes the ordinary examination of the quarantine medical officer of the port of disembarkation, and that he reports for examination at the end of each year for his first three years in Australia; in the event of the disease becoming active during that period, he will be liable to deportation at his own expense.

PARIS

(From Our Regular Correspondent)

Sept. 23, 1921.

Druggists and "Patent Medicines"

Continuing its implacable warfare against "patent medicines," THE JOURNAL recently reduced to naught the argument of unscrupulous manufacturers who endeavor to exploit their products as "the poor man's medicine," while in reality they are exceedingly expensive (THE JOURNAL, Sept. 10, 1921, p. 867). It is certainly to be regretted that French medical associations do not wage an equally good fight against this shameful exploitation of the public. To be sure, the druggists here are fighting the manufacturers of pharmaceutical "specialties," but their fight is by no means inspired by interest in the common weal. Narrow commercialism is the ground on which they stand. They are simply trying to obtain greater profits from the sale of these products. Not long since they were successful in securing as their profit 25 per cent. off the retail selling price, but now they want 50 per cent. One curious (almost comical) aspect of the present controversy is that, while the druggists accuse the manufacturers of "specialties" of taking advantage of the public, they are obliged to acknowledge their own complicity; for example, in the most recent number of the *Gazette des pharmaciens*, we read: "In affirming that it guarantees us an annual profit of 50 million francs, the syndicate of manufacturers of specialties forgets to mention the total amount of profit that it collects from a credulous public thanks to our attitude of benevolent neutrality toward its numerous preparations."

Activities of the Rockefeller Foundation in France

The antituberculosis commission of the Rockefeller Foundation has, for some time, been carrying on an active propaganda to awaken the interest of the people in its campaign against tuberculosis. The propaganda consists of popular gatherings, talks to children in the schools and to workmen in factories, distribution of pamphlets, placards, etc., and motion picture exhibitions on tuberculosis and hygiene. At the beginning of 1918 the commission had only one mobile unit, but by the end of the year there were two in the field, and in January, 1919, there were four in operation. The personnel of each unit consists of a woman director, two lecturers (usually a man and a woman), and a chauffeur, who, in addition to driving the automobile truck with the motion picture apparatus and the advertising matter, manages the films. The four units have been traveling constantly. A large number of people have been reached by this form of propaganda and the results secured have been remarkable. A considerable sum of money has been collected for the creation of antituberculosis dispensaries, the number of which has increased from twelve to more than 200. A law recently enacted requires each department in France either to erect a tuberculosis sanatorium or to make arrangements with a neighboring sanatorium for taking care of its tuberculous patients. The following statistics give an idea of the anti-tuberculosis activities undertaken by the commission, from January, 1918, to December, 1920: cities visited by mobile units, 821; lectures to adults on tuberculosis, 1,505; talks to

schoolchildren, 3,357; lectures, followed by motion picture exhibitions, 2,354; total number of auditors present at lectures, 1,718,605; Punch and Judy shows, 372; spectators at Punch and Judy shows, 104,900; pamphlets and leaflets distributed by the units, 4,942,520; publications sent directly from headquarters, 3,908,575; total number of publications distributed, 8,851,095; total number of localities visited, 9,520,000.

Fish as a Factor in Prevention of Malaria

The *Revue générale des sciences* publishes, in its most recent number, an interesting article by Dr. Legendre on the prevention of malaria in Madagascar by the destruction of mosquito larvae by the aid of fish. Legendre states that, as a rule, fewer larvae are discovered in a rice plantation with fish than in an adjoining one without fish. He attributes this difference to the activities of the fish, and emphasizes the rôle played by larvicidal fish in the prophylaxis of malaria. In rice plantations with fish and in control plantations without fish, larvae of *Culex* and *Anopheles* are found. But these two kinds of larvae are much less abundant in plantations with fish than in the others, the proportion being as 1 to 2, and sometimes as 1 to 10 or better still. The majority of fresh-water fish are insectivorous, but a cyprinid (*cyprin doré*) is the greatest destroyer of the larvae of culicidae. The larvacidal rôle of these cyprinids in rice plantations and swamps depends on the number present. In rice plantations (in which the water should not be more than 30 c.c. deep) there should not be less than ten of this species to the square meter. Legendre recommends that in countries in which malaria is prevalent the most prolific species of fish should be ascertained among those that live in still water and are inclined to remain in one spot, and whose spawning season coincides with the rice season, which is also the period of greatest incidence of malaria. Preference should be given to edible fish of rapid growth, in order to encourage their culture for food, a motive more powerful with most people than the fear of malaria. According to Legendre, the prophylaxis of malaria is essentially an agricultural problem to be solved by hydraulic engineering and fish-culture, medical assistance being only a temporary means of relief.

Creation of New Cemeteries in Paris

Monsieur Stanislas Meunier, geologist at the Museum of Natural History, presented recently to the municipal council of Paris a report on the selection of various sites for new cemeteries. This report emphasizes the great necessity, in choosing grounds for cemeteries in the future, of seeing to it that, besides being located at some distance from densely populated areas, they shall present geological conditions favorable to the prompt decomposition of organic matter and to the elimination from the soil of infiltrated water.

A Court Decision on a Physician's Fees

The tribunal of the department of the Seine recently reduced from 24,000 francs to 10,000 francs a bill for medical services presented by Dr. Fraysse of Nice to one of his clients. Dr. Fraysse appealed for assistance to the syndicate of physicians of the department of the Seine, but the latter decided that it could not intervene, as Fraysse was not a member of the syndicate. Nevertheless, the syndicate became aroused by one of the statements on which the decision of the tribunal was based. An extract from this statement follows: "In this connection, it is proper to state that the medical titles of Dr. Fraysse are confined to his degree of doctor of medicine, since he has never obtained any of the degrees that may be secured only through examinations, from the least important to the highest, such as hospital extern, chief of a clinic, physician or surgeon to the hospitals, etc." The syndicate holds that the circumstance of his never having taken these examinations should not be regarded as an indication

of inferior qualifications as a physician. It cites, as a striking example, Dr. Branly, whose research work played such an important part in the field of wireless telegraphy, though he had no title at the time he became a member of the Academy of Sciences. The syndicate also called attention to the fact that the Pasteur Institute does not choose its members through competitive examinations, and that Roux, its director, had declared many times publicly that the competitive system should not be considered as necessarily the best.

Medical Inspection of Schools

The municipal council of Paris has adopted a resolution requiring medical inspectors of schools not only to examine into the general physical condition of pupils, but also to institute an inspection, every two months, of the mouth and teeth of children. The result of this examination will be reported on the individual record cards.

BELGIUM

(From Our Regular Correspondent)

LIÈGE, Sept. 23, 1921.

International Congress for Child Welfare

SAFEGUARDING OF CHILDREN'S MORALS; JUVENILE COURTS

In order to facilitate collaboration between juvenile courts and various welfare associations privately organized, it would seem well to establish a national federation, in which judges, public authorities and societies especially interested in the welfare of children may get together to discuss problems of mutual interest. Such a federation would be directed by an executive bureau. Before deciding what action to take in any individual case, judges of the juvenile courts would take up the matter with the welfare societies, which ought to have a representative at the court. When children are dismissed from public or private establishments, if it is impossible to reinstate them in their own families, they should not be given their full liberty at once but should be placed either in homes under public or private management, which can be subsidized by the state and the cost borne in part by the children and their parents, or they can be put in families carefully selected for the purpose, or they can be employed in the army. It is not wise or just to impose hardships on the child in order to punish the parents for their irregularities. In order to avoid doing anything that might tend to disorganize the family as an institution, it is well, while throwing the needed protection about illegitimate children, not to lose sight of the principle of paternity and maternity. Provisions should be made so that children who become public charges may be readily entrusted to institutions or to private individuals who may be capable of taking the place of their parents. The congress pointed out the advantage to be gained from a supervision of school attendance on the part of children who have become charges of the state. It held that all means should be employed to leave no ground for an excuse for nonattendance at school; that compulsory school attendance should be made absolutely binding on both parents and children; that an appeal should be made to secure the cooperation of all aid societies of the schools, all child welfare societies, inspectors of labor, all employees and all private individuals benevolently inclined, in order to assure a high standard of school attendance, and that international agreements should extend to children of foreign nationality the benefits of compulsory school attendance.

ABNORMAL CHILDREN

The congress held that, provisionally, a classification having a social, biologic and psychologic basis should be adopted, which would provide for the creation of: (1) institutions of observation where children can be housed and

cared for temporarily until a decision can be reached in regard to their final disposition; (2) biologic and psychologic clinics for the rendering of advice to the authorities and to parents; (3) for "exceptional" children (for grave and moderately grave cases and for those who have been taken out of a defective environment)—family groups and colonies, which should be in a position to meet the various needs resulting from the nature of the cases and where homogeneous groups could be promptly organized to provide for the cases in need of special treatment and an especially adapted education, and (4) for mild cases and children who are sprung from a good environment, special classes and special schools—day schools and combination boarding schools and day schools, in connection with the schools for normal children.

The congress also deemed it desirable that offices for pedotechnical consultation be established; that children should be subjected to an examination before being admitted to school; that the classes of the third and fourth elementary grades should be adapted to individual needs, and that in all schools methods recommended for the education of "exceptional" children should be introduced. It expressed the hope and desire that in all primary instruction account should be taken of backward and abnormal children, by the creation of special classes or regional schools and by extending the practical courses of this form of instruction to the smaller communities as well; and, when children whose home surroundings are bad must be provided for, that so-called family colonies or boarding schools (some with and some without day pupils, as the situation demands) be established. Backward and abnormal children of all kinds, on finishing school, should continue to be supervised, and, if need be, should be given special training in some trade in order to aid them in securing places for themselves in society.

CHILD HYGIENE AND PUERICULTURE

The congress expressed the view that consultations for nurslings constitute one of the best ways of combating infant mortality, for which reason it went on record as favoring their establishment by all means possible. It recommended also that instruction in puericulture be given to midwives, along with the necessary training for the practice of their profession, and that such instruction be followed by an examination and the presentation of a certificate to the successful candidates. In order to afford children from the time of their birth until they reach puberty adequate protection against tuberculosis, societies organized according to the principles of Grancher should be encouraged and widely developed in all countries. Home training centers (institutional homes, placement in selected families, open air schools, etc.) should continue to be organized, as they are the best means of safeguarding healthy minded children and of lifting up children who have already been contaminated, since they are removed from the focus of contamination. As for the normal children in attendance at the schools, regular medical inspection by a physician, aided by a trained nurse, should be assured.

The congress favored the organization throughout Europe of placement and training centers after the manner of the Speedwell system adopted in the United States. Such placement centers for young children are usually located in the vicinity of large cities, in peculiarly healthful surroundings and placed under strict administrative and scientific control. The congress recommended also the creation of a bureau of eugenics in every country, which would concern itself with the protection of children and would study the laws underlying the inheritance of normal and morbid characteristics in the human race and deduce therefrom the laws relative to the selection of marriage mates whereby the prevention of the procreation of weak and defective offspring may be accomplished.

BUCHAREST

(From Our Regular Correspondent)

Sept. 20, 1921.

Cholera Inspectors in Roumania

This country is preparing earnestly against a possible epidemic of cholera which threatens the country from the eastern states. Towns and parishes have been ordered by the board of public sanitation to carry out all the hygienic regulations and to take strict precautions. Inspectors have been directed to examine once a week all public thoroughfares, health resorts, sewers, rivers, public buildings, restaurants, manufactories, schools and houses occupied by the poorer classes. These inspectors have also to satisfy themselves that the drinking water supplied to the public is of sufficient purity, and to enforce cleanliness in butcher shops, slaughter houses and other places where food is stored or prepared. Every case of suspicious enteritis has to be notified immediately. This strict observance of the regulations is the outcome of rumors from the Russian boundary about the spread of cholera in the vicinity of Bessarabia, which is predisposed to the ravages of cholera, as sanitary conditions are very deficient there.

Is Syphilis an Accident?

A country practitioner in the southeastern portion of Roumania has, according to his own statement, been accidentally infected with syphilis through giving a calomel injection to a syphilitic patient. Afterward, wiping the needle with a piece of wadding, he pricked one of his fingers; but the wound, which was hardly visible, seemed so unimportant that he did not apply any dressing, merely washing the finger with a solution of mercuric chlorid. The accident took place in the presence of the patient. Four weeks later the medical man found that he was suffering from a skin eruption due to secondary syphilis, and a few days afterward his throat also began to show syphilitic manifestations. He then applied to the accident insurance company in which he was insured, claiming payment for practical disablement on the ground that the knowledge that he had become infected with syphilis interfered with his practice to such an extent that he was not able to earn half as much as formerly. The accident company refused his claim, saying that it was prepared to allow him full pay for as many days as he should be confined to bed, but more than this it would not do. The medical man has accordingly taken the case into court, which has decided against him, saying that syphilis cannot be regarded by any means an accident: the medical man ought to have begun antisyphilitic treatment immediately after pricking his finger with a needle which he could assume was infected with syphilis. The accident company is obliged to indemnify him for all the time he is bedridden and thus incapacitated for working. That his practice deteriorated on account of the knowledge that he had become infected is merely a temporary condition, which will improve shortly.

Medical Organization in Roumania

Before the Medical Society of Budapest, Dr. Moldoran recently delivered an interesting address on the subject of the influence exercised by the various medical organizations on the social, ethical and material position of the profession at home and abroad. He said that it was of great importance to the community at large that medical education should be efficient and that public hygiene should receive proper attention; the position of the medical profession, therefore, could not be a matter of indifference to the state. He maintained that the status of the medical profession was unsatisfactory in most parts of Europe, but that its prospects were best in the industrial countries where the standard of living was good and where culture and public health were at a comparatively high level. Of the various organizations, the best

results were shown by voluntary associations built up on a sound economic basis. The prospects of the medical profession in Roumania were gloomy, and would be further aggravated by the poverty of the people, by the extension of the system of insurance against sickness and especially by the new workmen's compensation act. Improvement could be expected only from organization, which also served at the same time the community at large.

Medical Inspection of Schools

The ministry of education, in which medical influence is undoubtedly active, has again issued an order dealing with hygienic measures to be adopted in regard to the supervision of schools. School hygiene is to be regarded as an integral part of the sanitary administration of the different counties, and the report sent in by the respective boards will have to show clearly to what extent schools are visited by medical men at regular periods. The order enables the local authorities to appoint visiting medical officers for the schools, especially for the so-called elementary schools, in which children from 6 to 14 years of age receive instruction. The order empowers them also to institute medical supervision in primary schools (where the ages of the children are from 4 to 6 years), in technical schools, and in commercial schools. A suggestion as to the time of inspection of the children is given. The medical officer must examine new pupils on their first arrival, and must afterward visit the schools at intervals of about four or six months, unless a local outbreak of epidemic disease, such as parotitis, measles, scarlet fever or diphtheria makes it advisable to pay more frequent visits. Special attention is to be given to diseases of the eye, ear, throat and teeth, as well as to the ventilation and the lighting of the class-rooms. The expenditure will be borne by the taxpayers and the government. The school medical officer will not undertake the treatment of the young patients, but his work will be rather of a preventive nature. The fees for the treatment have to be found by the parents or friends. Another memorandum just issued deals with the care of feeble-minded or crippled children and with the proper treatment and care of the deaf and dumb. There is good provision for this class of defectives in Roumania, and the ministry of education merely calls the attention of teachers to its existence. For the higher classes of the public schools, gymnastics are recommended as an antidote to the ill effects of the demands made by modern education on the mental faculties.

BERLIN

(From Our Regular Correspondent)

Sept. 24, 1921.

Proposed Reforms in Medical Instruction in Germany

In a previous letter I mentioned that Germany is considering a revision of its medical instruction. The strongest incentive to such action was doubtless the brochure published in 1918 by Prof. J. Schwalbe, publisher of the *Deutsche medizinische Wochenschrift*. This brochure was followed by a number of others; to mention, more particularly, that of Prof. B. Fischer, the pathologist of Frankfurt-on-the-Main. Also numerous articles in the various medical journals have dealt with the subject. Two years ago, at the congress (*Tag*) of German physicians, the subject came up for general discussion in connection with a detailed report rendered by J. Schwalbe. The faculties of German medical schools, either alone or meeting with representatives of the *Deutscher Aerztevereinsbund* (federation of German medical associations), have likewise gone into the question. A few days ago, the congress of German physicians, held in Karlsruhe, took up the subject again and discussed it thoroughly, reaching definite conclusions in regard to at least one phase of the matter, namely, the clinical training of medical students.

Dr. Hansberg, a member of the committee on business relations, drew up and submitted the following demands: "The duration of the medical course should be extended so as to embrace eleven in place of ten semesters. The pre-clinical period should comprise four and the clinical period seven semesters. While maintaining the strictly scientific character of medicine, greater importance than formerly must be attached to the furtherance and extension of opportunities for training in actual practice. Before a student begins his medical studies he should be obliged to take a six weeks' course in nursing in some institution properly qualified to give such instruction, and during the vacation periods of the preclinical years such training should be continued. The universities may be expected to offer adequate opportunities for training in the scientific aspects of medicine, but the clinical training in the actual practice of medicine must be gained at times other than during the regular semesters required for scientific medical training. After the student has passed the state examination, a year of clinical training in the practice of medicine, the so-called '*praktische Jahr*,' should follow, as has been the case in recent years, but some modifications should be introduced. Six months should be devoted to internal medicine, and three each to surgery and obstetrics. A month's training in actual practice in pediatrics may be considered as a month's training in internal medicine, and a month's experience with cutaneous and venereal diseases may be reckoned as a month of surgical training. At least four months of the training in internal medicine should be consecutive. Besides the '*praktische Jahr*' mentioned above, the vacation periods of also the clinical semesters should be used for courses in internal medicine, surgery and minor clinical subjects. For instruction purposes, in addition to the university clinics, the hospitals of the German empire may be utilized, their selection and control being placed in the hands of a small appointive committee. Especially, suitable hospitals located in university cities should be made to serve such purpose. Student practitioners (*Medizinalpraktikanten*) should be received as 'guests without pay' and should be given a small remuneration as well. The conditions for admittance should, as far as possible, be the same in all institutions. The important fields of social hygiene, social medicine, health insurance and legal medicine should be given ample attention not only during the university course but also during the '*praktische Jahr*.' Also the study of the basic principles underlying the examination of disability claimants, which has been much neglected in the past, should be made a subject of careful research. The number of assistant attending physicians in the hospitals at the present time is, for the most part, inadequate. As a standard it should be established that only such institutions as have at least one assistant physician for every fifty beds shall be entitled to give instruction to students and to receive student practitioners (*Medizinalpraktikanten*)."

To what extent the demands above mentioned will be realized in the final revision of the medical curriculum remains to be seen. Within a short time, a commission composed of representatives of the medical schools, the practicing physicians and the students is to be appointed by the government. This commission will determine what shall be the final form of the bill pertaining to a revision of the medical curriculum. The government will then make the final decision.

Prophylaxis of Tuberculosis in Kindergartens and Allied Institutions

A leaflet devoted to child welfare presents the following ten commandments with respect to the prophylactic measures to be taken against the spread of tuberculosis in kindergartens and similar institutions: 1. Every child is susceptible to tuberculosis. Young children need especial protection.

Protect the children against every possible means of infection. 2. The most dangerous source of infection is a tuberculous person who coughs. If no precautions are taken, he spreads the inciting organisms of tuberculosis (tubercle bacilli) whenever he coughs or expectorates. Not every tuberculous person knows that he is ill. Therefore see to it that children do not come in contact with persons who cough. Do not allow children to be kissed by strangers. 3. Cow's milk also may contain the causative agents of tuberculosis; therefore, give children only boiled milk. 4. The inciting organisms of tuberculosis remain viable also in dry dust; especially when the sunlight does not have access to it. Therefore, keep the rooms in which children play scrupulously clean. Remove unnecessary furniture and furnishings. Wipe up the floor every day with a damp cloth. Let in the light and air. 5. Insist on the children being cleanly in their habits; hands washed, nails cleaned, teeth brushed, mouth rinsed, their own handkerchief always available. 6. Do not let the children get into the habit of crawling around on the floor, and teach them to avoid putting into their mouths things that they find. 7. Every one who is in close touch with children should be in good health. Every one who is employed in a kindergarten should furnish a physician's certificate of good health. 8. Tuberculosis usually develops insidiously and is often diagnosed too late. Therefore, when a child is admitted to the kindergarten, endeavor to ascertain whether any members of the child's family are tuberculous, and keep children from tuberculous families under special surveillance. 9. Whenever a child tires quickly, is not fond of play or has very little appetite, he should be subjected to careful scrutiny. It is well to take him to the physician and learn whether the child may safely remain in the kindergarten. 10. If the physician establishes the presence of tuberculosis, take the child to the welfare center for tuberculous children.

Marriages

ARTHUR RAYMOND GAINES, Capt. M. C., U. S. Army, Fort Sam Houston, Tex., to Miss Eleanor Hearne Knight, at San Antonio, Tex., September 24.

WILLIAM WOOLSEY BELLAMY to Miss Elsie M. Stark, both of Boston, at Roslindale, Mass., September 14.

SAMUEL A. MARSDEN, Santa Ana, Calif., to Miss Daisy Morgan Austin of Hollywood, Calif., recently.

WILLIAM H. McCORMICK JR., Perth Amboy, N. J., to Miss Miriam K. Kelly of Scranton, Pa., recently.

ISADORE JESSE LEVY, New York City, to Miss Anna R. Abelson of Syracuse, N. Y., September 29.

WILLIAM W. COX, Montclair, N. J., to Miss Mary Isabel Sayer of Westtown, N. Y., September 17.

DON KING HUTCHINS, Cambridge, N. Y., to Miss Priscilla Alden of Rochester, N. Y., October 1.

WILLIAM E. R. BASCH, Boston, to Miss Grace Neumann of Montreal, Canada, September 14.

ELWOOD BAKER, Dermott, Ark., to Miss Evelyn Von Olsson of Little Rock, Ark., October 5.

CHARLES HENRY SPRAGUE to Miss Marietta Higson, both of Pocatello, Idaho, October 6.

ARTHUR RIMMER LEWIS to Miss Mildred Harris, both of Oklahoma City, September 15.

JAMES M. CAMPBELL to Miss Marian Dwyer Crowley, both of Detroit, September 22.

ISIDOR ECKERT to Miss Esther Frances Guy, both of New York City, October 30.

FRANK BATES to Miss Myrtle Jones, both of Coalgate, Okla., September 15.

ARCHER C. BUSH to Miss Helen B. Dobbins, both of Verona, N. J., October 4.

Deaths

Walter Lytle Pyle ☉ Philadelphia; University of Pennsylvania, Philadelphia, 1893; died suddenly at his home in Merion, October 8, from heart disease, aged 49. Following his graduation Dr. Pyle was chief resident physician at the Emergency Hospital, Washington, D. C., 1893-1894; clinical assistant, Polyclinic and Wills Eye Hospital, Philadelphia, 1895; assistant surgeon, Wills Eye Hospital, 1898-1905. He was a member of the American Ophthalmological Society, and a fellow of the College of Physicians, Philadelphia. Dr. Pyle contributed widely to medical literature: he was editor of the *International Medical Magazine*, 1898, and of "Cyclopedia of Practical Medicine and Surgery," 1918, and author of "A Manual of Personal Hygiene," 1918; in collaboration with Dr. George M. Gould, "Diseases of the Eye," 1889, and "Anomalies and Curiosities of Medicine"; he was also author of the section on ophthalmic surgery in the American Year Book of Medicine and Surgery, 1903-1905; in "American Medicine," 1902-1907, and in the "International System of Ophthalmic Practice," 1912-1919. He had also written papers on medical sociology and bibliography.

Edward G. Jones ☉ Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1900; died, October 6, aged 47. Dr. Jones was professor of surgery and clinical surgery at Emory University, Atlanta, and one of the founders of the Atlanta Medical College in which he was professor of surgery and clinical surgery, 1905-1913; visiting surgeon at the Wesley Memorial, the Grady Memorial and the Georgia Baptist Hospitals; member of the Southern Surgical and Gynecological Association; and author of "Notes on Obstetrics and Gynecology," 1900, and "Outlines on Physiology," 1901.

James Raynor Hayden ☉ New York City; College of Physicians and Surgeons (Columbia University), New York City, 1884; specialized in urology; member of the American Association of Genito-Urinary Surgeons; member of American Urological Association; former professor of genito-urinary diseases, Columbia University; attending surgeon to the Bellevue and Roosevelt Hospitals, New York; died from a gun-shot wound, apparently suicidal, October 10, aged 58.

Gustav Adolphus Aschman ☉ Wheeling, W. Va.; University of Zurich, Switzerland, 1884; a specialist in ophthalmology, otology, laryngology and rhinology; former president of the Ohio State Medical Association and of the Ohio County Medical Society; formerly on the staff of the Ohio Valley General Hospital; died, October 2, from chronic nephritis and uremia, following an operation, aged 61.

A. Clarence Musgrave, Toledo, Ohio; Eclectic Medical Institute, Cincinnati, 1897; member of the Ohio State Medical Association; also a dentist; served twice as mayor of Toledo; served as lieut. M. C., U. S. Army in France during the late war; died, October 4, in the St. Vincent's Hospital, following operation for ulcer of the duodenum, aged 47.

Edward Leland Mooney ☉ Syracuse, N. Y.; University of Michigan, Ann Arbor, 1886; Lieut. M. C., U. S. Army, during the late war; member of the Syracuse Academy of Medicine, physician to the Hospital of the Good Shepherd, Syracuse; specialized in laryngology and rhinology; died suddenly, October 1, from heart disease, aged 62.

Joseph Kerr Weaver ☉ Norristown, Pa.; Jefferson Medical College, Philadelphia, 1867; former surgeon general of Pennsylvania; founder and member of the board of managers of the Norristown Hospital; practitioner for over half a century; died, October 1, from cerebral hemorrhage, aged 83.

James C. Loggins, Ennis, Tex.; Tulane University of Louisiana, School of Medicine, New Orleans, 1868; member of the State Medical Association of Texas; practitioner for nearly half a century; Confederate veteran; was found dead in bed, September 29, aged 76.

Lucien Dent Allison, Kittanning, Pa.; Jefferson Medical College, Philadelphia, 1903; member of the Medical Society of the State of Pennsylvania; county censor; former president of the Armstrong County Medical Society; died, September 29, aged 44.

Harvey Lee Ross, Kealahakua, Hawaii; Cooper Medical College, San Francisco, 1903; member of the Medical Society of Hawaii; formerly of Redwood City, Calif.; served during the world war; died, September 29, in Honolulu, from pneumonia, aged 40.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

PIL. MIXED TREATMENT (CHICHESTER)

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

"Pil. Mixed Treatment (Chichester)" is a proprietary preparation of the Hillside Chemical Co., Newburgh, N. Y. It is sold in the form of pills, each said to contain $\frac{1}{20}$ grain of mercuric iodid and 5 grains of potassium iodid.

In 1907 the Council examined the therapeutic claims advanced for this preparation and found that they were unwarranted, exaggerated and misleading. It found, also, many misleading statements in regard to the product itself. Furthermore, the A. M. A. Chemical Laboratory found the pills to be "short weight" in potassium iodid content.

At the time that the Council examined Pil. Mixed Treatment (Chichester), a dermatologist of recognized standing, to whom the "literature" for this product had been submitted for an opinion, made the following report:

"Assuming that this pill contains what is claimed for it, one-twentieth ($\frac{1}{20}$) of a grain of biniodid of mercury and five (5) grains of potassium iodid, it presents neither an original nor a very useful formula.

"The literature furnished by the company abounds in suggestions that the mixture, as they prepare it, represents some unusual potency which is not possessed by the ordinary mixture of these same drugs in the same proportion. These suggestions may of course be dismissed without consideration. There is nothing mysterious in a mixture of potassium iodid and biniodid of mercury and this formula is no more entitled to special consideration than any other pill or tablet of the same composition prepared by any reputable pharmaceutical firm.

"The formula of this pill, however, does not represent a good combination. It is offered for use both during the active secondary period of syphilis and for tertiary lesions. The pill does not contain enough mercury to be an efficient remedy for secondary syphilis and not enough potassium iodid to be satisfactory in the treatment of tertiary lesions. It is neither fish, flesh, fowl, nor good red herring. A patient with secondary syphilis should not be dosed all the time with potassium iodid and for the treatment of tertiary lesions he should have a very much larger quantity of potassium iodid than can be given in these pills without giving toxic doses of mercury.

"The statement that this pill 'does not impair the appetite nor disturb digestion and is well borne by patients who cannot tolerate iodids otherwise administered' is a bald claim which cannot be justified by experience. The most unsatisfactory way of administering potassium iodid is in solid form. A patient who can stand potassium iodid in pill form, as it is furnished in this preparation, can stand it in any form in which it is ever administered.

"In short this preparation is neither agreeable nor efficient. The greatest objection to it is its inefficiency, for it is offered as an adequate preparation for the treatment of syphilis in all of its stages, whereas it is neither satisfactory for the treatment of secondary syphilis nor of tertiary lesions."

During the fourteen years which have elapsed since the Council's first examination of Pil. Mixed Treatment (Chichester), arsphenamin has been added to the syphilographer's armamentarium and much has been learned about syphilis and its treatment. While there exist differences of opinion as to the exact value of arsphenamin in the treatment of syphilis and there are even some who desist from the use of arsenic compounds of any kind, no syphilographer of standing countenances the routine treatment of syphilis with a fixed combination of mercuric iodid and potassium iodid. The use of Pil. Mixed Treatment (Chichester) is on a par

Robert Alonzo Toms, New York City, Eclectic Medical College of the City of New York, 1896; former justice of the peace, county supervisor and town treasurer, Kenmore, N. Y.; died, October 4, at Noroton, Conn., aged 52.

Benjamin F. Carmichael, Davenport, Iowa; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1873; postgraduate courses in Edinburgh, Scotland, and Germany; died, October 8, from cerebral hemorrhage, aged 70.

Milton Persus White, Detroit; University of Michigan, Homeopathic Medical School, Detroit 1880; member of the Academy of Medicine, Kalamazoo; former member of the U. S. Pension Board; died in July, aged 70.

William S. A. Castles, Memphis, Tenn.; Vanderbilt University, Nashville, 1882; member of the Tennessee State Medical Association; died, September 29, at the Baptist Hospital, following an operation, aged 61.

Helen Lenox Murray, South Bend, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; died October 6, from inhaling gas and severing an artery in her wrist, aged 51.

Gaylord Ames Stafford ♂ Kiefer, Okla.; University Medical College of Kansas City, 1898; specialized in pediatrics; died, September 18, at the Duke Sanatorium, Guthrie, from overwork, aged 50.

Ernest C. Helm ♂ Beloit, Wis.; Chicago Medical College (Northwestern University), Chicago, 1879; for thirty years member of the high school board, Beloit; died, October 6, aged 66.

James H. Phillips, Westlock, Canada; Rush Medical College, Chicago, 1878; former practitioner in Preston, Minn.; member of the state legislature, 1889; died, August 25, aged 70.

John M. Lipson ♂ Chicago; American Medical Missionary College, Chicago, 1903; owner of the St. Paul Hospital; was shot and killed by bandits in a drug store, October 15, aged 47.

John Conyers Norvell, Brownsville, Tenn.; Memphis Hospital Medical College, Memphis, 1901; died, September 30, from cerebral hemorrhage, aged 40.

Clifford Ernest Taylor, Detroit; Detroit College of Medicine and Surgery, Detroit, 1918; died, recently, from pulmonary tuberculosis, aged 26.

John C. Chenault, England, Ark.; University of Arkansas, Little Rock, 1895; member of the Arkansas Medical Society; died, September 28, aged 53.

Morris Piper Bachman ♂ Lake Parke, Iowa; State University of Iowa, Iowa City, 1900; died, October 2, from angina pectoris, aged 54.

William J. Jones, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1873; veteran of the Civil war; died, September 28, aged 80.

Mariette Marsh Armstrong ♂ Seattle; University of Oregon, Portland, 1897; specialized in gynecology; died, September 24, aged 58.

Robert Emmett Miller, Oxford, N. Y.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1861; died, September 7, aged 83.

Simon T. Whitaker, Berlin, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1884; died, September 11, from appendicitis.

Frank Wylie Nash, Rockford, Ill.; University of the City of New York, 1887; died suddenly, September 27, from heart disease, aged 70.

Asa A. Allen, Edgewood, R. I.; New York Homeopathic Medical College, New York, 1876; died suddenly, September 15, aged 70.

George W. Remage, Jennings, La.; University of Michigan, Ann Arbor, 1863; died, September 23, from chronic nephritis, aged 84.

Roy Brindley ♂ Boscobel, Wis.; Rush Medical College, Chicago, 1919; died in September, at a hospital in Madison, aged 31.

John W. Elliot, Linden, Ind.; University of Louisville, Ky., 1897; died, September 27, from cerebral hemorrhage, aged 59.

Milton Holtzapple, York, Pa.; College of Physicians and Surgeons, Baltimore, 1893; died, September 25, aged 60.

William A. Richards, Calhoun, Ga.; University of Georgia, Augusta, 1887; died, September 22, aged 58.

J. L. Hardcastle, Levy, Ark. (license, Arkansas, 1903); died, September 22, aged 82.

with the use of certain "blood purifiers" which were advocated at a time when the treatment of syphilis was a baffling problem.

PRESENT DAY CLAIMS

The present advertising, which reads as if it had been written in the heyday of proprietary license, is, in effect, an invitation to treat syphilis in its various stages and manifestations with Pil. Mixed Treatment (Chichester). If heeded by those who read the advertising of the Hillside Chemical Co., it will result in much harm to the public and the profession. For this reason, the present report of the Council is published as a protest against any advertising propaganda advocating the routine treatment of a disease which requires that each case be studied carefully so that prompt and efficient measures may be applied to the various manifestations of the disease.

The following advertisement appeared recently in several medical journals:

"Medicine is an Exact Science—on Paper Only!" Every general practitioner of medicine is called upon to treat Syphilis occasionally. He cannot depend upon the use of arsenicals alone. In most cases, "mixed treatment" the giving of mercury and iodides is required to get

AMERICAN JOURNAL OF SURGERY

**"Experience Is the Best Guide
On the Trail of Successful Practice"**

Despite the popularity of arsenic compounds in the treatment of syphilis, the conviction is being more and more expressed that mercury and iodide cannot be discarded.

"Mixed treatment" is coming back into general use. Experience points unerringly to the necessity for its employment in order to get most satisfactory results.

**PIL MIXED TREATMENT
(CHICHESTER)**

enables the physician to prescribe accurately and thus obtain maximum therapeutic results.

It is uniform in composition.

Its ingredients are pure and standardized.

Combined iodide and mercury action is secured by the giving of one combination. This makes for economy and ease of administration. The dosage can be accurately adjusted to each individual case.

Buccal, gastric or intestinal disturbance is, as a rule, conspicuous by its absence.

PIL MIXED TREATMENT (Chichester) is put up in bottles only. Price \$1.00.

Samples and literature may be had by writing to

**HILLSIDE CHEMICAL COMPANY
NEWBURGH, NEW YORK**

Please mention the American Journal of Surgery when writing advertisers.

MEDICAL RECORD. [August 13, 1921]

**"BEWARE OF THE MAN OF ONE BOOK
OR THE DOCTOR OF ONE DRUG!"**

The penchant for depending upon the use of arsenicals alone in the treatment of syphilis is giving way before the realization that in most cases, at least, iodide and mercury are indispensable and absolutely necessary.

**PIL MIXED TREATMENT
(CHICHESTER)**

Supplies in the combined dose 1/120 grain Mercury Bismuth and 5 grains Potassium Iodide.

The ready solubility of the mercury in combination with Potassium Iodide is secured. Full physiological effect is obtained without harmful, gastric or intestinal disturbance, because the dosage can be accurately determined for and adapted to each individual case. Economy is secured by the use of one preparation. Secrecy is maintained; the patient or friends do not know the nature of the medicine prescribed.

PIL MIXED TREATMENT (CHICHESTER) needs no introduction to the thousands of practical physicians who have for years employed it.

A checked test will bring absolute conviction.

Supplied in bottles only. Price \$1.00.

But to any physician who has not as yet become acquainted with the product, sample and literature will be sent on request.

HILLSIDE CHEMICAL COMPANY, Newburgh, N. Y.

NEW YORK MEDICAL JOURNAL

**"MEDICINE IS AN EXACT
SCIENCE—ON PAPER ONLY!"**

Every general practitioner of medicine is called upon to treat Syphilis occasionally. He cannot depend upon the use of arsenicals alone. In most cases, "mixed treatment" the giving of mercury and iodides is required to get satisfactory results.

PIL MIXED TREATMENT (Chichester)

accurately and successfully meets the indications and assures definite action. Important advantages:

- Ready solubility of mercury in combination with Potassium Iodide.
- Avoidance of gastric, buccal or intestinal disturbance.
- Easy administration, can be taken at any time, anywhere.
- Economical, both drugs in one combination.
- Accurate adjustment of dosage to each individual case.
- Full physiological action—assured by purity of content.
- Secrecy—patient or friends do not know nature of medicine.

PIL MIXED TREATMENT (Chichester) has been time tested and trial proven. It needs no introduction to the thousands of physicians who prescribe or dispense it.

Put up in bottles only. Price \$1.00.

But to any doctor, who is unacquainted with the product, sample and literature will be sent on request.

**HILLSIDE CHEMICAL COMPANY
NEWBURGH, N. Y.**

One reason scientific medicine lags. Uncritical medical journals perpetuate—for a price—the use of nostrums.

satisfactory results. PIL MIXED TREATMENT (CHICHESTER) accurately and successfully meets the indications and assures definite action.. Important advantages:

- Ready solubility of mercury in combination with Potassium Iodide.
- Avoidance of gastric, buccal or intestinal disturbance.
- Easy administration, can be taken at any time, anywhere.
- Economical, both drugs in one combination.
- Accurate adjustment of dosage to each individual case.
- Full physiological action—assured by purity of content.
- Secrecy—patient or friends do not know nature of medicine. Pil Mixed Treatment (Chichester) has been time tested and trial proven. It needs no introduction to the thousands of physicians who prescribe or dispense it.

While the advertisement does not directly so advise, yet it is a subtle invitation to the general practitioner to use Pil. Mixed Treatment (Chichester) and thus save himself and his patient the time and inconvenience which the rational treatment of syphilis imposes. A circular "The Treatment of Syphilis Simplified and Improved" begins:

"No therapeutic fact is more conspicuously and decisively established than that a radical cure of syphilis can be effected by the continuous administration, from the period of development, of a proper combination of mercury with iodine."

Continuing, it is admitted that mercury is the most efficacious drug in the primary and secondary stages of syphilis and iodine in the tertiary stage, but it is asserted that:

"... it is now granted by all syphilologists that the antiluetic action of these drugs is immeasurably augmented by properly combining them, and that the best results are obtained when they are conjunctively administered throughout the entire course of the disease."

Arguing along the same lines, this circular continues:

"... it was not until mercury and iodine in the form of Pil. Mixed Treatment (Chichester) was evolved that the marked advantages of the combined employment of these drugs in the various stages of syphilis became a scientific certainty."

Further we are asked to believe that:

"Because of the greatly increased potency of mercury and iodine when combined, as in Pil. Mixed Treatment (Chichester), the foremost syphilologists are now agreed that the employment of these drugs in such form should be enjoined as soon as the disease develops, and should be thus continued until a cure has been effected; in other words, Pil. Mixed Treatment (Chichester) should be made the sole antisyphilitic medication throughout all stages of the disease."

The circular illustrates the extent to which our knowledge of drugs may be distorted and misrepresented and the public health jeopardized in the exploitation of a proprietary medicine.

PROPRIETARY CLAIMS

In its advertising, the Hillside Chemical Co. claims that Pil. Mixed Treatment (Chichester) both as to formula and method of preparation "in the incapsulated powder form"

was "brought to the notice of the profession by Dr. W. R. Chichester of New York, an eminent Syphilographer and recognized authority in the therapeutics of Syphilis." It is claimed that this pill "is perfectly soluble, tasteless, nonirritant, and therefore well adapted to a sensitive stomach." It is claimed that the pill "is always preferable to one extemporaneously prepared, which, even if identical in composition, often gives negative results."

An examination made in the chemical laboratory of the association to determine if the product now marketed contains the claimed amount of potassium iodid indicated that this was the case. The chemist who made this examination commented as follows on the claim that in this pill, potassium iodid is rendered tasteless, that the pill is "perfectly soluble" and that extemporaneous pills of "identical . . . composition, often give negative results."

"That the potassium iodid has been rendered tasteless is false, naturally; the pills when placed in the mouth, after removal of the coating, have the characteristic taste of alkali iodids. The claim that the pills are entirely soluble is incorrect; they contain a large amount of insoluble material, probably kaolin. The assertion that an

extemporaneous compound prescription even if identical in composition with the Chichester pill is often inert, is absurd and a reprehensible attack by suggestion of the ideal that the physician shall write his prescription to meet the individual needs of his patient and that the pharmacist shall compound the prescriptions of the physician as they are required. It should also be pointed out that while much is said about the potassium iodid in the Chichester pill being in powdered form, the pill mass is solid and very slowly soluble and the claim of being in powdered form is, if immaterial, also incorrect."

As to the asserted standing of the alleged discoverer of the formula for Pil. Mixed Treatment: Dr. William R. Chichester appears to have lived and practiced in New York since 1886 or longer, but the claim that he is an "eminent syphilographer" seems to have originated with the exploiters of "Pil. Mixed Treatment." Search failed to show the name of W. R. Chichester among authors of textbooks of syphilis or any other branch of medicine or among authors of contemporary literature in the *Index Medicus* from 1907 down to the present; nor did a search of the catalogue to the Surgeon General's Library reveal W. R. Chichester as ever having published anything on syphilis or any other subject.

Pil. Mixed Treatment (Chichester) is sold under therapeutic claims which are unwarranted and misleading. The preparation well illustrates the abuses which are connected with the exploitation as proprietaries of established drugs or mixtures of established drugs.

Correspondence

"CANCER AND ITS NON-SURGICAL TREATMENT"

To the Editor:—By the direction of the Medical Board of the New York Skin and Cancer Hospital, given on Oct. 11, 1921, I beg to state that the opinions expressed by Dr. L. Duncan Bulkley in his book "Cancer and Its Non-Surgical Treatment" (the review of which appeared in THE JOURNAL, Oct. 8, 1921, p. 1201), do not represent the opinions and belief of the Medical Staff of the New York Skin and Cancer Hospital.

The Medical Board regrets that the name of the New York Skin and Cancer Hospital has been associated with this and similar publications, which so completely misrepresent the policy of the hospital.

GEORGE H. SEMKEN, M.D., New York.
Secretary, Medical Board, New York
Skin and Cancer Hospital.

NORMS FOR AMPLITUDE OF VOLUNTARY MOVEMENT

To the Editor:—Several textbooks in anatomy give more or less crude estimates of the normal range of voluntary movement of the different joints of the body. It seems that no carefully obtained data have been collected on this subject. The treatment of thousands of cases of injury in industry brings this subject to the attention of ward surgeons every day. When shall the return of function to the injured member be considered satisfactory or complete?

NORMS IN DEGREES

Joint Movement	Average Amplitude	Average Deviation*	Range
Shoulder			
Flexion-extension	261.0	9.1	228-282
Abduction-adduction	207.5	6.6	180-222
Elbow			
Flexion-extension	152.3	6.0	135-173
Wrist			
Flexion-extension	166.0	6.5	147-183
Abduction-adduction	96.5	10.3	68-132
Finger			
Flexion-extension, carpophalangeal			
2 (index)	96.0	9.0	70-127
3	80.0	9.0	52-105
4	77.5	8.0	50-130
5	98.5	9.5	67-130
Mesophalangeal			
2 (index)	134.5	9.5	102-165
3	136.0	8.5	110-161
4	131.5	9.5	90-161
5	118.5	12.5	82-152
Distal			
2 (index)	108.5	10.5	77-155
3	104.5	10.0	70-140
4	91.5	11.5	55-125
5	95.5	12.5	46-137
Hip			
Flexion-extension	129.0	11.4	85-162
Abduction	54.5	7.1	35- 80
Knee			
Flexion-extension	133.0	7.5	110-155
Ankle			
Flexion-extension	53.0	4.0	41- 66

* The range above and below the average which includes approximately half of the cases.

The accompanying table gives the norms in degrees for the principal joints of both upper and lower extremities of the body. The data have been compiled from 100 measurements for each joint secured from normal male college students: The measurements were made by the use of the metrotherapy apparatus described in THE JOURNAL, Oct. 9, 1920, p. 983. Measurements for the right and left sides of the body were kept separate, but varied so little that they have been combined in the table. The measurements are for

the entire range of movements—flexion-extension or abduction-adduction—except in the case of hip abduction, which was measured from the standing position to extreme abduction.

Manifestly, it is not to be expected that all injured members should reach the average for normal range of movement for that joint. Only half the normal cases reached that point. No doubt the range for children, women, and all older persons would be somewhat different from the norms for male college students. Probably anything much above the lower limits given in the table, or certainly anything higher than the difference between the average and the average deviation—the point above which approximately 75 per cent. of the cases fall—should be considered normal.

A. R. GILLILAND, A.M., Easton, Pa.

PROCAIN DERMATITIS

To the Editor:—In a dental clinic in which nerve blocking is frequently employed, one operator in every twelve showed as the result of using a hypodermic syringe that would leak in the barrel, allowing the 2 per cent. solution of procain to come in contact with the fingers, a drying, cracking skin that would exfoliate, leaving the true skin red, hypersensitive and painful. The accompanying illustration shows the first two fingers of the right hand affected where the



Dermatitis caused by procain.

barrel of the hypodermic syringe leaked. The first three fingers of the left hand, where the solution was under the finger nails, were also affected, as well as the first finger to the joint.

R. C. MORRIS, M.D., Grand Rapids, Mich.

POSTGRADUATE WORK IN PARIS

To the Editor:—In a previous letter was given a brief survey of hospital conditions in London. Some similar notes on hospitals in Paris may not be unacceptable to those who contemplate their first trip for foreign study. There are a number of hospitals in Paris in which large clinical material may be seen. French colleagues are courteous to foreigners, and a goodly number of them speak English. However, for effective work in Paris, some knowledge of French is desirable.

An easy method of obtaining information in regard to hospital conditions is to write to the "Collège des Etats-Unis d'Amérique," which was established in France in 1916, incorporated under the laws of West Virginia in 1919. Its offices are on the third floor of 10 rue de l'Elysée, Paris, in the same building in which the American Library is located. The executive is Miss Caroline B. K. Levy, who has compiled booklets on French university courses, and arranged special work and courses for Americans. A request to this organization will bring detailed information regarding hotels, pensions, general and special courses, in medicine, etc. Since this organization exists, however, by voluntary contributions,

it would not be amiss to enclose a \$1 bill to help support the work. During 1920 this organization registered 226 foreign students, of whom 102 were Americans. American post-graduate students who arrived in Paris for the first time should report to it and obtain what information may be desired.

Another organization, maintained by a group of American universities, is the "American University Union," which has its office at 1 rue de Fleures, Paris. Application by letter or in person will bring advice, so far as it is at the disposal of the office.

A third agency is French, the "Office of Information" or "Bureau des renseignements," of the "School of Medicine"; it is located in the Salle Beclard, on rue Ecole de Médecine, not far from the Boulevard St. Rochelle. Here information may be obtained concerning all the courses in medicine, surgery and the specialties which are given in French, and to which foreigners are admitted. These courses come at certain times in the year, so that Americans who speak French and who would wish to avail themselves of these advantages should choose their time accordingly.

In Paris, as in London, the hospitals are somewhat scattered, and it is necessary to master the use of the tubes if one is to get around with a minimum loss of time. The taxi service is good and cheap, but the tubes are better as a routine. A little blue covered "Guide commode de Paris du Metro et du Nord-Sud" and a yellow leaflet, "Metro-Nord-Sud pratique," which can be purchased at many of the news stands, will be a distinct aid to rapid transit in Paris.

GEORGE H. KRESS, M.D., Los Angeles.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF MIGRAINE

To the Editor:—On page 1052 of THE JOURNAL, Sept. 24, 1921, the abstract on the treatment of migraine greatly interests me, as I have been a sufferer all my life, and it would appear that Sicard and his co-workers have discovered something real. Please inform me of where I can write to him and get more particulars.

F. C. DOLDER, M.D., Eyota, Minn.

ANSWER.—This effect on migraine is a by-product of the treatment of varicose veins by Sicard. His technic for this and the results have been repeatedly mentioned recently in THE JOURNAL: Jan. 22, 1921, p. 274; March 26, p. 896; April 2, p. 965, and June 4, p. 1616. The address of Prof. J. A. Sicard is boul. Saint-Germain, 195, Paris, France.

IDAHO PRACTICE ACT

To the Editor:—I was in California for the last two and one-half years and paid my \$2 a year tax there up to Jan. 1, 1922. When I returned to Idaho a month ago, I not only had to pay the \$2 for the current year, but also for the two previous years (since the law was passed). During these two and one-half years, as already mentioned, I was not in practice in Idaho nor even living in Idaho. Thus the state is charging me for something for which I received nothing. Is that constitutional? How many states make this annual charge now? It does not seem just to charge those who already held their licenses at the time this new tax was passed. They say that the \$2 tax is not for revenue, so it must be simply to create an unnecessary office or payroll. Almost every year there are new impositions placed upon physicians, so in return professional accounts should never become outlawed.

L. T. A. HOTTEN, M.D., Paris, Idaho.

ANSWER.—Chapter 138 of the Idaho statutes provides for a tax of \$2 a year as a reregistration fee for all persons holding a license from the state to engage in any occupation, profession or trade. This tax is for the annual renewal of the license. If the holder of the license does not wish to use it after he receives it, or if he goes out of the state, that

is his affair. The law provides that any person failing to pay the reregistration fee shall have his license canceled.

This law is not a fair one, since it puts the expense of administering the medical practice act and other laws restricting other occupations, professions and trades on the persons licensed, instead of on the people who are the beneficiaries. Such a law, however, is constitutional. The physicians of Idaho should have opposed this law at the time of its adoption and should have prevented its passage, as the physicians in Illinois prevented the passage of a similar bill. Now that it is a law, however, it must be observed until it is repealed.

CHOLESTEROL FROM GALLSTONES—PURIFICATION OF MERCURY

To the Editor:—1. Please give the method for the extraction of cholesterol from gallstones, and the method of purification of the extracted cholesterol. 2. Also the method of purifying mercury which has been repeatedly used on the Van Slyke apparatus. Please omit name.

F. D. L., Wisconsin.

ANSWER.—1. Cholesterol "is most readily obtained from gallstones by pulverizing them, and extracting with boiling alcohol containing a small amount of potassium alcoholate. On cooling, or if necessary, concentrating first by evaporation of the alcohol, cholesterol crystallizes out as white, shining, platelike rhombic crystals generally having one corner broken. . . . The pure crystals melt at 148.5 C."

2. The mercury which has been dirtied from use in the Van Slyke apparatus may be purified by treating it with hot diluted nitric acid U. S. P., in a casserole, or by passing through a long column of nitric acid solution by means of very fine sprays. The collected mercury is washed with water, as much of the wash water as possible removed by decantation, and then dried by "dipping in" filter paper. Finally, the mercury may be filtered through a chamois skin which has previously been punctured by a fine needle.

PERGOLA'S EGG MEDIUM FOR DIPHTHERIA BACILLI

To the Editor:—Please publish details of method of preparation of Pergola's egg medium for diphtheria bacilli. Please omit my name.

R. A. K., Pittsburgh.

ANSWER.—In the *Annali d' Igiene* (29:196 [April] 1919), Pergola gives a number of formulas for making egg culture mediums for diphtheria bacilli, of which the following are examples:

1. Water, 1,000 c.c.; Liebig extract, 10 gm.; Witte peptone or its equivalent, 10 gm.; glycerin, from 20 to 40 c.c. This mixture is heated in an autoclave for half an hour, filtered and sterilized anew. To each 100 c.c. of this broth are added five or six yolks of eggs, stirring well and distributing in tubes, slanting, heated to 90 C. for one or two hours on two or three consecutive days.

2. Sterilized 0.8 per cent. solution of sodium chlorid, 100 c.c.; glycerin, 1.5 c.c.; five yolks of eggs. Mix well and distribute in tubes.

3. The yolk of egg may be preserved in glycerin, one part of glycerin to five parts of yolk of egg, and then added to an equal volume of 0.8 per cent. solution of sodium chlorid.

STEINACH'S RESEARCH ON PUBERTY GLAND

To the Editor:—Can you inform me where I can secure an authentic report of the work of Steinach on impotence? Please answer through THE JOURNAL.

B. J. ELLIS, M.D., Waterville, Wash.

ANSWER:

Steinach, E.: *Verjüngung*, Berlin, Julius Springer, 1920.

Abramson, E.: Steinach's Research on the Puberty Gland, *Hygiea* 82: 686 (Nov. 16) 1920; abstr. THE JOURNAL, Jan. 29, 1921, p. 348. The Problem of "Restoration of Youth," Vienna Letter, THE JOURNAL, Aug. 14, 1920, p. 490.

The Problem of "Restoration of Youth," THE JOURNAL, Foreign News, Aug. 28, 1920, p. 617.

"The Puberty Glands," Berlin Letter, THE JOURNAL, Sept. 11, 1920, p. 755.

Payr, E.: Steinach's Rejuvenation Operation, *Zentralbl. f. Chir.* 47: 1130 (Sept. 11) 1920; abstr. THE JOURNAL, Dec. 25, 1920, p. 1811.

"OWNERSHIP OF ROENTGEN-RAY PLATES"

To the Editor:—In THE JOURNAL, October 1, the question was asked, Who owns the roentgen-ray plates, the operator or the patient? You wisely offer an opinion by analogy, by stating that the courts have consistently held that a prescription does not belong to the patient. I should like to add that this opinion must necessarily prevail, especially since the inauguration of the Harrison law, which compels druggists to keep on file all prescriptions which call for narcotics, for a period of two years from the date of issue. This will remove all doubts as to who is the owner of a prescription after it leaves the hands of the physician.

MAX BAFF, M.D., Worcester, Mass.

Medical Education, Registration and
Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin M. Hall, 82 Grand Ave., New Haven.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

South Dakota January Examination

Dr. H. R. Kenaston, director, Division of Medical Licensure, South Dakota State Board of Health and Medical Examiners, reports the oral, written and practical examination held at Pierre, Jan. 18-19, 1921. The examination covered 5 subjects and included 100 question. An average of 75 per cent. was required to pass. Eleven candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
National Medical University.....	(1909)*	78	
Northwestern University.....	(1917) 86,	(1920)	86.5
Rush Medical College.....	(1916) 89.4,	(1920)†	87.3
Indiana Medical College.....	(1907)	81.9	
St. Louis University School of Medicine..	(1914) 91.9,	(1916)	89.3
University of Nashville.....	(1910)	83.6	
Vanderbilt University.....	(1913) 84.8,	(1916)	90.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University.....	(1916)	Minnesota	
College of Physicians and Surgeons, Chicago.....	(1905)	N. Dakota	
Northwestern University.....	(1920)	Minnesota	
University of Illinois.....	(1920)	Minnesota	

* Graduation not verified.
† This candidate has finished the medical course and will obtain the M.D. degree after he has completed a year's internship in a hospital.

Arkansas May Examination

Dr. Claude E. Laws, secretary, Arkansas Eclectic Board of Medical Examiners, reports the written examination, held at Little Rock, May 10-11, 1921. The examination covered 2 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 11 passed and 4 failed. Ten candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Kansas City College of Medicine and Surgery.....	(1921)	10	
Eclectic Medical Institute.....	(1882)	1	

College	Year Grad.	Number Licensed
Kansas City College of Medicine and Surgery.....	(1921)	4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgia College of Eclectic Medicine and Surgery...	(1913)	Georgia	
American Medical College.....	(1891)	Oklahoma	
Kansas City College of Medicine and Surgery....	(1920, 7)	Connecticut	
Undergraduate		Florida	

Virginia June Examination

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 14-17, 1921. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 50 candidates examined, 17 passed and 3 failed. Ten candidates were licensed by

reciprocity. Three candidates were licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1920)	92	
Howard University	(1920)	88	
Johns Hopkins University	(1918) 91,	(1921)	88
University of Maryland	(1921)	83	
Boston University	(1921)	92	
Harvard University	(1921)	90	
Leonard Medical School.....	(1914)	95	
Jefferson Medical College.....	(1918) 83	(1920)	88
University of Pennsylvania.....	(1921)	88, 96	
Vanderbilt University	(1921)	87	

Medical College of Virginia (1921) 75, 79, 79, 80, 82, 83, 83, 84, 85, 86, 87, 87, 87, 87, 88, 89, 90, 90, 90, 91, 91, 91, 92, 95	
University of Virginia (1919) 95, (1920) 90, (1921) 86, 88, 90, 90, 91, 92, 93.	

College	Year Grad.	Reciprocity with
Barnes Medical College.....	(1894)	51
Meharry Medical College.....	(1916)	60
Medical College of Virginia.....	(1921)*	78

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia.....	(1908)	Georgia	
Tulane University	(1908)	Louisiana	
Johns Hopkins University.....	(1914)	Maryland	
Jefferson Medical College.....	(1915)	N. Carolina	
University of Pennsylvania.....	(1917)	N. Carolina	
Vanderbilt University	(1919)	Tennessee	
Medical College of Virginia (1902) New York.....	(1920)	N. Carolina	
University College of Medicine, Richmond.....	(1909)	W. Virginia	
Osteopath		Missouri	

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
George Washington University.....	(1911)	U. S. N.	
University of Louisville.....	(1917)	U. S. Army	
University of Virginia.....	(1917)	U. S. N.	

* Fell below 50 per cent. in more than one branch.

Connecticut July Examination

Dr. Edwin C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports that 5 candidates were licensed by reciprocity at the meeting held at New Haven, July 12-13, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital of Chicago.....	(1913)	Iowa	
Hering Medical College.....	(1904)	Illinois	
New York Homeopathic Medical College and Flower Hospital	(1915)	Virginia, (1917)	New York
Hahnemann Med. Coll. and Hosp. of Philadelphia....	(1880)	R. Island	

Florida August Examination

Dr. W. M. Rowlett, secretary, Florida State Board of Medical Examiners, reports the written examination held at Jacksonville, Aug. 1-2, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 43 candidates examined, 30 passed and 13 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College.....	(1892) 78.8,	(1916) 82.1,	84.1
Emory Univ. School of Med.....	(1921) 82.5,	84.1, 86.2,	88.4, 90
University of Georgia.....	(1921)	86.1	
Loyola University	(1918)	86.6	
Rush Medical College.....	(1904)	75	
Drake University College of Medicine.....	(1912)	80.2	
Kentucky School of Medicine.....	(1882)	75.2	
University of Louisville Medical Department.....	(1921)	87.2	
Tulane University.....	(1917) 89,	(1919) 82.2,	(1921) 86.5
University of Maryland.....	(1914)	79.3	
Tufts Medical College.....	(1898)	77.6	
St. Louis University School of Medicine.....	(1919)	89.9	
Bellevue Hospital Medical College.....	(1889)	77.7	
University of the City of New York Medical Dept.....	(1883)	79.2	
Miami Medical College.....	(1909)	81	
Jefferson Medical College.....	(1919)	90.5	
Western Pennsylvania Medical College.....	(1897)	87	
Medical College of the State of South Carolina.....	(1916)	83.5	
Lincoln Memorial University Medical Department.....	(1916)	86	
University of Nashville.....	(1906)	87.9	
Vanderbilt University	(1919)	84.4, 94	

College	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons.....	(1903)	73.5
Atlanta Medical College.....	(1915)	70.7
Georgia College of Eclectic Medicine and Surgery.....	(1886)	54.4
University of Georgia Medical Department.....	(1891)	59.8
Kentucky University Medical Department.....	(1901)	72.8
College of Physicians and Surgeons, Boston.....	(1912)	74.1
Tufts College Medical School.....	(1916)	73.0
University of Michigan Medical School.....	(1877)	63.8
Beaumont Hospital Medical College.....	(1889)	64.8
University of Nashville.....	(1905)	71.3
University of Tennessee.....	(1894)	67.8
Vanderbilt University	(1913)	68.7
Western University Medical School.....	(1913)	68.5

Book Notices

FÜNF REDEN VON EWALD HERING. Ueber das Gedächtnis als eine allgemeine Funktion der organisierten Materie. Ueber die spezifischen Energien des Nervensystems. Zur Theorie der Vorgänge in der lebendigen Substanz. Zur Theorie der Nerventätigkeit. Edited by H. E. Hering. Paper. Price, 74 marks. Pp. 140. Leipzig: Wilhelm Englemann, 1921.

The book contains five lectures by the late Leipzig physiologist, delivered to various scientific groups from 1870 to 1906, and edited by his son, Prof. H. E. Hering of Cologne. The lectures are on: memory as a general function of living matter; the specific energies of the nervous system; contributions to the theory of vital processes; contributions to the theory of nervous activity and a review of the author's work on the physiology of vision. The author is known to all biologists through his experiments and theories on color vision. These lectures, now made accessible to men of science the world over, show him to have been a thinker of no mean attainment. In the preface to the little book his son says: "His last lecture shows that his many publications on vision are not a conglomerate, but a unit built on fundamental principles, in line with the work on organic evolution by Lamarck and Darwin, as well as with the philosophical contributions of Schopenhauer and Fechner." This is a filial compliment; it is also true.

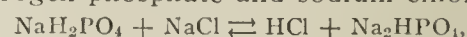
CHARLAS DE CAFÉ. Pensamientos, anécdotas y confidencias. Por S. R. Cajal. Second edition. Paper. Pp. 367. Madrid: Juan Pueyo, 1920.

In this book, Cajal has placed the thoughts, doubts, musings, criticisms and disappointments which have troubled him during a long life. The first edition, which revealed to most readers a new Cajal, was such a success that it was exhausted almost immediately. A second edition, enlarged and revised, is now available, somewhat "sweetened and toned down," as the author says in his prologue. The book is a series of random thoughts or maxims after the fashion once made so popular by the French philosophers of the seventeenth and eighteenth centuries and afterward used by Nietzsche in his "All Too Human." It is divided into chapters devoted, respectively, to friendship, enmity and hatred; love and women; old age and pain; death and immortality; genius, talent and stupidity; conversation, polemics, opinions and oratory; morals, habits and character; education and training; literature and art; politics, war and social problems and, finally, humor. A characteristic of the book is the complete fearlessness with which the writer comments on such varied questions as Spanish politics, his liking for England, women's clothes, science, social hypocrisy, matrimony, beauty, and newspaper ethics, the remarks being enlivened by a droll and caustic wit. American readers will be specially interested in knowing that Cajal when he visited this country was impressed by the facts that no idle girls exhibit themselves at house windows; that there are no coffeehouses where loafers might waste their time; that crowds are not so curious as in Europe, and that students and young men in general do not bother women in the streets. Cajal also vouches for the authenticity of a conversation in which a very rich "Yankee" gentleman attributed his bachelor condition to the sexlessness of American women. Altogether this book is a refreshing, virile piece of work by a great thinker who also possesses in no mean degree the art of expression.

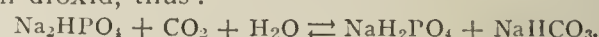
ON THE FORMATION OF THE HYDROCHLORIC ACID IN THE GASTRIC TUBULES OF THE VERTEBRATE STOMACH. By J. B. Collip, M.A., Ph.D. University of Toronto Studies, Physiological Series, No. 35. Price, \$1.50. Pp. 46, with 12 illustrations. Toronto: University of Toronto, 1920.

The author's own investigation of the subject is preceded by an excellent historical summary of the various attempts to elucidate the problem. The remaining half of the article deals with the microchemical methods of study which the author used for the detection of chlorids, phosphates and potassium in the gastric mucous membrane of the resting and actively secreting stomach of mammals (dog, cat, rabbit), birds (hen), reptiles (turtle) and amphibia (frog) as well as with the results obtained. The author finds that phosphates and carbonates but not chlorids are very abundant in

the cytoplasm of the parietal cells of the gastric tubules of the resting mammalian stomach. Chlorids, together with the constituents mentioned above, are quite abundant in the parietal cells of the active stomach. A similar distribution of these substances is present in the proventricles of the hen and fundus region of the turtle and the frog. The findings, therefore, support the theory of Maly (1878) that the hydrochloric acid is formed by interaction in the cell of sodium dihydrogen phosphate and sodium chlorid as follows:



the latter being promptly converted into the acid phosphate by carbon dioxide, thus:



The bicarbonate must then be removed rapidly from the cell by the blood stream lest its presence terminate the reaction and prevent the further formation of hydrochloric acid. The author leaves unexplained the absence of chlorids in the mucous membrane of the resting stomach as well as the mechanism which leads the cell to direct the acid it forms in one direction and the alkaline salts resulting therefrom in another.

DIABETES MELLITUS. A System of Diets. With List of Diets in Pad Form (50 Sheets in a Pad). No. 1—Starch-Free Diet; Qualitative List; No. 2—Minimal Fat, Starch-Free, Measured Diet; No. 3—Minimal Fat, Starch-Free, Weighed Diet; No. 4—Low Fat, Starch-Free, Measured Diet; No. 5—Low Fat, Starch-Free, Weighed Diet; No. 6—Accessory Diet, Rich in Carbohydrates. By Herman O. Mosenthal, M.D., Assistant Professor of Medicine, New York Post-Graduate Hospital and Medical School. Paper. Price, \$6.50. New York: Paul B. Hoeber, 1921.

The arrangement of a proper diet for diabetes has always been the *bête noire* of physicians. As a result, the patients have suffered from the improper arrangement of diets except when under observation in a hospital equipped with a diet kitchen under control of a trained dietitian. Only too frequently is a leaf torn out of one of the booklets furnished by proprietary medicine houses, and handed to the patient. This difficulty has been met by a series of diet lists, arranged fifty on a pad for distribution to patients suffering from diabetes, and accompanied by an explanatory booklet. The object of these diet lists is to "allow any patient or nurse without special training in dietetics to carry out the proper rationing of cases of diabetes mellitus." There are six lists: a qualitative starch free diet; a minimal fat, starch free, measured diet; a low fat, starch free, measured diet; a minimal fat, starch free weighed diet; a low fat, starch free, weighed diet, and an accessory diet rich in carbohydrate. The last named list allows patients able to utilize a considerable amount of starch, to add to or vary his list from time to time. The other lists give a complete menu for a whole day, of diets varying from 500 to 2,000 calories a day. On one side of the page is the menu, on the other a list of foods which are referred to by numerals and letters, from which a choice of the diet can be made. These diet lists are printed on good paper, are easily deciphered, and should prove to be of particular aid to the physician who sees only an occasional case of diabetes mellitus.

ANXIETY HYSTERIA. Modern Views on Some Neuroses. By C. H. L. Rixon, M.D., M.R.C.S., Senior Neurologist, Ministry of Pensions' Neurological Hospital, and D. Matthew, M.C., M.B., Ch.B., Neurologist, Ministry of Pensions' Neurological Hospital, Exeter. With a Foreword by Col. Sir A. Lisle Webb, K.B.E., C.B., C.M.G., Director-General of Medical Services, Ministry of Pensions. Boards. Price, \$1.50. Pp. 124, with illustrations. New York: Paul B. Hoeber, 1921.

During the war, under the urge of the instinct of self-preservation, fear brought about symptoms of much the same nature as had been seen in civilian or industrial neuroses of prewar days. The external causes and the motives, fearsome, terrible environment and escape therefrom, were so obvious during the war that it was impossible for the physician to blind himself to them. It may be that the work of the psychoanalytic school, insisting on the teleological nature of the neuroses, had prepared the medical mind for a rational point of view. At any rate, the conflict of this instinct and fear with self-esteem is simply, clearly and convincingly presented by the authors. Therapeutic results are used to aid in arriving at an understanding of the mechanism of cause in a legitimate manner. The diagrams used are interesting. The cases cited are well condensed. The terminology is commendably simple, and controversy is avoided.

Social Medicine and Medical Economics

SOME PUBLIC HEALTH PROBLEMS
OF THE FAR EAST

RALPH W. MENDELSON, M.D.
Acting Principal Medical Officer, Royal Siamese Government
BANGKOK, SIAM

I first arrived in the Far East in 1916, endowed with an amount of physical and mental energy, if not the capacity, to tackle and overcome, in my opinion, the most difficult of public health problems. But my few years' experience has taught me the folly of applying, or attempting to apply, radical Western methods to conservative Eastern peoples. Although early impressions were at first disheartening, preterition but



Fig. 1.—One of the many canals that run through the city, subject to the effects of a tidal river, so that at least once a day it is only a streak of mud.

confirms one's former lack of appreciation and insufficiencies, and not the shortcomings of the people.

Siam is one of the few remaining monarchies absolute in character, and, as such, is an excellent example of what an Eastern people will of its own accord attempt in the way of public health. Strictly speaking, Bangkok, the capital, repre-



Fig. 2.—Result of filling in an old canal. This is gradually being done throughout the city. It speaks for itself.

sents the country. Especially is this the case regarding new lines of endeavor. We may, therefore, in order to limit our view, consider some of the public health work that is done in this city of more than 600,000 cosmopolitan Asiatics, and its

immediate provinces. In order further to limit our survey, let us consider two or three of the more important epidemic diseases: plague, cholera and smallpox. To consider briefly each one will suffice to interpret the title of this article.

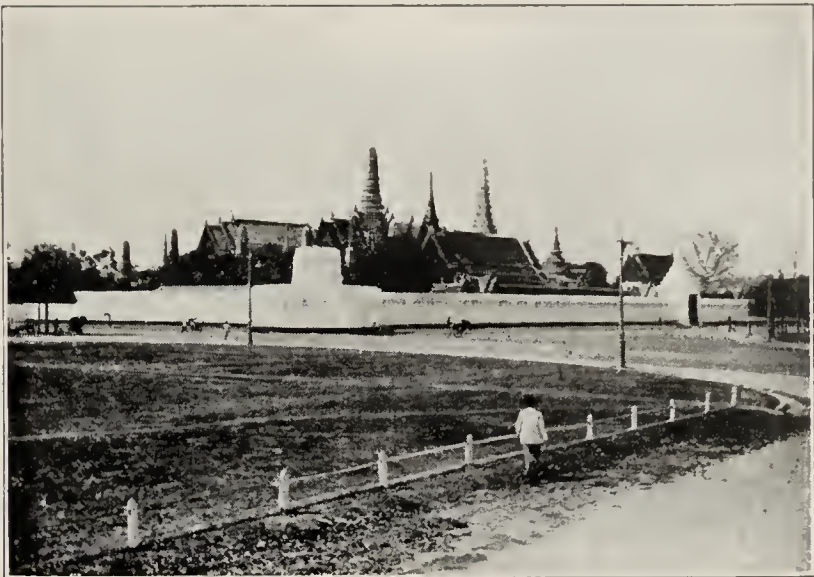


Fig. 3.—Old palace grounds, with ancient, insanitary buildings — artistic, but hardly the most suitable.

PLAGUE

Plague is an endemic disease of the country. First recognized in 1904, there have been, to date, 1,722 cases reported to the office of the medical officer of health. Beginning in December of each year, it gradually increases until the end of March, when it is epidemic. The exact reason for this seasonal incidence is not determined. It has been reported



Fig. 4.—Modern throne hall. Strictly up to date from every point of view.

from other countries, as India, that when the atmospheric temperature falls below 80 F. and the humidity is high, plague is liable to increase. Similar local conditions tend to confirm this observation. Hot and dry temperatures have a deleterious effect on the bacilli in the stomach of the flea; above 85 F. they tend to disappear rapidly and markedly to lose their virulence. Also high temperatures have a tendency to restrain the adult flea from laying eggs and to inhibit the larvae from developing.

Another interesting local condition, during the months in which plague is at its height, concerns the harvest of the rice crop. During February, March and April, there is great activity in gathering the paddy and shipping it to the city to be disposed of. The actual gathering of the crop has a disturbing influence on the rodent population, and when it is completed, there is nothing for the rats to eat, so that they

migrate in great numbers to the cities, thus enormously increasing the already huge rat family to be found in any Eastern community.

Here, then, we have two important epidemic contributing factors that cannot be controlled. What are some of the



Fig. 5.—A sanitary problem in the Chinese district.

others? In the absence of a building law that provides for rat proofing, the sanitarian is certainly greatly handicapped. But from the illustrations it will be seen that the people are gradually building houses that are rat proof. Practically every new building, whether private or for business purposes, is being constructed of ferroconcrete throughout, so that eventually, when we find it opportune to enforce a model building law,



Fig. 6.—Street view, showing part of the old city wall, ramshackle dwellings on right, and, in the distance, modern buildings of ferroconcrete.

opposition will not be insuperable. In this connection it may be mentioned that since buildings are being constructed of ferroconcrete, fire is the medical officer's greatest asset. We do not, of course, advocate burning down entire cities in order to reconstruct them on a rat-proof basis; but when a local fire consumes ancient, rat-infested, wooden habitations, although the immediate effects on the comparatively few people living in these plague nests may be distressing, the ultimate good resulting certainly outweighs the temporary inconvenience incurred. We know of entire streets, destroyed recently by fire, now reconstructed in concrete.

THE RAT PROBLEM

As to the killing of rats, it may be merely mentioned at the outset that the Buddhist religion does not recognize the right to take, or officially sanction the taking of, animal life. As a result, great success does not attend rat-exterminating campaigns. Cage traps are absolutely of no use, as the rats are allowed to escape as soon as discovered by the householder. But even here we are making a slow progress, the result of constant educational efforts. Where in the past less than a

hundred rats a year were examined in the laboratory, the last year has seen the number increased to nearly 4,000.

Considering the average standard of education, I do not think the opposition to inoculation and vaccination for the prevention of epidemic diseases is much greater than one finds in more enlightened countries. At any rate, the reason, and the main one, given in order to escape being immunized is a sound one (and as much cannot always be said of the objections one meets in Western countries), namely, that it hurts.

One other important line of defense that it is impossible to enforce is the removal of rat food. It is quite beyond human endeavor to accomplish a great deal in that respect until the people are willing to accept the rat is the distributor



Fig. 7.—Harvest time, when, incidentally, the rats are chased from the fields into the cities.

of plague. At present it is needless to say that they do not accept that fact, and a long continuous campaign of education is needed to make them see the light. At first one is inclined to lose patience with these simple folk when they seemingly refuse to recognize plain truths so forcibly demonstrated, and in many instances, in such personal and tragic ways; but when



Fig. 8.—Milling rice in the interior. In Bangkok, modern methods are used.

one stops to realize that in America we find many thousands of the most enlightened, generally speaking, refusing to accept the germ theory of disease, we should not expect too much of a people just breaking through the darkness.

CHOLERA

It is hardly necessary to review the history of cholera except to say that previous to the installation of the modern waterworks in the city of Bangkok the disease was considered endemic. The waterworks system was completed in November, 1914, and cholera was not reported again until the beginning of the last epidemic that started in the interior of Siam in the month of February, 1918. This epidemic illustrates the many difficulties one should but cannot overcome, in an effort to control a food and water borne disease. The disease was not notified to the medical officer until the end of March, 1919, and at that time only deaths were notified. In December, cases also were notified.

Some of the things one cannot do in order to control an alimentary disease, such as cholera, are these:

A satisfactory disposal of all excreta, especially in the provinces, is beyond one's wildest imagination. In the first place, human excrement is used all over the Far East as a fertilizer. It has been used for that purpose for hundreds of years, and no doubt its use will be continued for many years to come. Within the sanitary area of the city of Bangkok, the bucket system of disposal is still used for many plausible reasons. The excreta are buried, and not used for fertilizer, but to



Fig. 9.—Canal at low tide. Ancient, ramshackle houses, which are being gradually replaced by substantial structures.

control absolutely this system would tax the ingenuity of one far cleverer than any I have met. Can any sane person picture subjecting the excreta of more than 8,000,000 human beings

EFFECT OF A PURE WATER SUPPLY

EAST SIDE OF RIVER, PURE WATER					
Population	Cases	Morbidity per Thousand	Deaths	Case Mortality Per Cent.	Absolute Mortality per Thousand
603,126	829	1.376	483	58.26	0.800
WEST SIDE					
Population	Cases	Morbidity per Thousand	Deaths	Case Mortality Per Cent.	Absolute Mortality per Thousand
72,610	684	9.42	360	52.63	4.958
TOTAL					
Population	Cases	Morbidity per Thousand	Deaths	Case Mortality Per Cent.	Absolute Mortality per Thousand
675,736	1,513	2.239	843	55.71	1.247

to any sort of process that will control its disease-spreading qualities while not affecting its fertilizing properties? The only way to control such a proposition is by education, and it is a long process. I do not say that it cannot be done.

As for a pure food and water supply, you can lead a horse to water, but you cannot make him drink, and that applies literally to the lower classes. Bangkok is supplied with a very fine water, and has been for several years; but even today there are thousands of people who much prefer using the



Fig. 10.—Canal in Chinese district, filled in and ready for final layer of top earth.

dirty water from the canals because it has, as is justly claimed, "body and taste," and, in many cases, a considerable odor. A modern method of screening against flies and other disease-carrying insects is to be hoped for in the distant future; it is not for today.

The effect of a pure water supply is beautifully illustrated in the accompanying table. The east side of the river that runs through the city is supplied with pure water; the west side is not so supplied.

A food supply can be pure under either of two conditions: It must be absolutely controlled or, if not controlled or if only partially so, the public must voluntarily assist by following all instructions and obeying all regulations. To talk about controlling the food supply of a city in the Far East is as sensible as asking questions of the ouija board. It cannot be done to the extent that it will produce any results.



Fig. 11.—Modern type of "apartment house" being erected in Bangkok; ferroconcrete throughout. Note the permanent plague board on telegraph pole, written in both Siamese and Chinese.

A successful quarantine is possible only with military assistance; and although it can be secured, it is doubtful whether, under local conditions, it is at all advisable to try to make use of it to a great extent.

Vaccination, if a one-dose vaccine such as the Strong vaccine is used, is of course one of the principal assets in combating an

epidemic of cholera. But, as stated before, it is almost impossible to induce the people to submit to a two-dose preparation and, unless one can completely immunize, it is a serious mistake to practice half-way measures.

SMALLPOX

Smallpox is mentioned not so much to illustrate the difficulties as to illustrate the control that has been secured. In the past the disease has caused the death of untold thousands every year. During the last four years the average number of cases reported from Bangkok and its immediate vicinity has been only 13 a year. Vaccination has been making rapid progress, and the average number taking advantage of the vaccinating squads is nearly 80,000 a year for the last four years. The people do not have the same prejudice to smallpox vaccination that they have to other immunizing preparations. This is no doubt the result of constant educational effort on the part of the vaccinators, and the happy results obtained. Human nature is the same all over the world, and any mother would rather have a clear-skinned, healthy looking offspring than one more or less disfigured, cosmetically speaking.

CONCLUSIONS

In the absence of virtually all knowledge of the laws of hygiene, personal and public, it is a wonder that these people are alive at all. The fact that they are, and that they seemingly thrive, the death rate being consistently lower than the birth rate in face of the enormous mortality, is proof in itself of the great natural resistance the people possess.

In combating disease the health officer must take advantage of the foregoing fact, in view of the limited artificial resistance he can institute.

Education, though slow, is the only sure way of producing permanent results. Force is productive only of hostility. The health officer should practice a wise conservatism. Radical preventive methods cannot be applied, and the sooner the health officer appreciates this fact, the less disappointing will his results be.

The Alcohol Test Meal.—The experiences since 1914 with the alcohol test meal in Ehrman's service are reviewed in the *Deutsche medizinische Wochenschrift* 47:43, 1921. The patient is given, fasting, 300 c.c. of a 5 per cent. solution of alcohol, and the stomach contents are aspirated thirty minutes later. The findings are very instructive in the clear fluid thus obtained, especially if the evening beforehand charcoal, barium or carmin is given. The microscopic study of the stomach contents is easiest with this alcohol test meal, and although the chyme and stratification are lacking, yet it is surprising how much can be learned without them.

Medicolegal

Suits by Physicians Under Compensation Acts

(*Beach v. Gendler* (Minn.), 182 N. W. R. 607)

The Supreme Court of Minnesota says, in reversing a judgment obtained by the plaintiff, a physician, that some workmen's compensation statutes like those of California and New York make provisions for liens to physicians on the compensation adjudged, and specify how to secure them. In other states the law prescribes the different ways in which the one furnishing the injured employee with medical necessities

may assert his claim against the employer. Under the Pennsylvania law, which imposes the duty on the employer to furnish medical treatment at whatever cost for the first fourteen days after the accident, the court has held that where the injured employee was taken to the plaintiff for treatment with the defendant's consent the plaintiff had a cause of action against the defendant on an implied contract. But the workmen's compensation act of Minnesota in force in 1917 did not give to a physician or surgeon who furnished medical treatment to an injured employee a right of action for the value thereof against an employer who had not requested or consented to the furnishing of the treatment by such physician or surgeon. Nor in any event can an employer be held liable for such treatment, in the absence of a finding that he either consented thereto or that he refused or was unable to furnish needed treatment. Moreover, even where liability to suit conceded, it could not be maintained if brought after the time specified in the act. In this case the treatment was rendered in December, 1917, and this action was brought in August, 1919, which was clearly too late. Besides, the law as it stood when this injury occurred, afforded a remedy only in one proceeding and that to be instituted by the injured employee alone, if living, or by his dependents if death resulted. It surely was not contemplated

that after a judgment for compensation, including medical expenses, has been entered and paid, the employer is still to be held liable at the suit of the different parties who may have furnished the employee medical treatment on his request and not at the instance of the employer.

History Given Physicians Viewed as Evidence

(*Valentine et al. v. Weaver* (Ky.), 228 S. W. R. 1036)

The Court of Appeals of Kentucky says that, under the rule in that state touching the competency of medical testimony in detailing conversations had with patients as to the cause of an injury, it is competent for the patient to furnish the physician with a history of the case in order that the physician might be enabled to render a proper diagnosis, and



Fig. 12.—A view in the Chinese district proper. Attention is directed to the permanent cholera board on the telegraph pole. These plague and cholera boards set forth the dangers of these two most important diseases, and simple precautions to be taken against them.

to intelligently treat the patient. It is presumed that under such circumstances the party suffering will truly state how he was affected; otherwise the physician might be at a loss as to the remedies and treatment needful to his condition. So, in these proceedings under the workmen's compensation act, in which an employee got a splinter in his finger and died a week later of septicemia as a result of the injury, the testimony of the physicians that he stuck a splinter in his finger and the time when this happened was competent, but it was not competent to state where this accident happened. In other words, it is proper to show the how and then the when, but not the where, of the accident, i. e., the manner and time are competent, but not the place.

Society Proceedings

COMING MEETINGS

American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Southern Surgical Association, Pinchurst, N. C., Dec. 13-15.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia September, 1921, 162, No. 3

- *Diagnosis and Clinical Manifestations of Cardiospasm Associated with Diffuse Dilatation of Esophagus. F. Smithies, Chicago.—p. 313.
- *Spleen and Digestion: I. Spleen and Gastric Secretion. W. DeP. Inlow, Rochester, Minn.—p. 325.
- Eventration of Diaphragm; Report of Case. E. H. Funk and W. F. Manges, Philadelphia.—p. 348.
- *Relative Value of Laboratory and Clinical Methods of Study in Diagnosis of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 352.
- *Pseudo-Rubella. T. S. Westcott, Philadelphia.—p. 367.
- *Classification of Râles: A Plea for Simplification. J. B. Guthrie, New Orleans.—p. 372.
- *Diagnosis of Primary Lung Tumors. A. S. Blumgarten, New York.—p. 376.
- Intubation and Visualization of Duodenum in Suspected Lesions of Pylorus, Duodenum and Gallbladder. I. O. Palefski, New York.—p. 385.
- *Treatment of Empyema with Gentian Violet. R. H. Major, Detroit.—p. 397.
- *Advantage of Serum Therapy as Shown by Comparison of Various Methods of Treatment of Anthrax. J. C. Regan, New York.—p. 406.
- Recurrent Adenomyoma of Uterus. H. G. Kuehner, Pittsburgh.—p. 424.

Cardiospasm with Dilatation of Esophagus.—Seventy-six cases of cardiospasm associated with diffuse dilatation of the esophagus are analyzed by Smithies. The ailment seems to be relatively common in those individuals who are very active, physically and mentally. Ailments previous to the onset of cardiospasm, with a few exceptions, appear to have little bearing with regard to causing the affection. In but seventeen instances the affection with the associated dysphagia was acute in its inception. In thirty cases the affection appeared gradually and was not infrequently punctuated by attacks of exaggerated distress. Dysphagia is not commonly painful. It is of diagnostic significance that liquid foods are more prone immediately to bring about distress than are solids. There was constant dysphagia in forty-five of Smithies' cases. There was dysphagia to fluids only in twenty-one, to solids only in fourteen and to all foods in twelve cases. Dysphagia is nearly always accompanied by vomiting or spasmodic food regurgitation so long as esoph-

ageal muscle tone remains good. The roentgen-ray examination is of great aid in diagnosis but the evidence which it supplies is not infallible. If the affection is properly managed, there is clinical and functional recovery in about 70 per cent. of even well established instances of cardiospasm. Improvement occurs in 20 per cent. About 10 per cent. of the patients are not permanently benefited by any form of treatment at the most expert hands. The lesion seemingly resists all forms of therapy.

Spleen in Digestion.—The study made by Inlow approaches the rôle of the spleen in digestion from the viewpoint of its relationship to the stomach, especially the effect of splenectomy on gastric secretion. Healthy dogs were used. Inlow reports the gastric secretion findings before and after splenectomy on three dogs with accessory stomach pouches (secretory meal of meat) and on two similar dogs serving as controls. Removal of the spleen in these experiments caused no noteworthy changes in gastric secretion, except a slight diminution in the quantity of gastric juice obtained. The author concludes from his experimental inquiries and a critical review of the literature that a definite pepsinogenic function of the spleen has not been demonstrated, and that the relation of the spleen to gastric secretion is probably merely vascular, the diminution in the amount of juice secreted after splenectomy being attributable to decreased gastric blood supply from injury to the gastrosplenic circulation.

Laboratory Versus Clinical Diagnosis.—Pottenger asserts with emphasis that no laboratory method alone or no combination of laboratory methods will ever give the clinician a knowledge equal to that which comes from observing and analyzing the patient.

Pseudo-Rubella.—In the series of cases forming the basis of Westcott's study the invasion has lasted invariably three full days or somewhat longer from the onset of fever to the first appearance of the rash and the rapid decline of temperature. There has been cough, no suffusion or congestion of the conjunctivae, no coryza or other catarrhal symptoms, no angina, no enanthem. While the rash of rubella is rose tinted in color, of a distinctly brighter hue than the darker red of true measles, the enanthem in the cases of this series was paler, less rosy and even in several instances with a slightly violaceous tint. It was less liable to coalesce into larger areas especially where folds of the cutaneous surfaces occur, and was therefore more discrete, and spread more slowly to lower parts of the body. It had little or no elevation above the surface, and in no case presented an appearance simulating that of the scarlatiniform type of rubella. Allowing for the long intervals of time between the individual case observed, it has seemed that the rash has faded more rapidly and has left less pigmentation than does rubella. Desquamation has been observed in none of the cases. Enlargement of postcervical lymph glands, fever, and a rash are the only symptoms common to true rubella, pseudo-rubella and the "fourth disease" Westcott is convinced that the symptom-complex observed by him constitutes a hitherto undescribed mild infection, noncontagious, or only feebly contagious, to which young infants are peculiarly susceptible and older children not at all or only rarely liable.

Classification of Râles.—Guthrie advocates classifying râles in two categories: (1) vesicular or crepitant râles; (2) tube or mucous râles.

Diagnosis of Primary Lung Tumors.—When a lung condition cannot be recognized definitely Blumgarten urges that an exploratory thoracotomy be performed whenever there is a reasonable suspicion of a primary tumor of the lung.

Treatment of Empyema with Gentian Violet.—Major discusses the results obtained in treating empyema cases, by repeated aspirations and intrapleural instillations of gentian violet. The procedure was as follows: The chest was aspirated by means of a Potain aspirating outfit, the fluid withdrawn and 100 c.c. of an aqueous solution of gentian violet introduced into the chest through the aspirating needle by means of a Luer syringe. This solution was allowed to remain until the next aspiration. At first a dilution of 1:10,000 was used, followed later by dilutions of 1:5,000 and 1:1,000. Later in the series the first instillations were used

in the strength of 1:5,000, followed rapidly by an increase in strength of 1:1,000. Twenty-seven patients were treated in this way. Of this number fourteen were cured; eight were not cured by this procedure but later came to operation; five died, three of pneumonia present on admission and persisting during treatment, while one patient died of peritonitis having its origin in a diphtheritic enteritis with ulcer formation and perforation of the intestine. The most valuable indication that a patient is responding to treatment is a lowering of temperature immediately following aspiration, which persists and gradually reaches normal. A diminution of micro-organisms or a frequent absence of them in the aspirated fluid is a favorable sign, but only when there is a temperature response to aspiration. Patients who failed to show such reactions to treatment in from fifteen to twenty days did not recover by this method. If the aspirations and instillations are not effectual within this time surgical intervention is indicated.

Treatment of Anthrax.—The measures of local therapy of anthrax in common use Regan says should be abandoned, owing to the disadvantages or even dangers they possess. These disadvantages include scarring and disfigurement, pain, danger of secondary infection being introduced, liability of spreading the disease locally or into the circulation, prolongation of convalescence and, but most important of all, their lack of any specific effect on the course of the malady and their uselessness when the pustule is voluminous and when a septicemia has originated. The pustule is best left to its own evolution rather than to employ the more radical measures, owing to their tendency to disseminate and generalize the local disease, while the palliative measures exert their effect entirely too superficially for any direct curative value. The value, both prophylactic and curative, of anti-anthrax serum must now be regarded as established by statistics. Its well-nigh specific nature in the therapy of the disease must be recognized. The mortality from malignant pustule will be reduced to a minimum by prompt recognition and early serum treatment. No case of anthrax septicemia should be considered beyond hope until intensive serum therapy has failed. The local injection of anthrax serum into the pustule is apparently the most effective means of local therapy and should always be used as a supplementary measure to the general administration of serum.

American Journal of Obstetrics and Gynecology, St. Louis

September, 1921, 2, No. 3

Fads and Fancies of Obstetrics. A Comment on Pseudoscientific Trend of Modern Obstetrics. R. W. Holmes, Chicago.—p. 225.

Forced Labor; Its Stauts in Obstetric Teaching. J. O. Polak, Brooklyn.—p. 237.

*Drudgery of Obstetrics and Its Effect on Practice of Art; Suggestions for Relief. B. M. Anspach, Philadelphia.—p. 245.

*Basal Metabolism in Pregnancy and Puerperium. J. L. Baer, Chicago.—p. 249.

*Comparison by Statistical Methods of Certain External Pelvic Measurements of French and American Women. F. L. Adair, Minneapolis.—p. 256.

Acute Malignant Endocarditis Complicating Pregnancy. P. Findley, Omaha.—p. 278.

*Incidence of Pulmonary Embolism and Thrombosis Following Hysterectomy for Myoma Uteri. L. K. P. Farrar, New York.—p. 286.

Conduct of Obstetrics.—While the almost general and universal use of hospitals for obstetric cases has infinitely lessened the drudgery of obstetrics, Anspach says much is still to be desired in the direction of securing close cooperation between the obstetric intern and the practicing obstetrician. The obstetric intern should not only be permitted, but should actually be trained to examine the women in labor under his care. Indeed, before she enters the hospital, the patient should be made to understand that the practicing obstetrician will call into cooperation with him, the obstetric intern. During pregnancy the obstetrician should be careful to write a full history and make complete and regular notes of visits and examinations, including the results of pelvimetry, the diagnosis of position, etc., which should be sent to the hospital as soon as the patient goes into labor. These notes, with perhaps a telephone conversation, will give the obstetric intern the information he requires. As a result, he

will be better able to look after the patient during the early stages, and will summon the obstetrician when he is needed. In the larger maternity hospitals fresh attendants may be provided throughout labor by a shifting staff of anesthetist, two nurses, and an obstetric intern, every eight or twelve hours.

Basal Metabolism in Pregnancy.—The basal metabolic rate in forty-four normal cases in late pregnancy was determined by Baer. It averaged from 33 to 35 per cent. above the normal for nonpregnant women of a surface area equal to the pregnant woman. Three days after delivery the average basal metabolic rate was only 15 per cent. above normal. From seven to ten days postpartum the average basal metabolic rate was approximately normal. Death of the fetus in late pregnancy was detectable in a woman otherwise normal by a drop in the basal metabolic rate compared with the average in this series. Baer believes that it is justifiable to conclude that the increased basal metabolic rate in late pregnancy is due to involution of the uterus and the onset of lactation. Twin pregnancy should show a rate above the average for single pregnancy when both twins are well developed. Thyroid enlargement may occur in pregnancy without increasing the basal metabolic rate above the averages obtained in this series. Differential diagnosis between uterine tumor and pregnancy will not be helped unless greater refinements in method show increased rates much earlier than in this series. The roentgen ray can be called on as early as the fifth month and with reasonable certainty in the sixth month.

External Pelvic Measurements.—There are apparently definite pelvic differences, not only in different races, but in different nationalities. Adair discusses his observations made on nearly 350 French women and 320 American women. French and American pelvis show the same general external form. The French pelvis are in the main slightly smaller than the American. The average external measurements of the French are uniformly smaller than the American. The range of variations of external measurements is generally somewhat greater in the French than in the American. The standard deviation is about the same for the French and the American pelvis, some measurements showing slightly more in the American, others a slightly greater deviation in the French. The coefficient of variability is quite low and is about the same for both groups. The correlation of the different measurements is definitely lower in the American than in the French pelvis. The same measurements, however, show about the same order of correlation in both series, the lowest correlation being between the external conjugate and the interspinous, and the highest between the interspinous and the intercrural. Adair feels that the value of external pelvimetry may be increased by better methods of statistical study.

Ectopic Pregnancy.—In a study which was based on operative or necropsy observations, (1) unruptured cases with but slight hemorrhage into the decidua were noted by Polak thirty-nine times. (2) Tubal abortion, or where there was separation of the ovum from its decidua bed by bleeding into the decidua, was recorded in 199 cases. (3) Actual tubal rupture occurred but sixty-one times. In eighteen instances this rupture was into the peritoneum with varying amount of intra-abdominal hemorrhage, into the broad ligament with the formation of varying sized hematoma forty-three times. The location of the ectopic gestation sac was in the ampulla and free portion, in 203 cases; in the isthmic portion of the tube, in seventy-nine cases; in the interstitial portion of the tube, in six cases; in the stump of a previously amputated tube, three cases and in an angulation of the tube caused by a previous Gilliam or Baldy-Webster operation in eight cases. Blood was noted in the abdominal cavity in all, whether the tube was ruptured or unruptured. The mortality was as follows: One on the table from hemorrhage; one two hours following the operation from shock and hemorrhage; five from peritonitis.

Pulmonary Embolism in Myoma Uteri.—One hundred and thirty women were operated on by Farrar and a colleague for myoma uteri. All ward patients having large fibroids necessitating removal were kept in bed from five to seven days previous to operation and no embolism or thrombosis

occurred in any case. In the private patients who were not kept in bed previous to the operation but usually operated on the day after entrance to the hospital, a fatal embolism occurred once and venous thrombosis six times with exactly the same technic employed for both class of cases except that the ward patients had been kept in bed previous to the operation. In the past year blood pressure was maintained by glucose and gum acacia given intravenously throughout a series of approximately 250 operations. The series included hysterectomies for myomata uteri and in no case in the whole series did embolism or thrombosis occur, while in other cases done by the same two operators without maintaining blood pressure of preliminary rest in bed, embolism or thrombosis occurred four times.

American Journal of Ophthalmology, Chicago

September, 1921, 4, No. 9

- Radium Plugs for Dissolution of Orbital Gliomatous Masses Developing After Excision of Globe. B. Chance, Philadelphia.—p. 641.
Electrically Tinted Optical Glass. S. L. Olsho, Philadelphia.—p. 644.
Protein in Tears and Innervation and Secretion of Lacrimal Gland. C. F. Charlton, Pasadena, Calif.—p. 647.
Senile Cataract Extraction. W. R. Parker, Detroit.—p. 650.
Hereditary Ptosis. T. J. Dimitry, New Orleans.—p. 655.
Surgical Treatment of Comitant and Paralytic Strabismus. J. M. Banister, Omaha.—p. 659.
Convenient and Accurate Measurement of Blind Spots and Scotomata. E. J. Brown, Minneapolis.—p. 665.
Treatment of Detached Retina. R. S. Lamb, Washington, D. C.—p. 668.
Voluntary Unilateral Nystagmus. J. M. Ball, St. Louis.—p. 673.
Diplopia with Lens Opacity. E. Jackson, Denver.—p. 673.
Circumscribed Ectasia of Cornea. G. N. Brazeau, Milwaukee.—p. 674.

American Journal of Roentgenology, New York

September, 1921, 8, No. 9

- Some Recent Advances Made in France on Technique of Roentgen Diagnosis of Diseases of Heart and Its Vascular Pedicle. G. Martinez, San Juan, Porto Rico.—p. 491.
*Tumors of Nerve Tissue in Relation to Treatment by Radiation. J. Ewing, New York.—p. 497.
Syphilis of Lungs, Its Radiographic Findings and Their Pathologic Basis. R. Golden, Boston.—p. 502.
Fractures of Pelvis. C. C. Grandy, Fort Wayne, Ind.—p. 511.
*Two Cases of Lymphatic Disease in Same Family, with Roentgen-Ray Findings. C. M. Richards, San Jose, Calif.—p. 514.
Gastrocolic Fistula, with Report of Case. L. B. Groeschel, New York.—p. 516.
*Roentgen-Ray Treatment of Eczema Group. F. J. Eichenlaub, Washington, D. C.—p. 520.
Present Status of Roentgen-Ray Therapeutics. G. W. Holmes, Boston.—p. 522.
Reduction of Radiographic Exposures to One Twenty-Fifth of Normal Amount by Means of "Impex" Roentgen-Ray Plate. L. Levy and T. T. Baker, London, Eng.—p. 528.
*Effect of Radium Emanation on Adult Mammalian Brain. H. J. Bagg, New York.—p. 536.

Radium Therapy of Brain Tumors.—Ewing states that with few exceptions, if a brain tumor is to be treated by radium, surgery should be used only to expose the tumor. A cordial cooperation and mutual understanding between surgeon and radiologist are essential if any success is to be achieved in this field.

Familial Lymphosarcoma.—Richards' patients were father and daughter. The daughter died from a lymphosarcoma of the left chest and the mediastinum five years before the father was seen. The father's lesions were situated in the chest and abdomen. An interesting feature in his case was the decided improvement in symptoms and in the blood picture, following oxygen injection into the peritoneal cavity. So much better did the patient feel that he insisted on a repetition of the procedure about a week later.

Roentgen-Ray Therapy of Eczema.—One hundred cases of eczema with an average duration of over two years took an average of two months and three treatments to cure. Four per cent. of the cases were failures. Eichenlaub believes that these cases demonstrated superiority of the roentgen ray over other forms of treatment.

Effect of Radium Emanation on Brain.—Bagg's experiments show that the application of heavily filtered radium emanation over the scalp may be considered a relatively safe procedure for the treatment of brain tumors. The burying of small doses of unfiltered radium emanation (mainly beta-ray radiation) is also suggested as a favorable method of treating such growths. The relatively sudden destruction

produced by comparatively large doses of unfiltered radium emanation makes this method unsafe for the treatment of brain tumors. Nervous tissue was markedly resistant to gamma-ray radiation. The changes in the brain following radiation were largely due to the destructive action of radium emanation on the blood vessels. There was a marked localized reaction, associated with a pronounced leukocytic infiltration, following the insertion of small doses of unfiltered radium emanation in the normal brain. These lesions were especially interesting, because of the absence of neurologic symptoms. In the case of a monkey that received a strong dose of heavily filtered radium emanation over the brain, there was no subsequent loss of previously established motor habits.

American Review of Tuberculosis, Baltimore

September, 1921, 5, No. 7

- *Effects of Limiting Respiratory Excursions of Upper Thorax in Refractory Cases of Pulmonary Tuberculosis. H. Scwall and S. Swezey, Denver.—p. 547.
*Spleen as an Approximate Index of Tuberculous Involvement After Subcutaneous Infection. O. B. Rensch and M. Moore, Denver.—p. 555.
*Influence of Carbon Dioxid on Resistance to Tuberculosis. H. J. Corper, H. Gauss and O. B. Rensch, Denver.—p. 562.
Roentgen-Ray Study of Progressive Changes in Lungs and Aorta in Tuberculosis with Syphilis. C. Floyd, H. K. Boutwell and R. L. Leonard, Boston.—p. 588.
Smallpox Vaccination and Pulmonary Tuberculosis. W. C. Klotz and F. B. Stafford, Charlottesville, Va.—p. 595.
Purulent Effusions Complicating Artificial Pneumothorax. L. S. Peters, Albuquerque, N. Mex.—p. 599.
Rôle of International Union in Combating Tuberculosis. G. E. Bushnell.—p. 602.

Limiting Respiratory Excursions in Pulmonary Tuberculosis.—The distribution of toxins from a diseased pulmonary focus will be brought to its minimum by inhibiting motion of the part. Broadly speaking, pulmonary tuberculosis is a disease of the upper part of the lungs, its intensity being concentrated between the hilum and the extreme apex. The deduction is obvious to Sewall and Swezey that respiratory motion could be inhibited in, say, the first four ribs, it would be possible without seriously impairing the vital capacity of the chest, so restrict the motion of the principal areas of pulmonary disease that distribution of the toxins therefrom would be greatly reduced. The authors have used this method for the reduction of toxemia only in such patients as still showed fever or toxic symptoms after prolonged bed rest, such as would usually fit the subjects for active exercise. The first experiments were made by encircling the chest, for a width of about 3 inches, with overlapping strips of adhesive plaster, applied while the patient held his breath in expiration, the upper level of the strips reaching high into the axillae. The adhesive plaster was applied not directly to the skin, but over a light bandage. Injury to the axillary folds was avoided by local padding with absorbent cotton. Later it was considered preferable to substitute for the plaster simple belts made of dressmakers' belting, known to the trade as "herringbone belting." Strips of this material, from 3 to 3½ inches wide, were cut long enough to overlap about 5 inches when encircling the chest. To one end of the belt three buckles were stitched; and corresponding strips of webbing, such as is used in suspender garter straps, were sewn to the belt about 5 inches from the other end. The belt was held in place by a narrow shoulder strap running through loops, one at the back and two in front, on the belt and fastened, like the latter, by a buckle. In practically all cases, the belt in time was worn continuously without complaint. In two of the eighteen cases, no essential change in the clinical condition could be detected as a result of the treatment. Eight patients somewhat more than held their own during treatment, and these are recorded as "improved." Four patients were "much improved." One patient was "very much improved." It was a common experience to witness a sharp rise in the temperature curve on the day when the belt was removed and a subsidence of the fever when the pressure was resumed.

Spleen as Index of Tuberculous Involvement.—Rensch and Moore did some experimental work on guinea-pigs which showed that the macroscopic tuberculous involvement of guinea-pigs, infected subcutaneously in the groin with human

bacilli, follows a definite organ sequence which is related to the time interval as was pointed out by Krause, and can be correlated fairly well with the dose of bacilli used for infection. In the course of the infection and when the spleen begins to show tuberculous changes, this organ can be used as a fairly approximate gage of the general or total tuberculous involvement of the guinea-pig, especially when studies are being made in which are included a reasonably large series of animals.

Carbon Dioxid Inhibits Growth of Tubercle Bacillus.—Corper and his associates have observed that 3 per cent. carbon dioxid causes some inhibition of the growth of the tubercle bacillus in the test tube and that 15 per cent. is tuberculocidal. Tubercle bacilli will not grow in a carbon dioxid-free atmosphere. Cultures of tubercle bacilli buried in the tissues of animals and permitted to acquire the carbon dioxid concentration of the body are definitely inhibited in their growth, while other cultures similarly buried, except that ingress of atmospheric air is permitted, show no inhibition. When viable tubercle bacilli are placed in a closed system, their growth becomes inhibited as the carbon dioxid which the organisms elaborate approaches a concentration of approximately 5.5 per cent.; at which concentration respiration of these micro-organisms is also reduced to a minimum. The significant feature of this study with the tubercle bacillus is that the concentration sufficient to inhibit definitely its growth, namely 5.5 per cent., occurs normally in the human body; and the experiments conducted both in the test tube and in the animal body indicate that this concentration actually does inhibit the growth of the tubercle bacillus. It appears, therefore, that this factor is extremely significant in the rôle of resistance to tuberculous infection and the subsequent development of the disease in the body; further that the normal body apparently possesses, by virtue of containing sufficient carbon dioxid, the ability to inhibit the growth of the tubercle bacillus.

Annals of Surgery, Philadelphia

September, 1921, 74, No. 3

- Making of a Surgeon. J. B. Roberts, Philadelphia.—p. 257.
 *Carcinoma of Thoracic Esophagus: Extrapleural Resection and Plastic. H. Lilienthal, New York.—p. 259.
 Certain Problems Concerning Fractures of Bone. C. L. Scudder, Boston.—p. 280.
 *Value of Various Methods of Bone Grafting Judged by 1,390 Reported Cases. C. A. McWilliams, New York.—p. 286.
 Old Os Calcis Fractures; Report of Cases. F. J. Cotton, Boston.—p. 294.
 Influence of Physical Therapy in Reducing Disability Time in Fractures of Long Bones. J. M. Wainwright, Scranton, Pa.—p. 304.
 *Operation for Cure of Aneurysm. A. MacLaren, St. Paul.—p. 306.
 *Ligation (Partial Occlusion) of Abdominal Aorta for Aneurysm. G. T. Vaughan, Washington, D. C.—p. 308.
 Note on Treatment of Secondary Hemorrhage from Branches of Common Carotid Artery. V. P. Blair, St. Louis.—p. 313.
 Causation and Avoidance of Cerebral Disturbances in Ligation of Common Carotid Artery. L. Freeman, Denver.—p. 316.
 Surgical Aspect of Tumor of Brain. M. F. Porter, Ft. Wayne, Ind.—p. 321.
 Surgical Approach to Sphenopalatine Ganglion. C. H. Frazier, Philadelphia.—p. 328.
 Atrophy and Inactivity of Parotid Gland, Following Operative Obliteration of Stenson's Duct, in Carcinoma of Cheek. F. L. Hupp, Wheeling, W. Va.—p. 331.
 Analysis of 102 Cases of Tumors of Breast. R. Winslow, Baltimore.—p. 341.
 Diaphragmatic Hernia; Thoracic Approach. P. E. Truesdale, Fall River, Mass.—p. 347.
 Pernicious Anemia with Special Reference to Spleen and Large Intestine. W. J. Mayo, Rochester, Minn.—p. 355.
 Secondary Complications of Posterior Gastroenterostomy. E. A. Vander Veer, Albany, N. Y.—p. 360.
 Typical Fibromyoma of Abdominal Wall Following Hysterectomy. G. E. Brewer, New York.—p. 364.
 So-Called Congenital Dislocation of Shoulder Posterior Subluxation. A. S. Taylor, New York.—p. 368.
 Standardized Results of Wound Healing. C. L. Gibson, New York.—p. 376.
 Surgical Removal of Pancreatic Stones; Report of Cases. W. E. Sistrunk, Rochester, Minn.—p. 380.

Operation for Carcinoma of Esophagus.—Lilienthal reports a case of carcinoma of the thoracic esophagus in which he approached the esophagus from behind entering the thorax to the left of the spinal column and without invading the pleural cavity. The operation is described in detail. It is Lilienthal's first completed operation of extrapleural resec-

tion of the esophagus without gastrectomy, and he believes it is the first in medical history.

Bone Grafting Methods Compared.—Among the 390 cases of bone grafting reviewed by McWilliams there were 1,145 successes, or 82.3 per cent.; with periosteum, 1,170 cases: successes, 970, or 82.9 per cent.; without periosteum, 196 cases: successes, 162, or 82.6 per cent.; suppuration in 121 cases, or 8 per cent.: successes, 32 per cent.; bone pegs, successes, 95.8 per cent.; osteoperiosteal, 426 cases: successes, 372, or 87.3 per cent.; end-to-end (without inlying), 166 cases: successes, 137, or 82.5 per cent.; with periosteum, successes, 72.9 per cent.; without periosteum, successes, 90.2 per cent.; inlay, 540 cases: successes, 437, or 80.9 per cent.; with periosteum, successes, 80.1 per cent.; without periosteum, successes, 89.1 per cent.; intramedullary graft, successes, 76.6 per cent.; with periosteum, success, 83.5 per cent.; without periosteum, success, 70.3 per cent.; combined intramedullary (one end) with inlay (other end), success, 60 per cent. The conclusion is reached that the most successful method of bone grafting is by the osteoperiosteal method (Delagenière). The bony defect should be filled in with small bone chips, and on one or two aspects, overlapping the ends of the fragments, covering in the bone chips, should be placed one or two strips of periosteum with adherent, osseous plaques, taken from another bone. This method is as applicable to large as to small bony defects. The cause of many nonsuccesses is defective immobilization, or undue curtailment of its duration. There is sufficient evidence to prove that the most effectual treatment of nonunion of fractures is bone grafting. McWilliams states that the intramedullary method of grafting should be discarded.

Aneurysm of Femoral Artery.—MacLaren cites a case of unusually large fusiform traumatic aneurysm of the femoral artery in which the obliterative aneurismorrhaphy of Matas was the operation performed successfully.

Partial Ligation of Abdominal Aorta for Aneurysm.—In five of the twenty cases mentioned by Vaughan, including his own, there was no ulceration, and in none of the five was there complete occlusion of the lumen of the aorta, and these were the only patients, excepting Keen's, who lived long enough to give any expectation of complete recovery from the operation. Tillaux' patient lived thirty-nine days, Halsted's two patients lived forty-one and forty-seven days, respectively, Hamann's patient lived six months and two days, and Vaughan's patient is still living and working, one year and four months after operation. He gave a history of syphilis. The aneurysm, about 1½ inches in diameter, seemed of the saccular type and sprang from the left side of the aorta behind the pancreas about opposite the origin of the superior mesenteric artery. The peritoneum was opened, the aorta exposed and a piece of cotton tape ½ inch wide was carried around the vessel about 2 inches above its bifurcation and just below the origin of the inferior mesenteric artery. Two turns of one end of the tape made the surgeon's or friction knot, which was drawn gradually tighter and tighter until pulsation was no longer perceptible in the iliacs and barely so in the aorta below the ligature; then the knot was completed, the ends of the tape cut off and the abdomen closed. Nothing unusual was noticed afterward, such as increased blood pressure and pains in the lower extremities, when the patient recovered from the anesthetic. The next day his condition was satisfactory. There was no pain or paralysis of the legs; the color was good and the temperature was normal. Pulse was distinctly felt in the left foot but none in the right; both were equally warm and comfortable. A slight blowing sound could be heard by the stethoscope over the left external iliac, but none over the right. Pulsation was faintly perceptible in the left iliac but absent in the right. Recovery from the operation was normal, but the patient was kept in bed most of the time for two months, and potassium iodid was given. After four months he returned to his work as a bricklayer. When the last examination was made, one year and twenty-one days after the operation, everything seemed satisfactory. The patient was working hard and looking well. No aneurysmal pulsation could be felt but a soft whining note ending in a rough note below could still be heard in the region of the aneurysm and the aorta just below.

A faint pulsation could be felt in the left iliac and dorsalis pedis, none in the right iliac or vessels below, yet the two feet were normal in color, temperature and sensation.

Journal of Experimental Medicine, Baltimore

Oct. 1, 1921, 34, No. 4

- Multiplication of Fibroblasts in Vitro. A. Carrel and A. H. Ebeling, New York.—p. 317.
Cicatization of Wounds. XI. Latent Period. A. Carrel and P. L. du Nouy, New York.—p. 339.
Diastatic Activity of Blood in Experimental Hyperglycemia. H. T. Karsner, H. L. Koechert and S. A. Wahl, Cleveland.—p. 349.
*Typhus Fever Among Recent Immigrants. P. K. Olitsky, New York.—p. 365.
Experimental Studies on Inflammation. I. Influence of Chemicals on Chemotaxis of Leukocytes in Vitro. E. P. Wolf.—p. 375.
Wandering Cells, Endothelial Cells, and Fibroblasts in Cultures from Human Lymph Nodes. W. H. Lewis and L. T. Webster, Baltimore.—p. 397.
*Influence of Thyroid Products on Production of Myocardial Necrosis. E. W. Goodpasture, Boston.—p. 407.

Typhus Among Immigrants.—It was experimentally demonstrated by Olitsky in the guinea-pig that the blood from an infected Czechoslovakian arriving at the Port of New York from Italy contained the virus of typhus fever and that this strain was identical with the epidemic virus present in man and louse in Poland.

Influence of Thyroid Secretion on Myocardium.—In a recent study of hearts from cases of hyperthyroidism in which death was caused by myocardial exhaustion, Goodpasture found acute necrosis of cardiac muscle, in one instance so diffuse as to involve a large part of the left ventricular wall. The character of necrosis was that usually associated with extreme intoxication by acute infections such as diphtheria or scarlet fever, and more commonly occurring in youth. There was no indication of an infection of sufficient virulence to be alone responsible for the necrosis. Hence, a study was undertaken to determine, first, what demonstrable effect feeding desiccated thyroid gland, or intravenous administration of crystalline thyroxin would produce in the myocardium; second, whether the effect of these substances would cause the heart to be more readily injured by toxic agents, notably chloroform. Animals under such treatment showed characteristic clinical symptoms with definite, although relatively slight, myocardial lesions. Similarly treated animals which had in addition, been subjected to chloroform anesthesia showed more striking, widespread myocardial necrosis. These experiments indicate that chloroform as an anesthetic in cases of hyperthyroidism is apt to be exceptionally detrimental to the myocardium, and should be avoided.

Journal of Infectious Diseases, Chicago

October, 1921, 29, No. 4

- Constricted Tube with Mechanical Seal for Anaerobic Fermentation Tests. I. C. Hall, Berkeley, Calif.—p. 317.
Criteria in Anaerobic Fermentation Tests. I. C. Hall, Berkeley, Calif.—p. 321.
Use of B. Welchii in Preparation of Sugar-Free Culture Medium. S. B. Randall and I. C. Hall, Berkeley, Calif.—p. 344.
*Comparison of Formol and Wassermann Reactions in Diagnosis of Syphilis. E. E. Ecker, Cleveland.—p. 359.
*Thermal Death Point of Spores of Bacillus Botulinus in Canned Foods. H. Weiss, Boston.—p. 362.
*Effects of Diet on Intestinal Flora. P. R. Cannon, Chicago.—p. 369.
Virulent Treponema Pallidum Recovered from a Stillborn Infant After Twenty-Six Hours. S. R. Haythorn and G. R. Lacy, Pittsburgh.—p. 386.
Advantages of Culture Mediums Containing Small Percentages of Agar. A. P. Hitchens.—p. 390.
*Effect of Diphtheria Toxin on Blood and Hemopoietic Organs of Rabbits. M. S. Tongs.—p. 408.
*Experimental Study of Saline and Lipoid Typhoid Vaccines in Respect to Antigenic and Immunizing Value. J. N. Gay, Berkeley, Calif.—p. 417.
*Method for Detection of Phenols Produced by Bacteria. W. H. Bell, Cincinnati.—p. 424.
*Experimental Measles in Rabbits and Monkeys. M. Nevin and F. R. Bittman, New York.—p. 429.

Comparison of Formol and Wassermann Reactions.—The formol reaction of Gate and Papacostas was applied by Ecker in a series of 500 comparative tests in which the Wassermann reaction was carried out by the icebox method with three different antigens, namely, syphilitic fetal liver, normal human and beef heart antigens. Of the total number of positive reactions obtained by the formol method only 37.09 per cent. agreed with the positive results obtained by

the Wassermann method. A large number of formol positives, forty-four, were of the + type, and of these thirteen were positive by the Wassermann method. The reaction as it stands therefore is of no diagnostic value because of its failure to react in clinically and serologically clear cut cases of syphilis and the occurrence of positive reaction in the absence of the disease.

Thermal Death Point of B. Botulinus Spores.—The thermal death point of the spores of *B. botulinus* in the juices of thirty-six varieties of canned food on the American market has been determined by Weiss. The thermal death point varies with the hydrogen-ion concentration of the particular food in question. The thermal death point also depends on the consistency of the particular food, the more fluid products requiring a shorter period of exposure at a given temperature than the less fluid ones. The thermal death point is also influenced by the presence and concentration of syrup. The heavier the syrup, the longer the period of exposure required at any one temperature.

Effect of Diet on Intestinal Flora.—Certain methods for ascertaining the relative proportions of groups of bacteria of the intestinal tract are described by Cannon particularly in studying the hydrogen-sulphid-producing organisms and the spore-producing anaerobes. By the use of these methods essentially the same results as those of Kendall, Rettger et al and Torrey have been obtained. In two experiments with human adults extending over a period of ten days a diet composed of bread, milk and lactose markedly encouraged the development of the aciduric organisms, and in one experiment of the same time period a diet high in vegetable protein led to a predominant aciduric flora with the elimination of anaerobic spores.

Effect of Diphtheria Toxin on Blood.—Tongs' experiments showed that diphtheria toxin is destructive to the leukocytes in vivo as well as in vitro. Antitoxin in a proper portion is able to neutralize these destructive effects.

Lipovaccines.—Gay shows that animals vaccinated with lipovaccine, whose serums show no agglutinin content, are nearly as well protected against becoming carriers as those vaccinated with saline vaccine whose serums show high agglutinin content. Even in the latter animals, the agglutinin content varies in degree inversely with the protection afforded. Therefore, the agglutinin titer is certainly not a measure of protection.

Detection of Phenols Produced by Bacteria.—The method proposed by Bell is dependent on the formation of an azo dyestuff, brought about by the reaction of a diazotized aromatic amine and a phenol in alkaline solution. The formation of such a colored compound affords an extremely sensitive method for the detection of minute quantities of phenol.

Experimental Measles in Animals.—Blood from six patients with measles was inoculated by Nevin and Bittman into rabbits. The animals gave evidence of infection. Passage from one human case of measles was carried on through five rabbits, and a monkey inoculated with the blood of the fifth rabbit gave typical symptoms of measles. A monkey inoculated with pooled blood from two human cases of measles taken on the third day after the onset of the disease gave the characteristic symptoms of measles. Blood from cases other than measles when inoculated into rabbits failed to give evidence of infection.

Journal of Orthopedic Surgery, Lincoln, Neb.

September, 1921, 3, No. 9

- *Arthroplasty. V. Putti, Bologna, Italy.—p. 421.
*Arthroplasty of Knee; Report of Cases. W. C. Campbell, Memphis, Tenn.—p. 430.
Report of Commission on Stabilizing Operations on Foot. Part I. A. G. Cook, Hartford, Conn.—p. 437.
Id. Part II. W. G. Stern, Cleveland.—p. 444.
Teaching of Orthopedic Surgery. N. Allison, St. Louis.—p. 448.
Low Grade Infections of Vertebral Bodies, Probably Staphylococcal. F. C. Kidner, Detroit.—p. 459.
Avulsion or Fracture of Lesser Trochanter. C. F. Eikenbary, Spokane, Wash.—p. 464.
*Dysostosis Cleidocranialis. M. Jansen, Leyden, Holland.—p. 468.

Arthroplasty.—After an experience of more than ten years Putti is convinced that arthroplasty is an interference worthy

of the greatest faith and destined to assure a real, functional advantage to the patient, but it is not a treatment to be lightly proposed or undertaken. It requires a vast experience in the choice of cases, a mastery of surgical technic and a complete knowledge of physiotherapeutic methods. Some of Putti's patients operated on for arthroplasty of knee and elbow have been declared capable of military service and have taken part in the war. The secret of the success in arthroplasty lies in the right choice of cases, in the technical precision of the operation and in the accuracy of the postoperative treatment. Putti always uses free aponeurotic flaps for interposing material. The incision should be made in such a manner as to permit a complete exposure of the joint, without, however, injuring those parts which preside over its mobility and steadiness. In the resection, it is necessary to give to the epiphysis a shape appropriate to its function, taking off, however, enough bone to create a wide inter-articular space which permits an ample movement without pressure. Between the surfaces there must be a distance of not less than an inch. The reconstruction of the joint must be carried out according to anatomic principles and with the greatest accuracy. The stability of the new joint greatly depends on the way in which the reconstruction has been performed. Putti never uses drainage.

Arthroplasty of Knee.—Twenty-four cases are analyzed by Campbell. In ten the fascial flap transplant was used. In one, forty degrees of motion was obtained; in two, thirty degrees of motion; in one, sufficient time has not elapsed to make final report. In the remaining six, ankylosis recurred. In nine, Baer's chromicized pig bladder was interposed. In four, the membrane, apparently of inferior quality, was extruded. In one, practically perfect motion resulted; the knee could be flexed to an acute angle with full, strong extension and no instability; in one, seventy degrees free motion; two were sequels of osteomyelitis, with dense, low grade bone, and success could not be expected with any form of treatment. In two, free fascia lata was transplanted from the opposite thigh; both were absolute failures, one was infected. Of three, in which the prepatellar bursa was employed, one has fifteen degrees flexion with voluntary extension, one has twenty degrees flexion with voluntary extension, one is too recent to report progress. In not one of these cases can the final report be considered. Sufficient time (one to two years) has elapsed in twenty. In four of these, faulty material (Baer's membrane of one lot) caused failure, three were in dense, low grade bone following osteomyelitis, making seven which should not be recorded as failures, consequently only thirteen can be considered, nine of which obtained definite voluntary motion; four are not sufficient to be of material value, but encouraging from the standpoint of experimental physiology; in five, satisfactory motion is present. Campbell says the action of interposed fascia is doubtful. More attention should be given to reconstructing a perfect mechanical joint and less to material interposed.

Dysostosis Cleidocranialis.—The two symptoms to which dysostosis cleidocranialis owes its name are the enlargement of the large fontanel and the pseudo-arthritis or absence of parts (or the whole) of the collarbones. Besides these two symptoms, Jansen has found two others, in seven cases belonging to three families not mutually related: (1) Shortening of the toes. The middle phalanges are too short and the terminal phalanges lack their widened ends, which look as though they had been nibbled off. (2) Bilateral flattening of the chest. By applying certain stated rules in the comparison of children of the same parents, it is found that pedatroph, athrepsy, "rachitis," exaggerated height of persons outgrowing their strength constitute a descending series of phenomena of feebleness of growth.

Pennsylvania Medical Journal, Harrisburg.

September, 1921, 24, No. 12

- Treatment of Tabes. G. J. Wright, Pittsburgh.—p. 863.
Some Mistaken Ideas Concerning Apoplexy. C. S. Potts, Philadelphia.—p. 867.
Case of Infantile Rickets. D. H. Boyd, Pittsburgh.—p. 870.
Use of Paraffin and Wax in Ear and Nose Surgery. T. M. Stahlman, Pittsburgh.—p. 875.
Lenticulus. G. W. Mackenzie, Philadelphia.—p. 877.

- Pharyngeal Tonsil; Important Considerations in Its Treatment. C. M. Harris, Johnstown.—p. 884.
Occupational Outbreaks of Skin Including Novocaine Eruptions. F. C. Knowles and E. F. Corson, Philadelphia.—p. 887.

Public Health Journal, Toronto

September, 1921, 12, No. 9

- Essential Factors in a Campaign Against Venereal Diseases. G. Bates, Toronto.—p. 385.
Relation of Child Labor to Child Health. A. B. Chandler, Montreal.—p. 397.

Southern Medical Journal, Birmingham, Ala.

October, 1921, 14, No. 10

- Diagnostic Pitfalls in Gastrointestinal Diseases. A. L. Levin, New Orleans.—p. 755.
Nonsurgical Drainage of Gallbladder. C. G. Lucas, Louisville.—p. 759.
*Fresh Air Treatment for Southern Babies. L. W. Elias, Asheville, N. C.—p. 761.
Breast Fed Babies Who Cry at Night. E. Rosamond, Memphis.—p. 768.
Nutrition Class: Its Value to the Pediatrician. F. H. Richardson, Brooklyn.—p. 774.
Symptomatology of Communicable Diseases of Childhood. O. H. Wilson, Nashville.—p. 781.
Reduction of Mortality Through Free Distribution of Diphtheria Antitoxin. J. A. Hayne, Columbia, S. C.—p. 785.
Treatment of Communicable Diseases of Childhood. W. W. Butterworth, New Orleans.—p. 787.
Prophylaxis of Communicable Diseases of Childhood. J. Thames, Little Rock, Ark.—p. 789.
Roentgen-Ray Control of Uterine Bleeding. T. A. Groover, Washington, D. C.—p. 79.
Roentgenotherapy. R. H. Pepper, Huntington, W. Va.—p. 801.
Some Rare Orthopedic Diseases and Their Diagnosis by Roentgen-Ray Examination. W. R. Bethea, Memphis.—p. 808.
Borderline Cases in Orthopedic Surgery. E. D. McBride, Oklahoma City.—p. 811.
Cautery Punch for Removal of Minor Obstructions at Vesical Neck with New Method of Anesthesia. J. R. Caulk, St. Louis.—p. 816.
Roentgen-Ray Revelation in Fractures: A Case in Practice. T. F. Lockwood, Butler, Mo.—p. 819.
Seriousness of Syphilis to Railroads and Their Employees. J. P. Bowdoin, Adairsville, Ga.—p. 823.
Passing of Amputation Specialist. W. R. McKinley, Columbus, Miss.—p. 827.
Future of Specialism in Medicine. F. P. Lewis, Buffalo.—p. 830.

Open Air Treatment of Infants.—Elias urges that sick babies and children be given more fresh air. He says that if babies were put out of doors, it would do away with "institutionalism." Instead of discussing how many cubic feet of dead air space each baby should be allotted, why not put it out of doors and banish the poor little hospital athreptic? Putting a baby out of doors will give it a better appetite, secure a greater gain in weight, allay nervousness and improve sleep. The tendency to respiratory infection is largely done away with. The body forces for fighting infection are improved, a sick baby's chances of getting well are increased, a well baby's chances of getting sick are diminished. Tuberculosis, pneumonia, bronchitis, colds, etc., are house diseases. Individuals living out of doors are not subject to them. The ideal is cool air in motion. Put the baby out of doors the year round, sick or well. In summer with as little clothing as possible and with an electric fan play a breeze on it. In winter, put on more underclothes and employ such other measures as are necessary to keep him warm. He should not be overdressed, but he should be comfortable. He will rapidly tolerate the cold with less and less wraps. In a word, put him out of doors, keep him reasonably comfortable, by any means desired, and look on draughts in the light of a benediction.

Tennessee State Medical Association Journal, Nashville

September, 1921, 14, No. 2

- Roentgen-Ray Diagnosis of Gallstones and Gallbladder Diseases. W. O. Floyd, Nashville.—p. 163.
Clinical and Surgical Study of Forty Cases of Cholecystitis. O. S. Warr, Memphis.—p. 168.
Gallbladder Surgery. C. P. Fox, Greeneville.—p. 170.
Surgery of Gallbladder. J. A. Crisler.—p. 172.
Common Errors in Diagnosis. H. Wood, Nashville.—p. 182.
Pyothorax. C. Collier, Memphis.—p. 188.

West Virginia Medical Journal, Huntington

August, 1921, 16, No. 2

- Problem of Late Syphilis. W. E. Vest, Huntington.—p. 61.
Cerebrospinal Meningitis: Its Treatment. M. I. Mendeloff, Charleston.—p. 66.

Wisconsin Medical Journal, Milwaukee

September, 1921, 20, No. 4

- Some Contributions of Young Men to Medicin. M. McCarty, La Crosse.—p. 161.
Peripheral Nerve Injuries in Civil Life. D. Lewis, Chicago.—p. 169.
Selection of Operation in Toxic Goiter. S. J. Seeger, Milwaukee.—p. 175.
Relationship Between Pathology and Symptomatology of Goiter. E. V. Smith, Fond du Lac.—p. 179.
Resume of Ocular Manifestations in Pregnancy. N. M. Black, Milwaukee.—p. 181.
Refraction of School Children. J. Bellin, Green Bay.—p. 184.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

August, 1921, No. 253

- Roentgen-Ray Treatment of Two Cases of Otosclerosis. J. H. D. Webster.—p. 69.
Case of Large Penetrating Ulcer of Lesser Curvature. F. Hernaman-Johnson.—p. 75.
Some Effects of Radiotherapy on Fibrous Tissue. R. A. Morrell.—p. 78.
Calcifying Chondroma; Congenital Bone Syphilis; Periostitis. W. Overend and T. D. Overend.—p. 82.
Treatment by Roentgen-Ray and Radium, with Special Reference to Value of These Agents. R. Knox.—p. 86.

Journal of Laryngology and Otology, Edinburgh

September, 1921, 36, No. 9

- Operations on Frontal Sinus. W. G. Howarth.—p. 417.
Plastic Laryngeal Operation for Vocal Cord Paresis in Horse. F. Hobday.—p. 422.
*Bronchoscopy in Treatment of Asthma. W. S. Syme.—p. 427.
Tonsillar Hemorrhage. J. L. Aymard.—p. 429.
Asthma and Anaphylaxis. C. McNeil.—p. 431.

Bronchoscopy and Silver Nitrate in Asthma.—Twenty-three patients, aged from 10 to 60, have been treated by Syme by the application of a 10 per cent. silver nitrate solution on the mucous membrane of the bronchioles through a bronchoscope. Eighteen have had the application of silver nitrate solution on one occasion only, four on two, and one on four occasions. In twelve the benefit has been so decided that no spasmodic attacks of a severity sufficient to discommode the patient to any serious degree have occurred. Two have derived no benefit. The others report improvement of varying degrees. In nearly all of these cases other methods of treatment had been tried ineffectively.

Lancet, London

Sept. 24, 1921, 2, No. 13

- Respiratory Efficiency in Relation to Health and Disease. M. Flack.—p. 637.
Value of Apparatus and Technic in Medical Research. A. Wright.—p. 642.
*Experimental Study of Prophylactic Inoculation Against Scarlet Fever. I. Takahashi.—p. 645.
Roentgen-Ray Treatment of Two Cases of Otosclerosis. J. H. D. Webster.—p. 647.
Studies from St. Andrews Institute of Clinical Research. III. A Scheme for Investigation of Disease in Childhood. A. Rowand.—p. 650.
*Case of Poisoning by Cantharidin. C. H. Andrewes.—p. 654.

Experimental Inoculation Against Scarlet Fever.—The experiments reported on by Takahashi show that prophylactic inoculation against scarlet fever with the blood of a patient, taken before the eruption appears and given subcutaneously in an amount of 0.0001 c.c., causes not only no local or general symptoms in man, but protects him from infection. Even an injection given fifty days after inoculation with the blood, and smearing the children's throats with the mixture described above, 115 days after inoculation, did not give rise to the disease.

Poisoning by Cantharidin.—A medical student tasted, out of misplaced curiosity, some crystals of cantharidin; no unpleasant taste was noticed. He stated that he took as much as would go on a pin's head—almost certainly at least one-fiftieth grain. As tincture of cantharides contains only 0.01 per cent. of cantharidin, this would be the equivalent of about 220 minims of tincture of cantharides, or over forty times the

maximum pharmacopeial dose. Shortly afterward the patient had tea, including some bread and butter. Three hours later symptoms of poisoning persisted for thirteen days.

Tropical Medicine and Hygiene, London

Sept. 15, 1921, 24, No. 18

- Value of Mutual Cooperation Between Human and Veterinary Medicine. F. Hobday.—p. 241.
*Three Schistosomes in Natal Which Possibly Attack Man. F. G. Cawston.—p. 242.
*Intestinal Worms. V. S. Hodson.—p. 244.

Schistosomes in Urine.—Microscopic examination made by Cawston of the fresh-water snails that infest certain pools where children bathe disclosed a heavy prolarval stage of *Schistosoma haematobium* and a smaller number with *S. mansoni*. Experiments at Durban have resulted in the development of *S. haematobium* and *S. bovis*; but examination of the urine of the boys who bathed in these pools revealed the presence of ova resembling those of all three parasites. The ova of *S. mansoni* is not commonly found in the urine, but occurred in both the feces and urine of one boy who contracted the disease along with *S. haematobium* through bathing in pools. In examining the centrifugalized deposit of urine passed by this child Cawston found very numerous ova containing active miracidia, some of which had already escaped in the undiluted urine.

Intestinal Worms.—Hodson cites the case of a man, aged 35, who gave a history of abdominal pain for two months with great increase for three days. Hodson opened the abdomen, and found a large collection of pus between the intestines and the pelvic organs. No cause could be located. After a considerable time, during which the wound discharged particularly evil-smelling pus in considerable quantity, two sections of a *T. saginata* appeared on the dressings, so male fern was given, and a large mass of *T. saginata* was passed per rectum. The wound healed in a few days.

Tubercle, London

September, 1921, 2, No. 12

- *Theory and Practice of Specific Treatment of Pulmonary Tuberculosis. K. Fischel.—p. 529.
*Prognostic Value of Weisz's Urochromogen Reaction in Pulmonary Tuberculosis. D. Bonnert.—p. 537.
*Case of Pneumoconiosis. E. Grahn.—p. 542.

Reasons for Failure of Tuberculin Therapy.—While convinced that tuberculin when given at an early stage is one of the best and most efficacious weapons against tuberculosis, both for prophylactic and therapeutic purposes, Fischel admits that tuberculin has not wholly satisfied the hopes cherished. This proposition is discussed fully as to the theory and methods of administration of tuberculin, the preparation to be used and how it should be used. He urges specially that the diagnosis of tuberculosis be made earlier than is now the case. Based on clinical symptoms or pathologico-anatomic findings, the diagnosis of tuberculosis is always too late. Hitherto the primary and secondary stages of tubercle have been neglected. Clinicians have been content to wait till the infecting bacilli have gone beyond the first site of deposit and the circulating blood, causing destructive processes in the lungs or other organs. To hold tuberculosis in check, one must always keep in contact with infection. To increase resistance means to weaken the attacking force. Therefore, the aim of therapeutic efforts and the prescription for specific treatment is to improve immunity.

Value of Weisz' Urochromogen Reaction in Tuberculosis.—Ehrlich's diazo reaction and Weisz' urochromogen reaction in cases of pulmonary tuberculosis have been compared in 1,000 cases of pulmonary tuberculosis in different stages in Gullbring's clinic and Bonnert reports on the findings. In 850 cases both reactions were negative, in 108 both were positive. Thus complete agreement appeared in 958 cases, i. e., in 95.8 per cent. in cases of amyloid degeneration in twenty cases out of thirty-six both reactions were positive at the same time, in thirteen cases the urochromogen reaction appeared one month before the diazo reaction. In three cases they were both constantly negative. Thus Weisz' reaction is a useful substitute for the diazo reaction, of great value especially for the practitioner on account of its simplicity and cheapness. The urochromogen reaction (or permanganate

reaction, as it is also called) is performed in the following way: In a test tube about 5 c.c. of urine are diluted with water to treble the original volume. Well mixed, the contents are then divided equally in two test tubes of the same diameter. To one of them one drop of a 1:1,000 solution of potassium permanganate is added. The other tube serves as a control. If the reaction is positive, a canary yellow color of varying intensity, which keeps stable for hours, is obtained after shaking. If the reaction is negative, no change of color appears, or only a yellow or brown color of short duration (from half to one minute). Thus the test ought not to be read off until after one minute.

Pneumoconiosis.—Clinically Grahn's case seemed to be one of advanced tuberculosis, and it was chiefly the appearance of the expectoration and the lack of tubercle bacilli in the latter as well as the limited distribution of the râles that caused him to doubt the existence of tuberculosis. The patient's general health prevented roentgenologic examination.

Archives de Médecine des Enfants, Paris

September, 1921, 24, No. 9

*Tuberculous Meningitis and Syphilis. V. Hutinel and P. Merklen.—p. 521.

Mode of Obliteration of Ductus Arteriosus. Variot, Caillau and Brzezicki.—p. 537.

*Ventricular Origin of Meningitis. K. Lewkowicz.—p. 549. P. Woringer.—p. 553.

*Anaphylaxis to Breast Milk. C. H. Sztark.—p. 555.

*Decapsulation of Kidney in Chronic Nephritis. J. Comby.—p. 558.

Tuberculous Meningitis and Inherited Syphilis.—Hutinel and Merklen remark that when one has tuberculous meningitis, the fact that he has also inherited syphilis is comparatively unimportant for him. But it is extremely important for the attending physician. He has to guard against diagnosing tuberculous meningitis when the trouble is merely a meningeal reaction to inherited syphilis. On the other hand, he must not ascribe to the syphilis what is really a tuberculous meningitis. Lumbar puncture may be the only guide; a nearly normal fluid excludes the latter. With a purulent fluid, the predominance of polynuclears suggests acute pyogenic infection. Even when the onset and symptoms all point to tuberculous meningitis, including lymphocytosis in the spinal fluid, the disease may be thrown off finally, proving its nontuberculous nature. In fact, certainty is possible only when tubercle bacilli are found in the cerebrospinal fluid. Their article is based on twenty cases of actual tuberculous meningitis in children with inherited syphilis, and this experience warns to apply treatment as for syphilis in every case of tuberculous and other meningitis, as we never can categorically deny the possibility of unrecognized inherited syphilis. By neglecting this rule we may overlook and fail to cure some easily curable syphilitic reaction. Mercury inunctions are the main reliance. They have never ventured to give arsenicals in these dubious cases. The specific treatment has no appreciable action in true tuberculous meningitis. Children with inherited syphilis are candidates for tuberculous meningitis, and the danger is still greater with tuberculous lesions already installed elsewhere in bones, glands, etc. The nerve centers must be regarded as especially vulnerable in inherited syphilis, and they must be guarded with special care. When the children in a family die of meningitis, syphilis should be sought in the parents.

Meningococcus Meningitis.—Lewkowicz presents evidence that meningococcus infection occurs through the choroid plexus—the seat of the production of the cerebrospinal fluid—and thus it develops first in the ventricles, spreading thence into the subarachnoid space throughout. Woringer has recently reported two cases in which the communication between the ventricles and the subarachnoid space seems to have been blocked from the very first. The consequence of this was that the disease was limited to the ventricles, and the clinical picture differed from the usual type. Nothing but puncture of the ventricle explains such cases, and allows intraventricular injection of the antiserum. His two cases sustain Lewkowicz' assertions in regard to the inevitable primary ventriculitis as the first stage of meningitis.

Anaphylaxis to Breast Milk.—The infant and parents were healthy but the child had had diarrhea from the fourth day after birth onward, coming on each time, with colic, an hour after the breast feeding. When given other food it had no

diarrhea, but the fetid diarrhea followed each breast feeding. When the child was nearly 5 months old, Sztark injected into the abdominal wall 1 c.c. of the mother's milk, and three more injections of 2 c.c. each were given in the course of a month. This seemed to desensitize the child, and it had no further digestive disturbance. In a second case of the kind, a single injection of 5 c.c. of the mother's milk answered the purpose. Nothing but water was allowed for six hours after the injections. He adds that in cases of digestive disturbance in breast-fed infants, one or two injections of the mother's milk is the touchstone. He has never witnessed any harm result from the injections of milk in infants or adults (asthma, hysteria, tuberculosis).

Decapsulation of Kidney in Chronic Nephritis.—Comby remarks that fifteen years have elapsed since various writers published a total of eleven cases of chronic nephritis, in children, treated by decapsulation. He does not know of any other cases in children since until Fowler's recent report of two cases in children, and Simpson's four. Fraser has also reported four subacute cases. Comby reiterates that these recent experiences in Edinburgh are strong testimony in favor of decapsulation of the kidney in grave nephritis in children, and he urges others to follow the example of these Scotch confrères.

Journal de Radiologie et d'Electrologie, Paris

August, 1921, 5, No. 8

Production and Utilization of Secondary Rays. Cluzet and Kofman.—p. 337.

*Radiologic Exploration of the Carpus. F. Arcelin.—p. 349.

*Radiologic Signs of Internal Hernia. E. Kummer.—p. 362.

Fracture of Patella. A. Mouchet.—p. 365.

Traumatic Brachial Myosarcoma. Pelle and Chauvire.—p. 367.

*Pneumoperitoneum. Douarre.—p. 368.

The Reflex-Radiometer. J. Modrzewski.—p. 370.

Radiologic Exploration of the Carpus.—Arcelin's profusely illustrated study of trauma of the wrist shows that the physician and the roentgenologist, working together, can correct the deformity from injury of the carpus, but it may require considerable study and several attempts.

Radiologic Diagnosis of Internal Hernia.—Kummer's roentgenograms of normal conditions and of a case of internal duodenojejunal hernia allow the differential diagnosis at a glance.

Pneumoperitoneum.—Douarre relates two "incidents" in the course of pneumoperitoneum. In a case of hydronephrosis, 2 liters of atmospheric air were injected near the umbilicus, and the cannula was left in place for forty-five minutes afterward to aid in the escape of the air. But it lingered, and the meteorism only very slowly subsided. There was still some evidence of it three weeks later. In another case, as the patient was raised erect, a sharp pain was felt in both sides of the neck followed by emphysema with crepitation above the clavicles.

Journal d'Urologie, Paris

August, 1921, 12, No. 2

*Pathogenesis of Prostatic Hypertrophy. L. Strominger.—p. 81.

*Arsenicals in Treatment of Gonorrhea. Lévy-Weissmann.—p. 93.

*Phlegmon Fifteen Months After Contusion. A. Lavenant.—p. 101.

*Diathermy for Cystic Dilatation of Ureter. A. Giuliani.—p. 103.

Pathogenesis of Enlargement of the Prostate.—Strominger incriminates arteriosclerosis as a factor favoring disturbance in the prostate and proliferation of the suburethral glands until they reach the large size of the adenomyomas we have to resect in the hypertrophied prostate. He reiterates that the adenomyoma of the hypertrophied prostate has nothing to do with the prostate gland itself. The operation is not a prostatectomy but an adenomyomectomy, or it might be called an enucleation of the hypertrophy. This has more than a mechanical effect, he says, as the presence of the adenoma irritates the prostate, and its secreting function is modified. This tends to return to normal after the removal of the adenoma. The presence of the latter also irritates the bladder, directly or indirectly, and bladder functioning begins to return to normal after the operation. These facts impress the necessity for removal of the adenoma regardless of its size. He has now instituted experimental research seeking to confirm the toxic action on the bladder motor function from

the prostatic adenoma. He discusses further the connection between sexual functioning and arteriosclerosis, and states that he always found atrophy of the prostate in the Skoptzi he had occasion to examine, members of a religious sect that practices emasculation.

Arsenical Salts in Treatment of Gonorrhea.—Lévy-Weissmann ascribes to the modification of the soil the benefit in the six cases of gonorrhea reported in which he gave a course of arsenical treatment in addition to the usual measures. He gave about ten intramuscular injections of the arsenical, and states that the course of the disease was materially shortened.

Abdominal Contusion with Phlegmon Fifteen Months Later.—Lavenant explains the sequence as infection of an unabsorbed hematoma on the occasion of some transient bowel infection. This was responsible for the phlegmon that developed near the kidney fifteen months after the contusion.

Dilatation of Lower End of Ureter.—Giuliani relates that the intravesical cystic dilatation of the lower end of the ureter subsided under diathermia.

Presse Médicale, Paris

Sept. 7, 1921, 29, No. 72

*Bronchial Moniliasis in Egypt. N. Farah.—p. 713.

Scopolamin in Treatment of Parkinsonism. Paulian and Bagdasar.—p. 716.

Double Oscillometer Sphygmomanometer. Legrand and Auguste.—p. 716.

Bronchial Moniliasis.—Najib Farah found the monilia in 4 of 67 cases of chronic bronchitis in Egypt; the tubercle bacillus in 27, and the bronchial spirochete in 23; the streptococcus alone in one and the influenza bacilli in 2. The moniliasis cases generally presented the picture of an ordinary chronic tracheobronchitis, but in one case there was a succession of attacks resembling pneumonia, with paroxysms of coughing and hemoptysis, the whole fatal in two years and seven months. Notwithstanding the absence of tubercle bacilli and the presence of monilia in the sputum, some of the consultants persisted in the diagnosis of chronic fibrous tuberculosis. In the mild cases of moniliasis, potassium iodid may cure, but it has no or only transient action on the grave cases.

Sept. 14, 1921, 29, No. 74

*Aortic Lesions in Children. P. Nobécourt and G. de Toni.—p. 733.

*Glycemia in Exophthalmic Goiter. P. Sainton, E. Schulmann and J. Besançon.—p. 735.

The Surroundings of the Parotid Gland. P. Truffert.—p. 738.

Rheumatismal Aortic Endocarditis in Children.—Nobécourt and de Toni analyze 33 cases of endocarditis in children from their service during the last eight months. Acute articular rheumatism was responsible for 21 of the 33; scarlet fever or chorea in 4 each, and associated diseases in 4. In 39 per cent. of the 33 there was disease of the aortic valve, but in none of the scarlet fever or chorea cases. Both aortic and mitral disease were found in over half of the rheumatismal cases. With the aortic disturbances predominating and the mitral slight, the prognosis is comparatively benign; long tolerance may be anticipated under good hygiene. But with the mitral predominating, the future is graver as asystolia is a frequent eventuality. The deadening of the second sound at the base, characteristic of aortic endocarditis, is usually quite pronounced in children. In 4 of the 7 children with aortic endocarditis from recent rheumatism, there were no symptoms to call attention to the heart; only the physical signs revealed it. As the blood vessels in children are normal in comparison to those of adults, the symptoms of aortic insufficiency differ from those in adults, but there is usually bulging of the precordial area, and the heart beat is violent here, and the apex low and farther toward the axilla than common. Hypertrophy of the left ventricle was pronounced in the majority, and the whole heart was enlarged. The characteristic systolic murmur was sometimes accompanied by a diastolic murmur.

Glycemia with Exophthalmic Goiter.—Fifteen persons with exophthalmic goiter and several healthy controls and others with liver disease were examined for glycemia and glycosuria over considerable periods. The tables of the findings after test ingestion of sugar, injection of epinephrin or of thyroid or pituitary extract, fail to show any basis for the assumption of a thyroid diabetes. There was no hyperglycemia, no

glycosuria. The thyroid seems to be incapable of inducing glycemia or glycosuria, and when any tendency to either is found with hyperthyroidism, some other factors must be at work. When iodid treatment has been followed by improvement in such cases, it seems as if syphilis must have been a factor in the exophthalmic goiter.

Schweizerische medizinische Wochenschrift, Basel

Sept. 8, 1921, 51, No. 36

*Hay Test for Bile-Acids in Urine. H. Müller, Jr.—p. 821.

*Radium Treatment of Skin Cancer. G. Miescher and R. Guggenheim.—p. 825.

*Action on Respiration Center of Paralyzing and Stimulating Substances. F. Rohrer.—p. 829.

Lung Cavity Without Symptoms. M. Lüdin.—p. 830.

*Deviation of Complement in Tuberculosis. A. Grumbach.—p. 831.

So-Called Spontaneous Sudden Death. J. Thorner.—p. 833. Cont'd.

Urine Test for Bile-Acids.—Müller found the Hay test reliable even with only 1:40,000 bile-acids. Other constituents of the urine, with the exception of unusually abundant amino-acids and ordinary drugs, do not react to or modify the response to the test. The sublimed sulphur, scattered on the surface of the urine, floats, with normal urine, while it settles to the bottom in the presence of bile-acids, as the latter reduce the surface tension of the fluid containing them.

Radium Treatment of Skin Cancer.—This communication from the Zurich skin clinic relates that forty-five of forty-six superficial and papillary carcinomas of the rodent ulcer type healed completely and vanished under radium exposures. The cancers were on the lids in twelve, and the healing proceeded without injury to vision or the movements of the lids. No filter was used. Radium treatment is particularly useful for senile hyperkeratosis which melts away under it, while left untreated, it breeds cancer.

Action of Drugs on Respiration Center.—Rohrer reports research in this line on rabbits and guinea-pigs with respiration first depressed by morphin.

Deviation of Complement Test for Tuberculosis.—Grumbach has been studying at the Pasteur Institute at Paris the reaction of fixation with Besredka's new antigen in diagnosis of tuberculosis. This test is proving valuable in revealing cases in which bacteriologic examination is still negative. A positive reaction often precedes all other manifestations of tuberculosis. The findings with the intradermal auto-urine test invariably coincided with those of the deviation of complement test.

Chirurgia degli Organi di Movimento, Bologna

August, 1921, 5, No. 4

*Bone Grafting of Shafts and Joints. D. Fieschi.—p. 359.

*Callus and Nerve Injuries. F. Putzu.—p. 393.

*Fracture of Supernumerary Bone in Foot. A. Pirazzoli.—p. 405.

*Reconstruction of the Jaw. C. Cavina.—p. 417.

Grafts of Long Bones and Joints.—Fieschi reviews 277 bone grafting operations on the legs during the last twenty years, as published by various writers, in addition to his own experience and that of Putti. The patient's own tibia was used in 74 cases and an alien tibia in 18; own fibula in 109, and alien in 19; ivory or animal bone in 46, and a metal implant in 2. The outcome was often excellent when the patient's own fibula was used as a substitute after resection of a tumor in the humerus, ulna or radius. The outcome was not so favorable when the weight had to be borne on the implant, as when used to substitute the femur. The vitality of the implant was shown in certain cases by the healing of a fracture in it. When used to substitute the tibia, dependable results were obtained only with a pedunculated transplant. The upper femur can be effectually substituted with a similar bone from another subject, provided this bone had been amputated only a few hours before and been kept properly, not boiled, and not placed in the autoclave. The outcome has also been good when the knee was removed on account of tuberculosis or ankylosis and substituted by a recently amputated knee joint with capsule, menisci and ligaments.

Attempts to sterilize the bone to be implanted devitalize it, and it is cast off in scraps as a foreign body. This was shown impressively in a personal case described with the roentgenograms taken at intervals during forty months. The entire shaft of the ulna was replaced by an ulna taken from a pellagrin cadaver, and boiled for an hour and a half. The

implant healed perfectly in place, but in a few months sequestrum were cast off until by the end of the year there was scarcely a trace left of the implant. Its place has been taken by connective tissue, and the young woman can use her arm freely for light work, in sewing, etc. It is the left arm. He says that his fifteen illustrations serve as a warning against this technic: "Danger, Keep Out." Three other illustrations show the perfect healing in place of a hard rubber substitute for the entire upper humerus (Delbet), and this method seems promising, although in the case illustrated the patient did not long survive owing to extension of the malignant disease.

Formation of Callus After Fractures with Nerve Lesions.—Putzu was unable to find anything suggesting that lesions of trunk nerves have any influence on the formation of callus.

Fracture of the Tarsalia.—Pirazzoli describes a case of fracture of an accessory astragalus, os trigonum, and warns not to mistake a supernumerary bone of the kind for fracture of a normal bone.

Bone Implants for Reconstruction of Jaw.—Cavina reports seven cases in which the pseudarthrosis or extensive defect in the lower jaw was corrected by a transplant taken from the tibia or a piece cut from the jaw farther along and slipped back or forward to bridge the gap. The various steps of the two methods are shown in forty-one illustrations and the successful outcome is extolled.

Policlinico, Rome

Sept. 12, 1921, 28, No. 37

*Edema from Undernourishment. Michele Bolaffio.—p. 1227.
Colloidal Sulphur in Acute Rheumatism. F. Viola.—p. 1235.

Edema from Undernourishment.—Bolaffio as a prisoner of war in Germany gave medical attendance to the Italian prisoners of war in the Halle and Rastatt camps. During the fall and winter of 1917-1918 he encountered among them ten cases of edema plus polyuria and bradycardia, evidently from undernourishment. He compares these cases with what others have published on "starvation edema."

Brazil-Medico, Rio de Janeiro

July 30, 1921, 2, No. 3

*The Latent Period in Associated Movements. M. Ozorio de Almeida.—p. 25.

*Juxta-Articular Nodules. A. da Matta.—p. 26.
Gallstone Cholecystitis in the Elderly. C. Madeira, Veiga de Castro and Palinuro de Moura Campos.—p. 29.

Associated Movements.—Ozorio calls attention to the latent period which was pronounced in his three cases of hemiplegia with well defined associated movements, synkinesia. This interval between the volitional and the associated movements might explain the latter as a reflex movement started by the excitation originated by the contraction of the muscles as they execute the voluntary movement. The associated movements occur, however, even when the volitional contraction of the muscle is prevented.

Juxta-Articular Nodules.—Da Matta reports from northern Brazil two cases of the Lutz-Jeanselme nodules just above the elbow. Ten similar cases have been published elsewhere in Brazil. No parasites have ever been found in these torpid lumps, but as the subjects in these twelve cases were all syphilitics, he regards the nodules as a manifestation of parasyphilis. Under specific treatment they may melt away. These lesions were first described by Lutz of Rio de Janeiro, in 1892, seventeen years before Jeanselme's description.

Gaceta Médica de Caracas, Venezuela

April 15, 1921, 28, No. 7

*History of Treatment of Tuberculosis. A. Herrera Vegas.—p. 83.
Autoserotherapy with Whole Serum. E. Escomel.—p. 86.

History of Treatment of Tuberculosis.—The subtitle of Herrera Vegas' article is "From Hippocrates to Ferrán," and his review of the 2,000 years between shows that Hippocrates' advice "to live quietly, with suitable diet and moderate exercise" has never been improved on. The condensed conclusion of this historical review and of his own sixteen years of practice are that we must "keep ahead of tuberculosis, not follow it."

April 30, 1921, 28, No. 8

*Autointoxication of Gastrointestinal Origin. F. A. Rísquez.—p. 97.

Autointoxication of Gastro-Intestinal Origin.—Rísquez accepts the dictum that many pathologic conditions in the liver, kidneys, and other organs and in the nervous system are merely the effect of toxic action from substances generated in the digestive tract. If the production of toxins continues, the gravest consequences may ensue. All that is necessary, if taken in time, is a diet to reduce production of toxins to the minimum, and to stimulate the emunctories, avoiding alkaloid medication and everything that would tax the liver or hamper excretion, while promoting oxidations by air and sunshine. A case is described in which the man of 50 refused to heed Rísquez' statements to the above effect, and consulted one physician after another for his occasional two or three day attacks of fever, headache, somnolency and forgetfulness. He presented likewise indicanuria, oxaluria and neurasthenia, and had lost much weight in recent months. He was given treatment of various kinds on different diagnostic bases, including "bulbar epilepsy" and "diffuse periencephalitis," the condition growing worse all the time. Rísquez argues that the whole might have been prevented by combating the autointoxication from the gastro-intestinal tract before irreparable lesions had become installed, when the coated tongue and indicanuria had given the warning. The headache, fever, etc., were probably from derangement in the circulation, and this may range from simple congestion to changes in structure from persisting hyperemia. The tremor, abasia and forgetfulness were nervous symptoms from the same toxic origin. Rísquez thinks the time is coming when autointoxication will be held responsible for nearly all the ills that flesh is heir to, as it throws open the portals to the micro-organisms that cause the special diseases.

Revista Española de Medicina y Cirugía, Barcelona

July, 1921, 4, No. 37

*Spinal Fluid in Epidemic Encephalitis. B. Rodríguez Arias.—p. 413.
*Pulsus Alternans of Respiratory Origin. A. Aguilar Felíu.—p. 421.
*Frontal Sinusitis with Orbital Abscess. L. Suñé y Medán.—p. 424.

The Cerebrospinal Fluid in Epidemic Encephalitis.—Rodríguez gives the details of twelve cases which confirm the characteristic high sugar content and the slight albumin content, with exceptionally intense but transient hypercytosis. The Lange colloidal gold reaction may be slightly positive. Otherwise the cerebrospinal fluid in epidemic encephalitis presents the normal aspect and characteristics.

Respiratory False Pulsus Alternans.—The man of 41 had bradycardia of nodal origin and pulsus alternans, but Aguilar ascribes the latter to aspiration of the blood in the pulmonary capillaries during inspiration. This retarded the passage of the blood to the left auricle, so that it did not get its full quota of blood during the inspiration period, that is, once in every two heart beats. His electrocardiograms show the mechanism involved, the heart getting less blood for one beat during the period of inspiration. This mechanism could be readily understood by having the subject hold his breath or breathe faster or more slowly, the pulsus alternans becoming modified to correspond.

Orbital Abscess with Frontal Sinusitis.—Suñé had to resect part of the upper wall of the orbit on account of necrosis of the bone, the child of 12 having had three operations for recurring abscess in the upper lid in the last eight months. The frontal sinus was then curetted through this opening and swabbed with iodine, and the head of the middle turbinate bone was resected to insure better drainage. The sinus had to be cauterized with chromic acid and silver nitrate in addition, before the rebellious discharge was conquered, but healing was complete in two months.

Revista Médica del Rosario, Argentina

July, 1921, 11, No. 3

*Epidemic Encephalitis in Rosario. Teodoro Fracassi.—p. 119.
*Arsphenaminized Serum in Neurosyphilis. M. Samovici.—p. 138.
*Suppuration in Floating Kidney. Alberto G. Molina.—p. 144.
*Gold Ball as Support for Artificial Eye. E. A. Carrasco.—p. 150.
*Protein Therapy. R. Martínez Barrios.—p. 155.

Epidemic Encephalitis in Rosario.—Fracassi summarizes some sporadic cases of encephalitis with somnolency which he published in the *Revista* in 1911 and 1913. At the time,

the diagnosis was syphilitic meningitis, notwithstanding the absence of a history and signs of syphilis and the lack of benefit from specific treatment in one of the cases. The other showed some improvement under it. In 1919 there were fourteen cases, and they fitted into the frame of epidemic encephalitis as it is now known. Treatment was restricted to symptomatic measures and hexamethylenamin. No benefit was derived from a fixation abscess applied in the graver cases.

Arsphenaminized Serum Treatment in Neurosyphilis.—Samovici ascribes the "salvarsanized serum" technic to Marinesco, saying that the latter has been applying it for ten years. In the more than 600 intraspinal injections of the kind in his service there has never been a mishap. A few cases have presented an aseptic meningitis, but no micro-organisms could be cultivated from the fluid. Marinesco's experience has been that the best results can be anticipated in the mania and melancholia form of general paresis; 50 per cent. of his thirty cases showed improvement. When the mind is failing, the outlook is less favorable. He gages the improvement by repeating systematic tests such as giving the patients sentences to fill out with the missing verb, or sentences stating palpable untruths, or asking the patient to name the opposite term, "sweet" when "sour" is named, "white" or "black," etc., or noting whether he notices the lack of doors and windows in the sketch of a house. By comparing the responses and the cerebrospinal fluid and other findings before and after, the benefit under treatment can be estimated. Tabes seems to be less amenable, but in incipient syphilitic paraplegia the improvement may put the patient on his feet again. He usually gives a preliminary intravenous injection and follows with the intraspinal injections once a week. He advises to resume the treatment after two or three months' suspension and continue until the biologic reactions are negative. This could not be accomplished with intravenous injections alone, but with this intraspinal technic the lymphocytosis and the Wassermann reaction may subside.

Pyonephrosis in Floating Kidney.—One feature of Molina's case was the subnormal temperature with the pyuria. This differentiates uropyonephrosis due to torsion of the pedicle from the pyonephrosis from gallstones, in which a high temperature is the rule. The condition kept so good in the young woman that he was encouraged to wait for evacuation of the pus by the natural route, after which nephropexy restored clinically normal conditions.

Support for Artificial Eye.—Carrasco extols the fine results he has obtained in seven cases by introducing a gold ball under the sclerotic coat to serve as a stump to support the prosthesis. Gold seems to be the only substance that the eye will tolerate. He has slightly modified Dimitry's technic as he describes.

Protein Therapy.—Martínez used human milk in intramuscular parenteral injection in a number of cases but with scant success, so that he changed to cow's milk, and was delighted with the improvement that followed in 26 cases. The list includes 14 corneal ulcers, 4 cases of iritis and cyclitis, 3 of keratitis, 3 of gonorrheal conjunctivitis and 2 of dacryocystitis. The 2 last mentioned did not seem to be influenced, but the ulcers in the cornea began to heal after one or two injections and the iritis ran an exceptionally brief course. He ascribes the action to the casein in the milk, and relates that Fossatti of Buenos Aires has been giving sodium caseinate a trial in the place of milk. It is prepared by precipitating fresh cow's milk several times and filtering through porcelain. This yields a clear fluid with which Fossatti is said to have had gratifying success in injections of 5 or 10 c.c. in cases of pleural effusion, acute articular rheumatism, chorea, gonorrheal orchitis, endocarditis, pneumonia, epidemic meningitis, typhoid, etc.

Semana Médica, Buenos Aires

Aug. 4, 1921, 28, No. 31

*Arsphenamin Treatment. E. D. Cortelezzi.—p. 129.

*Roentgen Rays in Diagnosis. M. V. Pozzo.—p. 132.

*Forensic Medicine. G. Bermann.—p. 136.

Illegal Practice of Medicine by Fortune Tellers, Diviners, etc. O. L. Bottaro.—p. 143.

*The Specialties in the Medical Course. A. Cetrángolo.—p. 146.

Arsphenamin.—Cortelezzi allows the patient to leave after half an hour of reclining after the intravenous injection of the arsphenamin, and has never had any important by-effects in his 1,000 injections. His doses are progressive, from 0.3 to 0.9 c.c., and he insists on a purge and salt free diet for twenty-four hours beforehand, with no food during the last three hours. The most serious reaction was a severe rebellious headache for twenty days in one case, evidently a protracted Herxheimer reaction, or a special affinity of the meninges for the drug, in the man of 36 with traces of albumin in the urine showing that the kidneys were not functioning quite properly. Cortelezzi has given arsphenamin to supplement quinin in three cases of chronic malaria, with gratifying results, as also in some cases of gonorrheal rheumatism. He has also found it effectual in amebic dysentery as an adjuvant to emetin and bismuth.

Roentgenologic Differentiation.—Pozzo emphasizes that the roentgen rays do not show up anything new. They merely show the familiar things in a new aspect. He remarks in conclusion that radiology is not a specialty. Every physician should be trained in its rudiments, and in the understanding that its findings must be interpreted always by the light of medical training and clinical examination.

Forensic Medicine.—In the course of this opening lecture, Bermann describes the present status and history of forensic medicine in Argentina, and the constant trend away from the theoretic to the practical.

Training in Specialties.—Cetrángolo describes the plan followed at the Córdoba medical school, which corresponds to the model plan recently outlined by Demaria in the *Semana Médica*.

Siglo Médico, Madrid

June 25, 1921, 68, No. 3524

*Neurosyphilis. G. R. Lafora.—p. 597. Conc'n No. 3525, p. 624.

*Protein Therapy in Optic Neuritis. M. Marín Amat.—p. 601.

Indications for Deep Radiotherapy. J. Ratera.—p. 604. Cont'n.

Tetanus Localized in Limb. E. Chauvin.—p. 608. Conc'n.

Neurosyphilis.—Lafora protests against some recent statements that general paresis and tabes can be cured by proper treatment. He declares that no authentic instance of a permanent cure has ever been published, although the long remissions and periods of improvement often simulate a cure. But the disease always flares up again sooner or later. The best results are obtained usually, he continues, with intraspinal treatment, and the earlier it is instituted the better the results. The disease can now be detected before a clinical diagnosis is possible, during the stage of latent meningitis. He ascribes the benefit from intraspinal treatment to the reactional process in the meninges which renders the plexus more permeable to drugs given by the vein.

Optic Neuritis Cured by Protein Therapy.—Marín Amat adds to the list another striking case of rapid and complete cure of optic neuritis by parenteral injections of milk. This patient was a woman of 44, and the intense, unilateral, intra-ocular optic neuritis or papillitis with total amaurosis developed suddenly as a complication of sphenoidal sinusitis. Cocain to the nasal mucosa and inhalation of menthol, plus seven subcutaneous injections of 4 c.c. of milk in the course of eleven days, not only restored vision to normal, with subsidence of all the ocular symptoms, but the specialist could find no further trace of the sinusitis. A similar prompt cure was realized in a case of acute retrobulbar neuritis of influenzal origin. This protein therapy, he says, is promising in acute, septic inflammatory conditions caused by bacteria of moderate virulence, localized, and in organs that exhibit a certain tolerance. It displays no efficacy in tuberculous lesions, acute or chronic.

Medizinische Klinik, Berlin

Aug. 21, 1921, 17, No. 34

*Minor Surgery on Hand or Foot. M. Strauss.—p. 1015. Conc'n No. 35, p. 1047.

Steinach's Theory of the Interstitial Gland. J. Kyrle.—p. 1018.

*Pluriglandular Insufficiency. A. Frisch.—p. 1021.

The Blood Findings with Vincent's Angina. O. S. Tarnow.—p. 1024.

Action of Yeast on Gastric Secretion. Kleeblatt.—p. 1025.

*Symptomatology of Angina Pectoris. G. Neugebauer.—p. 1027.

Swine Erysipelas in Man. A. Rösel.—p. 1028.

Recurring Malaria. J. E. Kayser-Petersen.—p. 1029.

The Wassermann Reaction in the Spinal Fluid. V. Kafka.—p. 1029.

The Principles for Infant Feeding. K. Blühdorn.—p. 1030. Cont'n.

Minor Surgery of Hand or Foot.—Straus warns that no attempt should be made to remove a needle in hand or foot without roentgen-ray control unless it can be definitely palpated. Even when carefully located, the removal may be difficult. In any operation on the foot the incision should be made on the outer or inner edge of the foot or the middle to avoid interfering with walking. He explains that with an "ingrowing nail" it is not the nail that grows in but the parts that push against the nail that get inflamed and cause pain. The bursa that is liable to form under an old corn may become inflamed, and the only way to ward off recurrence as the clavus develops anew is to open and cauterize the bursa. Or, better yet, to excise clavus and bursa into sound tissue and cover the defect with Thiersch flaps. If the joint below is contracted, he advises resecting the joint likewise. Gonorrheal inflammatory processes in hands or feet should not be given operative treatment but be treated merely with repose, iodine, superheated air, passive hyperemia, etc.

Endocrine Insufficiency.—The woman of 39 has borne six children. Then symptoms developed suggesting insufficiency of ovaries, suprarenals and thyroid, while a tendency to adiposogenital dystrophia suggested participation of the pituitary. A febrile period with edema and apathy ushered in the endocrine syndrome; this seems to be a characteristic onset for this pluriglandular derangement. There was a history of both tuberculosis and syphilis in this case, and also a tendency to softening of the bones from undernourishment. But under phosphorus and cod liver oil the latter subsided, and under arsphenamin and organotherapy marked improvement followed. The ductless glands seemed to resume their functioning, and the symptoms from endocrine insufficiency have practically subsided. He compares this case with those of "multiple sclerosis of endocrine glands" on record, and suggests the possibility that pituitary insufficiency may have been the primary disturbance and factor. To date we are unable to distinguish during life between functional and anatomic derangement of all or parts of the endocrine system, hence it is better to call such cases by the noncommittal term of pluriglandular endocrine insufficiency.

Subdiaphragmatic Angina Pectoris.—Neugebauer discusses a case in which pronounced dyspnea had accompanied abdominal pains and distress, but there was no precordial pain. Death occurred from auricular fibrillation, and necropsy failed to reveal any cause for the fatality beyond the enlargement of the whole heart and a general tendency to atherosclerosis. The pains were in the upper abdomen, and agonizing.

Monatsschrift für Kinderheilkunde, Berlin

June, 1921, 21, No. 3

- Periodic Vomiting with Acetonuria. W. Knoepfelmacher.—p. 241.
Injury from Lack of Water with Concentrated Foods. Freise.—p. 246.
Relation of Maceration of Infant Skin to Dermatoses. Leiner.—p. 252.
*Duration of Stay of Food in Infant's Stomach. W. Krüger.—p. 257.
*So-Called Oil Soup. F. Boschán.—p. 263.
Alimentary Toxicosis Due to Protein Overfeeding. Behrens.—p. 265.
Mercury Light Treatment of Erysipelas in Infants. Pétenyi.—p. 269.
Tuberculin Skin Tests in 1506 Schoolchildren. F.-Risselada.—p. 271.

Duration of Stay of Food in Infant Stomach.—Krüger reports the results of fluoroscopic examinations to determine the duration of stay of food in the stomach of over 100 healthy and sick infants. The children were given as test meals from 100 to 150 gm. of the food to which they were accustomed. For 11 breast fed infants the duration of stay, with the exception of one case of pyloric stenosis, ranged between $2\frac{1}{4}$ and $3\frac{1}{2}$ hours. These were mostly weak and sickly children, but for 3 sturdy infants among them from 3 to $3\frac{1}{2}$ hours were required for the stomach to become empty. That increasing the fat content exerts a retarding effect was shown in the case of a child, with pyloric stenosis, given 80 c.c. of human milk; with a fat content of 0.6 per cent. the sojourn was $6\frac{1}{2}$ hours, but, with a fat content of 4.2 per cent. 8 hours were required. Three children, 2 of whom were strong and hearty and showed no disturbances, required 4 hours to pass undiluted cow's milk into the intestine—much longer than was required for human milk. In 7 sickly infants more or less subject to vomiting, the duration of stay of natural and artificial food in the stomach was normal, except

in one instance in which 100 gm. of whole milk gruel required 6 hours to pass out of the stomach. On the whole, however, the children with a delay of over 6 to $7\frac{1}{2}$ hours before the stomach voided its contents were all backward in development and subject to infections and digestive disturbances, with weak and flabby muscles. The delay in evacuation of the stomach was not noted until the children were a few months old, suggesting that the lack of thriving and the impaired motor functioning had some common cause.

So-Called Oil Soup.—During a scarcity of butter, Boschán tried substituting maize oil, sunflower oil or olive oil for the butter he had been using in the Czerny-Kleinschmidt butter-flour mixture for infant feeding, and secured excellent results. The oil soup had one advantage over the regular butter-flour mixture in that it had a constant fat and salt content, since it did not have the changing water and salt content of the butter. He thinks these findings may prove of general advantage during the prevalence of cattle diseases, and regards the experiment as interesting as it involves a substitution of vegetable oils for animal fat.

Münchener medizinische Wochenschrift, Munich

Aug. 5, 1921, 68, No. 31

- Pathologic Anatomy of Typhus. E. Fraenkel.—p. 969.
Effects of Scopolamin on Nervous System. M. Rosenfeld.—p. 971.
*Speed of Erythrocyte Precipitation. E. Abderhalden.—p. 973.
Spread of Sexual Diseases in Rhine-Hesse; the Brothel Question in Mainz. H. Müller.—p. 973.
Gage for Undernourishment in Schoolchildren. M. Pfaundler.—p. 974.
Index for Height and Weight in a Given Age Group. J. Karp.—p. 976.
Eye Affections in Renal and Vascular Disorders. W. Gilbert.—p. 979.
Vaccine Therapy and Protoplasma Activation in Dentistry; Alveolar Pyorrhea. A. Seitz.—p. 981.
*Adhesions from Roentgen Irradiation of Goiters. F. v. d. Hütten.—p. 983.
Mercury Light Therapy in Tetany in Infants. F. Sachs.—p. 984.
Mushroom Poisoning. F. Port.—p. 985.
Symptoms of Meningitis in Early Stage of Syphilis Treated with Arsphenamin. G. Stümpke.—p. 987.
To Equalize Rays of Radioactive Substances. B. Walter.—p. 987.
Roentgen Irradiation for Photographing Fetuses. R. Glocker.—p. 989.
Improved Slide for Smears. R. Weiss.—p. 989.
Another Case of Zosteriform Skin Necrosis After Intramuscular Injection of Mercuric Succinimid. J. Saphier.—p. 990.
Feeding by Catheter. Geigel.—p. 990.

Testing Velocity of Precipitation of Erythrocytes as an Aid in Diagnosis.—Abderhalden points out that from extensive investigations he has made, the speed of precipitation of erythrocytes does not depend solely on the nature of the blood plasma but is also influenced by the character of the erythrocytes themselves. He therefore recommends that the clinical determination of the velocity of precipitation be carried out in the following manner: first, the rapidity of precipitation is ascertained in a given case; then, the velocity of precipitation of the erythrocytes is tested in the plasma of another patient (or an animal) in whom the speed of precipitation in his own plasma has already been determined. It is well to choose, for this purpose, two extreme cases.

Experimental Study on the Formation of Adhesions as the Result of Roentgen Irradiation of Goiters.—Von den Hütten recounts his observations and experiments, which have convinced him that there is a connection between roentgen irradiation of goiters and the formation of adhesions, and he therefore refuses to employ the irradiation method further until a way shall be found to prevent the formation of adhesions. His microscopic investigations furnished no evidence of any specific effect on goiter tissue due to roentgen irradiation.

Therapeutische Halbmonatshefte, Berlin

June 1, 1921, 35, No. 11

- The Principles of Pneumothorax Therapy. R. Neumann.—p. 321.
Indications for Nephropexy in Floating Kidney. Lichtenberg.—p. 328.
Diuretic Effect of Water of Wildbad Springs. Grunow.—p. 335.
Are Lupines Poisonous When Used for Food? C. Wachtel.—p. 342.

Wiener klinische Wochenschrift, Vienna

Aug. 4, 1921, 34, No. 31

- Cases of Suicide with Several Fatal Gunshot Injuries. W. Schwarzscher.—p. 375. Conc'n No. 32, p. 391.
Menorrhagia and Metrorrhagia. L. Adler.—p. 378.
Improved Method of Drawing Blood from Vein. Lindenfeld.—p. 379.
Inaugural Lecture of Pathology Course. H. Pfeiffer.—p. 380. Conc'n.
Experiences as Prisoner of War in Siberia. F. Hutter.—p. 381. Conc'n.

Zeitschrift für Kinderheilkunde, Berlin

Sept. 5, 1921, 30, No. 3-4

- *Concentrated Food for Infants. I. E. Helmreich and B. Schick.—p. 121.
*The Aequum. C. Pirquet.—p. 145.
*Concentrated Food for Infants. II. E. Helmreich and B. Schick.—p. 147.
*Experimental Alimentary Anemia. A. Brinchmann.—p. 158.
*Subcutaneous Injection of Saline. L. Stoltenberg.—p. 195.
*Intracutaneous Vaccination. C. Leiner and K. Kundratitz.—p. 205.
*Edema from Undernourishment. B. Schick and R. Wagner.—p. 223.
*Melena in the New-Born. H. Müller.—p. 234.
*The Physiologic Meconium Flora. A. Adam.—p. 265.
*Stellulae Palmares in Children. Pfaundler.—p. 273.
*Acute Articular Rheumatism plus Chorea. Pfaundler.—p. 274.

Concentrated Food for Infants.—Helmreich and Schick have doubled the nourishing power of milk by adding 17 per cent. of cane sugar to human or cow's milk. By adding only 8.5 per cent. the nourishing value was increased one and a half times. They report experiences in this line in the Vienna Children's Clinic in charge of Pirquet. In all, 3888 tests were made on 185 infants, and the results repeatedly compared with the index of nourishment over long periods by various methods. Special indications for the more concentrated food include nervous vomiting, pylorospasm, difficulty in swallowing or breathing, whooping cough, anorexia, bed wetting, etc. Their research confirms the importance in certain conditions of giving food in a more concentrated form at all ages; especially for the new-born, this "whole milk-sugar double food" has a number of advantages, not the least among them being the comparative scantiness of the urine. The child does not wet so much as usual, sparing both its skin and the number of diapers. They warn that this double concentrated food—dubo, they call it—is not for the normal and not for general adoption by the public, but they regard it as extremely useful in certain conditions as they show by numerous concrete examples.

The Aequum.—Pirquet has coined a number of new words in connection with questions of nourishment, etc. They are mostly made up of the first letter or two of the elements forming the conceptions. He keeps ahead of the dictionaries, but his "nem," his "siqua" (square of the length of the torso as index of nutrition), and his "geliqua" (ten times two thirds of the weight), are already in the latest dictionaries. He now adds "aequum" to the list, discriminating between the maximum amount of food the organism can digest and the minimum on which it can exist in complete repose without loss of weight; the "optimum," which is the amount most desirable under the given circumstances, and the "aequum" which represents the amount on which there is no loss of weight with a given exercise.

Concentrated Food.—In this second communication, Helmreich and Schick discuss the influence of varying concentration of the food on the weight and urine output of the infants. Their findings apparently establish that reduction of the water to one half the usual amount is borne without any injury to health or any influence on the child's increase of weight. The facts observed suggest that the ordinary amounts of fluids given infants are superfluous, and the excess being thrown off through kidneys and skin taxes these organs and the circulation unnecessarily. The amount of urine generally regarded as normal for the subject is a figure arbitrarily selected, and in reality is much above the optimum. In certain respects, they say, the water in the urine must be regarded as the running over of the fluid supplied in excess. Eleven infants were fed on food concentrated to double, triple, one and a half, or equal strengths and the regular increase in weight was not modified, but the output of urine represented 38 per cent., 27 per cent., 42.5 per cent. and 55 per cent. of the fluid intake on these respective concentrations. The research extended over periods of from eighty-four to 262 days. No harm from the concentrated nourishment was detected, not even with the triple concentration kept up for from ten to nineteen days at a time.

Alimentary Anemia.—Brinchmann's long article describes his research on young guinea-pigs fed on boiled milk, raw milk or wheat flour gruel. All the animals developed anemia of the chlorosis type. It was evidently of alimentary origin,

and by adding a little iron to the cow's milk the anemia was warded off. The animals fed on boiled milk died in an average of seventy-one days, while those given iron with the boiled milk were killed after 242 days. Those fed on raw milk lived twice as long as those on boiled milk, and on wheat flour gruel nearly four times as long. He compares the findings with those in pseudoleukemic and other anemias in children.

Subcutaneous Injection of Salt in Infants.—Stoltenberg reports the influence on the chlorid and nitrogen content of the blood and on the temperature from subcutaneous injection of from 20 to 90 c.c. of 2, 0.9 or 0.3 per cent. solutions of sodium chlorid or Ringer's solution. A total of twenty-eight injections were thus made on nineteen infants. The sodium chlorid content of the blood showed very little modification thereafter, and there was no influence on the temperature except with hypotonic solutions. Even then, the rise in temperature did not seem to be due to the salt itself but rather to bacteria.

Intracutaneous Vaccination.—Leiner's method of introducing the vaccinia vaccine into the skin, was mentioned in an abstract on page 1212 of an article extolling the advantages of this technic over the scarification method. Leiner and Kundratitz here report further experiences with it confirming its superiority for special cases, particularly when there is danger of complications from existing dermatitis or fear of infection of the pustule or contagion of others. The needle is introduced under the skin parallel to its surface for at least 1.5 cm., and 0.1 c.c. of the diluted vaccine is injected. After the fine needle is pulled out, the hole is touched with alcohol and then with iodine. The reaction differs from the ordinary vaccine pustule as it is shut off from the air by the intact skin; there is no pustulization, and the reaction does not become manifest till the sixth to tenth day. But the subject is immunized the same as with the ordinary technic, as is evident by the negative response to scarification vaccination afterward. The experiences with fifty children are analyzed. Slight itching was common, and the spot was tender, but there never were any by-effects or complications. The research was done at the Rudolf Children's Hospital at Vienna.

Edema from Undernourishment in Young Children.—Schick and Wagner describe two cases of digestive insufficiency impeding the growth and development in general in children of about 4. One child had intense edema and high fever, the other only slight edema, but the stools of both were profuse, shimmering with fat at times; at other times showing foamy fermentation. On a mixed diet, including carbohydrates and fat, improvement was soon pronounced and one child gained 13 kg. in three and a half months and the stools became normal. The appetite of both had been capricious for nearly two years and they often refused ordinary food. One, at times, ate only the whites of hard boiled eggs. At every unwatched moment, she scratched plaster from the wall and swallowed it. The cases seem to belong in the class with edema from undernourishment in adults, a kind of avitaminosis. For all such cases, instead of a diet to spare the digestive apparatus, food to exercise and train it is preferable.

Melena in the New-Born.—Müller reviews the various theories advanced to explain melena in the new-born, his conclusion being that various causes may be responsible for it in different cases. In one of 5 fatal cases described the hemorrhage came from an ulcer in the lower esophagus, as also in 4 he quotes from the literature. This child had been born asphyxiated, and artificial respiration by compression of the thorax had been kept up a long time. A mechanical injury seemed probable as there were no signs of inflammation, syphilis or hemophilia. In a second case the hemorrhage came from the middle ear, and the blood poured from the mouth. The child died before the bowels moved. In 3 other cases the blood came from the nasal mucosa as in Swoboda's 4 cases. Bleeding from the nose in an infant may proceed insidiously and escape notice as the child lies on its back and swallows the blood. Aspiration of the blood into the air passages was the direct cause of death in 2 of his cases. Diphtheria was responsible in 2 plus, in one case, fatal meningitis and bronchopneumonia.

Acute Articular Rheumatism and Chorea.—Pfaundler asks if any one knows of an instance of the simultaneous occurrence of these two diseases which so often follow each other, but have never occurred together in his experience.

Zeitschrift für klinische Medizin, Berlin

1921, 91, No. 1-2

- Clinical and Hematologic Study of Influenza. W. Hildebrandt.—p. 1.
 *Hyperchlorhydria and Duodenal Ulcer. E. Schlesinger.—p. 27.
 *Sugar Metabolism in Man, I. H. Staub.—p. 44.
 Absorption and Elimination of Iodin-Fat Compounds. Keeser.—p. 61.
 *Colorimeter as Hemoglobinometer. R. Dunger.—p. 65.
 *Aneurysm of Abdominal Aorta. F. Kaufmann.—p. 86.
 *Elimination of Acid by Kidneys. Rohonyi.—p. 105.
 *Tardy Rachitis. L. Henze.—p. 120.

Hyperchlorhydria and Duodenal Ulcer.—Schlesinger argues that the recurring clinical pictures suggesting hyperchlorhydria or duodenal ulcer are often merely different degrees or phases of one and the same disorder, namely, exaggerated irritability of the vegetative nervous system, of the vagus in particular. The complete picture of hyperchlorhydria may be encountered with normal or subnormal gastric acidity. The condition had better be called peptic vagotonia.

Test for Sugar Metabolism.—Staub has been studying the behavior of the blood sugar after ingestion of 10 or 20 gm. of sugar fasting. Even these small amounts modify the sugar content of the blood, and comparison with the normal response affords a new means for testing the functioning of the sugar metabolism. The power of the liver to fasten glucose is variable even in the healthy.

Colorimeter as Hemoglobinometer.—Dunger explains how to etch a common colorimeter so that it will serve as hemoglobinometer.

Aneurysm of Abdominal Aorta.—Kaufmann analyzes four more cases of this kind, with necropsy in 3. All were syphilitic. The aneurysm protruded in the back in some.

Elimination of Acid by the Kidneys.—Rohonyi found the acid elements predominating in the morning urine in health, but the reverse was observed with nephritis. Although the urine may be constantly alkaline, the power of eliminating acid may be intact, and it may be restored by insuring that enough acid reaches the kidneys. The alkaline reaction of the urine in such persons seems to be the work of extrarenal factors, as he explains in detail.

Tardy Rachitis.—Henze discusses 12 cases of rachitis appearing for the first time or returning at the age of 15 to 18 in the last year or two. Two of the patients had always had ample nourishment, and only 2 had had influenza. Treatment as for rachitis in general answered the purpose.

Zentralblatt für Chirurgie, Leipzig

July 30, 1921, 48, No. 30

- *Gallstone Operations without Draining. F. Fink-Finkenheim.—p. 1070.
 *Fatality from Ethyl Chlorid Narcosis. H. Jaeger.—p. 1073.
 To Hasten Healing After Curetting Bone Focus. C. Bayer.—p. 1076.
 *Foreign Body in Esophagus. C. v. Massari.—p. 1077.
 Uses of Giant Electromagnet. K. Buchholz.—p. 1079.
 Luxation of Tendons of Extensores Digitorum. Haberern.—p. 1080.

Closure of Abdominal Cavity Without Drainage After Gallstone Operations.—Finkenheim states that his observations are not in accord with Ritter's view that the fresh flow of bile which often follows removal of gallstones is enough for the desired cleansing effect, and that rinsing out the common bile duct is likely to carry infective agents into the healthy cystic and hepatic ducts. On the contrary, he holds that lavage of the mucosa of the common bile duct brings a mixture of mucus and pus, and often small and occasionally good sized stones. In most of his 198 choledochotomies he performed lavage, and in not a single case did he observe any injurious or serious secondary effects. In a few cases there was, to be sure, some pain during the first lavage. He does not do the rinsing through the drain tube inserted at the operation, but rather with a catheter directed both toward the liver and also toward the retroduodenal segment. He saw no evidence of spread of infection by such lavage, and is convinced that in severe suppurative cases lavage, by getting rid of the pus and the catarrhal condition, exerted a favorable influence on the healing process.

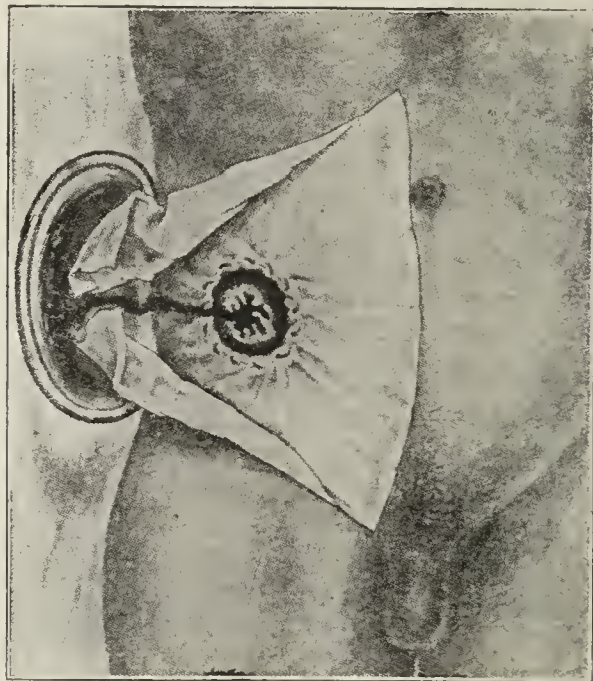
Fatality from Ethyl Chlorid.—Jaeger recalls that there are not many contraindications to ethyl chlorid narcosis. Kulenkampff in 1911, gave puncture of ascites as the only contraindication; in 1917 he added certain skull injuries. Neither Kulenkampff nor Herrenknecht recognizes any contraindications arising from severe lung and heart changes. Brunn, however, refers to the numerous fatalities resulting from cardiac paralysis occurring during ethyl chlorid narcosis, and advises extreme caution if there is any suspicion of degenerative changes in the heart muscle. Jaeger confirms the importance of Brunn's warning, and urges caution in dealing with habitual users of alcoholics. If the heart is not intact it is well to substitute ether for ethyl chlorid. He reports the death of a man of 40 during exploratory excision of an ulcer on the leg after 90 drops of ethyl chlorid had been inhaled (2.5 c.c.).

Removal of Foreign Body from Esophagus by way of Stomach.—Massari reports a fatality resulting from an attempt to remove a plum stone from the esophagus by way of the opened stomach. The pit was so tightly embedded in and covered by the swollen mucosa that attempts, extending over two hours, to remove it were unsuccessful. The patient died sixteen hours after the operation.

Aug. 6, 1921, 48, No. 31

- Differential Diagnosis of Ulcers of Small Intestine. Fischer.—p. 1102.
 Treatment of Duodenal Ulcer. K. Nieny.—p. 1104.
 Proposed Operation for Inoperable Cancer. O. Orth.—p. 1105.
 Cholecystectomy. O. Orth.—p. 1106.
 *Protecting Apron for Artificial Anus. W. Hartert.—p. 1107.
 *Local Anesthesia for Difficult Cystoscopy. A. v. Lichtenberg.—p. 1109.
 *Preservation of Atrophying Testis. C. Hammesfahr.—p. 1111.

Protecting Apron for Artificial Anus.—Hartert describes his method of preventing infection at colostomy. The portion of the intestine intended for the formation of the fistula is



Colostomy apron.

fastened to the parietal peritoneum and to the aponeurosis by a few sutures. Then a fluid-tight continuous suture between the intestine and the edge of the wound is laid, care being taken not to penetrate the intestine. Also the corners of the skin wound are securely united by a continuous suture. Iodin is applied and the line of suturing is covered with an antiseptic paste. In a piece of rubberized tissue (Mosetig-Batist), 25 by 40 cm., a fenestra somewhat larger than the dome of the protruding loop of intestine is cut. The cap of the intestinal loop is sutured to the edge of the fenestra. Under the rubberized tissue a thick strip of muslin is placed around the intestine. Then the rubberized cloth is fastened flat to the skin with glue and a few sutures in such a manner that the top and bottom edges can be turned up to form a groove. When the loop is opened, the intestinal contents are carried off through the trough thus formed into a receptacle placed at the side of the patient. This fistula apron, as he calls it, separates spontaneously from the intestine in four or five days, but by this time the danger of infection and soiling the patient and bedding is past. Its principal

advantage is that no opening is made into the bowel until after the protecting apron is in place.

Local Anesthesia for Difficult Cystoscopy.—Lichtenberg states that after using for eight years sacral anesthesia in difficult cases of cystoscopy he can heartily recommend the method. The twenty minutes required for the anesthesia to develop are regained owing to the ease with which the examination is carried out. He advises that, in case there are signs of the bladder being tuberculous, the walls should not be distended to the same extent as would otherwise be perfectly safe.

Procedure for the Preservation of an Atrophying Testis.—Hammesfahr reports the case of a married man of 26 who, eight years previously, had lost the left testis under circumstances not quite clear. It became inflamed, swelled, and then gradually atrophied. Gonorrhea was denied. Six years later the patient received a blow of a hammer on the right testicle, which also continued to atrophy until libido and energy began to fail. In order to provide better conditions for circulation, Hammesfahr transplanted the right testis, then the size of a bean, to the fascia of the abdominal muscles, slitting it in half. The healing process was uneventful. As the operation did not accomplish the desired results, he was compelled to transplant a healthy testis (cut in disks) from another person to the abdominal musculature of the patient. Six months after this transplantation the patient was full of energy and able to cohabit in normal fashion once a week. Whether spermatogenesis is adequate after transplantation he has not yet determined, but animal experiments are in progress to settle this point. As to what the indications are for the transplantation of a testis, he believes it is advisable to transplant as soon as possible after the trauma, provided the surgeon thinks that conservative measures will not accomplish a cure.

Zentralblatt für Gynäkologie, Leipzig

July 30, 1921, 45, No. 30

Extravesical Opening of Ureter. R. Meyer.—p. 1062.

*Gonorrheal Cystitis. Georg Linzenmeier.—p. 1064.

Pyelocystitis in New-Born Infant. R. Hornung.—p. 1067.

Uses of the Goebell-Stoeckel Operation. M. Linkenbach.—p. 1069.

Gonorrheal Cystitis.—Linzenmeier reports two cases of gonorrheal cystitis, in unmarried gravidae. In one case, a young woman, aged 17, in the fifth month of pregnancy, came to the hospital, complaining of incontinence of urine. Marked leukorrhea was present. The microscopic examination of the urethral secretion revealed gonococci. The urine was turbid, with some albumin. In the sediment were a few epithelial cells, large numbers of leukocytes and typically intracellular gonococci. In order to be sure that the gonococci found in the urine were not from the urethra, he punctured the bladder. A smear from the urine sediment on ascites agar yielded gram-negative gonococci in pure culture. Cystoscopy disclosed vessels highly congested, extensive foci of petechiae and flaky deposits, especially in the fundus and in the right half of the bladder. A few days later, after the bladder had been treated with silver nitrate and the incontinence of the urine had been cured, cystoscopy revealed: in neck of bladder to the trigonum, vessels highly congested; in whole bladder more marked vascular injection than usual; both ureter openings normal. Linzenmeier, in summing up, says that cystitis corporis gonorrhoeica is a rare affection and that the diagnosis is not assured unless by bladder puncture (which he finds entirely harmless) a culture of gonococci is secured. Cystoscopy will, in many cases, put us on the right track, but it is not decisive.

Acta Chirurgica Scandinavica, Stockholm

June 7, 1921, 53, No. 6

*Artificial Esophagus. O. Lundblad.—p. 535.

*Convulsions from Nerve Blocking in Neck. G. Holm.—p. 561.

Diagnosis and Operative Treatment of Intrathoracic Tumors; Five Cases. H. Jacobæus and E. Key.—p. 573.

Xanthomatous Intrathoracic Tumor. N. Wessen.—p. 621.

Extrathoracic Artificial Esophagus.—Lundblad reports (in German) a successful case of an antethoracic artificial esophagus in a boy of 3. The segment of intestine utilized for the new esophagus was supplemented with a tube made

from skin. The jejunum, colon and stomach have been used in such operations, but Lundblad warns that gangrene is almost certain when the attempt is made to take a segment long enough to bridge the entire gap. It is better to renounce this from the first.

Mishaps with Paravertebral Nerve Blocking for Goiter Operations.—Holm reports that an injection of 10 c.c. of a 1 per cent. procain-epinephrin solution, close to the transverse process of the third and fourth cervical vertebrae, was followed by local spasms suggesting epilepsy, with tonic and clonic spasms in the limbs, with intense cyanosis in face and lips, and arrest of the heart action. After brief opisthotonus the convulsions stopped abruptly, but the cyanosis became more intense. As artificial respiration was about to be started, the girl of 15 gasped and began to breathe again, and the heart to beat feebly. The whole had lasted only a few minutes, and by the end of an hour or two the condition seemed normal again. The operation on the goiter was deferred for three days, and was then done under ether without complications. The girl had unmistakably hovered on the brink of death, and Holm has found several other cases on record of similar mishaps during nerve blocking procedures in the neck, fatal in Brütt's and in Wiemann's cases. Holm ascribes the disturbances to some of the anesthetic getting into a vessel, as the most plausible explanation. The preceding similar injection on the other side of the neck had proceeded smoothly, without misadventure of any kind. The article is in German.

Acta Medica Scandinavica, Stockholm

Jan. 26, 1921, 54, No. 3

*Wilson's Disease. E. Sjövall and G. Söderbergh.—p. 195.

*Checked Movements in Cerebellar Disease. A. Barkman.—p. 212.

*Suspension Stability in Pulmonary Tuberculosis. A. Westergren.—p. 247.

Technic for Differential Blood Count. E. Meulengracht.—p. 283.

Pathogenesis of Wilson's Disease.—The necropsy findings in the (previously published) case reported suggest some chemical predisposition in liver and brain which entails this disease under the influence of some hypothetical poison generated in the bowel. The article is in English.

Checking of Movement as Sign of Cerebellar Disease.—Parkman reports (in French) certain experiences which confirm the diagnostic value in cerebellar disease of the checking of a movement. For example, when the finger is rapidly raised to touch the nose, the movement is arrested as by a check-rein when the finger is still some distance from the nose, and it is only possible to move it very slowly the rest of the way. This symptom may point to the focus when it occurs only on one side.

Speed of Sedimentation of Erythrocytes in Tuberculosis.—Westergren has simplified Fåhræus' technic for testing the suspension stability of the blood, and asserts that this method of investigation is throwing new light on tuberculosis. His article is in English and is accompanied by numerous tables and 60 case histories with compared test sedimentation findings. The changes in these findings throw light on the effect of treatment in tuberculosis. An increase in the fibrinogen or globulin in the blood reduces the suspension stability. An increase in the globulin fraction of the blood serum is an index of the activity of the process. In all his tests of 369 tuberculous men, normal findings were never encountered with this suspension test, or stablity reaction, as he calls it. He uses a set of twenty tubes, 30 cm. long, with an inner diameter of 2.5 mm.; the lower end is drawn out to a short point. The great regularity of the sedimentation was established in at least 3,000 examinations made on 500 persons, mostly with curves recorded. The depth of the column of clear plasma above the corpuscles settling to the bottom is used as the index. A curve can be made by recording the depth three or four times during the first two or three hours, and again the twenty-fourth hour. The blood is citrated.

Finska Läkaresällskapets Handlingar, Helsingfors

July-August, 1921, 63, No. 7-8

*The Small-Sized Heart. T. W. Tallqvist.—p. 335.

*Examination Glycosuria. F. Malmivirta and H. Mikkonen.—p. 353.

*Diazo Versus Urochromogen Reaction. J. Wahlberg.—p. 360.

*Inflation of Stomach in Diagnosis of Cancer. R. Faltin.—p. 368.

*Arsphenamin for Putrid Lung Disease. M. Savolin.—p. 372.

Causes of Chronic Nutritional Disturbance in Bottle Babies. E. Lövegren.—p. 377.

Heliotherapy in Surgical Tuberculosis. A. Krogus.—p. 385.

*Neo-Arsphenamin in Gangrene of Lung. J. C. Sjöblom.—p. 411

Small-Sized Hearts.—Tallqvist reviews what has been published on the small heart in late years, especially the experiences in examination of recruits. He then gives a detailed description of seventeen cases he has had opportunity to study over long periods. In all but two in the group there were unmistakable signs of constitutional anomalies of various kinds, mainly of the nature of hypoplasia. In all but two there were various symptoms to call attention to the heart, palpitations, tendency to asthma, arrhythmia, ready fatigue on muscular exertion and in one case paroxysmal tachycardia. In 99 tuberculous cadavers he found the heart of normal size in 41 per cent., larger than the average in 36 per cent. and abnormally small in 22 per cent. The corresponding figures in 114 cancer cadavers were 59 normal; 19 abnormally large, and 22 abnormally small. In 12 diabetics the figures were 41, 33, and 25. Hirsch found the heart smaller than the average only in 4 per cent. of 133 tuberculous cadavers, and above the average size in 43 per cent.

The small heart seems to have been arrested in its development and has never grown beyond the infantile stage. It lacks the ability to develop a compensating hypertrophy when occasion demands, yet notwithstanding this, the small heart possesses an astonishing capacity for responding to the demands made on it. He knows of only one instance of a valvular defect developing in a heart with constitutional hypoplasia, and even in this case there was no compensating hypertrophy: the heart was below the average size even after the development of mitral insufficiency. The heart under normal conditions increases slightly with age, but this does not occur with the infantile constitutional small heart; it retains its infantile proportions throughout life, and the term "hypoplasia" should be dropped.

The Glycosuria of Examinations.—The examinations referred to were the preliminary written ones for the degree in college. The findings in 19 students are tabulated; 58 per cent. developed glycosuria during the course of the five days of examinations. In 4, sugar was found in the urine only on one of the five days; in 3, on two days; in one on three days, and in 3 on five days. In 16 of the students the excitement of the impending examinations entailed glycosuria before they began, and the glycosuria had disappeared by the end of the tests. The glycosuria was not high in any instance, but it was most constant and reached a higher figure during the examination in mathematics, and the credit marks in this study were lower than in others, showing that the students were less well prepared. The excitement responsible for the glycosuria seemed to be more pronounced in the more studious subjects than in those with the lower marks.

Diazo Versus Urochromogen Reaction.—Wahlberg found the diazo reaction positive in 15.3 per cent. of 294 patients with pulmonary tuberculosis while the M. Weisz urochromogen reaction was positive in 50 per cent. In 40 cases of typhoid and 161 of paratyphoid, a positive urochromogen reaction was obtained in 60 per cent. of the former and 40.07 per cent. of the latter. The test tube is merely filled to one third with clear, fresh urine and then filled up with water. After thorough mixing, half of the fluid is poured into a second, similar tube, and three drops of 1:1,000 solution of potassium permanganate are added to one of the tubes. A positive reaction is a change in tint to a clear yellow.

Inflation of Stomach in Diagnosis of Cancer.—Faltin has been applying inflation as a routine procedure for several years, basing his estimate of the operability of the gastric cancer on the degree of inflation that is possible. If the stomach can be well distended, there is sure to be an area of elastic tissue enough for a gastro-enterostomy at least. If the stomach cannot be distended in this way the outlook for an operation is bad, and only radical resection, if anything, can be considered. The gaping pylorus, allowing the escape into the bowel of the air pumped into the stomach is a sign of bad omen, whether a tumor can be palpated or not. In such cases the stomach is generally a rigid tube throughout. Since he has made a practice of systematic inflation in diagnosis, he has fewer surprises in operating for malignant disease of the stomach, and he commends this simple method

in particular to those who do not have roentgen equipment at their disposal.

Neo-Arsphenamin in Treatment of Putrid Lung Disease.—Savolin adds five more cases to the few on record in which systematic arsenical treatment seemed to exert a decidedly favorable influence on the course of pulmonary putrid processes. Sjöblom reports a similar experience in a case of gangrene of the lung. The man of 41 seems to have entirely recovered; the improvement was rapid and striking.

Hospitalstidende, Copenhagen

Aug. 17, 1921, 64, No. 33

*Research on Respiration. C. Lundsgaard and K. Schierbeck.—p. 513. Begun in No. 30, p. 465.

*Hallux Valgus. A. Monberg.—p. 521.

Research on the Respiration.—The connection between the depth of the respiration, the amount of residual air and the breathing rate are discussed under various conditions, and the measurement of the capacity of the lung, lung volume and minute volume, especially in cardiac disease. The measurement of the blood flow through the lungs was done by the Krogh-Lindhard method. The work was done at the university medical clinic in charge of Prof. K. Faber.

Hallux Valgus.—Monberg's study of roentgenograms from twenty-five cases of hallux valgus has shown that the thickening of the periosteal and fibrous tissue, in addition to the adduction of the head and subluxation of the first phalanx, are responsible for the deformity much more than any changes in the bones themselves. The second toe may be in abduction. Treatment therefore should aim to reduce the subluxation and restore the normal direction to the traction in the apparatus for flexion and extension, and he describes how this can be most simply accomplished. Heat and massage may be useful in the after-treatment.

Hygiea, Stockholm

July 16, 1921, 83, No. 13

*Parenteral Protein Therapy. Gerda Uddgren.—p. 417.

Protein Therapy.—Uddgren comments on the general reaction to subcutaneous or intramuscular injection of milk, and cites the experience of various clinicians with it in treatment of acute and chronic infectious diseases. It has proved useful also in diagnosis as the benefit is so prompt in rheumatic joint lesions that this serves to differentiate them from gonorrheal arthritis. A large amount of milk injected prolongs the coagulation time, while a small injection of milk accelerates it. There is practically no danger of anaphylaxis if a small preliminary injection is made, and there need be no fear of a pronounced reaction, he says, if a toxin-free milk is used, but caution is imperative with heart disease or advanced age. Kidney disease is not a contraindication; he has witnessed albumin disappear from the urine thereafter. Schmidt has reported improvement in albuminuric retinitis, after a transient exacerbation. The effect of the protein therapy seems to be an activation of the protoplasm. As other substances besides protein have this effect, he agrees with those who prefer "cellular therapy" as a better name for it than protein therapy. It has thrown light on the connection between certain phenomena which we have always considered separately. The resulting increase in vitality by stimulation of the body's own immunizing forces offers a promising outlook for the further development of this cell therapy.

Aug. 31, 1921, 83, No. 16

*Quinidin in Auricular Fibrillation. Per Arnell.—p. 529.

Quinidin in Treatment of Auricular Fibrillation.—Arnell regards the use of quinidin as almost the only promising progress in treatment of heart disease for the last twenty years. It certainly should be given a trial in all suitable cases of arrhythmia. He has applied it in nine cases of auricular fibrillation, and the fibrillation was transiently or permanently corrected in four; no effect was apparent in one case, and in the remaining 4 normal rhythm was not restored. When it acts, the benefit may be very great, and this seems to be the case in about 40 to 65 per cent. of the cases.

Ugeskrift for Læger, Copenhagen

Sept. 8, 1921, 83, No. 36

The Relative Cost and Physiologic Value of the Principal Articles of Food. P. Heiberg.—p. 1181.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 18

CHICAGO, ILLINOIS

OCTOBER 29, 1921

CANCER OF THE TONGUE: A PREVENTABLE DISEASE*

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In this paper, evidence will be submitted which seems to prove that cancer of the tongue is largely a preventable disease. On this point, a brief preliminary communication¹ has been published.

TEACHING MORE IMPORTANT THAN SURGERY

Tables 1 and 2 illustrate the changes in the type of the lesion observed in 265 cases in men, in the four decades between 1889 to 1921.

In Table 2 the percentage of benign lesions has increased from 3.7 in the first decade to 55 in the first two years of the last decade. The majority of benign lesions from 1900 to 1910 did not come under observation until 1906, after my first communication. There is a tremendous increase after 1910—from 24 to 48 per cent.

In reading the 105 histories of benign lesions of the tongue one observes that, with hardly an exception, the patient sought advice because he had read something in the daily press or in magazines or heard a lecture about the danger of cancer developing in an innocent, painless area of irritation in the mouth.

TABLE 1.—SUMMARY OF MALIGNANT TUMORS OF THE TONGUE IN MEN

	1920:1921 Cases		1910:1920 Cases		1900:1910 Cases		1889:1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Early malignant...	9	60	17	22	9	21	1	3.5	36	22
Advanced cancer...	3	20	37	48	22	51	13	50	75	47
Hopeless cancer...			15	20	5	12	2	7	22	14
Inoperable cancer..	3	20	7	10	7	16	10	39	27	17
Totals.....	15		76		43		26		160	

In addition, early malignant lesions have increased from 3.7 per cent. in the first decade to 23 per cent. in the fourth, or as shown in Table 1 to 60 per cent. of the total number of cases of cancer.

Advanced, but still operable, cancer continued to increase until 1910, but did not show marked decrease until 1920.

Hopeless and inoperable cancers show a steady decrease in each decade.

In studying the histories of cancer of the tongue, I found that patients came for surgical treatment earlier after the beginning of the malignant disease through the education of the public and the profession.

The study of the ultimate results in cancer of the tongue shows that, after five years, 62 per cent. of the patients with early malignant cancer are well, and 12 per cent. of those with advanced cancer, while all those

TABLE 2.—SUMMARY OF ALL LESIONS OF THE TONGUE IN MEN

	1920:1921 Cases		1910:1920 Cases		1900:1910 Cases		1889:1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Benign lesions.....	19	55	71	48	14	24	1	3.7	105	40
Early malignant...	9	23	17	12	9	16	1	3.7	36	14
Advanced cancer...	3	11	37	25	22	39	13	48	75	28
Hopeless cancer....	3	11	22	15	12	21	12	44	49	18
Totals.....	34		147		57		27		265	

with hopeless and inoperable cancer are dead. The total operative mortality of the early malignant cases is 5 per cent., and of the advanced cases is 30 per cent.

DANGER OF DELAY

Delay in proper treatment after the onset of the malignant lesion reduces the chances of a cure in operable cases from 62 to 12 per cent., and increases the chances of postoperative death from 5 to 30 per cent. Further delay means an inoperable condition for which, at present, we have no treatment that promises a cure.

The educational propaganda has therefore increased the number of operable cases from 53 to 80 per cent. and decreased the number of hopeless and inoperable cases from 47 to 20 per cent.

Warning.—I have the evidence to show that men who develop cancer of the tongue have been warned by definite local lesions.

There is, first, the warning from a lesion that is not cancer. These precancerous lesions are leukoplakia, bad teeth, areas of irritation, ulcers, syphilitic gummas, warts, fibromas and smoker's burns. I will describe these in detail later. If the man seeks and obtains good advice, he should be protected from cancer. This has happened now in 105 patients, or 40 per cent. of the total, and, as has been stated before, the number of these informed patients that have been protected has increased from 3.7 per cent. in the first decade to 55 per cent. so far in the fourth decade.

There is, second, the warning from the definite cancer developing in the precancerous lesion; but this may be insidious and the infiltration of the cancer may be slow or rapid. The uninformed person, with rare,

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations and detailed discussion of the cases. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

1. Bloodgood, J. C.: Cancer of the Tongue a Preventable Disease, Correspondence, J. A. M. A. 77: 220 (July 16) 1921.

if any, exceptions, will not seek advice until cancer is in its advanced stage, when he has only 12 per cent. chances of cure and 30 per cent. chances of post-operative death. It is true that in recent years, with operations under local anesthesia, we have reduced the postoperative mortality; but I have been unable to demonstrate that we have increased the five-year cures in this advanced stage.

Some cases of cancer of the tongue infiltrate so rapidly that the condition is hopeless or inoperable within two months after the onset of what we might call the secondary warning of cancer.

The great increase in the percentage of benign lesions of the tongue and in the early malignant stage, and the decrease in the percentage of advanced and hopeless cases is distinctly shown in Tables 1 and 2, and I attribute this to a continuous and persistent educational propaganda among the public and medical and dental profession within the zone of my personal influence.

If other large clinics cannot show this improvement, it is not the fault of their method of treatment, but is the result of their failure to teach.

Improvement in the cure of cancer of the tongue is very much the same problem as in appendicitis. Failure to cure appendicitis is not the fault of our treatment of peritonitis and abscess, but is the result of our failure to instruct the public and medical profession how to recognize appendicitis before abscess formation or peritonitis sets in.

This study of 265 lesions of the tongue in men and thirty-three in women convinces me that our only hope of decreasing the deaths from cancer depends on the educational propaganda among the public and the profession.

Delay After the Onset of Cancer.—Table 3 shows the danger of even one month's delay after the onset of a definite local cancer of the tongue. Within this

It is true that cancer may grow so slowly that it still is in the early stage even after six months, but this is rare.

I will now discuss in detail the etiologic factors and the primary warnings in 160 cases of cancer of the tongue.

COMMENT ON TABLES 1 AND 2

For the purposes of this study the malignant cases classed as early are those with a small lesion on the tongue or the floor of the mouth, which can be easily removed through the mouth. In some of these cases, the glands have been removed, in others they have not.

Cases have been classed as advanced when the local lesion has been more extensive and has indicated a more radical operation on the tongue, and the floor of the mouth and glands, and in many cases it was removed with a piece of the lower jaw.

Hopeless is a group in which before operation the surgeon is rather of the opinion that the diseased tissue could be removed, but at operation it is distinctly demonstrated that the condition is inoperable.

In the inoperable group there is no question from the clinical picture that the disease cannot be eradicated by operation.

Every patient in the inoperable and hopeless groups has died or is dying of the disease. In these groups, we have not a single case in which any other method of treatment has given any definite results.

ETIOLOGIC FACTORS

Tobacco, rough and dirty teeth and improperly fitting

plates predominate as causes of cancer of the tongue.

Tobacco.—Among 160 cases of cancer of the tongue, it is distinctly stated in the history in only two cases that the man did not use tobacco in any form. In both, there is a history of bad teeth for years, producing an area of irritation. In one, an ulcer formed later from the ragged tooth; and in the other a definite wound was produced by the ragged tooth.

In all the old complete histories and in all the recent records, it is distinctly stated that the men had used tobacco in one form or in another, usually to excess. In a number of the older histories with very incomplete data, no mention is made of the use of tobacco. The evidence, therefore, is overwhelming that the continuous and prolonged irritation from tobacco in some form is the chief factor in producing a lesion which may later develop into cancer.

The rarity of cancer of the tongue in women is additional evidence. In the few cases of cancer of the tongue in women, the patients have used tobacco, usually in the form of snuff by the mouth.

When we study the histories with the idea of determining which is the most dangerous form of

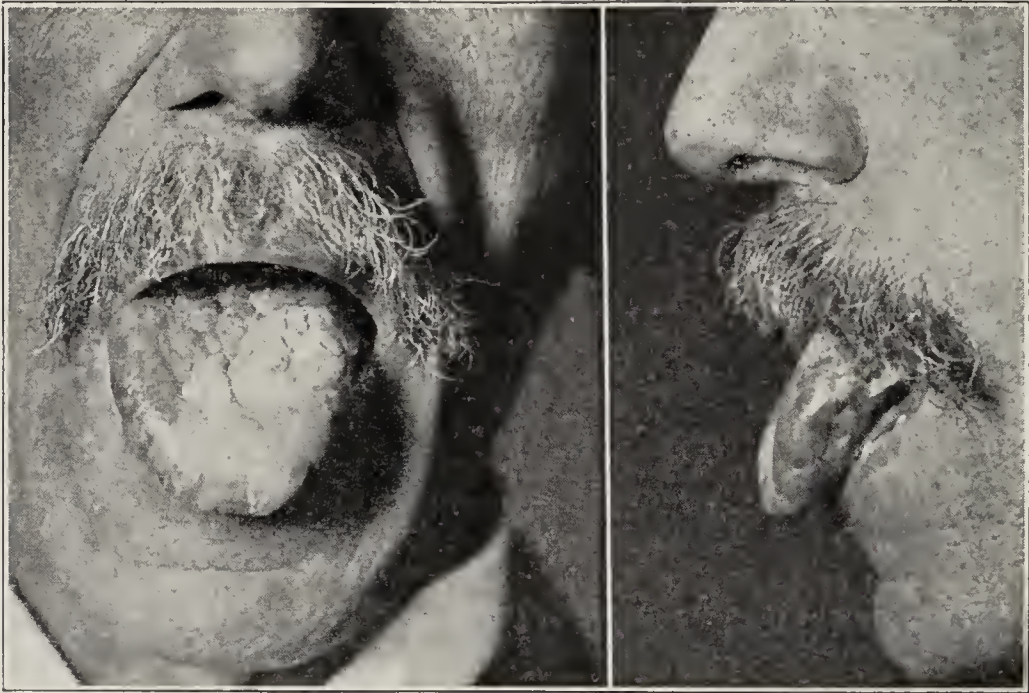


Fig. 3 (Pathol. No. 22760, JCB. 8283).—Extensive leukoplakia with stomatitis, fissures, and benign warty growth; Wassermann reaction, positive; well after three years.

TABLE 3.—DURATION OF CANCER OF THE TONGUE IN MEN

	Up to 1 Month	1 to 6 Months	6 Months to 1 Year	More Than 1 Year
Early malignant.....	12	12	3	..
Malignant warts.....	..	1	1	1
Advanced cancer.....	6	46	9	6
Hopeless cancer.....	..	25	9	5

period, 33 per cent. have become advanced, with only 12 per cent. chances of cure. This alone should be sufficient to justify the detailed description of the pre-cancerous lesions which appear in this article with illustrations. After one or two months and up to six months, twenty-five cases, or 29 per cent., had become hopeless and inoperable.

using tobacco—pipe, cigaret, cigars, chewing tobacco or snuff by mouth, we find numerous examples of cancer in patients who have used tobacco in only one form; many who have used it in all forms. The striking feature is the excess, not the form, the constant presence of tobacco juice in the mouth, and careless smoking, so that there is repeated burning of some one area, producing either an area of irritation, or a definite burn, or leukoplakia.

It seems quite reasonable to conclude that men can be educated to use tobacco moderately and in such a manner as to reduce the danger to a minimum, and to be instructed on the warning which would influence them to discontinue, at least temporarily, the use of tobacco in any form, and to keep the teeth clean and smooth.

Leukoplakia.—Among 160 cases of cancer of the tongue in men, leukoplakia had been observed by the patient for years before the appearance of cancer in forty-one cases. In twenty-seven of these cases, more than 50 per cent., there was a distinct history of local irritation from rough, dirty teeth, or improperly fitting plates. In fourteen cases, the leukoplakia alone seems to have been responsible for the development of cancer.

Leukoplakia and Syphilis.—There was a history of syphilis and a positive Wassermann reaction in nine cases, about 21 per cent. This is higher than the normal incidence of syphilis, which is from about 6 to 7 per cent.²

Bad Teeth.—In the records without a history or evidence of leukoplakia, there is a distinct history of ragged, dirty teeth producing a local area of irritation, present for months or years before the development of cancer, in forty-seven cases.

Good Teeth.—In three histories there is a definite notation that the teeth were in good condition, with no evidence of pyorrhea, roughness or dirt. These patients had no leukoplakia. One, however, had observed an area of irritation for seven years on the middle third of the lateral surface of the tongue which impinged on the teeth. This is very suggestive that the note on "good teeth" may be incorrect. In the remaining two cases, the patients smoked a pipe, and one had observed an ulcer for six months; the other an ulcer, for one year, on the tongue where the end of the pipe rested against the tongue. These histories are suggestive that the primary lesion was a burn, and the patients may have had their warning longer than six months and one year.

Area of Irritation.—In twelve cases in which there was no definite leukoplakia recorded, the condition which had warned the patients for months or years was a local area of irritation. From the histories, it is

difficult to tell whether this was due to a burn from smoking, or to irritation from bad teeth.

Ulcer.—In forty-three cases, the patients were aware of the presence of a definite local ulcer on the tongue or floor of the mouth for months before the development of cancer. In these cases, there was no record of leukoplakia, and the exact etiologic factor of the ulcer was sometimes difficult to determine. In a number of cases, there was evidence that the ulcer was due to a definite burn, in others to the fact that the patients kept chewing tobacco over the area; in others, again, to bad teeth; in a few to a definite wound from a foreign body or from biting the tongue—a wound which never healed.

Irrespective of the factors which caused the ulcer, the important fact remains—that forty-three patients had definite ulcers for months which could have been treated and cured before the development of cancer.

Syphilitic Lesion.—In only one case was the local lesion on the tongue apparently syphilitic in origin, and in this case the cancer developed in a gumma.

It is true, that in a number of instances the local lesion was treated for syphilis, in many, in spite of a negative Wassermann reaction and without positive evidence in favor of syphilis, and with the only result that proper treatment was delayed.

Wart.—In four cases the prominent precancerous lesion was a definite wart, present two and ten months, one and two years, respectively. The warts at operation were found to be malignant, easily removed, and the patients have remained well.

In only one instance of a fully developed cancer was there a history of a wart; but this patient had been warned for years by leukoplakia, and the wart was an example of hypertrophy of the epidermis

which now and then develops in the area of leukoplakia.

Fibroma.—This is a subepidermal nodule, apparently a scar tissue tumor. There were four cases of the condition. This is an uncommon precancerous lesion, because during the same time we had eight examples of benign fibromas removed from the tongue, the duration of the lesion varying from two weeks to fifteen years.

The four cases of fibroma in which cancer developed indicate the importance, however, of removing such a lesion of the tongue, because four out of twelve, 33 per cent., have become malignant.

In two of the cases, the histories are incomplete: One patient had observed the fibroma for nine months, the other patient for one year, more than sufficient time for its removal before the development of cancer. One patient had been warned for years by the presence of leukoplakia and had observed the nodule which suggested a fibroma for but two months. In this case, the cancer was not in the fibroma, but in the mucous

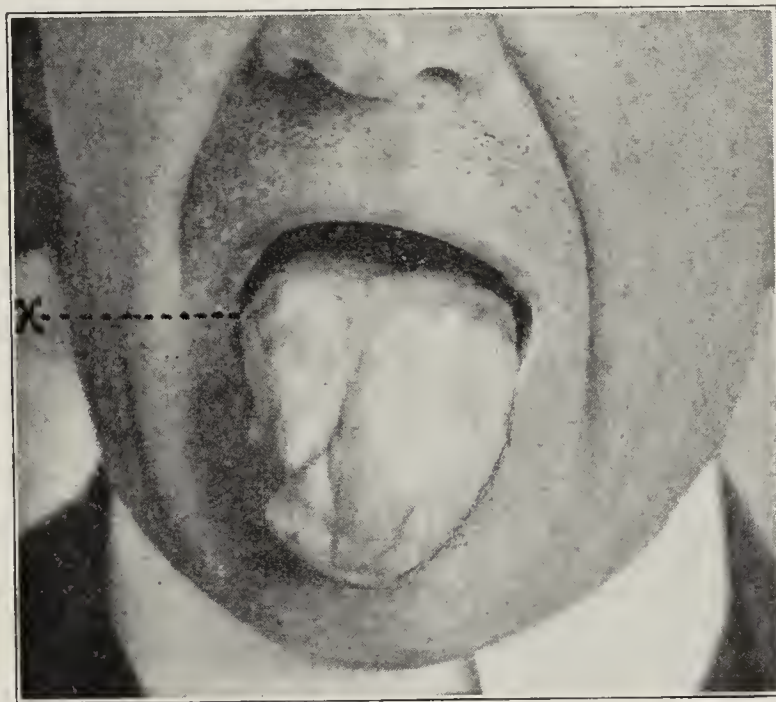


Fig. 4 (Pathol. No. 16416, JCB. 5888).—Extensive leukoplakia of tongue, stomatitis, fissures; Wassermann reaction, positive; of years' duration; small ulcer at X, of three weeks' duration, excised; microscopically, cancer; well after seven years.

2. Cary, N. A.: Frequency of Syphilis with Cancer of the Lips, Tongue and Buccal Mucous Membrane, J. A. M. A. 75: 858 (Sept. 25) 1920.

membrane covering it, in an old patch of leukoplakia, which had been irritated by a badly fitting plate.

In the fourth case, the patient had been aware of an area of irritation on the spot on which his pipe rested for years. A fibroma developed in this area, and later cancer.

TABLE 4.—SUMMARY OF PRECANCEROUS LESIONS IN CANCER OF THE TONGUE

Precancerous Lesions	No. of Cases
Leukoplakia.....	41
Bad teeth.....	47
Area of irritation.....	12
Ulcer.....	43
Syphilitic gumma.....	1
Wart.....	5
Fibroma.....	4
Smoker's burn.....	1

Smoker's Burn.—On the lip, this is a very common precancerous lesion; but on the tongue and floor of the mouth, it is one difficult to determine. I am of the opinion that a localized area of leukoplakia, of irritation, or a definite ulcer or fibroma may be due to the repeated burning from hot smoke. But in our records, I can find but one definite notation of a smoker's burn.

Pain.—Pain before the appearance of any other symptom has not been recorded as the symptom of onset.

Comment.—Therefore, in 154 out of 160 cases of cancer of the tongue we have a pretty definite history of a precancerous lesion. In the remaining six cases, the histories are too incomplete for any data. In the forty-three cases of ulcer, the histories are incomplete as to the lesion which preceded the ulcer.

There is not a lesion here that the ordinary individual could not recognize himself. All that the patients need to know is that it is a warning which should be immediately heeded by seeking the advice of a competent physician, who, with the aid of the dentist, should immediately remove the cause, and, if the lesion does not promptly disappear, refer the patient to a competent surgeon for proper treatment.

PREVIOUS TREATMENT IN ONE HUNDRED AND SIXTY CASES OF CANCER OF THE TONGUE

Excision of Piece for Diagnosis.—From my experience, this is unnecessary and may be dangerous. When the lesion is early and small, it is no more difficult to excise the area, with a good margin of mucous membrane and muscle, with the cautery; then a sufficient local operation has been performed, irrespective of the microscopic finding. This has always been my own rule, and I have never mutilated a patient with a benign lesion and never given a malignant lesion an insufficient margin. In advanced, hopeless and inoperable carcinoma, the excision of a piece for diagnosis is unnecessary.

The safest rule in excising a piece for diagnosis, if it is to be done at all, is to have it done by the surgeon who is to be responsible for the treatment and not by one inexperienced in the diagnosis and surgery of can-

TABLE 5.—PREVIOUS TREATMENT

Treatment	Cases				Total
	Early Ma- lignant	Ad- vanced	Hope- less	Inop- erable	
Excision of piece for diagnosis....	4	7	5	..	10
Extraction of teeth.....	3	10	5	3	21
Radium.....	4	2	2	2	10
Roentgen rays.....	1	3	1	..	5
Cautery.....	..	..	1	..	1
Caustics.....	7	15	9	5	36
Antisymphilitic.....	7	13	6	1	27
No treatment and no note.....	..	..	..	..	44
					160

cer of the tongue. Unfortunately, as a rule, in these sixteen cases, the piece was excised by one who was unwilling and untrained to assume the responsibility of further treatment after the diagnosis of malignancy had been made from the piece excised.³

PREVIOUS EXAMINATION BY PHYSICIANS OR DENTISTS

In going over the histories, I have recorded as a previous examination by a physician only those cases in which the examination was not followed by immediate appropriate treatment; that is, a member of the medical profession was a party to the dangerous delay. Of these fifty-four physicians, twenty-seven gave antisymphilitic treatment, others caustic treatment, or radium or roentgen rays.

The thirty-three dentists noted are those who extracted teeth or did some dental work without recognizing the malignant lesion of the mouth, and who were, therefore, through their inexperience, parties to the delay. I take the position that it is not the fault of the dentist, but of the members of the medical profession in the great clinics throughout this country who

TABLE 6.—PREVIOUS EXAMINATIONS

	Cases				Total
	Early Ma- lignant	Ad- vanced	Hope- less	Inop- erable	
Consulted physieian.....	15	23	7	9	54
Consulted dentist.....	7	14	6	6	33

have not published their data and thus given the members of the dental profession an opportunity to become familiar with the various types of the local lesions of the oral cavity which may develop into cancer, or which are cancer when they come under the observation of the dentist because of some required dental work.

3. Further data are given in the reprints.

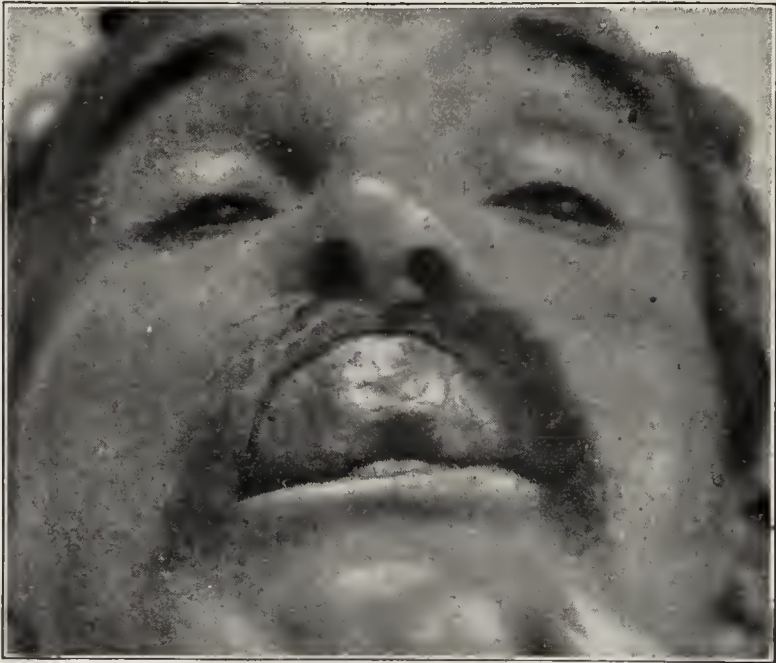


Fig. 11 (Pathol. No. 8574, JCB. 2092.—The ulcer on the under surface of the tip of the tongue had been present three months; factors, tobacco and irritating teeth; Wassermann reaction, negative; very little induration; complete excision; microscopically no tuberculosis or cancer; death eight years later of tuberculosis of the lungs.

To a large extent, the decrease in the number of deaths from cancer of the oral cavity is in the hands of the dental profession.

BENIGN LESIONS OF THE TONGUE AND FLOOR OF THE MOUTH

The types and numbers of benign lesions of the tongue of which I have records are: leukoplakia, 27; fibroma, 8; warts, 14; ulcer, 15; hypertrophied papillae, 8; cysts, 3; area of irritation, 12; tuberculosis, 15; syphilis, 4; geographic tongue, 2; angioma, 0; pellagra, 1; general stomatitis, 8, and fissures (cracks), 5.

The eight cases of general stomatitis and the five cases of fissured tongue are in combination with other lesions. The total number of benign lesions is 109. Four cases have been observed since Table 1 was made, recording 105 lesions.

Leukoplakia.—There were thirty-three cases of leukoplakia first observed in the benign stage. In nine of these, the Wassermann reaction was positive (27 per cent.). I have already noted that among 160 cases of cancer, leukoplakia was noted in forty-one cases, with nine positive Wassermann reactions (21 per cent.). Leukoplakia, therefore, is the most common benign lesion of the mouth that has come under observation. As a pre-cancerous lesion, it ranks second to bad teeth (leukoplakia, forty-one cases; bad teeth, forty-seven cases).

Benign leukoplakia has been seen in combination with fibroma four times, with hypertrophied papillae twice. In these six cases, the Wassermann reaction was negative. Benign leukoplakia and benign wart have been seen in combination in one case; the Wassermann reaction was positive.

As a rule, a warty growth associated with leukoplakia is very suggestive of beginning cancer.

Duration of Benign Leukoplakia.—The longest duration was fifteen years and was associated with a fibroma. This patient is well eleven years after observation and now has a clean mouth. The average duration of the leukoplakia in the benign group is less than one year. There are only four cases between one and five years.

It is very encouraging to note that in the last five years most of the patients with leukoplakia have sought advice and have had the causes removed within one year or six months after the onset.

In the majority of cases of cancer which have developed in areas of leukoplakia, the lesion had been present and recognized from five to thirty years. There are a few cases in which the disease was of apparently shorter duration.

Leukoplakia is a distinct lesion. It is a white patch in the mucous membrane, resembling somewhat a patch of enamel paint. On palpation, it is distinctly recog-

nized from the surrounding mucous membrane; it is harder and leathery in consistency. As long as the leukoplakia shows no tendency to crack or peel off, or form an ulcer, there is no indication for any treatment other than removal of the causes—tobacco, teeth, and syphilis when the Wassermann reaction is positive. The moment a patch of leukoplakia splits, scales, or desquamates and leaves an ulcer, the area should be excised with the cautery.

In my group of thirteen cases, excision has been practiced but four times. In every case of benign leukoplakia, as well as in cancer in leukoplakia, there is a definite history of excessive use of tobacco. While in forty-one cases of cancer in leukoplakia, there is a definite note of dirty, rough teeth in twenty-seven cases; in the benign leukoplakia, a similar bad condition has been recorded in all but one.

Results in Benign Leukoplakia.—Practically all of these twenty-seven patients have been followed up to date. The cause of the lesion has been removed, and none so far have developed cancer. It is interesting to note that I saw benign leukoplakia for the first time in 1911, and since then with each succeeding year, the number of cases observed by me is increasing, and, as a rule, the duration is shorter—a very satisfactory result of the educational propaganda.

Examination of the Oral Cavity.—As leukoplakia may be situated on any part of the mucous membrane of the oral cavity, it seems most appropriate to discuss the routine method of examination. This consists of inspection and palpation.

Inspection: This is best performed in a dark room with pencil hand electric light which can be inserted in the mouth. The tongue is inspected, grasped with a piece of gauze, pulled out,

and the papillae of the base, especially on the sides, carefully studied. One should look underneath the tongue and at the floor of the mouth; at the mucous membrane fossae behind the molars; at the gums on both sides of the teeth, and should examine the mucous membrane at the angle of the mouth and the hard palate.

Leukoplakia, as a rule, first appears at the angle of the mouth and behind the molars, at the tip and along the border of the tongue. The presence of even a small patch of leukoplakia is an indication that the patient is sensitized to tobacco and should discontinue its use in any form, at least until the leukoplakia has disappeared. The teeth should be inspected for sharp points, cavities and pyorrhea. If a plate is worn, pressure areas should be looked for.

Palpation: This is of the greatest importance and often tells more than inspection, and to interpret it, one must be familiar with the normal palpation of the tongue, the floor of the mouth, the gums, and the hard

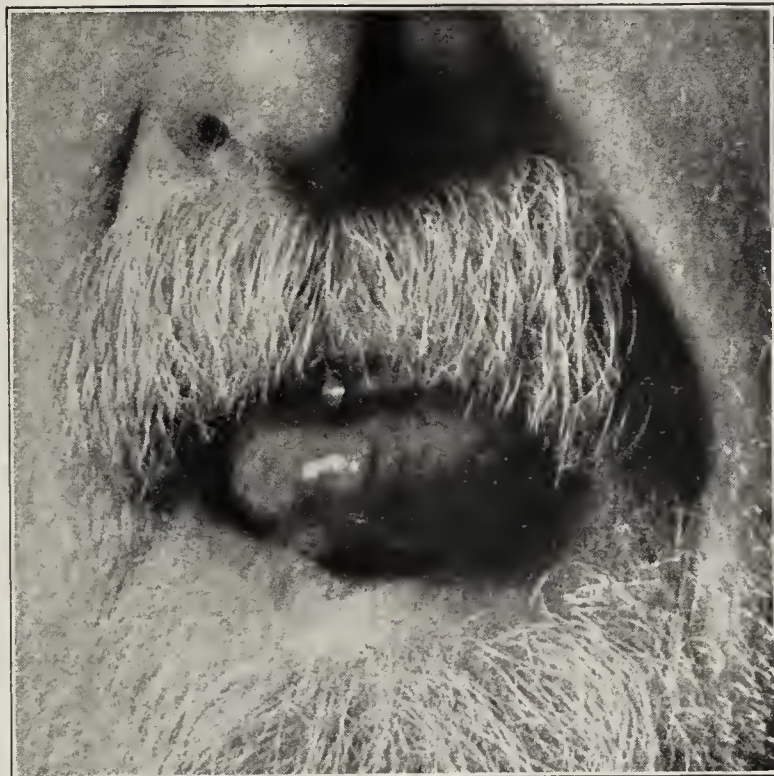


Fig. 12 (Pathol. No. 27351, JCB. 10267).—Area of irritation on tip of tongue; slightly elevated, smooth, red, opposite a ragged tooth; of one month's duration; no tobacco; Wassermann reaction, negative; healing after smoothing tooth.

and soft palate. Both hands should be washed; the fingers of the right hand placed in the mouth, and the patient instructed to relax the tongue as much as possible. The fingers should be passed over all areas of mucous membrane and the sense of touch of the involved area compared with that of the other areas. The tongue should be pinched between the thumb and the index finger; the floor of the mouth examined with the fingers in the mouth and below on the neck. This palpation will bring out the induration which, as a rule, is a sign of early cancer. Leukoplakia can be distinguished by palpation only.

This thorough inspection and palpation of the oral cavity had rarely been properly done in patients referred to me.

This routine and complete physical examination of the oral cavity by palpation and inspection can be developed to a high state of perfection, just as the physical examination of the chest and abdomen.

If the results of the examination indicate a distinctly benign lesion, the patient should be referred immediately to a dentist to have any indicated dental work done. If, however, the local lesion has reached the stage in which immediate excision is indicated, the dental work should be postponed until after the operation.

Treatment of Leukoplakia.—One should explain to the patient why the use of tobacco should be discontinued in all forms. He should be placed under the care of a competent dentist; directions should be given to wash the mouth frequently with a solution of sodium bicarbonate. He should be required to return for repeated examinations at stated intervals, until it is well established that there is no area which requires excision.

This condition of leukoplakia will be described in greater detail in a separate article, as it is one of the most important precancerous lesions of the mouth and should be well understood by both the medical and dental professions. I am unable to find any comprehensive article on this subject.⁴

BENIGN AND MALIGNANT LESIONS OF THE TONGUE IN WOMEN

During the period that we observed 265 lesions in men, there have been but forty-five in women. While the total percentage in men is 40, the total percentage of benign lesions in women is 75.

Table 6 shows the effect of the educational propaganda. In the first decade there are four cases—all malignant. It is interesting to note that three of these were in colored patients. One example of early cancer

has been lost track of; the one with advanced cancer died within sixteen months of recurrence; two cases (50 per cent.) were hopeless and inoperable.

TABLE 7.—SUMMARY OF LESIONS OF THE TONGUE IN WOMEN

	1920:1921 Cases		1910:1920 Cases		1900:1910 Cases		1889:1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Benign lesions.....	8	100	23	82	2	40	..	..	33	75
Early malignant...	..	..	1	3.5	1	20	1	25	3	6.6
Advanced cancer...	..	..	1	3.5	1	20	1	25	3	6.6
Hopeless cancer....	+	..	3	10	1	20	2	50	5	11
Totals.....	8		28		5		4		45	

The data as to etiologic factors in these four women are incomplete.

In the second decade (1900 to 1910) the percentage of benign lesions is only 40. The two benign lesions were wart and fibroma. Of the three malignant lesions the early and advanced cancer have been cured; one was inoperable.

The third decade (1910-1920) illustrates best the results of the program of education. There are twenty-three examples of benign lesions or 82 per cent. Of the five malignant tumors two were operable.

In the beginning of the fourth decade since 1920, only benign lesions of the tongue have been observed in the female.

The types and numbers of benign lesions of the tongue in thirty-three cases in women were: leukoplakia, 2; fibroma, 3; warts, 4; ulcer, 3; hypertrophied papillae, 9; cysts, 2; area of irritation, 8; tuberculosis, 0; syphilis, 1; geographic tongue, 0; angioma, 1; pellagra, 0; stomatitis, 2, and fissures, 0.³



Fig. 15 (Pathol. No. 16058, JCB. 5742).—Early malignant; typical small cancer ulcer on base of tongue, with induration of cancer; excised with cautery; well (1921) after seven years; ulcer of three months' duration.

MALIGNANT DISEASE OF THE TONGUE IN WOMEN

Fifty per cent. have been inoperable or hopeless—a somewhat worse showing than in men (31 per cent.). Of the three early malignant cases, two patients (66 per cent.) have been cured; one was lost track of. This corresponds to the 62 per cent. of cures in men. Of the three advanced cases, two patients (66 per cent.) have been cured, and one died of a recurrence. This is a better result than in men, in whom we have cured only 12 per cent.

It is yet to be proved that cancer of the tongue may develop in women who do not use tobacco in any form; but it is my opinion that one's attitude toward distinct local lesions on the tongue and floor of the mouth in women should be the same as in men whether there is a history of the use of tobacco or not.

CONCLUSIONS

The guiding rule should be not only the early recognition of cancer of the tongue, but the recognition and

4. Other benign lesions are discussed in the reprints.

appropriate treatment of the benign lesions which precede cancer by months or years, and the recognition of the causes of these lesions—tobacco and irritating teeth.

The message to the people is short and simple; but the message to the medical and dental professions must be in great detail, because if the people seek advice early, the profession must be prepared to recognize the early precancerous stage or the earliest stage of cancer when diagnosis is difficult and proper treatment simple.

SHORT RÉSUMÉ OF THE EDUCATIONAL PROPAGANDA

It is strange but true that surgeons for years have been content to employ the tedious, difficult operative treatment of cancer when they knew that their operative mortality was high and their permanent results low. Surgeons must have concluded for years that the ordinary patient, without specific information, rarely, if ever, sought advice in the precancerous stage, and seldom and accidentally in the earlier and more favorable operative stage of malignant disease.³

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THE SURGERY OF THE TRIGEMINAL TRACT *

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PHILADELPHIA

It is quite within the memory of most of us when J. Ewing Mears of Philadelphia, in 1884, first proposed the removal of the gasserian ganglion and when Hartley of New York, in 1891, first performed this operation

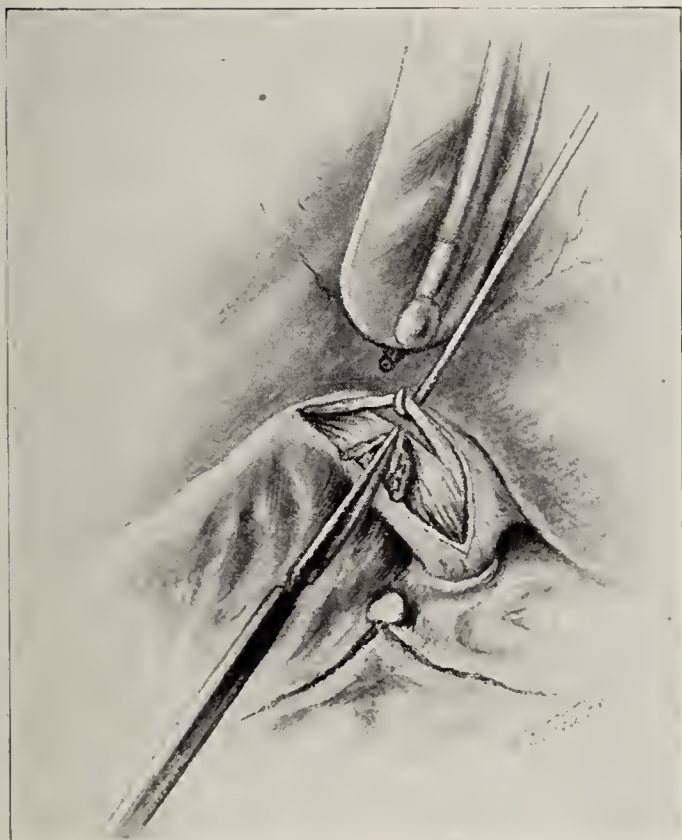


Fig. 1.—Subtotal division of sensory root according to author's technic. The innermost fasciculus of the root has been isolated on a hook. The remainder of the root has been sectioned.

by the so-called Hartley-Krause method, at that time and for many years afterward thought to be a venture-some and hazardous bit of brain surgery. And most of us, too, will remember that paper of Tiffany's, pub-

lished in the Transactions of the American Surgical Association in 1896, which recorded with pride, at that time seemingly justified, a mortality of 22 per cent. And then still later that contribution by the indomitable Keen,¹ so frequently quoted, who reported the results of eleven extirpations of the ganglion. It is a far cry from that day to this—a span of thirty years—when



Fig. 2.—Exposure of sensory root of gasserian ganglion as recommended in our technic. Note that the root is exposed throughout its entire course in the middle fossa.

the number of operations on the trigeminal tract is expressed in hundreds, and of these increasing opportunities, advantage has been taken to remove the hazards and to minimize the risks, so that today it is one of the least dangerous of the major operations. Even as late as 1914, Da Costa in his *Modern Surgery* places the mortality at between 10 and 17 per cent., whereas in the last 177 consecutive operations I have had but one operative fatality.

During this period of evolution from 1891 to the present, the peripheral operations of the terminal branches of the several divisions have been abandoned, and alcoholic injections have taken their place. During the same period, operations on the gasserian ganglion have been replaced, with trivial exception, by operations on its sensory root. The procedures which I have included in the title of this communication under "The Surgery of the Trigeminal Tract" are: (1) subtotal resection of the gasserian ganglion; (2) resection of the sensory root, subtotal; (3) resection or avulsion of the sensory root, total, and, (4) resection of the motor root.

SUBTOTAL RESECTION OF THE GANGLION

For these intracranial procedures the approach is the same. The manner of approach takes into consideration two equally important matters: (1) the cosmetic result and (2) convenience of access to the ganglion and its root. Intense as their suffering is, patients invariably inquire whether there will be any disfigurement, and their preconceived notion of disfigurement, facial paralysis and loss of sight must be set at ease. Even today this conception of the untoward effects of

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Keen, W. W.: *Am. J. M. Sc.* 116, 1898.

the operation is carried in the minds of many physicians and is transmitted in turn to their patients. The incision should be concealed within the hair line and must be anatomically correct; by that I mean must avoid the temporal branches of the facial nerve, which supply the occipitofrontalis, the orbicularis palpebrarum and the corrugator supercilii muscles. My approach to the ganglion differs from others in that it involves the fashioning of two flaps; a cutaneous flap, which is reflected forward, and a musculo-aponeurotic flap, which is reflected backward. When these flaps are reflected in either direction and sutured to the wound draperies, there is no need for retractors or retraction. An avenue is opened through the temporal fossa wide enough at all times to give the operator an ample and unobstructed view of the structures with which he has to deal. No one knows why a transitory facial paralysis once in a while follows the major operation. Many hypotheses have been advanced; but leaving speculation and coming to the facts, I know that since I have

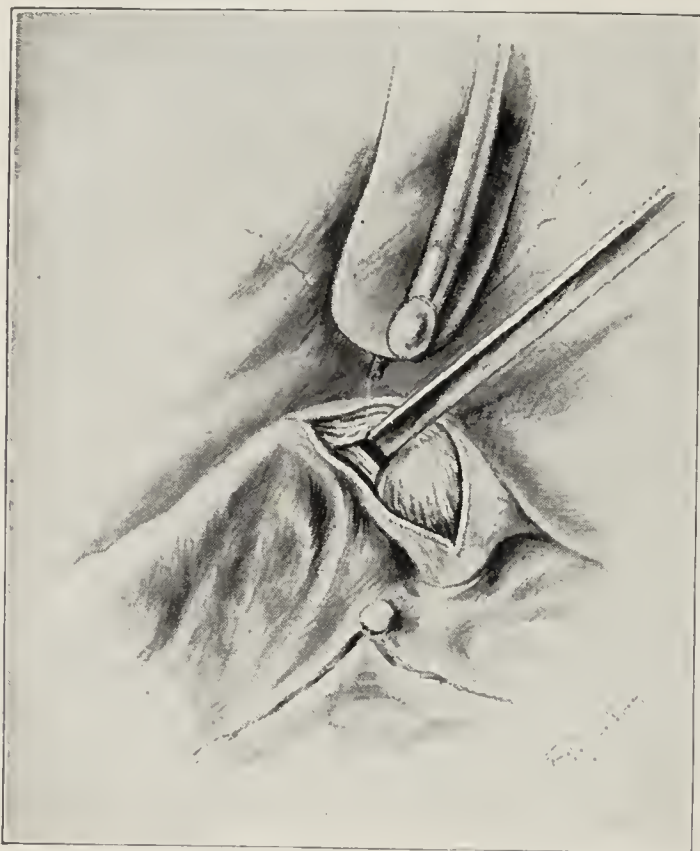


Fig. 3.—Elevation of the sensory root before its avulsion for exposure and identification of the motor root. The latter may be seen beneath the retractor.

adopted the flap operation and have had ample access without retraction, there has not been a single instance of facial paralysis in a series now including more than 121 consecutive operations. After the first fifty operations there were three cases, and after the second fifty operations there were four cases; since then there have been none.

I make no attempt to correlate those facts. Experience is the wisest teacher. Having had no involvement of the facial nerve since the introduction of the flap operation, and having seen seven cases before that, there seemed to me but one logical course to pursue.

There is no simpler way of controlling hemorrhage from the middle meningeal artery than by plugging the foramen spinosum with cotton. The artery can then be cut, as it should be, without fear of hemorrhage either during the operation or subsequent thereto. Should there be a drip from the peripheral stump at the conclusion of the operation, a tiny muscle graft superimposed will control it.

I have included in this discussion partial resection of the ganglion, as proposed by Hutchinson, not for approval but for disapproval. Hutchinson maintains that a partial resection of the ganglion is equivalent to avulsion of the sensory root as to permanency of results. Harris,² on the other hand, states that this operation is not a "certain permanent cure," as he has seen three cases of relapse in patients on whom Hutchinson had performed his operation. Hutchinson maintains further that his operation is simpler and therefore less hazardous. In substantiation of this statement, he quotes statistics from his own and from Horsley's experience with 200 cases with a mortality of less than 5 per cent. These results he characterizes as "surely satisfactory enough." I maintain that the operation is more difficult than that on the sensory root, and my position is sustained by the fact that no one of those who have expressed their views in the current literature of any country advocates the Hutchinson operation but Hutchinson himself.

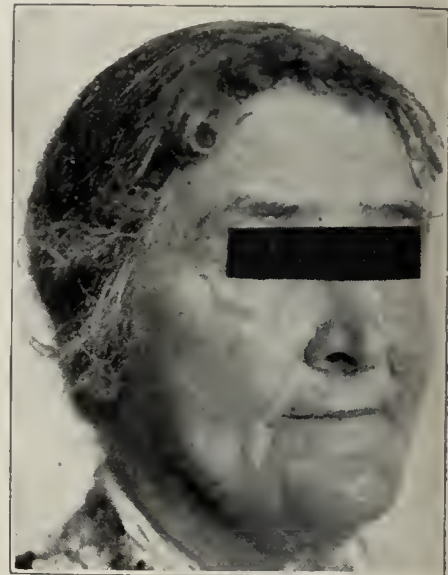


Fig. 4.—In a case of bilateral trigeminal neuralgia the patient is able to masticate food and keep the mouth closed by virtue of the fact that the motor root has been conserved.

SUBTOTAL RESECTION OF SENSORY ROOT

Now the operation on the sensory root, as we practice it, implies an exposure of the root not only at its entrance to the ganglion but from that point back to where it enters the middle fossa through an oval space in the tentorium, that is, throughout its entire course in the middle fossa. This is essential, and to secure this exposure the dura must be separated entirely from the anterior surface of the petrous bone. This free and wide dural separation, not only at the base, but on either side of the orifice in the temporal bone, practically throughout the middle fossa, is essential for the exposure of the root with a minimum of trauma to the uplifted temporosphenoidal lobe. The sensory root thus exposed may be dealt with in one of several ways: It may be avulsed, that is, torn free from its attachment to the pons; it may be merely cut across; the root may be severed in its entirety or only in part; the motor root may be sacrificed with the sensory root, or the motor root may be conserved.



Fig. 5.—After the operation, a section of the motor root of the trigeminal nerve, the patient is able to open the mouth as he could not before.

2. Harris, W.: Brit. M. J. 1: 693 (May 22) 1920.

First, a word as to what I may refer to as subtotal resection of the sensory root (Fig. 1). By this expression, I imply leaving one of the inner fasciculi intact. We recognize tropic keratitis as a complication of varying incidence following the radical operation. To be sure, when recognized promptly and treated properly, the epithelium rapidly proliferates and within forty-eight hours the defect in the cornea is repaired. But can we eliminate this complication altogether? Possibly by leaving one or two of the inner fasciculi of the root intact. We know there are subdivisions of the ganglion corresponding to each of the peripheral divisions, ophthalmic, maxillary and mandibular. May there not be corresponding representations of those subdivisions in the root? I believe there are, and if the portion of the root corresponding to the ophthalmic division is not divided, one might assume with reason that corneal complications may be altogether eliminated. One presupposes, of course, that this subtotal resection would be appropriate only when pain was not referred to the first division. I wish now merely to put on record a series of cases in which this modification of the radical operation was practiced within the last two years. Up to the present time, there has been no recurrence; but before approval or acceptance, the operation must stand the test of a longer period of time. Should there be an expression of pain in those cases now under observation, any merit the operation might otherwise have would have to be disregarded. It is not at all a difficult matter to isolate the innermost fasciculus of the sensory root as implied in subtotal resection. The sensory root having no sheath is of very loose texture. One can readily see with the naked eye the individual fasciculi, and with a suitable instrument, one can separate the fasciculus to be conserved from those to be divided.

TOTAL RESECTION OR AVULSION OF THE SENSORY ROOT

Speaking now of total severance of the sensory root. Is it a matter of any consequence whether the root is avulsed, that is, torn from its attachment to the pons, resected, or merely sectioned? So far as the physiologic effect is concerned, there can be no difference in the end-results, no matter by which of these three methods the continuity of the root is broken. The sensory root cannot regenerate, and its mere division implies, as Van Gehuchten once said, the physiologic extirpation of the ganglion. From the technical standpoint, one method can be executed as readily as the other. It should, however, be stipulated that it is difficult, if desired, to conserve one or two of the fasciculi when avulsion is practiced. The traction on the root in avulsion will carry away all the fasciculi.

The most recent modification of the radical operation has to do with the conservation of the motor root. In an earlier communication, I called attention to the possibility of conserving the motor root, but since that communication, with repeated opportunities to put this modification into effect, I can speak now with greater confidence. To execute this step of the operation it is essential that the sensory root be liberally exposed throughout its course from ganglion to tentorium (Fig. 2). Only by this liberal exposure will it be possible by elevating the root to secure an adequate view of the motor root, which as you know is immediately beneath the sensory root. Though not so large as a single fasciculus of the sensory root, the motor root with experience may be thus exposed, and

should there be any doubt as to its identity this doubt is at once dispelled by stimulating the root with an electrode and observing a contracture of the fibers of the temporal muscle on either side of the wound of entrance. The exposure of the motor root (Fig. 3) is so easily obtained that one wonders why for so many years it was needlessly sacrificed. While prolonging the operation somewhat, the additional time is well spent in preventing what we once regarded as inevitable atrophy of the temporal, masseter and pterygoid muscles. This is of advantage not only from the standpoint of cosmetics or of the greater ease of mastication but also because it at once solves the problem of how to deal with bilateral neuralgia. Hitherto one was at a loss to know what to do for the relief of the major trigeminal neuralgia which developed on the side opposite that on which the major operation had already been performed.

In 1920, I avulsed the sensory root on the right side in a patient aged 57 (File No. 62943), who had a bilateral trigeminal neuralgia (Fig. 4). The operation was performed on the side on which the pain was of the longest duration and of greatest intensity. The motor root was conserved. The pain on the opposite side was in the third division, and before the patient left the hospital, to afford her at least temporary relief, I gave her an alcoholic injection. Immediately afterward, the patient could not close the mouth at all. This was anticipated for I have observed that, even though the motor root is intact, the trauma incidental to the operation arrests for a short time its function. But function is soon reestablished, as it was in this case, so that within a few months the patient could close the jaw and masticate food.

RESECTION OF THE MOTOR ROOT

Finally, should occasion arise, one may divide the motor root and leave the sensory root intact. There happened in my clinic a patient with a bilateral trismus, a spasmodic condition of the muscle supplied by the motor root of the trigeminus, a condition analogous to facial tic or spasm. Attempts had been made on several occasions by alcoholic injection of the mandibular division to control the spasm, but with only transitory relief. The jaws were, for the greater part of the time, clenched, to the great discomfort of the patient. That the motor spasm might be controlled in part by section of the motor root on one side seemed a logical deduction (Fig. 5). The operation was unattended with any difficulty, and the patient enjoyed a considerable measure of relief.

CONCLUSION

It is just twenty years since the sensory root operation, as proposed by Spiller, was first performed. It has more than fulfilled the claims of its sponsor as safer than a gasserectomy, yet with all the assurance of permanent relief. In these two decades, the modifications of the technic in minor details have been made from time to time until today the operation might be said to be a finished product. I confess to having had two recurrences in a series of 221 operations. These recurrences should not be charged to the principle underlying the sensory root operation. They were due in these two cases to errors in technic, for I found at the secondary operation, performed twelve years later, that in both instances a portion of the root had not been divided at the first operation. I had some misgivings in attempting a second operation in the same field,

fearing difficulties from adhesions, and was agreeably surprised to find that the second operation was as free from technical difficulties as the first.

It would seem as though the major operation for trigeminal neuralgia had reached a stage of perfection that left nothing to be desired. Yet so many advances have been made in surgery and are being made, that one cannot tell what the future may hold. Satisfactory as the technic now is, satisfactory results will follow only when proper discrimination has been exercised in the selection of cases. The operation should be reserved for what we call major trigeminal neuralgias, or if you choose, Fothergill's disease. When mistakes in diagnosis are made, it is quite possible, if not probable, that the operation will afford little if any relief. Our mastery of the treatment of major trigeminal neuralgia clears the field for study of those other forms of neuralgia, which, while in the trigeminal zone, do not originate in any lesion of the nervus trigeminus, and are not relieved by any operation on it. Our thoughts are now directed to the sympathetic system. What part the sphenopalatine ganglion may play in the etiology of these atypical forms is a question deserving thoughtful consideration. Accumulating evidence in my clinic has at least aroused our suspicion. It may be that the next advance in the surgery of neuralgias will deal with the resection of the sphenopalatine ganglion. The technic for its removal is now engaging our attention. A decade hence it may be included among the conventional surgical procedures.

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ABSTRACT OF DISCUSSION

DR. GILBERT HORRAX, Boston: Even at the present time a great many members of the profession regard the operation as one of extreme danger. The best proof for this is the fact that a large number of patients suffering from trigeminal neuralgia are referred by other patients to the surgeon rather than being referred by their physicians. The operation is almost free from mortality. It is a very arduous, tiresome and sometimes a painstaking procedure. At the Brigham Hospital there have been 345 consecutive cases without a death. As to the subtotal resection of the sensory root for the ganglion, I think I would differ from Dr. Frazier a little. So far as we know all the evidence goes to show that true tic douloureux is absolutely a progressive disease; it progresses from one division to another. We have found that it always progresses in time over all three divisions. It will be interesting to see how long Dr. Frazier's patients go without return of pain in the ophthalmic division. However, eye complications are very slight, 10 per cent., at the most. There are four or five distinct types of neuralgia which are increasingly drawing our attention and in which operations have been done without any benefit at all. That brings up the question of alcoholic injections. They are sometimes of use in differentiating the types of neuralgia. Alcohol injection gives complete relief that will differentiate trigeminal from other neuralgias perfectly. The only other point about the injection is sometimes when you are in doubt as to whether to do complete sensory root avulsion or not, an alcoholic injection will give a temporary anesthesia over the area involved and thus get the patient used to what he will necessarily have to go through—the entire numbness of the face after sensory root avulsion.

The Fundamental Physiologic Requirements of Muscular Performance.—O. Riesser discusses, from the therapeutic standpoint, the various factors that influence muscular performance, such as drugs, diet and, above all, physical exercise. In the multiplicity of its forms, its capacity for exact dosage and graduation of its effect, physical exercise is one of the most potent weapons for bringing a general systematic influence to bear on the organism as a whole.—*Therapeutische Monatshäfte* 34: 589, 1920.

THE WHITMAN LOOP OPERATION FOR EQUINOVALGUS*

SAMUEL KLEINBERG, M.D.

NEW YORK

It is common knowledge that the tibialis anticus muscle is frequently irreparably damaged by an attack of infantile paralysis. Thus a very important dorsal flexor and adductor is lost, and the foot cannot be dorsiflexed to the normal degree or adducted when at a right angle to the leg. Frequently, too, the tibialis posticus muscle is paralyzed or weak, and there is no power of adduction of the foot even in equinus. In a limb in which the tibialis anticus is paralyzed and the tibialis posticus is paralyzed or

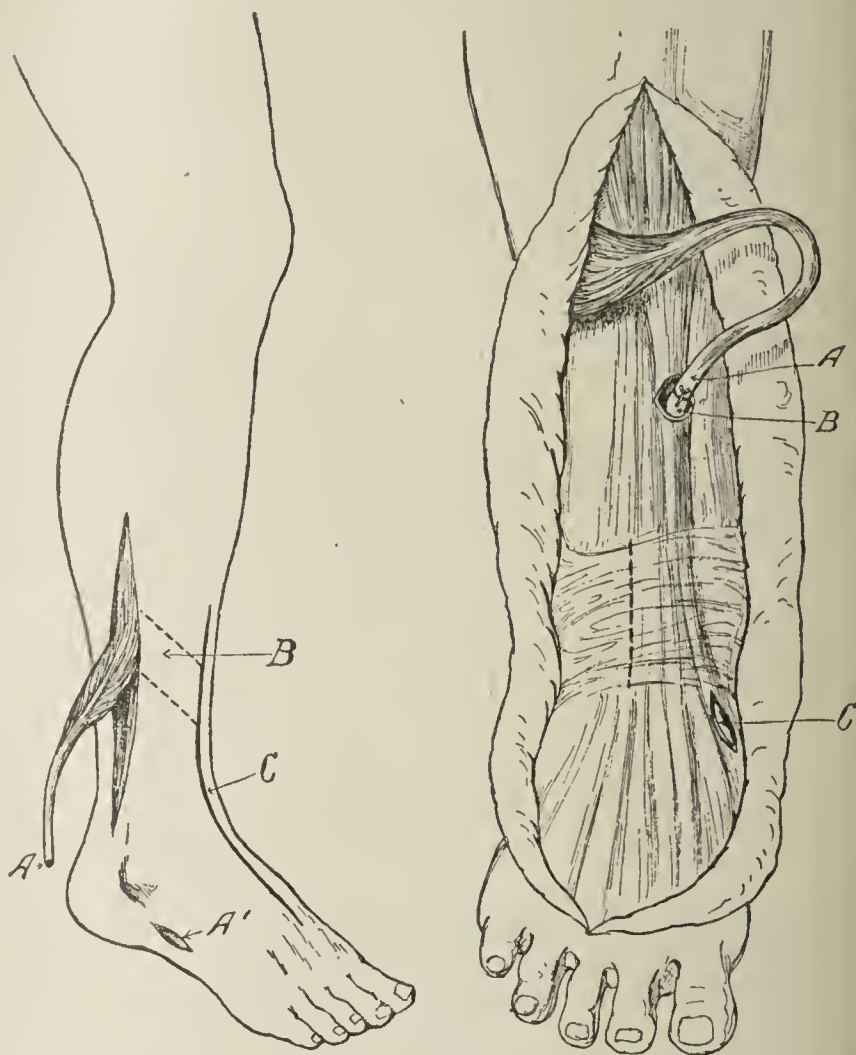


Fig. 1.—Technic of loop operation: A, peroneus brevis tendon; A', distal part of peroneus brevis; B, direction of transplantation of peroneus brevis; C, median incision for exposure of dorsiflexor tendons.

Fig. 2.—A, peroneus brevis tendon; B, C, distal part of tibialis anticus tendon.

weak, the foot is in an attitude of equinovagis. The vagis is usually the more prominent element of the deformity. If the attitude of equinovagis is permitted to persist, the Achilles tendon and the peroneus tendons become contracted and a resistant deformity results. With an equinovagis deformity the individual walks badly and with a marked limp. In analyzing the deformity of equinovagis we find, in addition to the contraction of the heel cord and peroneus tendons, two important factors: (1) During dorsal flexion the foot invariably goes into vagis, the dorsal flexors are displaced to the outer side of the foot, and the tendon of the peroneus tertius is very prominent. (2) The dorsal flexor tendons are frequently unable to raise the foot to a right angle. The correction of

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

this deformity therefore involves two problems: (1) To place the dorsal flexor tendons so that when they function they will hold the foot in a normal or neutral position in relation to the leg. (2) To reinforce the dorsal flexors by transplantation of other tendons. The loop operation was devised by Dr. Royal Whitman to meet these problems.

The loop operation consists of the following essential steps: (1) The displacement of the dorsal flexor tendons to the inner side of the foot. The displacement is assured by looping the distal part of the tendon of the tibialis anticus about the dorsal flexors and implanting it into the tibia. (2) The transplantation of the peroneus brevis to the inner side of the foot, preferably through the sheath of the tibialis anticus, whose function it is to perform. As the

reasonable to assume that in this position it will have, by virtue of its direction and location, the best opportunity to duplicate the function of the tibialis anticus.

TECHNIC OF THE LOOP OPERATION

A vertical incision is made over the lower half of the external surface of the leg down to a point behind the external malleolus. The sheath of the peroneus muscles is incised and the peroneus brevis separated from the peroneus longus. An inch incision is then made over the proximal part of the fifth metatarsal bone and parallel to the external border of the foot. The tendon of the peroneus brevis is identified and is cut from its attachment. This tendon is inserted over an area of about three-fourths inch, and its attachment must be thoroughly separated. The

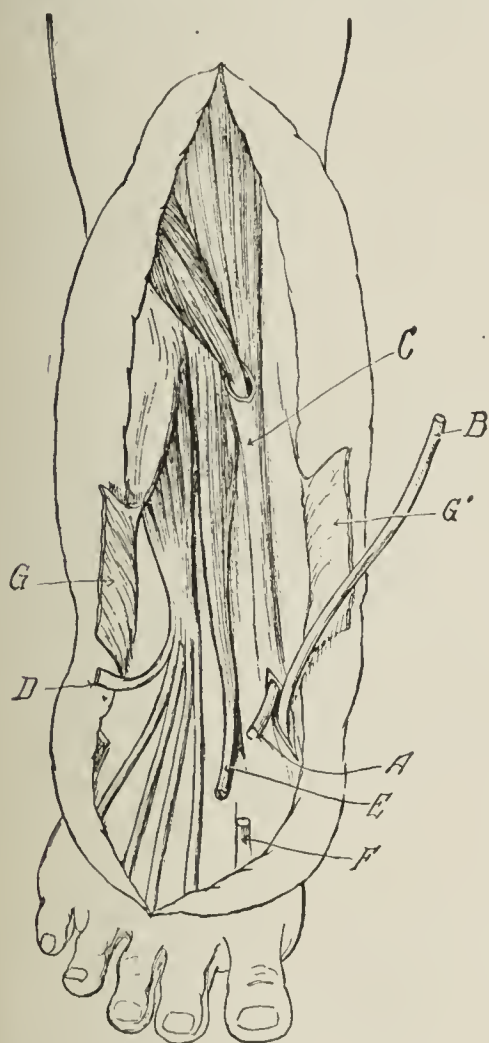


Fig. 3.—Peroneus brevis tendon, pulled through sheath of tibialis anticus; B, distal free portion of tibialis anticus tendon; C, sheath of tibialis anticus; D, peroneus tertius tendon; E, F, proximal and distal parts of extensor proprius hallucis tendon; G, G', annular ligament.

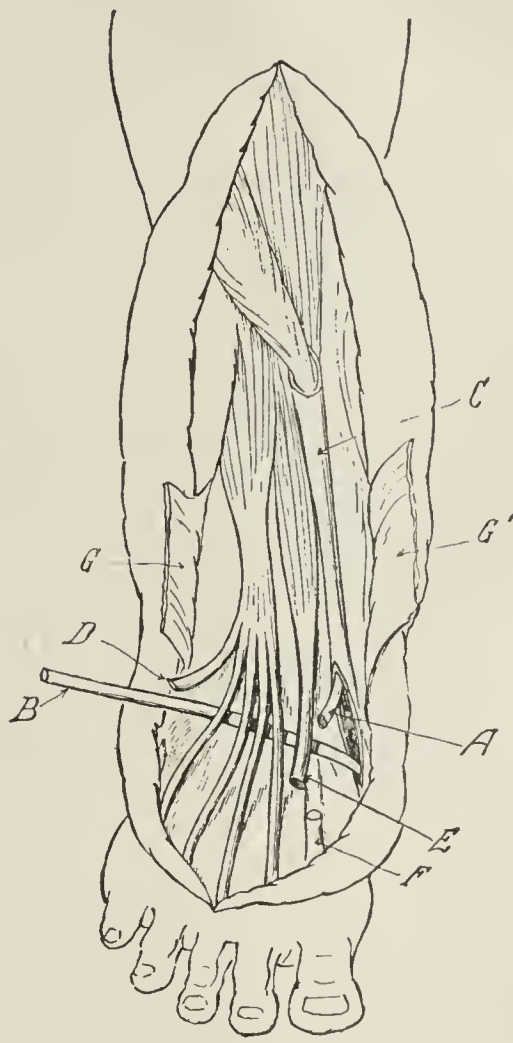


Fig. 4.—A, peroneus brevis tendon; B, tibialis anticus tendon; C, sheath of tibialis anticus tendon; D, peroneus tertius tendon; E, F, proximal and distal parts of extensor proprius hallucis tendon; G, G', annular ligament.

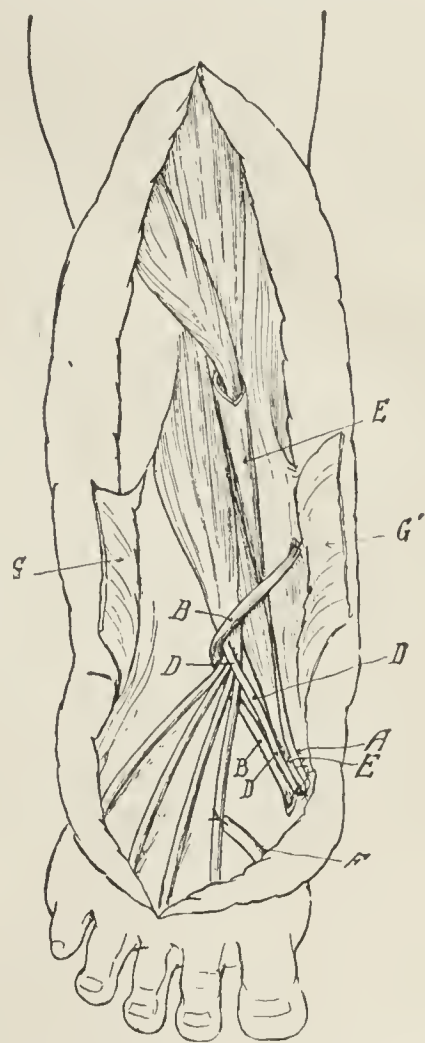


Fig. 5.—A, peroneus brevis tendon, D, peroneus tertius tendon, and E, extensor proprius hallucis tendon, sutured at site of attachment of tibialis anticus tendon; B, tibialis anticus tendon looped about dorsal flexors and implanted into tibia; F, distal part of extensor proprius hallucis sewed to neighboring dorsal flexor tendon to prevent toe drop.

peroneus brevis is not as strong as the tibialis anticus, it is reinforced by transplantation of the peroneus tertius and extensor proprius hallucis to the inner side of the foot. The transplantation of the peroneus tertius is a very important part of the loop operation and has a dual advantage. First, this muscle helps to dorsiflex the foot in an improved attitude. Secondly, by being displaced from its normal position, the muscle is removed as a factor in the causation of the valgus. The peroneus tertius has always been considered small in size and of little consequence. Dr. Whitman and I have, however, in a number of cases found this muscle to be surprisingly large. At times its muscle belly was three-fourths inch in diameter. Clinically it appears of primary importance in maintaining valgus. The peroneus brevis is transplanted through the sheath of the tibialis anticus because it seems

tendon in the upper incision is elevated with a dull instrument and pulled out from its sheath. It is then separated from the fibula for about 3 or 4 inches above the malleolus. In this procedure some of the muscle fibers have to be torn away from the fibula.

An incision is then made over the middle of the ankle, extending from several inches above the ankle joint down to about the middle of the metatarsal region. The skin and subcutaneous tissue on both sides of the incision are elevated so as to expose all of the tendons on the front of the ankle. In order to avoid subsequent sloughing of the skin, the subcutaneous tissue should be elevated together with the skin. On account of the thinness of the skin and the scant amount of fatty and areolar tissue, it is important to avoid rough manipulation or tearing with sharp instruments. A small transverse incision is

then made in the sheath of the tibialis anticus about $2\frac{1}{2}$ inches above the ankle, and the tendon of the tibialis anticus is cut. The tendon of the peroneus brevis is then brought over to the front of the leg through a subcutaneous tunnel, and sewed with a single suture to the distal part of the tendon of the tibialis anticus. The distal part of the tibialis anticus tendon is then pulled out of its sheath, and at the same time the peroneus brevis is pulled into it. When the tendon of the peroneus brevis emerges through the lower pole of the sheath of the tibialis anticus, the suture holding it to the tibialis anticus tendon is cut. A strand of No. 2 or 3 catgut is then attached securely to the tendon of the peroneus brevis. The distal part of the tendon of the tibialis anticus is now loose in the wound.

The annular ligament of the ankle is now cut just below and in front of the external malleolus. The peroneus tertius is cut at its attachment; it is freed from the surrounding tissues to a point a little above the ankle so that it can be displaced inward. It is then passed in front of the other dorsal flexors and brought into contact with the tendon of the peroneus brevis. Recently we have been transplanting this muscle through the sheath of the tibialis anticus together with the peroneus brevis. The tendon of the extensor proprius hallucis is then cut near the corresponding metatarsophalangeal joint, its distal end is sewed to one of the common dorsal flexor tendons, and its proximal end is brought over and sutured to the peroneus brevis and peroneus tertius tendons. With a dull instrument the dorsal flexor tendons are raised up and displaced inward. The tendon of the tibialis anticus is then passed behind all the dorsal flexors from within outward, and then in front of them from without inward to be attached later to the tibia. This looping of the tendon of the tibialis anticus about the dorsal flexors assures the inward displacement of these tendons and gives the operation its name.

The foot is then brought to a right angle. If this is not possible, the heel cord is cut subcutaneously. The tendons of the peroneus brevis, extensor proprius hallucis and peroneus tertius are then sewed to one another and passed through a slit in the tibialis anticus tendon and attached with kangaroo sutures to the bone and other structures at the site of attachment of the tibialis anticus. This attachment must be made secure and covered up with a layer of subcutaneous tissue so that there will be no chance of slipping. The tibialis anticus is then implanted into the tibia. In implanting this tendon it is important that the foot be in about 100 degrees of plantar flexion. If the foot is at a right angle or less than a right angle, the result will not be good because walking will be awkward; and, if the calf muscles are weak, a resistant calcaneus will develop.

The wounds are then closed with several layers of catgut sutures and the limb is put up in a plaster foot bandage with the foot adducted and forming an angle of 100 degrees with the leg.

POSTOPERATIVE CARE

As soon as the sensitiveness of the foot has disappeared, the patient may be permitted to walk. This usually takes a week or ten days. The plaster-of-Paris bandage should be removed at the end of about four weeks. The patient is then provided with a flat foot brace and the shoe is raised from one-eighth to one-

fourth inch on the inner side. An important point in the after-care is the retention of the foot continuously in the median line or in slight varus and at about a right angle to the leg. To this end a posterior splint is advised for the night. When the original plaster bandage is removed, there is only slight voluntary motion in the foot. Within a few days this motion increases and can be further increased by massage, manipulation and muscle training, always bearing in mind to instruct the patient to hold his foot in the median line. The favorable range of motion for the foot in which the loop operation has been performed is from 80 degrees dorsal flexion to 120 degrees plantar flexion. It is well, therefore, that the foot be manipulated to retain this range of mobility. To make this possible, the tibialis anticus tendon must not be too short. In cases in which it was triced up too much, a moderate degree of calcaneus resulted.

RESULTS OF THE LOOP OPERATION

The loop operation was performed thirty-two times on thirty patients, two of the patients requiring the operation on both feet. The ages of the patients varied from $4\frac{1}{2}$ to 28 years. The duration of the paralysis ranged from three to twenty-six years; in twenty-three cases the paralysis had existed from three to four years. The transplanted peroneus muscle was active in seventeen cases, inactive in three cases, and in the others there was no note regarding its function.

In classifying our results, excellent was applied when the deformity was entirely corrected and remained so under weight bearing, and the function of the foot was practically normal. If the deformity was corrected but the mobility of the foot restricted, the result was considered good. If the deformity was only partly corrected and dorsal and plantar flexion restricted but the patient evidently walked better than before the operation, the result was considered an improvement. According to the foregoing classification, fourteen of our cases showed an excellent result. In ten cases the result was good. Five cases were improved and one was a failure. Two cases were not classified because there was no final note. Four of the cases here considered good had originally been classified as excellent. This change was made because the function had decreased. In two of these patients the reduction in function was due to weak dorsal flexors; in one the plantar flexion was reduced because the tibialis anticus was pulled up too tightly, and in the other case the change in function was attributed to lack of after-care. In the cases in which there was only an improvement, the records show that one or more of the calf muscles, peronei or dorsal flexors were weak before the operation, thus precluding a satisfactory result and showing the importance of selecting appropriate cases for operation. In one case there was complete failure. In this patient it was found at the time of operation that the peroneus brevis was very pale and evidently paralyzed or almost so. Hence the peroneus longus was transplanted instead. The calf muscles were only weakly active. The result was, as we might have expected, a resistant varus and a failure.

The loop operation is intended for the permanent correction of paralytic equinovarus in a foot in which all of the muscles about the ankle except one or both of the tibiales are strongly active. If the muscles are only weakly active and the condition is one of prac-

tically a dangle foot, the result will not be satisfactory for, on account of the muscle weakness, the implantation of the tendon of the tibialis anticus may produce a resistant varus or calcaneus. In a foot in which the calf muscle is weak and atrophied and the dorsal flexors very active, this operation is distinctly contraindicated because with the foot suspended and plantar flexion restricted by the implanted tibialis anticus the weakly active calf muscle loses its function and a calcaneus will be the result. It is also important to be sure that the untransplanted peroneus longus is strong and remains as a strong abductor. For if it is weak a resistant varus will develop. It is equally important that this operation should not be performed on a foot in which the dorsal flexors are very weak. The transplanted peroneus brevis is intended to supplement and not replace the dorsal flexors. If these muscles are weak, dorsal flexion will be impossible and an equinus will result. Thus it is evident that the results of the loop operation depend entirely on the proper selection of the cases. This operation should be performed only when the dorsal flexors, peronei and calf muscles are strongly active. In such cases the result when the proper technic has been employed will be excellent.

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ABSTRACT OF DISCUSSION

DR. WALTER G. STERN, Cleveland: I have performed this operation several times, splicing all the tendons together; but with a little knowledge picked up while touring the country with a committee to investigate operations on paralyzed feet, I came to the conclusion that the thing to do here was not to sacrifice the tendon of the great toe, but to perform one or more arthrodeses on the joints of the astragalus. If one does an arthrodesis of one or more of the astragalar joints and then does the simple looping operation of Whitman, wrapping the tendon of the tibialis anticus around the common toe extensors and caring for the peroneus tertius as described, one will get the same results without sacrificing the function of the great toe.

TIDAL IRRIGATION OF WOUNDS BY MEANS OF LIQUID-TIGHT CLOSURE

WITH SPECIAL REFERENCE TO THE TREATMENT OF EMPYEMA OF THE THORAX *

W. H. TAYLOR, M.D.

AND

N. B. TAYLOR, F.R.C.S. (EDIN.)

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Tidal irrigation is the alternation of positive with negative pressure in the wound. The irrigation is conducted by means of our liquid-tight cap, which has already been described.¹ The residue of fluid which lies in the wound during the incidence of negative pressure is diluted with fresh fluid each time the wound is flooded, and each time the wound is drained again the resultant mixture is siphoned off into a waste vessel.

From our experience with this measure in infected war wounds we were naturally optimistic as regards

the treatment of empyemas, and though the number of such cases we have had occasion to treat in this way is not large, the results obtained are quite as definite as those previously reported.

The use of negative pressure in pythorax is well established, though its value is usually attributed to the fact that it encourages expansion of the lung, little stress being laid on its power to cause hyperemia and the elimination of bacteria and pus cells over the whole extent of a thickened and infected pleura. The fact that an empyema may be cured despite failure of the lung to reexpand was strikingly illustrated by the following case:

REPORT OF CASE

S., a Canadian soldier, aged 23, gassed in France, Aug. 1, 1918, developed left-sided pleurisy and had 40 ounces of clear fluid withdrawn twelve days afterward. During the fall of 1918, he was aspirated a number of times. In January, 1919, he was admitted to Speedwell Sanatorium with a definite tubercular focus in the right lung. On admission he was thin, had a poor color and was short of breath. The heart impulse was felt outside the right nipple line, and a roentgen-ray examination revealed the left pleural space filled with fluid. Thereafter he was aspirated at frequent intervals and large quantities of thick yellow fluid, containing numerous pus cells but free from organisms, were withdrawn. Jan. 14, 1920, rib resection was performed, 70 ounces of greenish yellow pus evacuated, and a drainage tube inserted. A week later, tidal irrigation with a 5 per cent. solution of sodium chlorid was commenced. At first we used 1 foot of negative pressure, later increasing this to 3 feet, which is equivalent to 70 mm. of mercury. The cap was removed each evening (being replaced by a sterile pad) and reapplied each following day, early in the afternoon. During the first ten days, pus in enormous quantities was discharged, and thereafter the amount diminished until February 25, when it was practically nil. Operative closure of the sinus at this time would probably have succeeded. The drainage tube was removed, March 18, and the sinus closed spontaneously, March 20. Roentgen-ray examination revealed a lung collapsed to the hilum, which appeared only as a narrow strip beside the mediastinum, the remainder of the pleural cavity containing air. When last seen, in the fall of 1920, the patient had gained in weight and seemed in perfect health, although the size of his pneumothorax was not appreciably reduced.

COMMENT

The points of interest in this case are: (a) the probable tuberculous nature of this empyema; (b) the remarkable displacement of the thoracic viscera; (c) the unusual size of the pneumothorax which closed spontaneously, and (d) the fact that no secondary infection developed even though treatment was maintained for less than one third of the time.

Of a series of eight cases of chronic empyema treated by this method, the remainder were definitely pyogenic in character and had been running from one to two years prior to the commencement of treatment. Spontaneous closure of the sinus occurred in from four to six weeks. No attempt was made to hasten closure by operative interference, and hypertonic solution of sodium chlorid was the only fluid used.

TIDAL IRRIGATION

The distinguishing features of tidal irrigation as compared with other negative pressure methods of treating empyema are:

1. Owing to the nonemployment of adhesive pastes, the apparatus may be removed and replaced as easily as a compress.

2. It may be employed following either rib resection or intercostal puncture.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Taylor, W. H.; Taylor, N. B., and Gallie, W. E.: Tidal Irrigation of Wounds by Means of Liquid-Tight Closure, *J. A. M. A.* 74: 1700 (June 19) 1920.

3. The closure is quite as efficient against the escape of fluid as against the entrance of air. The cap constitutes an expansile reservoir covering the mouth of the sinus; there is reciprocal interchange of fluid between it and the pyothorax with each act of respiration and each time the pinch cocks are manipulated to alternate the fluid pressure in the thorax. Likewise, the walls of the sinus and the drainage tube within it, as well as the area of skin beneath the cap, are all kept sweet and clean by constant washing. On the other hand, with a cap which operates merely to exclude air, where dependence must be placed on negative pressure, inspissation of the secretions and the use of adhesive pastes to prevent the discharges from spoiling the outer dressings, the condition of affairs beneath these dressings leaves much to be desired as regards cleanliness and the possibility of secondary infection.

4. The security afforded against leakage renders possible the use of large quantities of fluid, thus facilitating the rapid conversion of the pleural contents to the consistency of water.

One reason why tidal irrigation is more effective than simple suction in sterilizing the pleural membranes is to be found in the complete liquefaction of the contents which takes place, affording to negative pressure a perfect hydraulic medium through which its aspirating property is exerted in the remotest corners of the empyemic cavity. Notoriously, those portions of a wound that are the most difficult to render sterile are those that are the least accessible. Infections are most securely entrenched in corners and extensions of the empyemic cavity formed by bands of adhesions and the near approximation of the parietal and visceral leaves of the pleura; and it is much easier, to activate the fluid which lies in these remote extensions when it is of a watery consistency than when it is a thick cohesive substance, such as pus. This is a very important consideration as regards the evacuation of bacteria from the tissue spaces.

CONCLUSIONS

A great deal has been written lately concerning the treatment of empyema, and important advances have been made. Nevertheless, in our opinion, the mechanical fact of liquid-tight closure reopens the question of the treatment of empyema. It is not by any multiplication of the difficulties attending the management of such cases that the more perfect drainage of the pleural membranes is secured. On the contrary, the technic is so simple as to constitute an important advantage in itself. The generous dilution of fluid, the state of cleanliness inside the rubber cap, and the dryness outside, are pleasing features; and this applies whether the irrigation follows rib resection and the insertion of a large-size drainage tube or intercostal puncture and the employment of a cannula. The measure is adapted to the treatment of acute, as well as chronic, empyema.

1204 Danforth Avenue.

ABSTRACT OF DISCUSSION

DR. GORDON G. COPELAND, Toronto, Canada: Colonel Carless, consulting surgeon of the British army, said of Taylors' tidal irrigation that it is one of the new war methods destined to a permanent place in surgery. I have had a little experience with this method, using Taylors' apparatus. One was a case of empyema which had been treated by drainage for a month and was gradually getting better. Bismuth paste had been

used and recovery was progressive, but slow. I asked Dr. Norman Taylor to put his apparatus on the side. At that time there was a cavity of about 3 ounces capacity. In five days that cavity was completely closed and the skin healed over. The other case was one of gangrenous appendicitis with a large amount of pus, the appendix perforated in three places. I put in two cigaret drains. On the third day, the infected material could be gotten out quicker by using the Taylor apparatus; a positive pressure of 4 inches' head of fluid was used. I allowed hypertonic salt solution to run into the wound and to be sucked out by suction of about 1 foot of water. The results were very gratifying, and the wound healed much faster than it would have done by simple drainage. In any intra-abdominal use of this tidal irrigation, positive pressure must be employed very cautiously, and be slight, otherwise infected material might be forced into the general peritoneal cavity, especially in recent cases where the walling off of adhesions were weak, but the suction or negative tension may be greater.

DR. WALTER H. TAYLOR, Toronto, Canada: The apparatus consists of a rubber cap resembling, in some respects, a tam-o'-shanter. Two tubes issue from its cover, one being connected with a reservoir of fluid above, the other leading to a waste pail on the floor. Each of these tubes is provided with a clip. The cap is bandaged in position so that its interior and the interior of the wound comprise one cavity which is liquid-tight by virtue of the unbreakable joint which the brim of the cap makes with the skin. To get positive pressure in the wound, open the clip on the tube leading from the reservoir and close the clip on the tube leading to the waste pail. Negative pressure is obtained by reversing these manipulations. There is no doubt that the treatment exerts a remarkable effect in chronic wound infections. It is not less serviceable in acute infections, though it is not so easy to estimate to what degree the result is due to the treatment in these cases.

THE LUMBOSACRAL REGION*

ARCHER O'REILLY, M.D.

ST. LOUIS

Last year I read a paper¹ before the American Orthopedic Association on "Backache and Anatomical Variations of the Lumbo-Sacral Region," based on a study of the roentgenograms in 300 cases of backache. In the summary of this paper I said:

The study of these plates seems to show that the sacra and sacro-iliacs may be divided into three types. Type I is seen in both males and females. Type II is distinctly a male type and Type III distinctly female. In Types I and II, overlapping transverse processes are common. It is impossible to tell, however, from the roentgen ray, whether this is merely an overlapping of the shadows or whether there is actual contact. It seems probable that where contact takes place, it is more likely to occur in Type II. Type II also seems to show more irregularities in the shape of the transverse processes, and in the structure of the sacrum and in the shape of the sacro-iliacs.

The measurements, not of great accuracy for comparative use, owing to the varying conditions, but constant in each case, seemed to show a very definite and, in many cases, a marked asymmetry.

The size and shape of the transverse processes varied greatly, and in the majority of the cases were quite asymmetrical, of distinctly different types. Even in those cases where they were alike they showed distinct differences, and in a large number of cases they pointed upward to a greater or less extent.

Large fan-shaped transverse processes were rather common; when single they seemed to occur more frequently on the left side. They were much more common in the second type.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. O'Reilly, Archer: J. Orthop. Surg. 3: 171 (May) 1921.

COMPARISON OF ROENTGEN-RAY FINDINGS AND CONDITION FOUND AT NECROPSY IN MALE CADAVERS

No.	Length of Transverse Process				Width of Transverse Process at Base				Tip of Transverse Process to Nearest Point on Crest of Ilium, Cadaver				Distance Between Transverse Process and Ala				Width of Sacro-iliac				Spinous Process to Tip of Transverse Process				Spinous Process to Post-Inferior Spines of Ilium				Distance Between Post-Inferior Spines of Ilium, Cadaver	Nationality	Age	Cause of Death
	Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver		Color	Urinary retention						
	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.								
5	2.95	2.5	2.65	1.8	1.5	1.7	1.9	1.2	0.4	Free	1.0	1.3	0.2	0.3	0.3	11.0	9.0	9.2	5.75	5.1	5.6	5.2	5.6	5.5	6.2	4.4	3.9	7.4	W Irish.....	75	Urinary retention	
10	2.4	2.5	2.5	2.6	2.0	1.8	1.6	2.0	1.1	0.9	0.2	0.3	0.3	0.3	0.3	11.0	9.0	9.2	5.75	5.1	5.6	5.6	5.6	4.6	4.9	4.9	4.8	7.3	W ..	..	Tuberculosis
32	3.9	3.7	2.65	2.9	2.25	2.5	2.0	1.8	1.5	1.1	0.2	0	0	0	0	12.4	9.6	11.4	6.6	6.0	6.9	6.2	6.7	6.7	6.35	5.9	6.9	8.6	W Canadian	68	Bronchitis, heart	
40	3.3	3.5	2.25	2.65	2.2	2.2	2.2	2.2	1.3	1.7	0.15	0.4	0	0.25	0.4	11.7	9.7	10.6	8.0	5.6	7.5	7.2	6.8	5.5	5.8	6.6	6.8	8.9	W ..	62	Bronchopneumonia	
62	2.0	2.65	2.6	3.2	1.7	1.7	1.9	1.75	1.5	1.9	0.5	0.4	0.2	0.4	0.2	11.1	11.0	10.5	6.5	5.5	5.6	5.9	6.0	6.0	5.95	4.4	4.4	7.0	W ..	60	Carcinoma	
61	...	...	3.45	3.75	...	...	1.4	1.2	1.2	1.9	...	...	...	0.4	0.3	...	...	9.7	5.7	...	...	6.1	6.1	...	...	3.85	3.85	7.9	W German..	57	Nephritis
20-5	2.6	3.4	3.5	3.6	1.7	1.2	1.6	1.6	1.6	1.6	0.2	0.75	0.6	0.4	0.4	10.35	10.6	9.6	6.5	5.0	6.1	6.2	6.2	6.3	6.0	4.4	4.3	9.3	W ..	46	Epilepsy	
8	...	...	2.6	3.4	...	...	1.4	1.6	1.9	1.7	...	...	...	0.8	0.9	...	...	11.1	6.9	...	...	6.2	6.35	...	...	5.2	5.3	9.9	W German..	75	Senility
60	...	...	2.75	3.0	...	...	1.6	1.4	0.9	0.9	...	...	...	0.3	0.55	...	...	10.4	8.0	...	...	6.6	6.6	...	...	3.7	3.8	6.15	B ..	79	Nephritis, senility
2	4.3	3.2	2.4	2.6	1.7	1.8	1.7	1.6	1.1	1.4	0.1	0	0	0	0	10.9	9.8	10.8	7.8	5.5	7.0	6.3	6.6	6.9	6.2	4.5	4.5	7.7	W German..	46	Cirrhosis of liver	
23	3.35	2.8	3.4	3.6	1.7	1.8	1.4	1.7	1.3	1.4	0	0	0	0	0	10.3	10.8	10.4	5.3	5.6	5.7	6.4	5.4	5.2	5.8	5.5	3.9	8.1	W Swiss.....	60	Tuberculosis	
50	2.05	2.1	1.8	2.35	1.15	1.55	1.2	1.7	0.9	0.1	0.2	0	0.4	0.1	0.1	8.2	9.2	8.6	5.9	4.9	5.1	6.0	6.05	4.9	5.3	4.5	4.35	6.8	W ..	85	Senility	
57	2.5	3.0	2.7	2.5	1.7	1.5	1.7	1.5	Rub above crest	0.7	0.7	0.3	0.7	0.3	0.7	11.2	10.2	10.4	7.7	5.7	6.0	6.9	6.5	...	7.2	5.6	4.7	8.4	W ..	60	Tuberculosis	
7	2.1	3.3	2.1	2.3	1.1	1.4	1.4	1.3	1.2	1.2	0.8	0.2	0.15	0.15	0.15	10.75	10.6	9.8	5.7	4.85	5.4	6.3	6.3	5.5	5.75	4.1	3.9	6.6	W ..	..	Tuberculosis

Bifurcation of the first sacral spinous process is fairly frequent, 6 per cent. of the cases showing this defect.

Spondylolisthesis of varying degree is probably more common than usually supposed, also rotation and slipping between the lumbar and sacral articulations.

There are also rare cases that show congenital malformations.

In conclusion, there seems to be no one type that might be called normal. There are many variations in the lumbosacral region. Asymmetry is the predominating feature, and, at any rate from the roentgen ray, it is impossible to say which special combination of types is normal.

It seemed possible that many of these asymmetries and abnormalities might be due to the apparent flattening of the roentgenogram, and to some slight variation in position, even when supposedly taken in a standard position. The relation of the fifth transverse process to the ilium was also of interest.

In order to compare the actual conditions with the roentgen-ray findings, roentgenograms were made of all the cadavers to be dissected in the anatomic department of the Washington University Medical School last winter. When the dissection was completed, the pelvis were studied with especial reference to the fifth lumbar vertebra—its relation to the first sacral, the shape and size of the transverse processes, and the relation of the processes to the alae and to the crest of the ilia.

Roentgenograms were made of twenty-eight cadavers. Of these, fourteen were studied in comparison with the dissected pelvis. The other roentgenograms were not available because of the numerous extraneous lines, due to the hardening of the tissues, which rendered them very indistinct.

I have not attempted to make prints from the plates, as they would not reproduce clearly.

In none of the cadavers was there a large fifth lumbar transverse process, a comparatively common variation, nor was there any case of bifurcation of the first sacral spinous process. In fact, they were all fairly normal. There was no case of spondylolisthesis. In one there was a marked compression of the fifth lumbar on one side which did not show any bone destruction. This resulted in a scoliosis. In another there was a marked asymmetry of the sacrum.

In six of the roentgenograms there was an overlapping of the transverse process of the fifth lumbar on one or both sides, but in the dissection the distance between the tip of the process and the ilium varied from 0.7 to 1.6 cm. In one case (50) there was a space of 0.1 cm. between the tip of the process and the crest, with a smooth spot on the crest opposite the transverse process very suggestive of an articulation or an impingement. This did not show in the roentgenogram.

Arthritis to a greater or less extent was present in all cases. In some it was very marked. A striking feature was that the roentgenogram did not give an adequate idea of the extent of these changes. In several cases there was a heavy line running along the edge of the first sacral, which in the roentgenogram suggested the possibility of some displacement of the fifth lumbar, but in the dissection these were found to be due to a lipping, or to an arthritic deposit along the lower border of the fifth lumbar of the first sacral.

In one (Case 57) there were too rudimentary transverse processes running from the first sacral. They

were not distinct in the roentgenogram, but it was suggestive of some abnormality.

In the roentgenograms, asymmetry was not as marked as in my former series; in the cadaver the asymmetry was even less marked. This is shown in the accompanying table. The transverse processes showed definite asymmetry, especially in shape; they were rarely alike on the two sides. They were also closer to the alae in many cases than was indicated in the roentgenogram.

CONCLUSIONS

It is, of course, impossible to tell whether any of these subjects had definite back symptoms. Unfortunately, there were no cases which showed the apparent marked abnormalities seen almost daily in the Orthopedic Clinic, so that it has been impossible, with the present series, to throw any light on these. It would appear, however, that the actual amount of asymmetry is less than appears in the roentgenogram. Its appearance in the roentgenogram is due to some unnoticed variation in the position of the patient while the picture was being taken. Overlapping of the shadows of the fifth lumbar and the crest of the ilium does not indicate an impingement of one upon the other, nor could the presence of this condition be ruled out by the roentgenogram. In the majority of the cases the distance between the tip of the transverse process and the ilium is so great that it would seem almost impossible for them to come in contact, especially with the small amount of motion that takes place between the fifth lumbar and the first sacral. It does seem possible, however, that as a result of some strain there might be an injury to the ligaments running from the tip of the transverse process to the crest of the ilium, resulting in definite back symptoms. In a number of cases the lower border of the transverse process was very close to the ala of the sacrum, and in some they were practically in apposition. Here, again, it would seem possible that some untoward motion between the fifth lumbar and the first sacral might result in an irritation at this point, resulting in back symptoms.

There seems to be enough variation between the roentgenogram and the conditions actually found at dissection to warrant further work along this line.

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ABSTRACT OF DISCUSSION

DR. JEFFERSON D. GRIFFITH, Kansas City, Mo.: This is not an absolutely unsettled question because we do not know much about it yet. Even the stereoscope does not seem to lead to any positive conclusions. But we do know that our patients are troubled by something. We cannot make it out. This part of the spinal column is the most difficult one to study. There are many injuries to it, and yet the patients seem to be able to get along. As the doctor said, the impingement of the transverse processes of the fifth lumbar vertebra on the pelvis gives such trouble that it has been subjected to operation. I relieve the pain by changing the heels of the shoes when there have been no results from operation. By changing the weight bearing center, one can do much for the relief of the symptoms.

DR. HORACE R. ALLEN, Indianapolis: What evolution has in store for us no one can accurately predict. We are somewhat familiar with the significance of our present development, although we are in an incomplete stage between quadrupedism and ideal bipedism. I say ideal bipedism because we could suggest improvements that would eliminate many of

the present "disadvantages of the upright position." In the lumbar curve is a secret involving the upright position. The spinous processes frequently do not project backward as far as the heavy muscles on each side of them. These powerful muscles are guy ropes that contribute their share in holding the spinal mast erect. When they contract they steady the lower part of the spine and also create more lumbar curve. To claim that transverse processes are actually elongating, in order to serve as more powerful levers by cooperating with sacral fastenings, would be prophesying a future anatomic animal. If Dr. O'Reilly, however, continues his study he may establish a fixed percentage in evolutionary change. Whether the pain experienced by sufferers from lumbosacral variations is accidental or incidental or evolutionary is at present unsettled. When low back pains occur, we have to consider among other things the basic principles involved in balance. These begin at the feet as foundations for the lower extremities. I believe that no man is prepared to go on record with fixed rules for treatment of lumbosacral pains. In a general way, we believe that in some cases soft tissues are pinched between bones, and in other cases muscle exhaustion from constant strain to maintain balance or nerve compression or distortion by soft tissues produces aching pains. Our remedies are surgical and mechanical. Mechanical treatment is based on a comprehensive understanding of balance, not simply the balance regarded as standard for standard people, but also balance for abnormal creatures. In forming definite conclusions as to cause, one should always determine the different effects produced in standing on each and on both legs, and in sitting erect and bent to each side as well as forward and backward, and also have the patient lie down on face, sides and back. By following this routine, certain factors eliminated confirm possibilities suspected.

RÔLE OF DIET IN ETIOLOGY AND TREATMENT OF MIGRAINE AND OTHER TYPES OF HEADACHE *

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For many years I have been peculiarly interested in a group of cases of headache sometimes typical, sometimes atypical migraine in character, sometimes simple diffuse headaches without such obvious periodicity or tendency to hemisphericity, sometimes almost a headache state, in which it has seemed to me either that the digestive symptoms are rather more than one would expect from a pure neurosis or that diet seems to have played a considerable rôle in the picture. Of course, in trying to unravel the cause of any given headache (incidentally one of the most difficult problems I know of), before we dare even to consider digestive disorders or diet as a possible causal factor, we must determine or eliminate certain other definite factors which we know play a part in certain of these cases. Among these may be mentioned uncorrected eye strain, cerebral arteriosclerosis, disturbance of the nose and throat, various focal infections, nephritis, brain tumors and pelvic disorders, the last being of peculiar importance in connection with migraine, as there seems to be some relationship between such headaches and the menstrual function, as in many cases the headache either stops or becomes much ameliorated at the time of the menopause; in two of the most severe cases of typical migraine that I have ever seen, we brought about a complete cure by production of an artificial menopause with radium.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

There still remains, however, a large group of cases in which none of the foregoing causes play a part, or, if present, are not sufficient to account for the picture—true migraine and atypical migraine, bilious or sick headache, chronic persistent headache, in which, whatever our ideas as to the underlying cause (some form of constitutional anomaly in which heredity obviously plays a part, vasomotor disturbances, toxic factors, reflex disturbances, absolute or relative stenosis of the foramen of Monroe, or a combination of these causes, all bringing about a general disturbance of the vegetative nervous system) it is difficult to divorce oneself from the idea that the condition of the gastro-intestinal tract and the character of the diet play some part in the explosive phenomena, if only as a secondary or contributory factor. In fact, in every case of headache, even admitting congenital defect or angioneurosis or other fundamental factor, there always remains the problem to be solved, What is the spark that produces the attack? Analysis of certain of these cases shows that nervous strain, the instability of the menstrual period, emotional excitement, and fatigue and various psychic phenomena unquestionably are contributory factors, but in many cases it is quite impossible, even with the most thorough analysis, both physical and psychic, to explain the headache on such a basis alone, and we must look for other provocative factors.

I believe that in a number of such cases the diet plays a very large rôle, and it is this group that I wish to discuss here. As I see it, such cases fall into four distinct subgroups: (1) headaches associated with excessive intake of carbohydrate—that is, excessive as far as the individual ability of the organism is concerned, often not at all excessive as regards the average individual, this obviously suggesting some congenital or acquired defect in carbohydrate metabolism; (2) those in which animal protein food plays the important rôle, these two subgroups making up the great bulk of our cases; (3) those that represent true intestinal toxemias or bacteremias, and (4) those of gouty origin.

HEADACHES ASSOCIATED WITH EXCESSIVE INTAKE OF CARBOHYDRATES

Notwithstanding the contrary view held by many clinicians and most patients, our experience is that in the largest group of cases it is excessive intake of carbohydrate food, or, to put it better, an intake of carbohydrate food in excess of the body's ability to consume it thoroughly, that plays the largest rôle in those headaches associated with dietetic error. In certain cases the headaches are typical migraine, many are atypical, many are bilious headaches (so common in the South, and in which the patients have found that purgation and starvation often bring rapid relief of symptoms) and some are cases of almost constant or very frequent headaches, often diffuse, and not hemicranial.

In many of these cases the patient has noted that the headache follows excessive intake of carbohydrate food, usually sugar in some form, and some have noted that if this is followed immediately by a large amount of alkalis, the headache can be aborted. In other cases the patient has had no suspicion of the rôle that diet plays. I have followed a great number of such cases, some of them many years, and am con-

vinced that real cure can be obtained in a certain number of cases and very marked amelioration in others by persistence in the proper dietetic therapy. These are the type of cases that Dr. Francis Hare¹ of England has written about and in which Dr. Robert Hutchison and Dr. Kessel have been so interested.

As regards presumptive diagnosis, in certain cases it is suggested by the patient, in other cases it must be by exclusion of other causes, but in either case the final criterion must be the dietetic test, that is, the control of the symptoms to a greater or less extent by the appropriate diet. Very careful study of the stool and urine shows nothing abnormal. The stool shows no deficiency in starch or fat digestion; the urine shows the presence of neither sugar nor acetone bodies, and the general physical examination of the digestive tract throws little or no light on the picture. We have not studied the blood sugar in these cases, but hope to do so subsequently. Many of these patients show a distinct increase in the size of the liver during the attack, as shown by careful percussion and palpation possibly a simple hyperemia, possibly a biliary stasis as well; but this swelling disappears shortly after the subsidence of the attack. There are no definite signs of jaundice, though the patient often complains of yellowness of the complexion during the attack, and some have noted that the stool became somewhat lighter in color, though as a rule not acholic; in a few cases, acholic stools have been noted.

Our treatment has been practically that suggested by Francis Hare, and carried out so successfully by Robert Hutchison—two or three weeks of a diet consisting largely of proteins, fats, greens and acid fruits, with absolutely no sugar or starch except that found in the foregoing foods, in other words, practically an antidiabetic diet, trying to keep the weight constant by giving considerable amounts of butter, cream and olive oil, and later adding a very small amount of carbohydrate, one or two slices of bread or toast, one or two potatoes or a small plate of oatmeal daily, and keeping the patient on this diet or a diet even more restricted or somewhat less restricted in starches, according to its effect, for a long period of time, sometimes indefinitely. I have, for instance, one patient, a terrible sufferer from true migraine for many years, who was put on this diet ten years ago, whose starch intake we have never been able to increase beyond two slices of bread and one potato daily, and who has been kept practically headache-free for ten years, with, as far as one can tell, absolutely normal health.

I have a large number of other cases in which such a carbohydrate-free diet for a shorter or a longer period of time followed by a permanent carbohydrate-low diet has been equally successful; in each case, of course, our attempt being to determine the maximum intake of starch not productive of headache. I have felt that in this group of cases as well as in our second group it would be very interesting to try the effect of the Meltzer-Lyon method of gallbladder drainage at short intervals, as, for example, once weekly, on the theory that this might promote better hepatic function and the headaches be kept in abeyance on a larger intake of carbohydrate food than would otherwise be possible.

1. Hare, Francis: *Food Factor in Disease*, London, Longmans, 1905, and subsequent publications.

Hare ascribes the effect of the carbohydrate in these cases to an accumulation in the blood of carbonaceous material, calling it hyperpyrexia, and he believes that other periodic disorders, notably asthma, may be due to a similar cause. Whether one accepts or rejects this theory of the condition, I am quite confident that there is a group of cases in which carbohydrate intake plays a large rôle, either excessive intake of starches or sugars, or a lessened ability of the organs of the body, probably in the main the liver, to care properly for such foods, or a combination of both factors, and that especially in those so predisposed, one of the symptoms may be headache, often of the migraine type. In a certain group of cases I believe the headache, more often atypical migraine or chronic headache, may have such a condition as the primary cause; in other cases, probably in the majority, it may simply be one of the contributory factors; but in either case dietetic therapy is unquestionably efficient, in some cases apparently with an increased tolerance after persistence in such treatment.

HEADACHE ASSOCIATED WITH INTAKE OF ANIMAL PROTEIN FOOD

In our experience, headaches associated with the intake of animal protein food are next in point of frequency to the group just discussed. There is a very large amount of clinical evidence in favor of this theory; in many cases the patients have noted that, after an excess of animal protein food, headache is likely to occur. In certain cases of migraine, patients have obtained great relief from a vegetarian diet, while in other cases certain special proteins seem to be peculiarly implicated, such as eggs or milk or a combination of the two, in one of my cases ham. In these cases, however, although this reaction to one special food is suggestive of the attack being a form of anaphylaxis, in my experience the skin reactions have generally been absolutely negative, although my feeling has always been that such skin reactions as a test of protein sensitiveness are, as a rule, relatively of little value except in that group of cases associated with definite skin lesions, such as eczema, urticaria or erythema. In many of these cases the patients themselves have recognized the relationship between food and headache and have shaped their dietary accordingly. Other causes undoubtedly play a part—nervous influences, fatigue, climate, etc. In one of my cases, for instance, a typical migraine, while the headaches are definitely related to protein intake and can be relieved by strict vegetarian diet, they are more severe and more frequent, when the diet is not absolutely strict, in the tropics and when the patient is tired, less frequent and less severe in a cooler climate and when the patient is not fatigued or worried; but in either case they are practically absent as long as the patient refrains from animal protein food. Here, too, in many of the cases a distinct swelling of the liver is to be made out during the headache, and in one case the giving of animal protein food for twenty-four hours would definitely bring this about.

Is there any means of diagnosing this type of headache apart from the clinical observations, the effect of animal proteins in producing the attacks, and the relief obtained by a vegetarian diet? The recent work of Widal and his co-workers is very interesting in this

connection, as they believe that certain of these cases represent a colloidoclastic shock due to heterogenous proteins reaching the general circulation, this in turn being due to a lessened or absent proteopexic function of the liver, while they believe that in their hemoclastic crisis they have a definite test of such a deficiency. The test is simply the introduction into the fasting stomach of a certain amount of animal protein food, milk being used as a rule because of its simplicity. This will bring about a leukopenia and inversion of the leukocyte formula and a drop in systolic pressure, as well as certain other more complicated and less easily studied phenomena. We have tried this in between twenty-five and thirty cases and have found it of real value in certain of these cases associated with disturbance in protein absorption and fixation; but the test is by no means infallible in this group of cases, being negative in certain instances notwithstanding there is no question about the fact that animal protein food was productive of marked symptoms. One would feel, therefore, in the first place that this test, if positive, is of value; but if negative it does not exclude the possibility of proteins playing a significant rôle; while it also suggests, in the second place, that possibly in certain cases abnormal products of protein metabolism, in others specific sensitiveness to animal proteins, may play some part.

In the treatment of this group of cases, in our experience the most satisfactory results have been obtained by the complete removal of all animal protein foods from the dietary for a certain length of time, then the very cautious addition of small amounts of various proteins—in the choice of which we are often guided by the patient's own observations. In some cases of intense migraine we have been obliged to keep the patient permanently on a purely vegetarian diet, though this is rare; and in some cases moderate reduction of the protein—sometimes practically approximating the Chittenden figures—seems to be able to be borne without production of symptoms. As in all cases of headache, it is needless to say that it is wise to bring about a normal weight on the part of the patient, to eradicate as far as possible any contributory factor, such as anemia, pelvic disorders, mouth infections, and nose and throat trouble, to reduce nervous strain and fatigue as far as possible, and to do everything to promote normal digestion and elimination, for certainly in many cases constipation aggravates the symptoms, purgation cures the attack, and normal bowel movements diminish the liability to such attacks. Recently many of the French observers have suggested the desensitizing of the patient in this group of cases by the administration of small desensitizing doses, in some giving 0.5 gm. of peptone an hour before meals, in others 1 c.c. of horse serum or crotalin subcutaneously or intravenously at weekly intervals at first, and then at longer intervals in that group of cases with a positive hemoclastic crisis by the test described above. In those rare cases in which the migraine seems to represent true anaphylaxis, desensitization with the specific protein is, of course, employed. We have employed the first method, that is, peptone by mouth before meals, and in certain cases the results have been sufficiently encouraging to warrant our continuing the use of this method, although in our experience not sufficiently encouraging

to make us give up the elimination or limitation of animal protein foods for a considerable period of time in addition.

CASES REPRESENTING TRUE INTESTINAL TOXEMIA OR BACTEREMIA

While, in a sense, possibly related to the preceding group, true intestinal toxemias or bacteremias have certain special characteristics that should make us consider them as a group apart. In our experience there are very few cases in which we can definitely prove that the headache is of such origin, although we realize that a great many people claim that such is the case in many cases we think, however, on quite insufficient evidence. While the effect of purgation or of bowel irrigation makes one feel that there is the possibility of this factor in many cases, we have in fact seen only two cases in which we feel that beyond reasonable doubt this was the cause of the headache; in both cases the headaches were agonizing, often lasting at maximum intensity four and five days with a loss of from 5 to 10 pounds in weight during the attack, associated with profound systemic symptoms—rise of temperature, nausea and vomiting, intractable constipation, transitory glycosuria, and extremely alkaline stool immediately preceding and following the attack, and in one case the isolation of three anaerobes from the stool after the attack and from the intestine at the time of operation. Neither case could be cured dietetically or by purgation or irrigation. One was permanently cured by appendicostomy and subsequent irrigation for six months, and in the second, real relief was not obtained until after a partial colostomy, with the removal of the atonic, thinned, dilated, distinctly pathologic intestine.

These cases are, of course, of peculiar interest because they suggest very strongly that abnormal decomposition products of protein digestion—possibly related to histamin—may be a factor in disease, these toxins as a rule affecting especially the sympathetic and vasomotor systems; and while in most cases beyond definite proof, we cannot help but feel that they must play a certain rôle in cases of very marked intestinal stasis.

CASES OF GOUTY ORIGIN

It has been suggested by many that migraine might, in certain cases, represent an abnormality in purin metabolism; in other words, it might be regarded as a manifestation of metabolic error of the gouty type. We have recently been interested in certain cases of myalgia or arthritis in which infection seemed to play no rôle, or in which, after the removal of suspected foci, the symptoms persisted. In certain of these cases we have been studying the uric acid output first on a purin-free diet, and then after the addition of a certain amount of purin-rich food (400 gm. of beefsteak daily). We believe that in this relatively simple test we have the means of diagnosing this metabolic abnormality by a significant diminution in endogenous uric acid output, and the lack or diminution of response to exogenous purin. In one of our cases, severe headache of the migraine type was one of the symptoms, and shortly after the patient had been put on a strict purin-free diet the headache as well as the muscle and joint symptoms entirely disappeared. We simply mention this case here because here again we have a

group of cases of headache, probably an extremely small group, in which it seems that a definite abnormality in metabolism is one of the causes, and in which a purin-free diet seems to give much relief.

Perhaps of somewhat similar nature is a group of cases of neuritis, neuralgia and myalgia, including certain cases of headache of the severe neuralgic type associated with an excessive urinary acidity which I described a number of years ago, which on rather insufficient evidence, it is true, I regarded as probably due to certain errors of metabolism associated with a marked increase in acid output in the urine, and which, in my experience, were very materially helped by the administration of alkalis in sufficient amount to neutralize the excess of acid in the urine.

CONCLUSION

I have attempted to sketch very briefly in this article the arguments in favor of the rôle played by diet in the production of migraine and other forms of headache, offering, it is true, arguments based mainly on clinical data, although supported in certain cases by laboratory findings. I feel from the study of my cases that in certain cases of migraine and other forms of headache, whatever the primary cause, diet plays some part in producing the symptoms of which the patient complains, and that by modifying the diet cure may be obtained in a few cases, and a very considerable amelioration of symptoms in many cases. In my series of fifty or more cases, carbohydrates seemed to have played the predominant rôle in the largest number of cases; animal-protein food in almost as many; special foods, notably sugar or eggs in a very few cases, while in an occasional case the headache might be regarded as a definite expression of intestinal toxemia or bacteremia or of an error in purin metabolism. That some disturbance in liver function plays a part in these headaches is suggested by the fact that there is in some cases a temporary enlargement of the liver during and after the acute symptoms. While it is not always possible to determine to which special form of dietetic error the individual headache may be ascribed, nevertheless in many cases a very careful clinical analysis, supported by certain laboratory tests, offers us a clue as to the *materia peccans*, carbohydrate, animal-protein, or purin-rich food as the case may be. In cases in which it is absolutely impossible from the clinical evidence to incriminate any special food or foods, it is wise to place the patient first on a carbohydrate-free diet for a considerable period of time, and if this proves unsuccessful, then on an animal-protein-free diet. In certain cases such treatment will bring about a very marked improvement in symptoms, in a very few apparent clinical cure, although, of course, in a large number of cases no effect whatsoever. Finally, in this group of cases the treatment of which is peculiarly unsatisfactory, by many regarded as almost hopeless, this point of view is not justifiable, unless one realizes that in certain of these cases diet unquestionably plays a rôle, and that a proper recognition of this fact should manifest itself in the appropriate dietetic therapy.

ABSTRACT OF DISCUSSION

DR. W. A. BASTEDO, New York: Dr. Brown's paper has enlightened me a great deal because he found so many headaches due to carbohydrates and fewer to protein in the food. My own belief has been that the carbohydrate headache was

comparatively rare and the protein headache comparatively common. In looking over these statistics I find that Dr. Brown has not said anything about fats. He did mention acidosis. We do have acidosis headaches which must come from fats either in the food or in the patient's body. Yet, I have seen many acidosis headaches relieved by alkalis, but seldom, if ever, by the removal of fat from the food. In regard to proteins, I do not agree with Dr. Brown at all that headaches from decomposition products formed in the intestine are rare. I believe they are very common. I am one of those who believe that intestinal bacteria may produce toxic substances which cause headache. When laboratory workers have taken these poisons they have had headaches. When a patient has a headache what does he do before he gets to us? He uses a cathartic and takes nothing but tea and toast or some such simple food or no food at all, and often the headache disappears. It is for the persistent headache that the patient goes to the doctor. We have found that different foods produce headache in different individuals. For instance, we have found patients who had headache from chicken, others from beef, lamb, mutton or fish. Chicken and eggs, in our experience, have been the most productive of protein headaches. Again, we find that in some persons dried peas or beans, as in black bean or white bean soup, will produce headache while green peas or beans will not. We do not know the reason for these things, but to me these headaches seem to depend on toxic products of protein.

DR. THOMAS R. BROWN, Baltimore: In this paper I did not mention that certain foods seemed to produce headaches, and in my experience many headaches were caused by the protein foods, although it was very difficult to ascertain that except by dietetic experimental methods as I have had no help from the skin sensitization test. As to fat, I was unable to definitely incriminate fats in any cases, though it is certainly possible that an acidosis may have played some part, although this did not show as far as the urinary examination was concerned. Regarding the question of animal protein, I think Dr. Bastedo did not hear my last report. I said "while the carbohydrates seem to play the larger rôle, the animal proteins play almost as large a one." As to toxemia, I feel it is probable that the decomposition of protein food does play a rôle. The object of the paper was to call attention to that discouraged and almost hopeless group of patient that go from doctor to doctor and are told that nothing can be done for them, and yet in some carbohydrate or protein foods play some part in producing the headache. In the second place, there are certain tests that are rather suggestive, notably the Widal hemoclastic test. The paper was based on a number of cases over a number of years, and was presented because I felt that the food factor has been neglected in many of these cases and I believe that by proper selection of food a certain proportion of cases of headache can be definitely relieved.

Occupational Diseases in Germany.—The annual report of the factory and mine inspection system in Germany for 1919 has just been published. Among the facts it brings out are that although the introduction of the eight hour day may have been a factor in the general improvement in health conditions among the workers, it did not bring the hoped for increased output. Instances are recorded of industrial poisoning with chlorin, arsenic and nitrous gases in addition to lead and mercury. Cases of industrial injury were also specified from a long list of substances, including cyanic acid, nitrited hydrocarbons and aromatic nitro and amido compounds. In one establishment there was a case of melanosis from schmieroel. A number of instances were also recorded of dermatoses from a mixture of this oil and paraffin from coal tar. They were especially numerous in the manufacture of briquettes. Three instances of severe eczema were ascribed to inhalation of paraffin steam; paper pulp had to be dipped in melted paraffin. Anthrax has much declined; only seven cases were known. In one chemical works in the Pfalz district, there were seven instances of bladder disease from industrial poisoning, and six of them ran a malignant course. The chemicals involved here included anilin blue, diammin, eosin, rhodamin, fuchsin and alizarin.

VISCEROPTOSIS: NORMAL INCIDENCE

A PRELIMINARY REPORT *

JOHN BRYANT, M.D.

BOSTON

Interest in the general subject of visceroptosis is not new, as witness the paintings of Botticelli. Later, among others, Cranach and Memling favored representing the visceroptotic type in art as contrasted, for example, with the florid type portrayed by Rubens.

Medical interest in visceroptosis dates at least as far back as the time of De Haen,¹ who, in 1768 and after, published wood cuts showing abnormal positions of the viscera. Recent medical interest, of course, dates from the time of Glenard² and Stiller.³ Since 1900, there has been a wave of literature on visceroptosis which was so large that Burckhardt,⁴ writing in 1912, had no difficulty in collecting a bibliography of nearly 600 titles. Interest in the subject continued to grow, reaching a maximum about 1915-1916; but since then it has been steadily declining, as judged by the literature.

POSITION OF THE STOMACH

Stomach	Normals Per Cent.	Levy and Kantor Per Cent.	Swaim Per Cent.
Normal	47	36	14
Low	47	18	17
Low plus.....	6	46	68

An examination of this mass of literature, however, reveals but few titles of a substantial scientific nature. In fact, with the exception of a few papers on specialized areas, such as the study by Smith⁵ of the position of the cecum in 1,050 infants, I have found but one article adequately supported by sufficient data. This is by Albu,⁶ written in 1909, reporting the result of twelve years of investigation of the subject from a clinical point of view in a large series of hospital patients. His figures were based on a study of 1,870 male and 1,620 female cases, and are the most reliable available from the clinical point of view.

A reasonable search has not revealed any study, at all comprehensive, of the subject of visceroptosis from the postmortem room with regard to sex and age. The data herewith presented will, it is hoped, to some extent supply this deficiency in the literature. It is believed that they will also serve as a control or normal by which figures reported in such selected material as comes to the roentgenologist may be judged with reference to deviation from a normal based on unselected material.

An indication of the value of having such a normal available may be given by referring to two valuable roentgen studies on the position of the stomach by Levy and Kantor,⁷ and by Swaim.⁸ By themselves, these reports are of less value without a basis of com-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

The original data for this article were obtained in 1912-1914 through the courtesy of Professors Pick and von Hansemann of Berlin, Professor Fraenkel of Hamburg, and the students then working in their pathologic institutes.

1. De Haen: *Rationis Medendi, Viennae Austriae*, 1768, pars III.

2. Glenard: *De l'entéropose*, Paris, 1885.

3. Stiller: *Arch. f. Verdauungskr.* 2: 285, 1896.

4. Burekhardt: *Ergebn. d. Chir. u. Orthop.* 4: 285, 1912.

5. Smith: *Anat. Rec.* 5: 549, 1911.

6. Albu: *Berl. klin. Wchnschr.* 35: 289, 1909.

7. Levy and Kantor: *Boston M. & S. J.* 174: 534, 1916.

8. Swaim: *Clifton M. Bull.*, April, 1914.

parison. Compared with a normal, it is possible at once to judge the degree of excess of gastropotosis represented by their figures. This may be shown in the accompanying table, indicating the position of the stomach. Levy and Kantor's figures are based on 899 cases, and Swain's figures are based on 397 cases. My own figures are based on a total of 290 postmortem cases of all ages and both sexes.

A glance at the table is sufficient to indicate that Swain was reporting on material of a much more advanced character, from the point of view of gastropotosis, than was the case with Levy and Kantor.

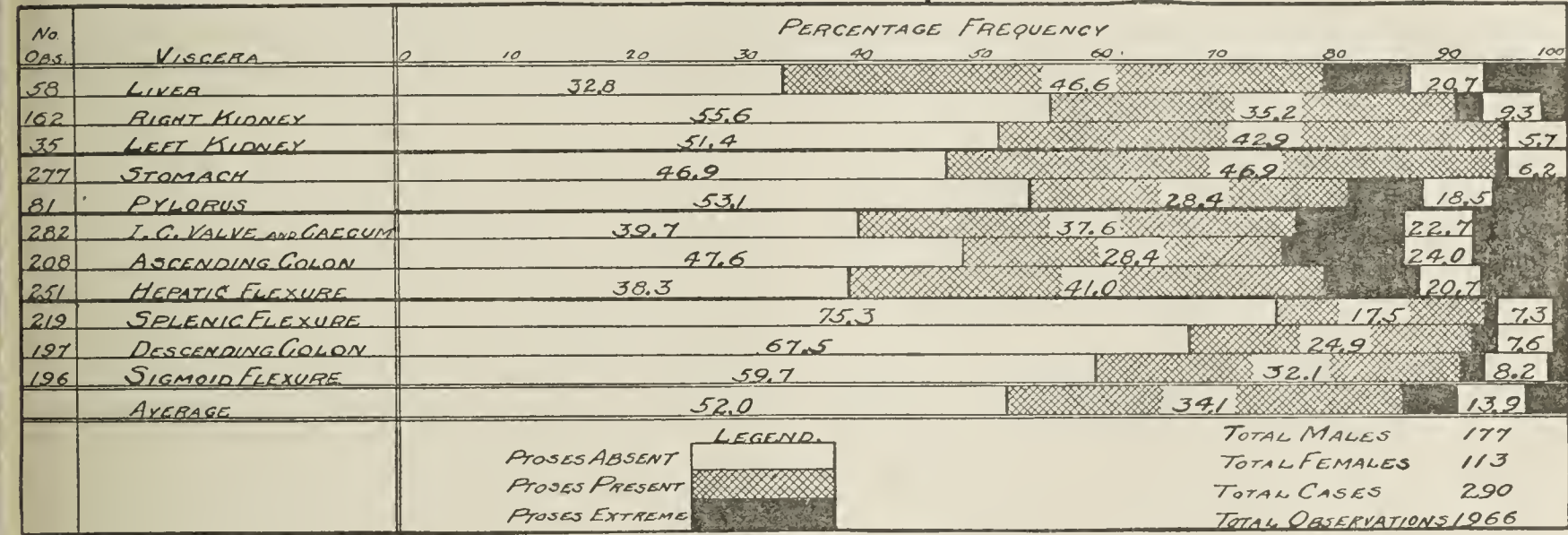
There are in the literature many generalized statements, nearly all unsupported by facts, as that there is a necessary connection between ptosis of the right kidney and ptosis of the hepatic flexure, ascending colon, and cecum. Williams,⁹ among others, makes this statement, referring to it as right-sided ptosis, and then in the usual manner refers to the fact that ptosis of the left kidney occurs only when the splenic flexure, the most firmly supported point of the intestinal tract, gives way.

the various organs in both sexes and at the different age periods. The number of cases in each sex, both below and above 40 years of age, is sufficient to form a reasonably reliable basis of comparison. In addition, the fetal and senile age groups were used, although the total number of cases included in each of these groups is small, in order to provide additional suggestion as to the effect of age on visceroptosis.

A review of these tables gives the following results, in brief:

Some degree of visceroptosis was present in 48 per cent. of all cases examined, about 8 per cent. more than half of the males, and 8 per cent. less than half of the females being normal.

An examination of the male cases shows that one or more viscera presented an extreme degree of ptosis in 10.1 per cent. of the fetal group, in 12.4 per cent. of the group below 40 years of age, in 8.2 per cent. of the group above 40 years of age, and in 10.4 per cent. of the senile group. There is therefore no good evidence that, in the material examined, visceroptosis as a whole is a progressive condition in the male.



Percentage frequency of visceroptosis in both sexes at all ages.

My figures do not tend to corroborate such statements. In fact, if there is any relation between the kidneys and the flexures of the colon, it seems that the relation is an inverse one since ptosis of the hepatic and splenic flexures tends to decrease with age in both sexes, whereas ptosis of both kidneys very definitely tends to increase with increasing age in both sexes.

The accompanying chart represents in condensed form what may be considered a series of normals. It is based on a total of 1,966 observations on 290 unselected postmortem sections of all ages and both sexes, and shows graphically the percentage frequency with which one may expect to find the viscera in normal or ptotic position in unselected material. Obviously, the position of the viscera differs with physical type, but it is at least important to have some normal as a point of departure instead of building a complete house of cards on no solid foundation. Until corrected by subsequent investigators, there is at least offered some kind of a normal instead of none, by these figures.

Space limitations prevent the utilization, in this brief paper, of additional graphic tables which are available to show the occurrence of visceroptosis in

An examination of the female cases shows that in 17.1 per cent. of the fetal group, in 20 per cent. of the group below 40 years of age, in 19.4 per cent. of the group above 40 years of age, and in 23.6 per cent. of the senile group, visceroptosis was extreme. There is therefore some slight evidence that visceroptosis as a whole may be considered a progressive condition in the female, but the evidence available is far from conclusive.

The evidence available is, however, reasonably conclusive in regard to the effect of age on the individual viscera. Thus, in both sexes, there is no evidence of visceroptosis in the fetus with regard to the liver, right or left kidney, stomach or pylorus. On the other hand, the ileocecal valve, the ascending colon, the hepatic flexure, the splenic flexure, the descending colon, and the sigmoid flexure all show evidence of low or loose attachments in the fetus of both sexes, the ptotic condition being most marked in the male at the ascending colon with 25.0 per cent. of extreme loose attachment already present, and in the female at the hepatic flexure with 53.3 per cent. of extreme ptosis already present.

Throughout life, the percentage of extreme variations from the normal is with few exceptions greater

9. Williams: Boston M. & S. J. 172: 13, 1915.

at every point examined in the female than in the male. The excess is most marked in the female at the region of the ileocecal valve; thus, in the adult, extreme ptosis is present in the male below 40 years of age in 13.6 per cent., and in the male above 40 years of age in 10.9 per cent. of the cases examined. This contrasts with a percentage frequency of extreme ptosis in the region of the ileocecal valve in the female below 40 years of age of 34.5 per cent., and in the female above 40 years of age of 44.4 per cent. In the female, this discrepancy continues to increase still further with increasing age, so that in the senile group ptosis at the ileocecal valve is extreme in 50 per cent. of the cases examined, as against 17.6 per cent. of the male senile cases examined.

A paper such as the present one would be of only theoretical importance unless it had some clinical application. It would seem that at the present time clinicians run to extremes in a consideration of visceroptosis. On the one hand, in the large centers, operative procedures are admittedly applicable to only 10 per cent. or so of the worst cases, and it is now the fashion to say that from a medical point of view visceroptosis is of no importance as long as the organs function properly. On the other hand, a young woman of 30, in reasonably good health, entered my office recently with some newly purchased corsets on her arm. She was in great mental distress. She said her physician had told her that her stomach was 3 inches low. Her corsets were supposed to be of excellent quality, but she was afraid that the saleswoman might be correct in saying that these particular corsets were guaranteed to raise the stomach 5 inches. From her point of view this would be 2 inches too much.

There would appear, then, to be room for a little more orientation as to the true importance of visceroptosis. Visceroptosis is not necessarily an irreparable calamity. It is, however, as has been well said by many previous writers, an evidence of deficient development. As such, it should be an indication to the clinician that he is dealing with an organism that is somewhat unstable. The individual patient must therefore be attacked from every possible direction, not only physically but mentally. Only thus can be gained, and even then often with difficulty, the best possible results in the way of an ultimate approach toward normal health and full working capacity.

SUMMARY

1. Visceroptosis is, in general, not progressive with age. This is due to the fact that, although the percentage of ptosis of certain viscera increases with age, this percentage increase is offset by a decreasing frequency with age in respect to other viscera.

2. Visceroptosis affecting one or more organs was present to some extent in 48 per cent. of all cases examined, it being extreme in 10.2 per cent. of the males and 19.7 per cent. of the females.

3. Visceroptosis affecting the liver, right and left kidney, stomach and pylorus, is acquired.

4. Visceroptosis affecting the large intestine is in both sexes largely congenital or developmental. The percentage frequency of ptosis of certain portions of the large intestine does, however, further increase with age in both sexes. The greatest discrepancy between the male and female in regard to the percentage frequency of coloptosis in the adult occurs at

the ileocecal valve. Thus, this portion of the colon shows an extreme degree of ptosis in 12.1 per cent. of the males of all ages; this contrasts with an extreme degree of ptosis at the ileocecal valve in 39.4 per cent. of the females of all ages.

5. No normal standard of frequency of visceroptosis, based on unselected material, exists.

In the absence of such a normal standard, proper evaluation of the degree of deviation reported in any selected roentgenologic or other series of cases is impossible.

A standard of frequency of visceroptosis which may be considered adequate until corrected by future investigators is made available in tabular form in the present article.

338 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. L. B. MORRISON, Boston: My study of visceroptosis has been wholly through the fluoroscopic screen antemortem. A number of factors cause visceroptosis. There is the large, fleshy individual and the tall, thin individual. The fleshy individual has the high abdomen and the short chest and high viscera. In the slender individual, compared with other standards, there is a definite lowering of all the viscera. In 1,500 cases examined with the fluoroscopic screen there were 57.7 per cent. females and 42.3 per cent. males. The stomach in 18 per cent. was about an inch or two above the crest of the ilium; 45 per cent. were at the crest or 1 inch below, and 38 per cent. were low in the true pelvis. I consider a normal case one in which the hepatic flexure is at the crest of the ilium. The splenic flexure is usually from 4 to 6 inches above, though you may find it under the diaphragm, and even passing well back under it. In 30 per cent. of my cases I found the cecum anywhere from 2 inches below the iliac crest and in the pelvis and over to the left side. In one case you could lift the cecum up and float it around anywhere through the abdomen. I found that 40 per cent. of the patients had incompetent cecal valves. In this series there was a dilated cecum in 32 per cent., so that incompetent valves run pretty constant with dilated cecums. Dr. Bryant spoke of the cecum being dilated to almost any size according to the amount of the enema. I do not find that it dilates in proportion to the amount given. One cause of ptosis is the loss of muscle tone and another the amount of fat in the abdomen. I saw a patient two years ago who on treatment has gained 35 pounds in weight. Her stomach was 4 inches below the crest of the ilium; now it is at the crest.

DR. J. L. KANTOR, New York: Incidence depends on the location of the place from which a man gets his material. On the other hand, a man doing a general practice is likely to be surprised at the large number of asthenics he encounters. In the army, previous to the general draft, it was probably very rare to get a man with marked visceroptosis; but as soon as the draft law went into effect, we were immediately confronted with what Dr. Bryant has so well termed the problem of the "congenital visceroptotic invalid." It was the failure to recognize the essential character of this condition that led to trouble in trying to promulgate a relatively short course of development for deficient individuals of this type. Also, it was not realized soon enough that in extreme forms of this condition it is quite impossible for the men to do the regular work of the soldier. Such individuals should have been discharged quickly to avoid needless expense on the part of the government.

DR. FRANK SMITHIES, Chicago: This paper, instead of being titled the "normal incidence of visceroptosis," should be called the "incidence of normal visceroptosis." We see many cases of visceroptosis without symptoms. This aspect has significance, and I think this should be taken into consideration in treatment. In the cases of visceroptosis with symptoms, very frequently the symptoms are due to conditions entirely unrelated to the position of the viscera, e. g., as abnormal material in the intestine, affections of the intestinal wall, and infected appendix or gallbladder, or possibly both.

In such circumstances, treatment directed toward the visceroptosis instead of being directed toward the primary cause is without avail.

DR. JOHN BRYANT, Boston: My principal object in reading this paper was to try to provide at least some standard of normals, with regard to visceroptosis. I realize well enough the relation of visceroptosis to body type, and wrote several articles on this subject some years ago. The original material for this paper was obtained in 1912-1914, but in the interval no standard of normals has become available in the literature. I therefore desired to provide some sort of standard where there was none.

GLANDULAR FEVER *

P. F. MORSE, M.D.
DETROIT

Some diseases seem to be peculiar in their tendency to recur after apparent intervals of quiescence. These periods may be so protracted that the medical profession forgets the existence of the disease, and on recurrence of the infection cases are reported as a new disease.

We have had a recent example in the recurrence of epidemic encephalitis, and at present another is before us in a disease first described as a clinical entity by Pfeiffer, in 1889, and given the name glandular fever. Until ten or twelve years ago, it was fairly well known, but it seems lately to have become so infrequent as commonly to escape diagnosis.

A widespread but mild recrudescence is taking place and the affection is again quite prevalent. Many cases of glandular fever are running their course unrecognized or are being given new names under the impression that they are unusual and new diseases. Thus, Bloedorn and Houghton¹ have reported undoubted cases of glandular fever under the name of "acute benign lymphoblastosis," and Sprunt and Evans² also have called attention to the disease under the title "infectious mononucleosis." A recent article recognizing that glandular fever is again with us, and describing the clinical features in a systematic way, is that of Tidy and Morley.³ An editorial in the *British Medical Journal*⁴ also calls attention to the foregoing facts.

A fairly typical case, reported from Dr. McKean's service at Harper Hospital, sets forth the more common features of the affection:

CASE 1.—*History.*—Mr. M., aged 27, a medical student, entered the hospital, May 11, 1921, complaining of sore throat, pain in the left hypochondrium, and weakness. The family and past history was of no significance. May 1, he noticed a soreness in the back of the neck and an occasional "jerking or bobbing of his head." One day later his throat was sore and reddened, felt raw and was covered with exudate. He also felt nauseated for a time. The temperature, May 2, ranged from 97 to 100 F., and he perspired freely at night. There was considerable mucus in his throat for several days. Until May 8, his temperature was subnormal in the morning, and rose to 100 or 101 F. in the afternoon. The heart rate was accelerated twenty-five beats a minute. The temperature, after May 8, returned to normal, but the fever left him feeling tired and weak, and with pain and tenderness in the left hypochondrium.

* From the Buhl Memorial Laboratory, Harper Hospital.

1. Bloedorn, W. A., and Houghton, J. E.: The Occurrence of Abnormal Leukocytes in the Blood in Acute Infections, *Arch. Int. Med.* 27: 315 (March 15) 1921.

2. Sprunt, T. P., and Evans, F. A.: Infectious Mononucleosis, *Brit. M. J.* 1: 95 (Jan. 15) 1921.

3. Tidy, H. L., and Morley, E. B.: Glandular Fever, *Brit. M. J.* 1: 452 (March 26) 1921.

4. Acute Benign Lymphoblastosis, editorial, *Brit. M. J.* 1: 649 (April 30) 1921.

Physical Examination.—This was made, May 11, 1921. Only positive findings are reported. The tongue was deeply furrowed and slightly coated; the pharynx was congested, and the pillars were slightly reddened. Examination of the neck revealed that the anterior and posterior cervical lymph nodes were enlarged and easily palpable. The supraclavicular, infraclavicular and inguinal lymph nodes were enlarged and somewhat tender. The spleen was easily felt below the left costal margin. It was tender, and palpation of it increased the upper abdominal discomfort. The temperature remained normal throughout a five days' stay in the hospital.

Microscopic Examination.—Blood examination on the day following admission, revealed a negative Wassermann reaction; red blood cells, 5,410,000; hemoglobin, 70 per cent.; white blood cells, 17,500; differential: polymorphonuclears, 18 per cent.; small lymphocytes, 77 per cent.; large mononuclears, 4 per cent., and eosinophils, 1 per cent.

Two days later the white cells numbered 13,600, with 75 per cent. lymphocytes. The hemoglobin was 60 per cent. The day before discharge the white cells numbered 10,800, with 62 per cent. lymphocytes. Two weeks later the white cells numbered 5,800, and the lymphocytes 43 per cent.

The urine was negative the three times it was examined.

Another case, from the service of Dr. A. F. Jennings, presented the following points of interest:

CASE 2.—Mr. A., a clerk, April 5, 1921, felt ill and "feverish." The glands under the angle of the jaw were enlarged. He consulted Dr. Jennings, April 9. The nose and throat were reddened and moderately sore. The cervical glands were enlarged on the left side. The temperature was 99.6 F.; pulse, 100; blood pressure, 120 systolic and 80 diastolic. The spleen was enlarged and tender.

The blood count, April 11, revealed 11,150 white blood cells per cubic millimeter: polymorphonuclears, 39 per cent.; mononuclears, 61 per cent. April 12, the total white blood cells numbered 15,100, with 79 per cent. mononuclears. April 25, the white cells numbered 9,700: polymorphonuclears, 25 per cent.; small mononuclears, 68 per cent.; large mononuclears, 7 per cent. The blood culture, April 14, was negative.

The urine was negative on three occasions, except for a moderately strong urobilinogen test and a trace of bile, April 12. No cutaneous evidence of bile retention was noted. The characteristic mononuclear cell present in both cases was of the bilobed "Riedel" type. The blood count in the second case has now returned to normal.

Since a systematic and exhaustive account of the disease has recently been published by Tidy and Morley,³ only a short account of the more salient features will be considered here.

SALIENT FEATURES

The affection is supposed to have an incubation period of from 5 to 10 days. The onset is sudden, usually with sore throat and a feeling of stiffness in the neck, and often with upper abdominal pain or discomfort in the left hypochondrium. Nausea and vomiting are common at the onset.

The temperature is often normal in the morning and is seldom above 102 F. in the afternoon. Within a week the temperature has usually returned to normal.

Physical examination reveals the swollen lymph nodes as the outstanding feature. Usually the cervical chain is most involved, but the supraclavicular and infraclavicular, axillary and inguinal nodes are almost always palpable. In the first case here reported, the epitrochlears were also enlarged. The spleen is enlarged and tender in about 60 per cent. of the cases.

Aside from the lymph node enlargement, the blood count is most characteristic and tends often to confuse the disease with acute leukemia. A rise in the white cell count to 17,000 or 20,000 is the rule. The stained smear reveals that the increase is due entirely

to mononuclear cells. These cells are of the lymphoblastic type and there are many with bilobed Riedel nuclei. The average lymphocyte percentage runs from 75 to 85.

The lymph nodes and spleen decrease in size more slowly, but the spleen is not usually palpable after the fourteenth day. The blood count gradually returns to normal, but this may take several weeks.

The prognosis is favorable. Morley and Tidy state that only four fatal cases are recorded.

The convalescence is noticeably slow, and a feeling of weakness persists for some time. In the first case here reported, the hemoglobin was 60 per cent. during the illness, and about three weeks later reached only 75 per cent. The patient complained of considerable lassitude at this time. The anemia and the persistence, for some time, of palpable glands have been repeatedly observed.

DIFFERENTIAL DIAGNOSIS

Although there are several conditions, such as tuberculosis, mumps and acute cervical adenitis, which glandular fever may simulate, there is no trouble in differentiating them, if a careful physical examination and a blood count are made. Acute lymphatic leukemia is ruled out with greater difficulty; but usually the milder course and the lack of hemorrhages in glandular fever, along with a study of the blood picture, are sufficient to rule out leukemia. The blood smear is quite different in appearance from that of leukemia. There is a lack of immature, atypical and degenerating forms of leukocytes, and the presence of large numbers of the bilobed or Riedel type of white cell is quite distinctive. In view of the favorable outcome of glandular fever, and the hopeless prognosis of lymphatic leukemia, a correct diagnosis is especially important.

OBSERVATIONS ON GASTRIC AND DUODENAL MOTILITY IN DUODENAL OBSTRUCTION *

HOMER WHEELON, M.S., M.D.

ST. LOUIS

The case herewith reported is presented because of its bearing on certain physiologic principles of gastric and duodenal motility in relation to pathologic states of the duodenum.

REPORT OF CASE

History.—Baby B., aged 7 months, was referred to the hospital by Dr. John Zahorsky, April 22, 1921, with a diagnosis of "acute obstruction of the small bowel." The chief complaints were vomiting, cessation of bowel movements and emaciation. The present illness began, April 15, 1921, with vomiting. Vomiting continued to be more or less constant. The vomitus at first was yellow and acid; later it was green, but never fecal in nature. The child cried a great deal and was restless. Urination was infrequent. Enemas and a special diet had been given since the onset. There had been more or less gastric disturbance since birth, which was normal and at full term. The child suffered an attack of vomiting and convulsions on Easter Sunday. The weight, appetite and bowels were fairly normal until the onset of the last illness.

Examination.—The child was slightly emaciated; the temperature was 101 F. The abdomen was slightly flattened, which was especially evident when the child lay on its back.

There was no abdominal rigidity, tympanitis or apparent points of tenderness. A distinct elevated band extended transversely across the abdomen 1 inch above the umbilicus; this showed motility. There was no palpable mass. The urine was lemon colored and acid. It contained no sugar, a trace of albumin, a few casts and white blood cells. The gastric contents contained bile (quantitative acid analysis not made), but no fecal matter.

Roentgen-Ray Examination (H. W.).—After thorough lavage, a 3 ounce barium mixture was left in the stomach. A roentgenogram taken ten minutes after the meal showed barium in the antral portion of the stomach; the pyloric sphincter wide open; the "cap" and duodenum filled to the left border of the vertebral column; the terminal portion showing a smooth, rounded surface, and no filling defects (A, in tracing). A roentgenogram taken eight minutes later showed a reduction in the amount of barium in the stomach and a further increase in the size of the duodenum, powerful peristaltic waves in the antral region, open sphincter, cap and duodenum greatly distended (B). The third portion of the duodenum occupied a transverse position, the terminal portion lying just below the stomach and to the left border of the vertebral column. A roentgenogram (C) taken twenty-five minutes after the meal, showed the stomach well filled and quiet, the pyloric sphincter open, the cap and first portion of the duodenum practically free of barium and filled with gas, a marked reduction in the cross diameter of the third portion (transverse) of the duodenum, and a smooth terminal surface of the duodenum, save for the lower border, which suggests an acute bend in the lumen of the intestine. In each roentgenogram there was evidence of a few flakes of barium below (caudal) the terminal portion of the shadow. The roentgen-ray diagnosis was: obstruction of the small intestine (kink) about the region of the ligament of Tritz, or at the point of emergence of the duodenum from its retroperitoneal position.

Operation and Results.—Operation was performed by Dr. Roland Hill, whose report is herewith presented. "Owing to the diagnosis of obstruction of the small bowel at the ligament of Tritz, the abdomen was opened by a 3 inch incision through the left rectus about 1 inch outside the umbilicus. The cecum and appendix presented at the wound. Examination of the small bowel at the ligament of Tritz was negative except that the bowel was somewhat distended with gas. In the lower part of the abdomen in the left side of the pelvis was found a mass about the size of a baseball. This was covered with peritoneum and had small bowel running into and proceeding from it. The location was about 1 foot from the cecum. The peritoneal covering of the mass was opened, when it was found that it consisted of about 1 yard of small bowel. This was slate colored and collapsed. Examination showed that the bowel was in a sac of peritoneum and had slipped through an opening in the root of the mesentery of small intestine. It was nonadherent and not inflamed. From the history, it was believed to be of congenital origin. It was reduced with some difficulty and the rather large slit in the mesentery was sewed over. The abdomen was closed without drainage, but the child collapsed and died within a few hours."

COMMENT

An examination of the patient prior to the administration of the barium meal demonstrated a transverse elevation of the abdominal wall from under the margin of the right costal arch to a point about 1 inch to the left of the midsternal line, occupying the usual position of the transverse colon. There was no evidence of abdominal rigidity, tenderness or tympany. Under moderate manipulation (not painful to the infant), the elevated portion would collapse, a gurgling sound being associated with this diminution in size. After a few moments, the mass would rapidly reappear and occupy a position as previously. Auscultation over the area of the pyloric sphincter elicited loud gurgling sounds as the mass was reduced under pressure. Similar, though less loud, sounds occurred as the mass refilled. Special attention was directed to any possible

* From the Medical Service, Bethesda Hospital.

spontaneous motility of the mass. At frequent intervals, there occurred what appeared to be a simultaneous decrease in the extent of the entire mass, such decrease usually resulting in its complete disappearance. Waves of progressive motion, as observed in the stomach in cases of pyloric stenosis, were not demonstrable. It appeared that the mass as a whole contracted on itself. Several times during the course of the examination what appeared to be true progressive peristaltic waves were observed in the region just above the mass. These waves were seen to occur at times of greatest distention of the transverse elevation. The relation of the two types of movement in the two regions associated with the changes in size of the mass, the absence of fecal matter and presence of bile in the vomitus, the continual return of gastric content, together with the absence of abdominal rigidity, and local or diffuse tympanites, led to the assumption of an obstruction of the terminal portion of the duodenum or upper portion of the small bowel. As shown above, this assumption was verified by roentgenographic and surgical procedures.

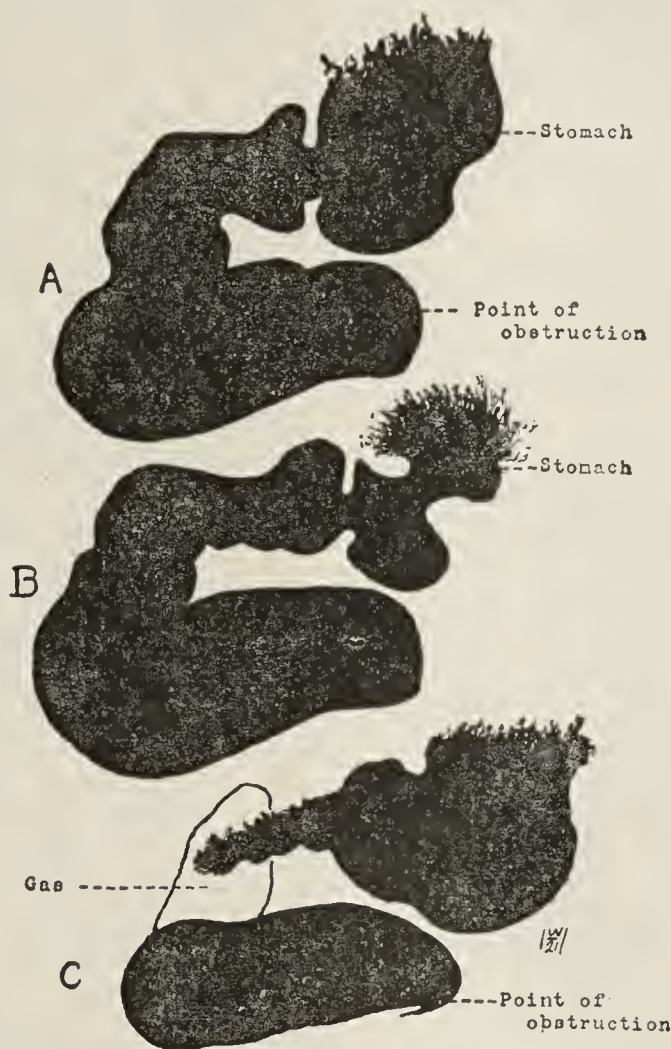
The points of clinicophysiology interest in this case are: (1) the relation of gastric to duodenal motility; (2) the relation of distention of the duodenum to gastric motility; (3) the relation of duodenal filling and obstruction to vomiting, and (4) duodenal motility.

1. *Relation of Gastric to Duodenal Motility.*—According to the theory of "the acid control of the pylorus," hydrochloric acid is the exciter of reflexes which cause both opening and closure of the pyloric sphincter. That is, acid in sufficient concentration in the antral region excites the reflex opening of the sphincter, while in the duodenum it excites reflex closure. Certain recent experimental work, while not disproving the possible action of acid on gastrointestinal motility, tends to show that acid alone is not sufficient to explain the mechanisms involved in the acts of opening and closing the sphincter. Luckhardt, Phillips and Carlson,¹ for instance, have shown that there is a greater relation between pyloric and antral activity than between pyloric activity and acid concentrations. McClure, Reynolds and Schwartz² also have shown that the introduction of acid into the duodenum of the human being is not sufficient to excite closure of the sphincter. Wheelon and Thomas³ have shown that the sphincter possesses rhythmic contractile powers which bear a definite relation to the

sequences of motor action in the stomach and duodenum.⁴ The case here reported lends evidence to the assumption that acid is not alone responsible for the acts of opening and closing the sphincter for the reason that chyme loaded with bile, following regurgitation into the stomach, was again passed into the duodenum because of active gastric peristalsis, these movements of the fluid continuing until such a time as vomiting rid the stomach of its contents. This observation may be looked on as an exaggerated example of the acts of regurgitation which Spencer, Meyers, Rehfuess and Hawk⁵ have found normally occurring during the process of gastric digestion.

The objection may be raised that such deductions are not warranted from the study of pathologic cases. However, if the acid theory is correct for the normal, it must also hold, at least in part, for the sick individual. According to this theory of acid control, the acid chyme first presented to the closed duodenum should have reflexly caused a high degree of contraction in the sphincter. Its neutralization should have caused or permitted the pylorus to open again, provided the acidity was sufficiently high in the antrum. As a matter of fact, it was found that material was passed normally into the closed duodenum following a barium meal, until the duodenum was markedly distended. Under distention, the duodenum reacted in such a manner as to cause the passage of its contents back into the stomach, such contents being again delivered to the emptied or partially emptied duodenum because of gastric motility. This migration of the chyme ultimately resulted in a bile-acid mixture; nevertheless, this material when regurgitated into the stomach passed from this viscus to the duodenum as readily as fresh food.

2. *Distention of the Duodenum and Gastric Motility.*—Rapid distention of the duodenum is sufficient cause to excite tonic closure of the pyloric sphincter, nausea and vomiting.² However, it appears from the case herewith reported that the stomach is capable of passing material into the duodenum in spite of an obstruction to its egress from this segment. This appears to indicate that the power of the stomach to pass material through the sphincter may be sufficient to offset the resistance offered by the duodenum, and cause a marked distention of this segment. That is, the stomach's power to pass material through its sphincter may be sufficient to cause a marked distention of the receiving segment of intestine. As shown in the accompanying tracing, marked distention of the duodenum



Tracings of roentgenograms showing the relation of gastric to duodenal motility: A, roentgenogram taken ten minutes after barium meal by stomach tube; B, roentgenogram taken eighteen minutes after meal, and C, roentgenogram taken twenty-five minutes after meal. The loss of tone and motility of the stomach after regurgitation of part of the duodenal contents may be noted.

1. Luckhardt, A. B.; Phillips, H. T., and Carlson, A. J.: *Am. J. Physiol.* **1**: 57 (Oct.) 1919.

2. McClure, C. W.; Reynolds, L., and Schwartz, C. O.: *On Behavior of Pyloric Sphincter in Normal Man*, *Arch. Int. Med.* **26**: 410 (Oct.) 1920.

3. Wheelon, H., and Thomas, J. E.: *Am. J. Physiol.* **54**: 460 (Jan.) 1921.

4. Wheelon, H., and Thomas, J. E.: *J. Lab. & Clin. Med.* **6**: 124 (Dec.) 1920.

5. Spencer, W. H.; Meyer, G. P.; Rehfuess, M. E., and Hawk, P. B.: *Am. J. Physiol.* **39**: 459 (Feb.) 1916.

can be associated with an active stomach. Similar conditions are frequently observed in cases of partial obstruction of the duodenum resulting from adhesions with the gallbladder or an old ulcer. However, there seems to be a limit to the extent of distensibility of the duodenum. As shown in the tracing, the duodenum may partially empty itself into the stomach. The stomach at such times is quiet. Now, since the barium passes into the stomach from the duodenum after the duodenum has been thoroughly distended, it appears logical to believe that the distention was an effectual stimulus to duodenal motility. This motility, while not definitely of a peristaltic nature, is sufficiently powerful to pass material through the sphincter into the stomach. From the roentgenographic results, this action of the duodenum was most marked in the descending portion. This indicates that the pressure exercised by the contracting duodenum was either sufficient to force open the pylorus or that a positive phase in the duodenum was associated with a reflex inhibition of both the pylorus and antrum, i. e., contrary or reciprocal innervation. Possibly both factors enter into the composition of such acts of regurgitation.

3. *Relation of Duodenal Obstruction to Vomiting.*—It appears in the case herewith reported that vomiting resulted primarily because of duodenal distention. Experimentally, vomiting can be readily induced by rapid or gradual overdistention of the stomach or duodenum. In such experiments it may be observed that the act of vomiting consists of an active duodenal contraction (tonic), with a loss of rhythmic segmentation followed by tonic closure of the pyloric sphincter (at times part of the antrum) and more or less loss of tonicity of the body of the stomach. Retching movements usually appear with closing of the sphincter. In the present case, the regression of material from the duodenum into the stomach was repeatedly observed; however, no true act of vomiting occurred during the period of roentgenographic examination. Nevertheless, the constant vomiting and the type of activity observed leads to the conclusion that duodenal distention was the cause of vomiting in this case. This conclusion is of more weight when it is recalled that there was but little intestinal retention and absorption of toxic material.

4. *Duodenal Motility.*—In the dog, duodenal motility consists of rhythmic segmentation and peristaltic waves. Wheelon and Thomas (results not yet published) have shown that peristaltic activity of the duodenum bears a definite relation to that of the pyloric sphincter and antrum. Cole has described peristaltic activity in the first part of the human duodenum.⁶ However, our present knowledge of the motility of the human duodenum is limited and far from satisfactory. The regurgitation of bile and fecal matter in cases of intestinal obstruction have been explained on the theory of antiperistalsis, possibly excited by toxic substances. In the present case, the obstruction of the intestine was so high and of such a nature as to prevent retention or the regression of any considerable amount of material. However, as pointed out above, the segment of intestine in direct communication with the stomach did show a type of motility

which might be likened to a compression wave, that is, a more or less simultaneous contraction of the entire segment. In the experimental animal, rapid distention of the duodenum causes cessation of rhythmic segmentation and peristalsis; however, this segment, following such excitation, shows a marked degree of contracture. At times, such contracture is sufficient completely to occlude the lumen of the intestine. In this respect, the present case demonstrates a type of duodenal motility that can be experimentally produced in the dog. Similar reactions of the duodenum have been observed repeatedly both in the dog and in man following the administration of pilocarpin.

SUMMARY

The case reported here presents the following points of physiologic interest:

1. Gastric motility was of sufficient strength to cause marked distention of an occluded duodenum.
2. Distention of the duodenum beyond a certain point is sufficient excitation to cause this segment of intestine to contract in such a manner as to force its contents back into the stomach.
3. The degree of acidity of the chyme apparently is not the only factor involved in the opening and closing of the pyloric sphincter.
4. Vomiting is associated with an active contracture of the duodenum and sphincter. The period of nausea preceding the act of vomiting may be looked upon as the result of the preparatory changes in the duodenum and sphincter to this act.

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OBSTETRIC DEATHS

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The thought that the number of deaths due to the process of generation is unnecessarily large naturally suggests an inquiry as to the best means of reducing this mortality.

There are two ways of approaching this subject: the statistical and the clinical. I have chosen the latter for these reasons: The mere figures in regard to deaths of mothers, embryos, fetuses, and new-born infants may be most misleading unless they are analyzed and qualified in the light of clinical experience. For example, there is no report whatever on abortions or miscarriages in any public health reports, and yet the mortality of the embryo and fetus by expulsion from the uterus before viability or by intra-uterine disease is much the heaviest item in the mortuary statistics of the generative process, namely, from 20 to 25 per cent., a figure arrived at only by a computation from the private case records of the individual physician. Take, again, the comparison between hospitals and private practice—an important detail in studying methods for reducing the obstetric mortality of maternity.

There are three classes of hospitals. One admits only respectable married women of a fairly well-to-do class, does not have an ambulance service, and has a minimum of complicated cases. The second deliberately refuses difficult cases, has no provision for dealing with them, and actually transfers cases that become complicated in the hospital. The third makes a special bid for pathologic conditions, has an active ambulance

6. Cole, L. G.: Physiology of the Pylorus, Pilleus Ventriculi and Duodenum as Observed Roentgenographically, J. A. M. A. 61:762 (Sept. 6) 1913; Am. J. Physiol. 42:618, 1917.

service, and is a sort of clearing house for all the cases beyond the skill of the ordinary practitioner in a congested civic population. I have been officially connected with all three classes of hospitals, and know by experience how valueless a comparison of their statistics would be.

Consider also the dubious character of the figures that come to a health board from private practice. Many women in this country die from a perforated uterus in the active treatment of abortion. The true cause of death is either not recognized or is deliberately concealed. Heaven knows how many deaths from puerperal infection are reported under other names: certainly a goodly number.

Consequently I prefer to make a general computation of maternal deaths from the observation of many years of consulting private and hospital practice. I believe that the average maternal mortality from the process of generation is about 0.3 per cent. in private house practice and about 0.1 per cent. in the best conducted maternities not dealing with specially complicated cases. The goal we should set ourselves, therefore, is to reduce the mortality of the generative process to a general average of about 0.1 per cent. By doing so in the United States, we would annually conserve the lives of 5,000 women at the most interesting and valuable period of their existence. The figures in regard to the product of conception are more easily arrived at: at a conservative estimate, 20 per cent. are lost before viability and at least 5 per cent. are stillborn or die directly after birth. It is not possible to eliminate all these deaths; but they can be reduced.

The question next presents itself: What are the causes of avoidable maternal, fetal and infantile mortality? Maternal deaths may be ascribed to: (1) accidents, such as hemorrhage; rupture of the uterus from overlooked obstruction; injudicious use of pituitary extract; technical errors in operative procedures; anesthesia; (2) embolism, acute dilatation of the heart, profound emotion, conditions often unavoidable; (3) the toxemias and eclampsia, usually avoidable; (4) infections, minimized by proper technic and efficient curative treatment, but not wholly avoidable, and (5) intercurrent affections not usually controllable.

The 20 per cent. of intra-uterine deaths are due to apoplexies of the ovum, usually the result of imprudent physical effort or of high blood pressure; to any of the intra-uterine diseases or accidents, including syphilis, and to faults of development. The 5 per cent. of deaths in labor or directly afterward are ascribable to the complications of parturition, often mismanaged. Finally, the most important question of all presents itself for our consideration: What are the most practicable and efficient means of reducing the mortality of the generative process? To my mind, they are three in number:

1. Improvement in the obstetric teaching of our medical schools. This was so bad twenty-five years ago that some of the most prominent of our medical schools would have been promptly closed by any European government. In our methods, clinical material and roster, we are still inferior to Europe.

2. Multiplication and enlargement of maternity hospitals, under heads competent to deal surgically or otherwise with all the complications and sequelae of the child-bearing process, including all the diseases of women.

3. The establishment of maternity centers for the poor in order to give the women prenatal care, to fur-

nish skilled attendants in labor, and to follow up the results of childbirth.

In all three of these measures, the state should lend a helping hand in order to develop and support the largest possible maternity hospitals connected with medical schools, and to assist in the erection and maintenance of smaller maternities scattered over the country at frequent intervals; not to give instruction, as in the faulty conception of their purpose in Pennsylvania, but to afford favorable environment for the best care of the patients.

Finally, the state should assist in the establishment and maintenance of maternity centers or outpatient departments in the congested districts of towns and cities. Sir Arthur Newsholme showed conclusively that whenever this was done in Great Britain, obstetric mortality was markedly reduced; so that the English government, I understand, now bears half the expense of maintenance wherever these centers are established.

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INTERPRETATION OF DIGESTIVE SYMPTOMATOLOGY

RELATIVE TO CHANGE IN SYMPTOMS AND
EXTRINSIC FACTORS*

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Intense study and painstaking investigation of the most important subject of change in symptoms will yield valuable and helpful information. To me it presents one of the most fascinating and interesting chapters in medicine, because of the ever-changing and puzzling syndromes one is continually meeting.

To achieve a happy solution of the various problems, we must study the symptoms from their very incipience to the moment of consultation, minutely noting every change, and at the same time exerting our best efforts properly to evaluate the significance of the variations.

As lack of time and space does not permit a comprehensive discussion of the subject, I shall limit my discourse to several organs.

GASTRIC ULCER

Gastric ulcer offers an excellent example for study. A typical case will give an early history of indefinite subjective dyspeptic symptoms, e. g., discomfort, fullness, distress, gas, possibly pain, heartburn and other complaints which we term a dyspeptic syndrome. The objective signs are tenderness and pain on pressure; muscle spasm may or may not be noted. At first these symptoms do not appear after every meal or during each day; later they may appear after the heaviest meal. As the condition progresses, we note a more intimate relationship to the intake of food; the subjective symptoms and objective signs appear before or after each meal, and are greatly influenced by the character of nourishment.

Every medical man is or should be entirely familiar with the pathologic physiology causing the foregoing syndrome.

In a large percentage of cases the picture as described is not presented at the first consultation, but

* From the Digestive Clinic of the Johns Hopkins Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

the most bizarre, jumbled and contradictory symptoms imaginable are given. Instead of the pain being confined to one point, notably the epigastrium, it may radiate upward through the chest—or to the back—the hypochondriac regions, or downward to the right or left. All relation to the intake of food may be lost—the pain appearing at any time during the day or night—apparently absolutely independent of nourishment. Further, the influence of the character of food (solid, mushy, liquid) seems entirely lost.

As to the mode of onset and disappearance, all regularity or semblance of order in the appearance of symptoms has vanished and we find the pain at one time coming on slowly; at another, quickly, and disappearing in the same unusual manner. Where pain was heretofore entirely or greatly relieved by vomiting, now no relief is obtained. If the temperature (hot or cold) of food and drink influenced the syndrome, now it has ceased to bear any relationship or has changed its characteristics. Where exercise (walking, running, swimming, etc.) played a rôle, it has now ceased. Posture (lying, sitting, standing) has likewise lost its influence, as have seasonal (damp, dry, spring, summer, fall, winter) changes. The periodicity, so striking in a goodly percentage, is found to be lacking, and the symptoms are either constant or merely remittent.

In order to interpret these symptoms, one naturally asks: Why the changes? Briefly, the answer is as follows: The edges of the ulcer may have become caloused; healing is prevented, and a constant irritant is present. Penetration to the serous coat may take place resulting in the exudation of lymph; or perforation into another organ (lung, pancreas, intestine, liver, gallbladder) may occur, both producing anatomic deformities resulting in functional disturbances as regards motor, secretory and sensory capacities of the stomach; and the same may be said of the organs secondarily involved.

PYLORITIS AND PERIGASTRITIS

Pyloritis and perigastritis caused by inflammatory changes often produce structural, functional and reflex changes and symptoms.

Relative to the pylorus, we have seen cases in which absolute tumor masses were formed at this point because of inflammatory exudate; also such large amounts of scar tissue had been formed about the pyloric orifice as to make one believe the growth malignant until microscopic investigation revealed it otherwise. These cases show obstruction and tumor mass, which is usually movable in the epigastrium. With loss of weight and occult blood in addition to the foregoing findings, one is often puzzled whether to diagnose the condition as a malignant or a benign process.

We should never lose sight of the proved fact that subsidence of symptoms is not proof that the ulcer has healed, and this knowledge should be an incentive to keep in communication with the patient after an apparent cure.

When perforation with adhesions resulting in deformities and interference with functional capacity takes place, pain may be constant instead of remittent or intermittent, because the condition has changed from one of intermittent irritation, inflammation or ulceration with spasm, to one of permanence, i. e., an organic state.

These cases impress us with the danger of making a diagnosis on one symptom, and emphasize the necessity

of studying all phases of the associated phenomena. A contracting callus in the body of the stomach, pylorus or cardia will cause obstruction—the former producing an hour-glass formation—and both complications usually resulting in a complete change of symptomatology.

A carcinomatous degeneration of the ulcer will produce symptoms entirely at variance from the original dyspeptic syndrome.

PERFORATION AND HEMORRHAGE

Relative to acute change in symptoms, attention is directed to perforation or hemorrhage into the lesser or greater peritoneal cavity, further remembering that the latter process may also take place into the stomach or intestine. These occurrences, according to Moynihan and Bolton, are the only signs we have of acute ulcer.

Time and space will not allow of other than brief mention of the more important features regarding these two very important and serious complications.

In perforation, the pain usually appears suddenly (unless there is a slow leak) with decided shock. Occasionally—and these cases often terminate fatally—the symptoms may subside markedly, lulling both the patient and the physician into a false sense of security until stormy symptoms and conditions again appear, at which time it is too late to introduce successful measures. This secondary subsidence, however, does not always occur; often symptoms become progressively worse. Ulcers on the anterior surface of the stomach are more likely to perforate than those elsewhere.

Involuntary muscular rigidity should always be a sign of the greatest significance, as it denotes serious underlying trouble. In perforation it is due to a visceromotor reflex, brought about by the chemically irritating material ejected from the ruptured viscus, with a resulting general peritoneal inflammation.

Hemorrhage may appear insidiously, although very often the rupture of the vessel is accompanied by pain, the latter usually subsiding. The pulse does not improve (unless bleeding ceases) but continues to mount, and loses its sustaining qualities; later, a hemic murmur is noted; increased respiration, air hunger, excessive thirst, cold extremities and subnormal temperature finally appear.

In marked contradistinction to the muscular rigidity encountered in perforation, we find in hemorrhage a soft, pliable, supple abdominal wall with no muscle spasm, owing to the fact that blood does not possess the chemically irritating quality of the fluids ejected from the involved organ.

Ulcers situated in the vicinity of or on the lesser curvature show the greatest tendency to bleed.

CHANGES IN SYMPTOMATOLOGY OF GALLBLADDER

As to processes resulting in a change in gallbladder symptomatology, one should consider the spread of inflammation through the wall resulting in adhesions to the liver, duodenum, pylorus, hepatic flexure and appendix. Thin, velamentous adhesions may cause greater disturbance than those of a heavy texture, depending on the location and relationship to the surrounding structures. Ulceration into the duodenum has been known to occur, and malignant changes must also be kept in mind. We are more likely to encounter gangrenous processes in acute conditions, and we should always remember this complication as a possibility.

Cases have been noted in which a cardiac involvement has undoubtedly been produced because of toxic and reflex influences having their incipience in an infected gallbladder. Myocarditis, anginoid symptoms and cardiac failure have been known to occur, as have also irregularities and palpitation.

We have noted cases in which it has seemed from the history and subsequent clinical course that a colitis—with marked diarrhea and irregularity of bowel movement—had been caused by a focal infection arising in the gallbladder.

Although secondary involvement of the pancreas from gallbladder disease, with the usual pancreatic manifestations, including bulky and offensive stools, is a well known condition, I feel it of sufficient importance to warrant a word here.

There can be no doubt that marked infections of the urinary tract and other conditions are many times due to primary infection of the gallbladder. The right kidney is most often affected.

Lastly, the possibility of an arthritis from the same source should not be overlooked; and further, it is well to remember that with focal infections, here or elsewhere, the endocrines may become secondarily involved, notably the thyroid.

Personal experience convinces me that often a double lesion exists, e. g., gallbladder infection and chronic appendicitis with structural changes and adhesions in each case; and it is a moot question which is primary. Pericholecystitic adhesions may mechanically interfere with the physiologic functioning of the stomach, and reflexly cause inhibition of pyloric relaxation with later deficiency in secretory power; and also, through the same intermediary, interfere with the proper functioning of the ileocecal valve, with the attendant symptoms. If the appendix be also involved, it will likewise produce local and reflex interference with physiologic processes in the stomach and intestine; and one may well imagine the bizarre symptoms such combined conditions will produce.

Cases of attachment between the gallbladder and the appendix have been reported, but this type has not been found among the patients I have seen.

Obstinate resistance to all modes of treatment should lead one to suspect an organic basis as an etiologic factor. When observing changes in symptoms, it is well to remember that prolonged pain and other untoward conditions may lead to an advanced neurotic state.

APPENDIX, PANCREAS AND INTESTINE

Relative to the appendix, we should not forget the kinking due to inflammation; also the involvement of other organs. The appendix may become attached to the gallbladder, intestine, ureter (which may later lead to pyelitis), tube, ovary, rectum or bladder. After these changes have occurred, the symptoms may refer to each of the organs secondarily affected, in addition to the original symptoms characteristic of appendix involvement. This will explain the fundamental reasons for the contradictory and puzzling changes in symptoms often presented with a diseased appendix.

One must not overlook the reflex changes encountered, such as pylorospasm with hyperchylia gastrica and hyperchlorhydria; the latter eventually may result in hypochlorhydria or achylia if the process continues for a sufficient time; also in this regard is to be noted the reflex spasticity of the transverse colon, resulting in a damming back of the fecal column with stasis in the cecum and ascending colon resulting in ultimate atony,

followed by dilatation and colitis. One may go even further and call attention to the marked interference with the physiologic functioning of the ileocecal valve, which also markedly disturbs normal intestinal functioning. As to the latter point, it is interesting to note that Hurst considers the condition due more to failure or relaxation of the ileocecal sphincter than to spasm.

A point well worth keeping in mind relative to acute processes regarding this and all other organs of the abdomen is that involuntary muscular rigidity should be a direct hint of an advanced underlying inflammatory change which is sufficient to cause decided visceromotor reflex.

Because of the indefinite and obscure symptomatology of the pancreas, we are unable to present any absolute facts which would really be helpful in the discovery of variation in symptomatology because of secondary changes. The great difficulty relative to the pancreas is that often one cannot be sure as to when it primarily becomes involved. Carcinoma with cachexia and its concomitant symptoms is an exception; in that case, however, the course would be the same as in malignancy in other organs. If the head of the pancreas is involved, jaundice may be a fairly early symptom. These cases, according to Garrod, may exhibit symptoms of exophthalmic goiter, such as tremor, dermatographia, Möbius' and Stellwag's signs and exophthalmos, which are due to disturbance of the sympathetic through the ganglions which lie so near the pancreas; steatorrhea and azotorrhea may occur and are highly suggestive of pancreatic involvement.

As to chronic conditions of the large and small intestines, changes in symptoms may be due to inflammatory involvement of the liver, gallbladder, duodenum, stomach, spleen, kidney, ureter and pelvic organs, also kinks due to inflammatory and postoperative adhesions. Functional, structural and reflex changes, spasticity, hypertrophy, atony, dilation and colitis may be produced, resulting in decided modification of the primary syndrome.

Malignancy, with its secondary manifestations, is always to be kept in mind, especially as regards the large intestine. Syphilis and tuberculosis should receive consideration.

The discussion of this fascinating subject must needs be brief; but I trust that from the hints offered, the reader has obtained some ideas which will prove of assistance along these lines. My object has been to present concrete reasons for the production of and variation in reflex or protective, functional and structural symptoms and changes.

EXTRINSIC FACTORS

The subject of extrinsic factors assumes a position of importance whenever we approach the discussion of digestive symptomatology, yet it seems to us that it is eternally and ever being forgotten by the diagnostician. I make this statement advisedly and only after close attention to and intense study of personal cases which have come to operation or whose progress has been watched for a sufficient length of time to enable us definitely to prove the diagnosis.

I desire first to speak of the cardiac conditions which manifest themselves in symptoms referable to the digestive tract. The first evidence of a failing myocardium is often shown by nausea, "gas," fulness, distress, flatulence, and various dyspeptic complaints referable both to the stomach and intestine. Its existence may be proved by the therapeutic test of a few drops of

digitalis daily; this many times clears the picture as if by magic.

Not a year passes but that several or more cases are presented at the Johns Hopkins Dispensary which exhibit none other than purely digestive complaints; i. e., loss of appetite, pyrosis, fulness, distress and at times pain in the epigastrium, flatulence, constipation and numerous other disturbances. These patients, on careful investigation, are found to be suffering from advanced tuberculosis of the lungs, and not infrequently cavity formation exists.

A most interesting type, of which I have seen several, is the achylic patient who comes for digestive disturbances, in which every examination, including blood investigation, is negative, and which later develops pernicious anemia.

The group presenting symptoms of indigestion, fullness, much flatulence, irregular and indefinite pain—in which all tests prove of no value—becomes interesting when we discover evidences of arteriosclerosis. We unquestionably encounter a certain number which have this malady as an etiologic factor.

My experience has taught me never to neglect investigation of the endocrine domain, as there exists a group of cases in which the first symptoms manifest themselves in disturbances directly referable to the digestive tract, attacking either the stomach or intestine, and indeed, at times, both. In the former, I have found hyperacidity and hypoacidity or achylia with its concomitant symptoms; and as regards the latter, diarrhea or constipation has been noted. It is inexplicable to me why these variations should occur in both hyperthyroidism and myxedema.

The possibility of thyroid malfunction leading to pancreatic diseases has lately been suggested.

While every one seems familiar with the fact that the digestive tract is often the mirror through which syphilitic and parasyphilitic maladies assert themselves, yet I venture to lay stress on this class of cases because I find that they are constantly overlooked.

A very important type with which I have had experience recently is one in which, without any apparent cause whatever, persistent vomiting, without any nausea, pain, fever or discomfort, appears; and further, on the most thorough physical examination, absolutely nothing of an abnormal nature is detected. The possibility of brain or spinal lesions, notably epidemic encephalitis, is suggested in such cases.

The reflex digestive disturbances arising from the urinary tract, such as inflammation, infection or stone in the kidney, ureter or bladder, should be borne in mind. Much work of late has been done on ureteral stricture in its relation to abdominal symptomatology, and we should therefore consider the possibility of this condition with those just mentioned. We are continually meeting cases in which the symptoms are apparently due to lesions of the digestive tract per se, but which, because of further investigation and subsequent study from diagnostic, therapeutic and operative standpoints, definitely prove to be reflex disturbances arising from pathologic lesions in the pelvic organs. Specific inquiry should always be made as to possible pregnancy.

I would urge the same care relative to close investigation of the male generative organs, notably infection or inflammation of the prostate.

Many times we discover digestive syndromes which are due to the chronic infections, notably those of the tonsils, teeth and the nasal, paranasal and frontal

sinuses. In every digestive case, a comprehensive survey should be made with the object of discovering hidden or obscure foci of infection.

The digestive specialist as well as the general practitioner will find it of vast importance and invaluable assistance in every case to bear in mind the triad of possibilities: malignancy, tuberculosis and syphilis of any and all organs.

GASTRIC SYMPTOMS

AN ANALYSIS OF ONE THOUSAND CASES*

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The statistical study of gastric complaints frequently sets forth the clinical features of such conditions as ulcer, cancer and gallbladder disease, while few studies review the stomach complaints of a consecutive series of patients. As an apology for such a study, if such be necessary, the thought occurs that clinical conclusions are frequently wrong unless based on statistical study; because one tends to remember too well the unusual, and underestimates the real importance of the commonplace disease.

This series of 1,000 patients, almost all adults, was seen by my associates and myself during the last three years. It includes all patients who have required a gastric analysis and gastric roentgenologic examination, besides the minimum routine of case history, physical examination, urinalysis and Wassermann test. Other examinations, when considered necessary for reaching a final clinical diagnosis, were of course undertaken. The review is based on the clinical diagnoses; if further observation, or operation, has proved the diagnosis wrong, then the error has been noted. We fully recognize that there are unquestionably gross diagnostic errors which time or other physicians will bring out; yet, we feel that the final diagnoses approximate at least the best that we can reach with present methods of clinical investigation.

It is interesting to note at once that in 25 per cent. there was no recognizable organic pathologic condition; in 6 per cent. we were unable to classify the condition; that in 2 per cent. the complaints followed operation; that in 35 per cent. the pathologic condition discovered was intra-abdominal but not in the stomach, and that in 18 per cent. the pathologic condition was systemic. This leaves 14 per cent. of patients on whom definite gastric disease has been demonstrated.

PATIENTS HAVING GASTRIC LESIONS

Patients with gastric lesions, ever interesting to the gastro-enterologist, whether internist or surgeon, show the average incidence found per thousand in clinical offices, i. e., carcinoma, 38; sarcoma, 1; gastric ulcer, 16; duodenal ulcer, 83; duodenal diverticulum, 1; gastric syphilis, 1; hair ball, 1; total, 141.

Two cases warrant description here. The hair ball was diagnosed before operation on the following facts:

A girl, aged 9, of normal mentality, was brought by her mother on account of a large upper abdominal tumor the shape and size of the stomach, discovered by the child when bathing. The child was not very sick or undernourished, though slightly anemic, and "had a poor appetite." Question-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

ng brought out the admission that the child was in the habit of chewing the ends of her curls and, a year previously, following measles, had lost much hair. On fluoroscopic examination the barium mass was seen to hesitate just beyond the cardia and then to flow slowly down toward the pylorus, with a thinning at the center of the mass. The dome shaped upper end of the hair ball could be outlined in the plates. The stomach was empty in two hours. The mass after surgical removal was found to be a complete cast of the stomach with loose strands of hair going 8 inches through the pylorus. It weighed 500 gm.

The second case was seen in consultation. A woman, aged 37, had an indefinite history of indigestion for fifteen years. She had had during three months repeated profuse gastric hemorrhages, so extensive as to cause exsanguination. A round, hard, freely moveable tumor, the size of a baseball and readily disappearing beneath the ribs, was present in the left hypochondrium. The roentgen-ray examination was reported by the patient's physician as negative, and the stomach analysis disclosed, repeatedly, hyperacidity. Operative exploration was undertaken after repeated transfusions. A pedunculated spindle-cell sarcoma was removed from the posterior wall of the stomach, and thus far (seven months) the patient has been apparently well.

COMPLAINTS ARISING FROM ABDOMINAL EXTRA-GASTRIC PATHOLOGIC CONDITIONS

Our diagnoses show a considerable percentage variation from those commonly accepted as the causes of reflex indigestion. The appendix has been considered the cause of reflex in only seventy-eight cases, varying much from the 20 per cent. given by Vanderhoof in 1919. Our diagnosis were doubtless influenced by the fact that 130 of our patients stated that their appendixes were already out. We have become slow to diagnose chronic appendicitis as a cause of reflex stomach disturbance unless there is a rather definite history of acute attacks and no other pathologic condition is suspected.

Cholecystitis, with or without stones, appears as the diagnosis in 145 patients, nearly twice as many as suffering from the "reflex appendix." A great number of these gallbladders have not been considered surgical because many such patients make symptomatic recoveries under careful management. Frequently infective foci were evident and were corrected; and frequently correction of the associated constipation has given great symptomatic relief. When there was a history of repeated attacks, or of a chronic dyspepsia disabling the patient, then operation was advised. The clinical diagnosis of gallbladder disease has led to surgical exploration in thirty-five patients, approximately one fourth of those diagnosed gallbladder disease. The surgeon has considered the clinical diagnosis wrong in three cases. The chronically infected gallbladder has been considered the most frequent objective cause of indigestion in this series.

Constipation has been the etiologic factor for indigestion in seventy-one patients and, if we include colitis and other diseases of the large bowel, the figure is increased to ninety-eight. In three patients, large six hour gastric residues disappeared completely after the relief symptomatically of intestinal disease. Five patients with infection with *Ameba histolytica* came in because of gastric indigestion and not because of the occasional mild spasmodic diarrhea, which was admitted on close questioning.

The tapeworm as a cause of reflex stomach disturbances is uncommon:

A man, aged 60, complained that for two years he had had hunger pain, relieved by food and soda, and night pain requiring him to eat for relief. At times he was free from

trouble. We felt sure of a peptic ulcer, and the roentgenologist reported gastric stasis with definite cap deformity, persisting after belladonna. The patient then confided that for several years he had possessed a tapeworm which physicians couldn't cure. He knew, because he had taken four cures unsuccessfully. The patient was examined on two subsequent occasions before taking treatment for his tapeworm, always with the same objective findings. Since being relieved of the worm he has been free from stomach symptoms, and his roentgenologic examination reveals a normal duodenal bulb.

SYSTEMIC DISEASE

It is worthy of note that in twenty-five patients the symptoms were apparently due to syphilis, and that tabes was responsible for five patients coming in for supposed gallbladder disease or ulcer. Migraine vomiting was interpreted by sixteen patients as "stomach trouble." Thoracic or circulatory disease was responsible for stomach complaints in seventy-eight patients. Pernicious anemia was found ten times, and this group is unique in our series, because not one patient in it possessed any abdominal scars.

Other general causes, such as sprue, epilepsy, Addison's disease, goiter, malaria, cirrhosis and metastatic malignancy, are found, but have not been classified because too infrequent.

FUNCTIONAL DISTURBANCES OR CASES WITH NO DEMONSTRABLE PATHOLOGIC CONDITION

The patient comes to the physician's office complaining of indigestion more often than of any other complaint, yet in 25 per cent. of all such cases we have been unable to demonstrate or even seriously to suspect organic disease accounting for the stomach complaint. The neurologist may often attach a name to the disease, and the materialist may say that neurasthenia is as much an organic disease as carcinoma; yet at present we cannot demonstrate the pathology and so must class it under malfunction. More knowledge may make this functional group smaller, but it will probably not be from usually attributing the symptoms of a hypersecretion or hyperacidity to the reflex gallbladder or reflex appendix.

This functional group includes those in whom searching investigation has failed to show organic disease to account for their stomach symptoms. We here place that large number showing poor gastric function attributable to irregular hours, over and under eating, chronic dietary indiscretions, visceroptosis, chronic debility, asthenia, neurasthenia, psychosis, menopause neurosis, etc.

Hyperacidity and hypersecretion, when very marked, are usually of functional origin. The five highest acidities in this series were found in patients without discoverable abdominal lesion. The ten patients showing the highest acidities include only three with organic disease.

Persistent achylia is unquestionably often functional, but should be considered so only after ruling out chronic gallbladder disease, carcinoma and chronic colitis.

Good gastric function is dependent on constitutional well-being; hence disturbance of function may be secondary to practically any disease, nervous or organic. The clinician who fails to spend as much time and effort as is necessary in getting the whole story leaves himself without the most valuable of all aids for the correct interpretation of symptoms. Physical examination and laboratory findings are important, but after all they give the final diagnosis in only a small portion of cases.

The asthenic, complaining individual bringing in roentgenograms of the "fallen stomach" usually attributes all complaints to this cause. Since the floating kidney went out of style, the reflex appendix is becoming less popular, and the roentgenogram of the stomach more popular. It seems a pity to inform such a patient of his visceroptosis. If he is so informed, then more emphasis should be placed on habit and debility as the cause of the fallen stomach than on the gastropptosis itself. Gastropptosis should be the last recourse as an organic diagnosis, because, after all, "it makes no difference where the stomach is but how it works."

Functional stomach disturbances may well be divided into two groups, in the first of which operation has not, and in the second has, been performed without relief; and the second group is larger than is right.

POSTOPERATIVE DISTURBANCES

The surgeon often rightly blames the internist for being too anxious to complete a refined diagnosis on an "acute abdomen"; the internist may at least as often

FINDINGS IN ONE THOUSAND PATIENTS EXAMINED FOR STOMACH COMPLAINTS

Present Clinical Diagnosis	Number	No. Pts.	Previous Operations			
			Appen- dix	Gall- bladder	Stom- ach	Pel- vis
Organic gastric.....	141	..	..	..	..	..
Carcinoma.....	38	3	2	1	..	..
Gastric ulcer.....	16	5	3	..	2	..
Duodenal diverticulum	1	..	..	..	..	..
Duodenal ulcer.....	83	16	9	3	6	..
Hair ball.....	1	..	..	..	..	..
Gastric syphilis.....	1	..	..	..	..	..
Sarcoma.....	1	..	..	..	..	..
Reflex gastric.....	345	..	..	..	..	..
Appendix.....	78	1	..	..	..	1
Gallbladder.....	155	36	23	9	1	6
Constipation.....	71	18	15	..	1	3
Colitis.....	27	7	5	..	..	3
Pelvic.....	13	2	2	..	..	2
Tapeworm.....	1	..	..	..	..	..
Systemic disease.....	181	..	..	..	..	..
Pernicious anemia.....	10	0	..	..	..	..
Syphilis.....	19	3	2	..	1	2
Tabes.....	5	2	1	..	..	1
Circulatory.....	50	3	2	1	..	..
Lungs.....	28	4	2	..	..	1
Kidneys.....	17	3	1	..	..	1
Migraine.....	16	4	2	..	1	..
Others.....	36	1	1	..	..	..
Functional.....	252	..	..	..	..	..
Neurosis.....	156	42	31	4	2	20
Hyperacidity.....	44	8	8	1	..	..
Achyilia.....	42	10	6	..	1	3
Psychic.....	10	1	..	..	..	1
Unclassified.....	59	13	7	3	1	3
Postoperative.....	22	20	8	6	3	9
Totals.....	1,000	202	130	28	19	56

blame the men doing surgery for not most carefully eliciting and recording a full preoperative history with complete diagnosis in every chronic complaint.

Of these thousand patients, 202 had already had the abdomen opened before we saw them. Pelvic work had been done on fifty-six of the 458 women in this series, and thirty-eight of these fifty-six we could only call functional complaints. More than half of the patients previously operated on were diagnosed as having extra-abdominal or no objective pathologic condition, and yet I do not believe that our profession in the West is particularly derelict in diagnosis or overenthusiastic surgically as compared with other sections of the country.

One hundred and thirty patients stated that the appendix had been removed, and it is safe to say that this number would more closely have approached the total number of abdominal operations if the full facts could be ascertained. We have tried to establish how often stomach trouble has been relieved by removal

of the appendix, leaving out those patients known to have had the appendix removed on account of acute attacks. Somewhat more than one half of such patients stated that their symptoms were unchanged by operation. Sufferers from migraine and from tabes lost the appendix to cure their disease, and thirty patients lost the same organ for relief of what later proved to be peptic ulcer or gallbladder disease; but the large majority of unrelieved patients were suffering from an indigestion of functional, not organic, origin. Careful history would have saved many of these patients unnecessary operation. (I might add that a few of our own patients operated on for a "reflex appendix" still come back to disturb us.) The appendix is held accountable for stomach disturbance far more frequently than operative results have justified.

CONCLUSION

In these 1,000 patients:

1. Fourteen per cent. actually had organic gastric disease.
2. The roentgenologic examination determined these cases accurately and with a very small percentage of error. Its negative value is therefore very high.
3. Thirty-four per cent. showed abdominal extra-gastric disease giving reflex stomach disturbance.
4. Inflammations of the gallbladder apparently caused more stomach disturbance than any other organic abdominal lesion.
5. Eighteen per cent. presented themselves for diagnosis of stomach trouble which, investigation showed, was due to demonstrable systemic disease.
6. Twenty-five per cent. presented no objective pathologic condition. Their complaints were considered secondary to habits of living, type of individual, or to chronic debility.
7. One third of all cases in which operation was previously performed fell into the functional group.
8. Six per cent. of all cases remained undiagnosed.
9. Thirteen per cent. or more of patients complaining of chronic stomach trouble had lost the appendix before coming to the clinic.
10. Ten per cent. of all women in this series had had previous pelvic operations, one-half done on frankly neurasthenic individuals.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GAITHER AND BLACKFORD

DR. ROBERT POLLOCK, San Diego, Calif.: Some years ago one of our leading surgeons made the statement that the stomach is the greatest liar in the human anatomy. I think most of us will agree that this estimate was not too strong, but perhaps we have been allowing it to prejudice us too much. The subject of symptomatology will always be the opening wedge of a discussion of the patient's trouble. But a classification of these specific symptoms, their proper interpretation in terms of disturbed physiology and structural pathology is something that will always call for the most skilful analysis on the part of all of us. The statement that more than 20 per cent. of his series of something over 200 patients had previously had the abdomen opened for some cause or other conforms closely to my own observation, and when we take this in connection with his further statement that only 14 per cent. showed organic disease of the stomach, and so large a number as 43 per cent. of the cases were due either to systemic disease or to pure neuroses, we have food for thought. Of the 14 per cent. also that had an actual pathologic condition we will assume that not all of these came to operation. What, then, are we to say of the 80+ per cent. of beds in the general hospital that are occupied by surgical cases? Do we avail ourselves of the hospital

facilities for study? Do we always take our stomach cases and study them as thoroughly as we might? Within twelve months I have seen four cases of perforated peptic ulcer of the stomach sent to the surgeon. Happily, in each case the patient survived to tell his story, and in only one of those four had there previously been symptoms sufficiently pronounced to have him consult a physician. The question of the relation of stomach symptoms to circulatory diseases is one that we cannot emphasize too much. I would add but one symptom, dyspnea, to the ones just discussed. When we have symptoms referable to the stomach accompanied by dyspnea increased by exercise we should put the patient at rest and carefully study his circulation.

DR. JOSEPH SAILER, Philadelphia: It has been noted in all medical meetings that too little stress has been laid on the clinical studies of cases. I cannot agree with Dr. Blackford that the most important element is the history. It is important, but to my mind there is no one element that is more important than the others. Frequently it has happened to me that a tentative diagnosis made after what I hope was an adequate history has been completely changed after physical examination. In heart diseases on the verge of decompensation there is sometimes found only one symptom of which the patient complains, nocturnal pain similar to that of a duodenal ulcer. Not infrequently in achylia gastrica the patient presents a syndrome which would lead one to suspect disease of the gallbladder. This is really so common that I have come often to associate achylia gastrica in some reflex way with the gallbladder. It has happened to me a fair number of times that these patients have come to me with achylia gastrica who already have had operations on the gallbladder when it was said they had chronic disease of the gallbladder, or, when more frankness has been used, perfectly normal gallbladders, which meant that the gallbladder was not responsible for the symptoms produced. I will speak of only two other things. One is the very frequent association of an anxiety neurosis with achylia gastrica. This also seems to be a not uncommon symptom, and the patient comes not so much in fear of death as in fear of persistent ill health. He is often relieved by the means used to treat achylia gastrica. Auscultation of the abdomen is by no means the most important part of the diagnosis, but it is often of considerable value in aiding us in the diagnosis, particularly in certain forms of intestinal obstruction and gastric dilatation. I congratulate Dr. Blackford at having such a small number of gastric neuroses, 156 in 1,000.

DR. L. H. LEVY, New Haven, Conn.: The medical man of today is too prone to turn his case over to the laboratory for diagnosis. After one has had an experience with thousands of cases of gastric disturbance not only from examination from the roentgen-ray standpoint, from examination of the stomach contents, but also from physical examination, one becomes more and more impressed with the fact that he could have diagnosed conditions if the symptomatology had been gone into more in detail. I am sure that this is the experience of many other men. It is not only taking the history; it is the interpretation of the symptoms. Dr. Rehfuess has shown and it has been the experience of most men who do gastro-intestinal work that acidity is higher in some normal stomachs than in gastric ulcer. We have cases of carcinoma of the stomach in which the acidity is normal or above normal, and on the other hand, we have had cases of gastric ulcer in which the acid has been below normal. With new methods, such as the Buckey diaphragm and the introduction of air into the peritoneal cavity, diagnosis of a case becomes easier. Nevertheless, one must interpret the symptoms the patient presents.

DR. T. R. LOVE, Denver: It is quite true that the stomach is as big a liar as we have in the anatomy, but I also feel that the one who said the stomach is "the spokesman of the abdomen" gave us the key to this situation. I rather feel that one of the conclusions to be derived from this paper is seemingly to the effect that we are too hasty in our diagnosis of chronic appendicitis. I do not feel that the acute cases have anything to do with the discussion. In defense of the fact that many of these patients had been previously operated on for appendicitis without apparent relief of the stomach

symptoms, I wish to call your attention to just one or two things. In the first place, we have absolutely no statistics that give us an idea of the number of cases of strictly chronic appendicitis submitted to operation without any further return of symptoms. We must at least agree that many cases of gastritis or, if you like, "abdominal indigestion," are really permanently relieved by removal of a chronic appendix. Many of them, if not completely relieved, will be relieved most of the time, or it is on exceptional occasions, as when the individual becomes unduly tired or becomes ill with an intercurrent infection, that the old symptoms will return, demonstrating the tendency toward a recurrence of the reflex symptoms which often developed at an earlier date before the appendix was removed. Then we must take into account another factor, that there is no reason why a patient cannot have two lesions instead of one. Then, too, keep in mind the relation of chronic appendicitis to reflex irritation of the gastric mucosa producing hyperacidity or subacidity or so-called mucous gastritis, which can accompany either one of the previous conditions and is not necessarily relieved by removal of the appendix. The patient continues to complain of symptoms which were not dependent on the appendix. The figures indicate a good many cases of duodenal ulcer and a far greater number of cases of gastric ulcer in which operation was previously performed. I think the condition may have been one depending on the irritation of an old appendix with symptoms continuing, due to a secondary train of disturbances which are not so easily corrected.

DR. ERNEST H. GAITHER, Baltimore: I wish to emphasize again the necessity of a complete, painstaking history, then following the various changes through the weeks and years, and from this information endeavor to find a solution of the problem. Dr. Love either came in late or did not hear what I said in my paper. He speaks about two lesions. I tried to bring that out definitely, the secondary lesion produced by adhesions between stomach and appendix, gallbladder and pelvic organs, etc. Particular stress was laid on these points.

DR. JOHN M. BLACKFORD, Seattle: There were seventeen kidney lesions in this series. Regarding the frequency of chronic indigestion and its cure by removal of the appendix: Within the last year we have taken another series of 1,000 consecutive histories without regard for the patient's complaint. Of these, fifty-eight patients had had the appendix removed: forty-eight for chronic disturbances; twenty-eight were not relieved. Of course, I do not want to leave the impression that we feel that the appendix is never responsible for trouble. In this series of 1,000 cases examined for stomach disturbances, 202 patients had had previous laparotomies and 131 stated that the appendix was out; nineteen had had stomach operations, two of which were gastropexies; 141 had organic gastric disease. The failures in diagnosis are evident. As to what Dr. Sailer had to say regarding the importance of the history, again do not let me leave the wrong impression. We do not want to minimize the importance of the things we all know are important, but to emphasize the extreme value of the often neglected clinical history. In more than half of our cases the diagnosis had to be made on the history because we had essentially negative physical findings.

Souvenir Volume Issued by Bacteriologic Institute.—A handsomely illustrated volume of nearly a hundred pages has been issued by the Instituto Bacteriologico of the National Public Health Service of Argentina, on the occasion of its fifth anniversary and change of directors. It is a center for research and experimentation as well as for production of serums and vaccines and for aid in diagnosis and in study of epidemics and epizootics. Illustrations are given of the various departments, from those of entomology, pathology, cancer, organotherapy, biologic physics and chemistry, protozoology and experimental therapeutics to a public exposition of hygiene, library, etc. The new building, completed in 1916 during the centenary celebrations, is a large and handsome one with numerous accessory buildings. The "serpentario" is in charge of Dr. J. V. Negrette, and photographs are given (close-ups) showing him extracting the venom from some of his crotalus and lachesis subjects. The can in which the serpents are sent by express is also shown.

THE CLASSIFICATION OF CARDIAC
DIAGNOSIS *

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The adoption during the last few years of a simple and clear cut classification of heart disease has been of such service to us in the cardiac clinic at the Massachusetts General Hospital and to practicing physicians with whom we have discussed it that a brief paper outlining it has seemed very desirable. We have assembled this classification in its present, fairly stable form from our experience in the cardiac clinic in particular, and from the writings of Mackenzie, Lewis and Cabot.

The old-fashioned terms, such as "mitral regurgitation," "myocarditis," and "cardiac dilatation," any one of which often sufficed in the past to cover the entire diagnosis of a case of heart disease, are rapidly being discarded in the sense in which they were formerly used, and yet even now in medical centers, as well as in distant rural communities, such diagnoses are sometimes made and apparently satisfy.

There are three main headings, under each of which every patient with cardiac symptoms or signs should be classified. They are, first, etiology; second, structural change; and third, functional condition. All three are important, but the diagnosis of structural change is less important than either etiology or function; yet the diagnosis of structural change was but a few years ago the only one made in a very large percentage of cases. One of the most important reasons for insisting on the etiologic diagnosis, besides allowing much greater accuracy in prognosis, is to forward the prevention of heart disease, about which the medical world is beginning to take more action than in the past.

It need be simply mentioned here that when a history and physical examination fail to classify a patient properly, recourse should be had to laboratory methods, the roentgen ray, electrocardiograph, Wassermann reaction, and blood-urine examination.

I. ETIOLOGY

1. Congenital heart disease.
2. Rheumatic heart disease.

Including heart disease resulting from tonsillitis, chorea, rheumatic fever and scarlet fever, and also including patients with mitral stenosis and young people with aortic stenosis or regurgitation not the result of syphilis, even though a clear cut history of any of these diseases of the rheumatic group cannot be obtained.

- A. Active (including the subacute rheumatic heart.)
- B. Inactive.
3. Diphtheritic heart disease.
4. Syphilitic heart disease.
5. Other rarer types of infectious heart disease.

Including invasion by the pneumococcus, the meningococcus, the staphylococcus, the influenza bacillus, the tubercle bacillus, and the echinococcus. Chagas has recently reported the common occurrence of cardiac trypanosomiasis in South America; therefore, in such a part of the world the etiologic grouping

would contain cardiac trypanosomiasis as one of its chief subheadings.

6. Thyroid heart disease, a definite entity characterized by cardiac enlargement and often auricular fibrillation, at times paroxysmal.

7. Arteriosclerotic heart disease or cardiosclerosis, by far the commonest etiologic type of all.

8. Hypertensive heart disease, the result either of nephritis or of "essential" hypertension. The old term "cardiorenal" is ambiguous and often inaccurate, including, as it has done without doubt, many cases of arteriosclerotic heart disease or rheumatic heart disease with failure and albuminuria. The term used here—hypertensive—is, to be sure, only descriptive and not final; but it is the best available at the present time to cover this group of cardiac cases.

9. The nervous heart, including effort syndrome, the irritable heart of soldiers or cardiac neurosis, very common and to be differentiated from heart disease.

10. Rare etiologic types, such as cardiac tumors, traumatic heart disease, the beer heart, and the heart in obesity. The "athlete's heart" is a doubtful entity, in part at least fitting into the group of neuroses or nervous heart.

If the cause of heart disease is unknown in a given case, it should be so expressed for two reasons, first, in order to stimulate further study and longer observation of the patient, and second to stimulate further investigation of heart disease generally.

II. STRUCTURAL CHANGE

1. Myocardial. Under this heading, myocardial pathology, whether actual myocarditis or myocardial hypertrophy or atrophy, may be taken for granted according to the etiologic type, except in the case of the nervous heart and at times in congenital heart abnormalities. Thus, rheumatic heart disease implies involvement of the myocardium with the typical submiliary nodules of Aschoff; syphilitic heart disease implies invasion by spirochetes; arteriosclerotic heart disease implies myocardial degeneration with fibrosis resulting, and hypertensive heart disease implies hypertrophy. If the etiologic type of heart disease is stated, the myocardial changes associated with the type may be taken for granted.

Myocardial infarction from coronary thrombosis, if extensive, leading to cardiac aneurysm and perforation into the pericardium, is a structural change in the heart which is usually diagnosed at the necropsy table. There is clinical evidence of the condition, however, on occasion, in the presence of severe prolonged heart pain, if the thrombosis is extensive. Arteriosclerosis is the usual etiologic factor.

2. Endocardial. The only portion of the endocardium giving evidence of damage clinically is the valvular endocardium. Therefore, clinical diagnosis of endocardial pathology has perforce to be limited to valve changes.

- A. Mitral involvement with or without stenosis. This does not mean functional mitral regurgitation.
- B. Tricuspid involvement with or without stenosis. This does not mean a functional tricuspid leak.
- C. Aortic regurgitation.
- D. Aortic stenosis.
- E. Pulmonary regurgitation.
- F. Pulmonary stenosis.

* From the cardiac clinic of the Massachusetts General Hospital.

3. Pericardial.

- A. Acute fibrinous pericarditis.
- B. Pericardial effusion: (a) serofibrinous; (b) purulent, and (c) hydropericardium.
- C. Adhesive pericarditis.
- D. Pneumopericardium.

4. Cardiac size and position.

- A. Enlargement, usually meaning both hypertrophy and dilatation, the exact amount of each being indeterminable.
- B. Ventricular preponderance; either left or right ventricle may be relatively more enlarged than the other. Roentgen-ray evidence is often suggestive; but electrocardiograms are needed to demonstrate this condition.
- C. Auricular enlargement, sometimes evident by roentgen ray or electrocardiogram.
- D. Dextrocardia. The squat transversely placed heart of an obese patient and the vertical "narrow" or "ptosed" heart of the tall lean patient are in themselves unimportant. They are merely a feature of the given type of case.

5. Great vessels.

- A. Aortic dilatation: (a) general; (b) saccular aneurysm.
- B. Patent ductus arteriosus.
- C. Coarctation of aorta.
- D. Transposition of aorta and pulmonary artery (and other rare congenital defects).

6. Septal defects.

- A. Interventricular foramen.
- B. Foramen ovale.

III. FUNCTIONAL CONDITION

1. Heart failure.

- A. Congestive type, as expressed by edema, cyanosis, engorgement of neck veins and so on. This, of course, may be of any degree.
- B. Anginal type, just as important as the congestive type and often more so, expressed by heart pain.

An additional functional grouping such as that suggested by the New York Association of Cardiac Clinics is also very useful. It expresses directly the ability to work, as follows:

- A. Able to carry on the patient's usual activities.
- B. Able to carry on slightly to moderately curtailed activity.
- C. Able to carry on only greatly diminished activity.
- D. Unable to carry on any activity (without distress).

2. Disordered heart action.

- A. Premature contractions (extrasystoles): (a) auricular, and (b) ventricular.
- B. Paroxysmal tachycardia: (a) auricular, and (b) ventricular.
- C. Auricular flutter.
- D. Auricular fibrillation.
- E. Heart block: (a) auriculoventricular; (b) intraventricular, including complete and partial bundle branch block and arborization block; and (c) sino-auricular, including auricular standstill.
- F. Atrioventricular rhythm and ventricular escape.
- G. Pulsus alternans.

COMMENT

To illustrate this classification and to show how satisfactory it proves to be in an analysis of a cardiac patient, the following diagnoses are added:

CASE 1.—Rheumatic heart disease (inactive) with mitral stenosis, right ventricular preponderance, auricular fibrillation and failure of the congestive type (able to carry on only greatly diminished activity).

CASE 2.—Arteriosclerotic heart disease with cardiac enlargement, ventricular premature beats, pulsus alternans, and failure of the anginal type (unable to carry on any activity).

CASE 3.—Cardiac enlargement and auricular flutter, of unknown cause (able to carry on slightly curtailed activity).

CASE 4.—Syphilitic heart disease with aortitis, aneurysm of ascending aorta, aortic regurgitation, left ventricular preponderance, and normal rhythm (able to carry on moderately diminished activity).

DIVERTICULA, DIVERTICULITIS AND
PERIDIVERTICULITIS

OF THE SMALL INTESTINE, CECUM, COLON,
SIGMOID FLEXURE AND RECTUM *

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A diverticulum is a non-neoplastic outpouching of intestine having a lumen that does or did connect with the bowel. Diverticulitis is inflammation of a diverticulum, and peridiverticulitis is an inflammation of structures surrounding the sac.

Diverticula may be congenital or acquired, the former being designated true and the latter false. In true diverticula, intestinal tunics constitute the wall, while in false diverticula, one or more bowel coats give way, permitting the mucosa to herniate outward, forming a pouch that may or may not possess a peritoneal covering. Occasionally, true diverticula, as a result of prolonged distention, become false, in which case weakened or thinned intestinal musculature shows at the base.

Acquired diverticulitis occurs more frequently between the fortieth and the sixtieth year, about twice as often in men as in women, and in different intestinal segments from the stomach to the anus.

Diverticula, rare in the appendix, duodenum and jejunum, occasional in the ileum, common in the cecum and very frequent in the descending colon and sigmoid flexure, also involve the rectum more often than published cases and postmortem statistics indicate.

Acquired diverticula may be single or multiple, small or large, oval or irregular in shape, soft or firm, confined to a single or involve several bowel segments, and may be encountered at any point on the intestinal circumference; but they are more common at the mesenteric border and sites of appendices epiploicae which may conceal them.

Sacs may remain inactive for years, or at any time become infected and inflamed, causing symptoms frequently mistaken for appendicitis, peritonitis, chronic intestinal obstruction, new growth or pelvic abscess. That definite symptoms are absent in almost 50 per cent. of cases is indicated by the frequency with which diverticula are unexpectedly discovered during roentgen-ray search or necropsy.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

The statistics given in Table 1, compiled by Telling, show that in 13,068 necropsies diverticula were discovered eighty-three times, of which thirty-nine were congenital, or true, and forty-four acquired, or false.

TABLE 1.—OCCURRENCE OF DIVERTICULA

Institution	Necropsies	Meekel's Diverticulum	Diverticulum in Small Intestine	Diverticulum in Large Intestine
Dresden City Hospital.....	8,133	8	1	6
Johns Hopkins Hospital.....	2,600	15	14	18
Boston City Hospital.....	1,382	11	1	1
Bender Hygienic Laboratory (22).	953	5	0	3
Total.....	13,068	39	16	28

For convenience of study, diverticula may be classified into abdominal, cecal, colonic, sigmoidal and rectal, since small intestinal diverticula are rare and seldom cause serious disturbances.

DIVERTICULITIS OF THE CECUM, COLON AND SIGMOID FLEXURE

Etiology.—In some the etiology of acquired diverticulitis is obvious, but in other cases the causation of intestinal pouchings cannot be explained except on the basis of inherited weakness of intestinal musculature that gives way owing to gas or fecal distention.

The etiology of the condition is not fully understood, but it is known that certain factors induce or predispose the patient to diverticulitis. Age, through accompanying disturbed metabolism, weakening of intestinal musculature and chronic constipation complicated by gas and fecal accumulation is an important factor, and sex is evidently a predisposing cause, since the disease occurs more than twice as often in men as in women (Table 2).

TABLE 2.—SYNOPSIS OF AUTHOR'S SEVEN CASES OF ABDOMINAL, COLONIC AND SIGMOID DIVERTICULA

No. Cases	Sex*	Age	Variety and Complications	No. of Diverticula	Location	Result
1	♂	42	Cordlike remains of Meekel's diverticulum (yolk sac)	1	Extended from umbilicus to ileum	Complete recovery
2	♀	52	Large pouchings (diverticula) incident to constipation and fecal impaction	7	Descending colon and sigmoid flexure	Immediate marked improvement
3	♂	49	Diverticulum with vesico-intestinal fistula	20	Rectosigmoidal juncture	Temporary fecal fistula; permanent cure
4	♂	60	Diverticulitis with abscess	4	Sigmoid flexure	Recovery in three weeks
5	♂	47	Diverticulitis with abscess that discharged through the rectum	1	Rectosigmoidal juncture	Death from exhaustion three weeks following operation
6	♀	49	Carcinoma associated with a diverticulum	1	Sigmoid flexure	Recovery; death year later from recurrence
7	♂	63	Diverticulitis of cecum simulating neoplastic tuberculosis	1	Cecum	Fecal fistula and death from exhaustion four weeks later

* In this column ♂ indicates male and ♀ female.

Wasting diseases, cancer, tuberculosis, colitis, etc., with intestinal atrophy favor the formation of diverticula by impairing longitudinal and circular muscle fibers so that they stretch, break or separate, allowing the musoca to herniate through them when pressure is exerted from within; in such cases normal colonic sacculations sometimes become exaggerated and are mistaken for diverticula.

Hemorrhagic infarcts, worms, foreign bodies, obesity (with fat intestinal wall), ulcerative colitis,

dilated intestinal glands and other conditions have led to the formation of pouches by perforating, destroying or indenting the mucosa or impairing intestinal musculature.

New growths, constipation and various chronic obstructive lesions responsible for obstipation, coprostasis and gas retention are causative factors in diverticula because of accompanying frequent distention, presence of fecal masses and atrophy or thinning of intestinal tunics.

Diverticula are often encountered at the mesenteric border. Some authorities claim that vessel openings favor herniation, particularly in chronic heart and liver diseases and affections accompanied by mesenteric stagnation, while others attribute the formation of sacs to relaxation of connective tissue surrounding the aperture.

Intestinal pouchings occur more frequently at the site of appendices epiploicae, which undoubtedly are a factor in their production, since such points are vulnerable, because appendices are continuous with the subperitoneal fat. Sacs are often confined to appendices epiploicae and not suspected until they rupture or are accidentally discovered at necropsy.

I have several times artificially produced diverticula here by tightly distending the bowel with air, and I believe that these anatomic structures are the chief predisposing factors of diverticulitis in patients suffering from disease accompanied by chronic gas or fecal distention of the bowel. Diverticula have also followed accidental injuries and operations that weakened the intestinal tunics.

PATHOLOGY

Congenital diverticula are usually found in the small intestine, while acquired diverticula ordinarily involve the cecum, colon and sigmoid flexure, the latter representing the classic type of intestinal pouching.

It is now known that so-called false sacs may possess all the bowel tunics instead of being formed by protrusion of mucous membrane through the muscular coats.

Diverticula vary in size from that of a pea to that of a hen's egg or larger; they number from one to a hundred or more, and they may be confined to a single intestinal segment or scattered over several. Pouches may remain healthy or at any time undergo secondary changes—diverticulitis—that may extend to surrounding tissues—peridiverticulitis.

Active diverticulitis and peridiverticulitis are characterized by marked connective tissue growth (round cell infiltration) and later by fibrosis with contraction and consequent intestinal occlusion. The sac wall becomes thickened and firm, and, as a result of this and deposits of exudates and cicatricial tissue around it, a dense elastic tumor is formed.

Pouches gradually enlarge, usually retaining their peritoneal covering, through gas and fecal accumulation, and often undergo infection that terminates in an abscess that may rupture into the abdomen through the abdominal wall or discharge into the bowel through a fistulous or the original opening connecting the intestinal lumen of the diverticulum.

Occasionally, perforation takes place in noninflamed diverticula that are ulcerated or have thin walls caused by distention or a pointed foreign body. In some instances peridiverticular adhesions angulate, twist, occlude or otherwise distort the intestine, by pulling, strangulating or compressing it, and in such cases

coprostasis and autointoxication are manifest. Frequently, in aggravated cases as a result of perforation or rupture induced by ulceration, fecal and gas retention or emptying of an abscess, a fistula is formed that discharges into the bowel, vagina, bladder or on the surface of the body; more than one perforation has been observed in multiple diverticula.

As a rule, diverticula are located in the lower left quadrant in the region of Poupart's ligament, and the sigmoid flexure, and bulge the skin outward. The abdomen may contain seropurulent fluid or pus; gangrenous areas have been observed in the sac near the juncture of the appendices epiploicae with the intestine.

There is usually thinning of the sac, but this occurs more often at the fundus than at the neck of the diverticulum.

Diverticulitis and peridiverticulitis may be acute, but is more often chronic, and because of the size, form, consistency and macroscopic appearance of the tumor, diverticula are frequently mistaken for carcinomas, towards which they undoubtedly are a predisposing factor. In twenty-seven cases of sigmoid diverticulitis reported by the Mayos, cancer was grafted in the diverticulum in seven and I have twice observed this unique condition.

Microscopic examination of sectioned diverticula walls show them composed of mucosa, submucosa and remnants of muscle fiber, but in some instances only the inner and outer tunics are demonstrable.

SYMPTOMS

Small intestinal sacs (excepting Meckel's) rarely become inflamed, but 25 per cent. of colonic and sigmoidal pouchings undergo secondary changes that produce definite manifestations.

In the beginning, patients suffering from diverticulitis complain of abdominal uneasiness, discomfort and sinking sensations, digestive disturbances, moderate constipation and gas accumulation; but later when inflammation has extended deeply into or through the diverticulum—peridiverticulitis—localized tenderness and cramps, obstinate constipation alone or alternating with diarrhea, the sensation of blocking, fecal impaction and pain in the sigmoid region (left-sided appendicitis) are troublesome symptoms; finally, when the bowel is almost occluded there is marked gas and fecal retention, severe pain, muscular rigidity, nausea and vomiting, obstipation or coprostatic diarrhea, leukocytosis, increased pulse rate, irregular or high temperature—when the diverticulum is infected—and there is mucus, pus or blood in the stools.

When perforation takes place from ulceration, gangrene or rupture, the patient exhibits the usual signs of spreading peritonitis; when an abscess is formed, continuous localized pain and swelling are in evidence until it is drained, ruptures or discharges through the diverticular opening in the bowel. Cystitis is troublesome when there is an opening between the bladder and bowel or sac. Between attacks, symptoms and size of the tumor diminish and the swelling is smaller when the sac is temporarily freed of gas, feces or pus. When there is transposition of the sigmoid flexure, diverticulitis closely simulates appendicitis.

DIAGNOSIS

Diverticulitis and peridiverticulitis mimic and must be differentiated from neoplastic tuberculosis, chronic appendicitis, actinomycosis, intestinal obstruction, carcinoma, chronic sigmoiditis, fecal impaction,

encysted foreign bodies, disease of the adnexa, chronic abscess, fistula and vesical tumors.

The majority of sacs do not induce symptoms. A few cause slight disturbance, but in typical cases of diverticulitis and peridiverticulitis, symptoms and signs of the disease are characteristic. With a history of chronic left-sided inflammation, with periodic exacerbations, and an absence of marked cachexia and loss of weight, one is justified in making a diagnosis of diverticulitis when the patient complains of obstipation and diarrhea, localized muscular rigidity, tenderness, pain and gas retention, pus in the urine or feces, a firm, oval tumor palpable in the left inferior abdominal quadrant, and if through the sigmoidoscope the mucosa appears smeared with pus, or an opening is discovered through which pus is discharged and a probe can be introduced into the sac. Owing to the frequency with which fistula connects the bladder and diverticula, cystoscopy and examination of the urine for pus is advisable.

Roentgenographic demonstration is often impossible; but when the lumen of the diverticulum communicates with the bowel, the pouch may sometimes be defined by roentgenograms taken following the administration of barium enemas or meals.

In some cases, microscopic examination of the sectioned specimen is helpful for an exact diagnosis; but this is unnecessary, since removal of the tumor is imperative in any case.

PROGNOSIS

The mortality is nil, and recovery promptly follows the removal or infolding of small or large uninflamed inactive pouches; there is some danger from operations for chronic diverticulitis, and the mortality is rather high in cases in which operation is performed during an acute crisis complicated by marked obstruction, peritonitis or abscess.

TREATMENT

Palliative measures, laxatives and oils—never purgation—hot fomentations, belladonna and morphin, fluid diet and warm high enemas may be prescribed to empty and cleanse the bowel, alleviate pain, relieve colic and muscular rigidity and keep the patient comfortable while being prepared for operation.

Diverticulitis is a surgical condition, since there is no way of destroying the sac except by operation. Numerous small pouches and those of moderate size that have not undergone secondary changes may be buried by coloplication or ligated, excised, and the stump inverted with a purse-string suture or the wound closed, if long, with through and through reinforced by Lembert stitches.

Removal of sacs and resection of the involved bowel is impracticable when diverticula are numerous and widely scattered, and the intestine should be short-circuited. Usually diverticulitis and peridiverticulitis are complicated by infection, and in such cases the abscess is incised, irrigated and drained and the wound only partially closed after binding adhesions have been destroyed. When there is a fistulous opening between the bowel or bladder and diverticulum, after the sac has been dissected free and the edges cauterized, the aperture is closed by infolding sutures.

In deplorable cases when excision of the diseased bowel is impracticable, owing to adhesions, relation of the pouch to other organs, and the dangerous condition of the patient, because of infection, perforation or

acute intestinal obstruction, an artificial anus is formed following opening and draining of the abscess.

When feasible, entero-anastomosis, ileoproctostomy or ileosigmoidostomy or intestinal exclusion is substituted for colostomy to relieve obstruction and procure daily soft evacuations without the nuisance of having feces discharged through the side.

Appendicostomy or cecostomy are useful adjuncts in the surgical treatment of chronic diverticulitis, since they provide for through and through colonic irrigation, which heals inflamed and ulcerated areas, frees the bowel of irritants, and facilitates convalescence from autointoxication.

ILLUSTRATIVE CASE

Diverticulitis of the sigmoid flexure complicated by abscess: History.—A man, aged 60, who was emaciated and who had suffered from indigestion, constipation alternating with diarrhea, and sensations of fulness and blocking of gas and feces in the left inguinal region for three or four years, when seen was suffering from pains radiating between the umbilicus and the left lower abdominal quadrant. There was marked constipation. The temperature was 103, and had been preceded by a chill.

Examination revealed rigid abdominal muscles, localized tympanites, marked tenderness and a swelling in the sigmoid region. A sausage shaped tumor could be felt in the rectovesical pouch with the finger, and sigmoidoscopic inspection disclosed a congested mucosa and apparent narrowing of the intestine. The abdomen was opened. A mass as large as the fist was adherent to the anterior parietes, which proved to be intestine, inflammatory deposits, adhesions and a large pus cavity situated at the other side and behind the intestine. After the bowel had been freed from adhesions and straightened out the abscess was incised, evacuated and cleansed. By careful probing, a small opening connecting the cavity with the sigmoid was located. Perforation had evidently taken place at this point. Examination of the intestine revealed three diverticula the size of a hazelnut, and one the size of a large hen's-egg. The former were pouchings in the upper third of the sigmoid near the mesenteric attachment or appendices epiploicae, and the latter, which proved to be an exaggerated colonic sacculation containing fecoliths, was situated at the side of the sigmoid near its curve and had apparently been caused by constipation, recurring fecal impaction and giving way of the muscular layers from distention through which the mucosa had herniated. The small sacs were empty, but the large diverticulum contained semi-solid feces, concretions and pus which were evacuated by milking the swelling.

Operation.—Small sacs were snipped off with scissors and wounds cauterized and closed by purse-string reinforced by Lembert sutures; the large pouch, which was almost free from adhesions, was ligated, excised at its base, and the stump inverted as in appendectomy, by a double row of infolding sutures. There was no subsequent fecal leaking. The ligatures and remains of the stump were evacuated on the tenth day. The patient was discharged in three weeks and remained well at the end of six months. On the operating table a diagnosis of diverticulitis with perforation, localized peritonitis and abscess was made.

MECKEL'S DIVERTICULUM

These congenital cone-shaped pouches which extend during fetal life from the umbilicus to the ileum near the ileocecal valve are vestigial remains of the omphalic mesenteric duct. Meckel's diverticula are composed of all intestinal coats—true diverticula—variable in size, shape and length, have a small opening connecting them with the bowel, and may be distended with mucus, gas or feces. They are encountered in young persons more often than acquired pouches, and may be strictured or cordlike when almost obliterated.

Meckel's diverticula sometimes undergo secondary changes; but when they do, gangrene, perforation, intestinal obstruction or abscess and fistula with formation of adhesions and kinks may follow. These pouches frequently compress or strangulate a loop of the small intestine.

Symptoms of Meckel's diverticulitis, inflammatory or obstructive, are a sudden onset, alarming from the beginning and difficult to differentiate from those of acute perforation, e. g., appendicitis or intestinal obstruction. In these cases tympanites is marked, pain sharp, abdominal muscles tense, and unless quickly relieved complete intestinal obstruction, fecal vomiting and collapse occur or perforation with localized or spreading peritonitis ensue.

In the treatment, elongated, pedunculated and cord-like diverticula are ligated, excised and the stump inverted as in appendectomy, following liberation of the occluded intestine. Large sacs are removed by elliptic incisions and the intestinal wound closed by through and through sutures reinforced by Lembert or deep infolding sutures. It is sometimes necessary to resect a gangrenous segment of bowel if strangulated.

RECTAL DIVERTICULA

Having defined and fully discussed the etiology, pathology, symptoms, diagnosis and treatment of diverticula, diverticulitis and peridiverticulitis involv-

TABLE 3.—SYNOPSIS OF AUTHOR'S NINE CASES OF ANO-RECTAL DIVERTICULA

No.	Sex	Age	Variety and Complication	No. of Diverticula	Location	Result
1	♂	27	Tubelike diverticulum of anal canal	1	Juncture of sphincters	Recovery in ten days
2	♂	45	Suppurative diverticulum	1	Ishiorectal fossa	Recovery in eight weeks
3	♀	49	Diverticulum simulating chronic abscess	1	Rectal ampulla	Complete recovery in six weeks
4	♂	50	Diverticula previously mistaken for cancer	2	Rectal ampulla	Complete recovery in two months
5	♂	30	Rectal pouch (diverticulum) from anterior coccygeal displacement and perforation of the rectum	1	Posterior rectal wall	Prompt recovery
6	♀	60	Anterior rectocele with pouch containing encysted feces	1	Rectovaginal septum	Marked improvement
7	♂	26	Posterior diverticulum due to absence of coccyx and constipation	1	Posterior septum wall	Temporary fecal fistula, complete recovery in six weeks
8	♂	18	Anterior diverticulum (pouching of rectum)	11	Anterior septum wall	Marked improvement in three weeks
9	♂	20	Bifid rectum (diverticulum)	11	Middle rectum	Fecal fistula, two months marked improvement

ing the small intestine, colon and sigmoid flexure, it remains for me to consider rectal diverticula which are less common and more troublesome to cure. I have treated nine patients for anorectal diverticulitis, seven men and two women, whose ages ranged from 18 to 60 years (Table 3).

Telling has reported eleven cases of rectal diverticula, the majority of which from his description were evidently sigmoid sacs. Formerly what is now recognized as the pelvic colon, having a peritoneal covering and mesocolon, was described as the upper third of the rectum; this segment of intestine, which is frequently the site of diverticula, is in reality a continuation of

the sigmoid flexure, and sacs located here should not be diagnosed as rectal.

Etiology.—The average age of patients suffering from rectal pouching is less than in the sigmoidal variety, probably owing to congenital anomalies and because sacs are more frequently multiple in the colon and sigmoid than in the rectum.

Herniation of mucosa through musculature is rare, and rectal diverticula are usually caused by distention and pressure incident to hardened feces or stercoral or other ulcers through which feces or gas escapes and induces sacculatation of outer bowel tunics.

Appendices epiploicae are not causative factors in rectal pouchings, and vessel openings play no part in their production. Predisposing causes of anorectal diverticula are congenital defects, absence of the coccyx, relaxed rectovaginal septum, pointed foreign bodies, ulcerated areas, abscess, fistula, and constipation with muscular atrophy and recurring coprostasis. I believe that rectal diverticula occur more frequently than is suspected.

Vesico-intestinal fistula is a frequent complication of diverticulitis; in twenty-five of Cripp's sixty-three compiled cases the opening communicated with the rectum, and the probabilities are that in several of these diverticulitis was responsible for the trouble.

The pathology of rectal diverticula is similar to that of diverticula located in the sigmoid flexure, except that sacs in the former place are nearly always associated with or caused by an abscess that periodically discharges into the rectum. Rupture or perforation is not so dangerous, since it occurs below the peritoneal attachment. There is more or less occlusion due to the formation of firm, inflammatory masses, but circular stenoses are rare. Diverticula may contain gas, feces, pus or necrotic tissue, and no doubt are occasionally diagnosed and treated as abscesses.

Diverticula of the small intestine, colon and sigmoid flexure may be multiple and frequently do not cause symptoms, but rectal diverticula are usually single and invariably undergo secondary changes, and the accompanying diverticulitis and peridiverticulitis induce distressing or dangerous manifestations that may simulate those of inflamed colonic sacs.

Symptoms and Diagnosis.—Characteristic symptoms of anorectal diverticula are sensations of burning, weight, fulness, desire to stool, and unrelieved feeling following defecation; but when an abscess has formed, irregular or high temperature, continuous pain, tender swelling, painful defecation, rectal tenesmus, vesical irritation and manifestations of infection are complained of.

A diagnosis is difficult, and diverticula must be differentiated from chronic abscesses, fistula, neoplastic tuberculous tumors, gummas, inflammatory strictures and carcinomas. Occasionally they are detected by digital examination or inspection of the rectum through a proctoscope, which enables one to probe communicating openings and note whether or not rectal mucosa is smeared with pus from the diverticulum. Preoperative diagnosis is seldom made, and occasionally unsuspected sacs are discovered during postmortem examinations.

Treatment.—Palliative measures have no place in the treatment of anorectal diverticula. Diverticulitis at the rectosigmoidal juncture is handled like inflamed sacs involving the colon or sigmoid flexure. Rectal pouches are usually infected and best cured by cutting down on them from within or without the bowel, and

after the sac has been incised, excised or curetted and irrigated, a drain is inserted that communicates with the surface. Multiple diverticula are connected by cross incisions and drained unless situated on opposite sides of the rectum, when they are separately operated on.

Occlusion from a circular inflammatory stricture or protuberant mass is usually troublesome, and splitting of the bowel at the obstructed point is necessary since divulsion gives but temporary relief.

Occasionally nothing short of rectal extirpation will permanently relieve the patient; when occlusion is almost complete and obstructive manifestations are acute, and excision of the bowel and sac by the vaginal-perineal, Kraske, or the perineo-abdominal route is not feasible, an artificial anus must be established to relieve obstruction and promote drainage.

Complicating fistulas and abscesses are incised and drained, and vesicorectal sinuses are treated as other rectal fistulas connected with diverticular sacs. Since multiple, small, unchanged pouches so often encountered in the colon and sigmoid flexure are never discovered in the rectum, infolding or excision of the sac and suture of the intestinal wound is rarely indicated in the treatment of anorectal diverticulitis.

ILLUSTRATIVE CASE

Diverticulum of the upper rectum simulating an old abscess cavity: History.—A woman, aged 49, at first complained of marked constipation, recurring fecal impaction, fulness, gradually increasing pressure in the rectum, straining and later of constipation alternating with diarrhea. There was no loss of weight, cachexia or pus, blood or mucus in the stools, or history of previous abscess; two physicians had diagnosed her condition as cancer. Digitally a smooth, firm, ovoid tumor, the size of a hen's egg, projecting from the left posterior wall could be defined, which reached downward to the upper end of the anal canal. Pus could not be expressed from the tumor, and introduction of the finger caused no pain or bleeding. With aid of the proctoscope, reflected light and an angle probe, an opening connecting the rectum with a cavity outside the bowel was detected and a diagnosis of diverticulitis was made.

Treatment.—Following exposure of the rectal opening in the diverticulum with the author's operating speculum, it and the mass were incised, exposing an extrarectal tumor an inch in depth and 3 inches in length. The pouch was curetted, irrigated, dried, treated with phenol (carbolic acid) and packed to arrest bleeding. A drainage incision was then carried from the diverticulum through the anal canal to the perianal skin and packed with gauze. Postoperative treatment was similar to that employed following operations for chronic abscess and fistula. Dressings were continued for six weeks, when the wound healed. The patient was examined and found to be well six years later. Sectional tissue examined showed elements of the rectal tunics and hyperplastic infiltration of the intestinal wall, and dried feces were found in the sac.

ABSTRACT OF DISCUSSION

DR. A. W. GEORGE, BOSTON: I agree with many things Dr. Gant said, and I disagree with some of his statements. I do not think that diverticulitis, or diverticulosis, ever becomes surgical, with one exception. If a man tries to remove the diverticulum that is found in a case of diverticulitis, he would be at it all the rest of his life. I have never seen a case in which the internist was able to make the diagnosis clinically, or even suggest it, until the roentgen-ray examination. Cases of diverticulitis divide themselves into three distinct classes: (1) Diverticula of the whole large bowel or only of the cecum, commonly of the descending colon, and sometimes of the sigmoid, but never in our experience of the rectum.

(2) The only surgical cases are the obstructive type, this obstruction arising from connective tissue contraction. (3) Where there is marked connective tissue formation, usually of the lower colon, without many diverticula. In 1910 we examined a case which showed a beginning obstruction of the lower portion of the descending colon; in 1915 the bowel was completely obstructed at this point, and a section was removed by Dr. Conant. With the specimen of the resected bowel in your hand, you could not see or feel the diverticula, but as you sectioned the tissue, you could find the diverticula in the connective tissue.

DR. H. W. SOPER, St. Louis: The differential diagnosis between carcinoma and single large chronic diverticulitis is often difficult to make. Mayo has shown that carcinoma is very apt to develop on the basis of diverticulitis. He further points out that the differentiation is often impossible on the operating table. Both may cause partial or complete obstruction of the bowel. I have found one differential point to be of value at times, i. e., bleeding is rare in chronic diverticulitis, while it is common in carcinoma.

DR. J. RAWSON PENNINGTON, Chicago: I endorse what Dr. George said in reference to the roentgen ray. The roentgen ray is of the greatest value in making a diagnosis in some cases of diverticulitis. A diverticulum may have an opening large enough to admit the end of a uterine sound, but not all diverticula have. Neither can all diverticula be seen through the proctoscope; some, because of their minuteness, others, because of their inaccessibility. I have a case under observation now in which the roentgen ray shows more than two dozen diverticula, distributed quite evenly along the colon, between the iliocecal valve and the rectum. No other means than that of the roentgen ray could have located them so beautifully.

DR. F. C. YEOMANS, New York: These congenital diverticula are the type that drain themselves and they are frequently discovered accidentally when making a roentgen-ray examination for other conditions. They are usually symptomless. It is only when a stoma becomes occluded that infection and abscess develop which give rise to symptoms. They occur very seldom in the rectum. We do not discover them as a rule by examination with the sigmoidoscope. I recall a case, however, in which it was a question between carcinoma, diverticulitis and sigmoiditis. The mucous membrane was normal but pus was pouring down into the sigmoidoscope through an opening in the bowel wall. It was diagnosed either as abscess or diverticulitis, and it proved to be the latter operation. This condition is very difficult to diagnose. In the infiltrated cases it is impossible to tell before operation and very frequently at operation from the gross pathology whether the tumor is carcinoma or chronic inflammation. In fact, after colostomy on many cases of supposedly inoperable carcinoma, the later subsidence of the tumor proved its inflammatory character and went far to reveal the true pathology.

DR. S. G. GANT, New York: I called attention to the value of the roentgen ray. If you can diagnose diverticulitis with the roentgen ray, very well, but one should not restrict himself to the roentgen ray alone. I do not know any medicine that will block diverticula, except, possibly bismuth, which would sooner or later cause irritation ending in infection. It is not a question of whether you have one or a dozen diverticula, but if one or more diverticula are infected they should be removed.

Nature of Auræ.—Auræ should be regarded not as the result of "discharges" of an epileptic nature in some part of the cortex, but as deficiency reactions, like dreams, occurring when there is a "disturbance of consciousness" of a certain type. Their relation to the loss or disturbance of consciousness in epilepsy and migraine is assumed to be the same as that of dreams to drowsy or sleep states; and their content should be regarded as being determined by the same factors that determine the content of dreams and similar hallucinations. Their relation to structural changes may be the same as that of those hallucinations which develop in connection with disease of the organs of special sense or of the nerves connecting them with the brain.—L. B. Alford, *Bull. Mass. Dept. Ment. Dis.* 4:45 (Oct.) 1920.

FURTHER OBSERVATIONS ON TREATMENT OF SCARLET FEVER WITH IMMUNE HUMAN SERUM*

G. H. WEAVER, M.D.

CHICAGO

In 1918, I reported nineteen cases of scarlet fever which had been treated in Durand Hospital with injections of serum of convalescent patients.¹ Since then we have continued to use the serum in acute cases of scarlet fever, limiting its use to the sickest patients, especially to those in whom toxic symptoms were prominent. The earlier impression that the serum exerts a favorable influence in suitable cases has been confirmed by further use, and we have come to look upon it as a valuable agent in the treatment of scarlet fever. Weisbecker² first employed the serum of persons convalescent from scarlet fever in the treatment of acute cases in 1897, and during the six years following, similar observations were made by Huber and Blumenthal,³ von Leyden,⁴ Rumpel,⁵ and Scholz.⁶ In each instance the quantity of serum introduced was small, and it was injected beneath the skin. The results were not striking nor constant, and the practice fell into disuse.

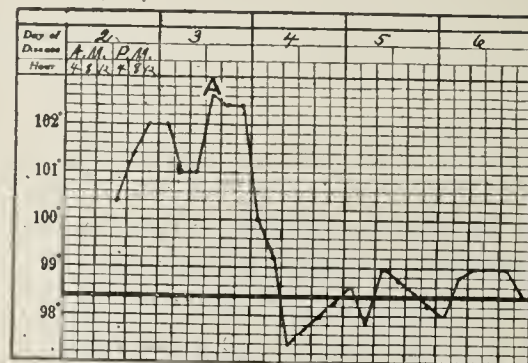


Chart 1.—Course of temperature in scarlet fever, in B. N., a boy, aged 7 years; A, 60 c.c. of convalescent serum.

In 1912, Reiss and Jungmann⁷ revived this mode of treatment and, in contrast to earlier workers, injected serum in larger doses into the veins. Their results were favorable, as were also subsequent ones, by Koch,⁸ and Reiss and Hertz.⁹ In 1915, Zingher¹⁰ reported favorably on the treatment of severe cases of scarlet fever by intramuscular injections of whole citrated blood from persons convalescent from the disease. His results appeared to be as good as those following the intravenous use of serum by others.

Kling and Widfelt,¹¹ in 1918, reported the use of convalescent serum in 237 cases. Of these patients, 17.7 per cent. died, while in a corresponding group of ninety-one severe cases in which no serum was given the mortality was 70 per cent. They believed that severe toxic cases were greatly benefited by the serum.

Before Jan. 1, 1921, we had used convalescent serum in fifty-four cases of scarlet fever, including nineteen previously reported. All the cases were severe. They represented the most severe toxic cases among about 1,200 patients. Thirty-eight were of the toxic type,

* Read before the Chicago Society of Internal Medicine, May 23, 1921.

* From the Durand Hospital of the John McCormick Institute for Infectious Diseases.

1. Weaver, G. H.: *J. Infect. Dis.* 22:211 (March) 1918.

2. Weisbecker: *Ztschr. f. klin. Med.* 32:188, 1897.

3. Huber and Blumenthal: *Berl. klin. Wchnschr.* 34:671, 1897.

4. Von Leyden: *Deutsch. Arch. f. klin. Med.* 73:616, 1902.

5. Rumpel: *München. med. Wchnschr.* 50:38, 1903.

6. Scholz: *Fortschr. d. Med.* 21:353, 1903.

7. Reiss and Jungmann: *Deutsch. Arch. f. klin. Med.* 106:70, 1912.

8. Koch: *München. med. Wchnschr.* 60:2611, 1913; *Deutsch. med. Wchnschr.* 41:372, 1915.

9. Reiss and Hertz: *München. med. Wchnschr.* 62:1177, 1915.

10. Zingher: *New York State J. M.* 16:112 (March) 1916.

11. Kling and Widfelt: *Hygiea* 80:2 (Jan. 16) 1918.

six septic complications were most prominent, and ten prominent toxic symptoms were combined with those arising from septic complications. Two of the patients died, one toxic and one septic. The former was a boy of 15 years, who entered the hospital on the fourth day of illness, with high fever, cyanosis and coma, and died four hours later. The latter was a child of 2½ years who entered the hospital on the fourth day, with greatly enlarged cervical lymph nodes, profuse purulent nasal discharge, extensive ulcerative

type as treated cases and occurred in the hospital during the three years before serum was used. It will be noted that, when serum was given on the second and third days, the initial drop of temperature was marked with little subsequent rise. When serum was given on the fourth day, the curve does not differ materially from that of the controls. However, many cases in which injection was made on the fourth day showed a pronounced drop in temperature, but this does not appear in the composite curve because of the modifying influence of septic complications in many of the cases. When serum is given in acute cases, with septic complications, an initial fall in temperature with improvement in the general condition usually occurs, but the temperature again rises and the complications run the usual course. If patients receive serum early, the subsequent development of septic complications seem less likely. Following the administration of serum, improvement as regards the toxic symptoms is often very marked. Beginning two or three hours after the injection, restlessness and delirium begin to subside, the pulse improves in quality and is slower, cyanosis disappears, and a patient who had appeared to be on the brink of dissolution in the afternoon when serum was given appears well on the road to recovery the next morning. This effect upon the general condition of the patient is quite constant, even in patients in whom complications progress, and has been emphasized by all who have had experience with the serum.

TECHNIC

We have drawn the blood during the fourth or early in the fifth week of the disease. Only those individuals are used as donors of serum who are free from all suspicion of tuberculosis, whose blood gives a negative Wassermann reaction, and who have passed through a typical scarlet fever without septic complications. Kling and Widfelt¹¹ obtained the best results with blood drawn during the fourth week, but that drawn as

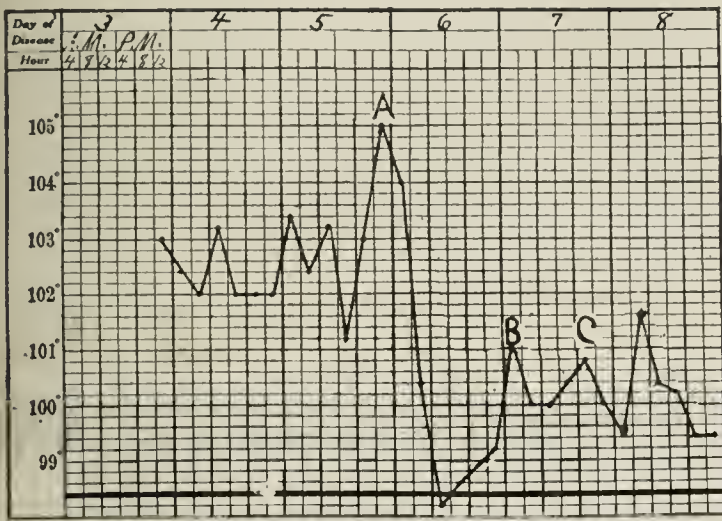


Chart 2.—Course of temperature in scarlet fever, in C. J., a man, aged 20; A, 90 c.c. of convalescent serum; B, adenitis, arthritis; C, otitis media.

lesions in the throat and mouth, and high fever. She died on the eighth day. In neither case was any appreciable benefit observed from the serum.

TREATMENT AND RESULT

We have usually injected the serum intramuscularly in amounts of from 60 to 90 c.c. Often one half is injected in the muscular mass on the outer side of each thigh. Occasionally it has been injected intravenously, but with no apparent advantage. A second dose after twenty-four hours has been given at times when the first dose was not followed by satisfactory improvement, or when improvement was followed by a tendency to relapse to the previous condition. The beneficial effects from injections of convalescent serum have been described by the various observers with great uniformity. Most prominent is the improvement in the general condition of the patient, which is out of proportion to alteration in the temperature curve. Two or three hours after the injection the temperature begins to decline and continues to do so for from twenty to thirty-six hours. It sometimes reaches normal, but usually remains a little above. Subsequently, there is usually a moderate rise followed by a gradual fall to normal. Occasionally the fever terminates by crisis, never again rising above normal. The earlier in the disease the serum is given, the more pronounced is the effect on the temperature.

Charts 1, 2, 3 and 4 represent the course of the temperature in some cases. They correspond to charts printed by Zingher, and by Kling and Widfelt. Chart 5 represents the composite temperature curve in cases in which serum was given on the second, third and fourth days, and in a series of twenty in which no serum was given. The latter cases were of the same

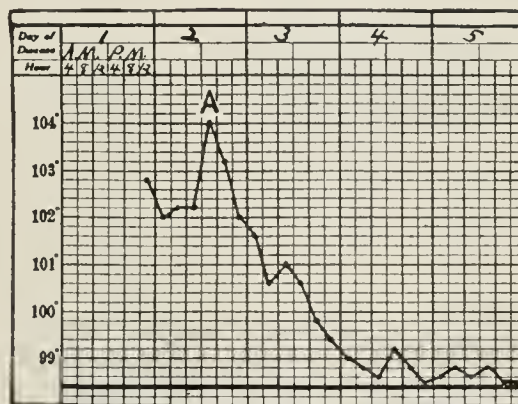


Chart 3.—Course of temperature in scarlet fever in R. K., a girl, aged 8 years; A, 62 c.c. of convalescent serum.

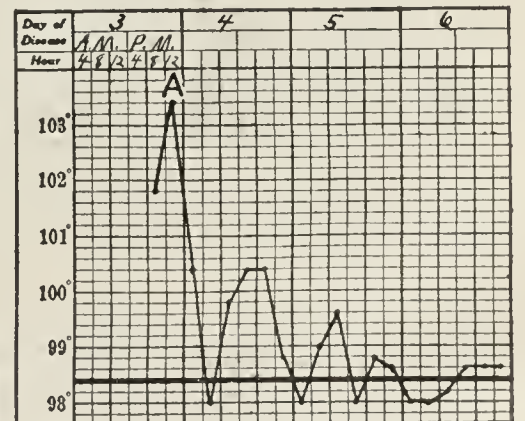


Chart 4.—Course of temperature in scarlet fever, in P. B., a man, aged 21; A, 80 c.c. of convalescent serum.

late as the seventh week was still active. We have mixed serums from several patients, as those from some patients seem more efficient than those from others. Kling and Widfelt¹¹ found the serum from persons who had mild attacks as effective as that from persons who had severe cases, but they also observed a variation in the efficiency of serums from different individuals.

The blood is drawn, with aseptic precautions, into a sterile bottle holding 500 c.c., through a needle inserted into a vein at the bend of the elbow, from 200 to 300 c.c. being taken from adults and proportionately

less from the larger of the children. No ill effects from bleedings have been observed. After the serum has separated from the clot, it is drawn off, that from three or four patients mixed, and 0.3 per cent. of tricresol added. Cultures are made from the mixture. If it proves sterile, it is placed in small bottles of 30 c.c. capacity, cultures are again made for sterility, and the bottles are tightly corked and paraffined and kept in a refrigerator until used. Serums have usually been used within a few weeks. In a few instances, serums several months old have been used, but apparently they were less effective than fresher ones. Kling and Widfelt¹¹ found serum effective up to eight weeks. Zingher¹⁰ says that the blood loses a good part of its therapeutic value on keeping.

COMPLICATIONS

In one patient only was any untoward effect noted from the injection. This patient was a young man who had a very toxic form of the disease, and received serum intramuscularly in the outer side of each thigh. On one side, a painful swelling developed at the site of injection, and a few days later an abscess was incised, and the pus contained an old blood clot. Only hemolyzing streptococci were grown from the pus. It appeared likely that the cocci were in the patient's blood which escaped into the tissues at the time of injection. No disturbance developed in the other thigh; other patients received serum from the same lot without trouble, and remaining bottles of the same mixture

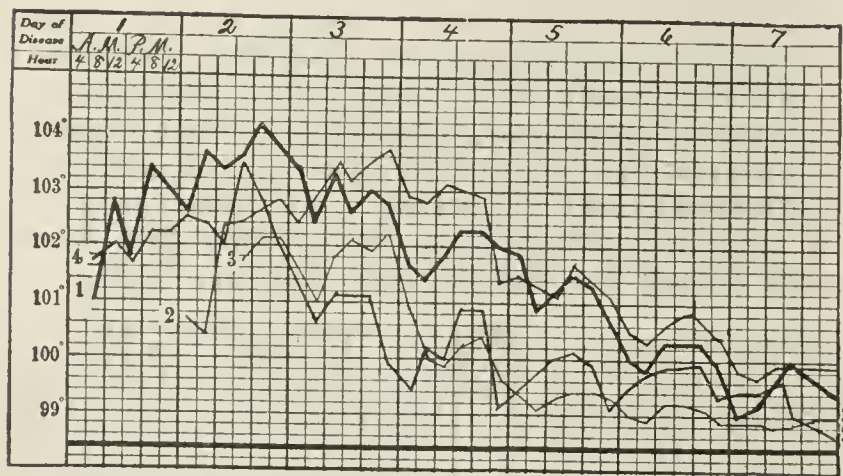


Chart 5.—Composite temperature curves: 1, twenty patients receiving no serum; 2, four patients receiving serum on the second day; 3, ten patients receiving serum on the third day; 4, twenty-five patients receiving serum on the fourth day.

were sterile. Recovery followed draining the abscess. We have observed no favorable influence over septic complications, in this agreeing with other observers.

CONCLUSION

It is well known that the course of scarlet fever is uncertain, some patients suddenly becoming rapidly better under any treatment, and termination by crisis being observed. To one who is familiar with the usual course of this disease, the almost constant fall in temperature, and especially the rapid improvement in the general condition of the patient immediately after the serum is given, is most surprising. Early administration is insisted on by all who have had experience with the serum. In the series of severe cases reported by Kling and Widfelt,¹¹ 93.7 per cent. of those receiving serum the second day recovered, while with each day's delay the mortality increased until by the sixth day only 50 per cent. recovered.

Koch considered convalescent serum an almost absolutely certain weapon during the early stages of the disease.

Intramuscular injections of citrated blood, as recommended by Zingher, may be employed anywhere. When scarlet fever is prevalent, convalescents are usually available, and freshly drawn blood may be injected when facilities for obtaining and preserving serum are absent. This makes the procedure practical in private practice, and in large hospitals for contagious diseases, in which suitable convalescents are always available, it would obviate the necessity of collecting and storing serum. Several advocates of serum treatment for scarlet fever report some value in normal serum, but less than that in serum from convalescents.

In the absence of available convalescent serum, normal blood may be used.

637 South Wood Street.

Clinical Notes, Suggestions, and New Instruments

OPEN SAFETY PIN SUCCESSFULLY REMOVED FROM THE ESOPHAGUS BY PERORAL ENDOSCOPY

HENRY BOYLAN ORTON, M.D., NEWARK, N. J.

April 10, 1921, baby R. P., aged 10 months, swallowed a safety pin. Choking and vomiting followed. The mother tried to dislodge the foreign body by inserting her finger in the child's mouth, but without success. The child slept soundly that night and played as usual the next day. April 12, two days later, roentgenograms, taken by Dr. Bunn, who referred the case to me, showed the pin open in the esophagus, the point being to the left at the level of the aortic arch.

The child was admitted to the hospital, April 12, where, without anesthesia, local or general, esophagoscopy was performed, using a Jackson 7 mm. tube which was passed to the catch of the pin below the level of the clavicle. The point of the pin was located to the left, where it was embedded in the esophageal mucous membrane. Using right angular forceps, the point was disengaged, and at the same time, the tube was rotated around the point. At this stage of the operation, the child stopped breathing. The esophagoscope and forceps were withdrawn, and immediately a 4 mm. bronchoscope was passed through the larynx and oxygen was given, resuscitation following at once. Then the bronchoscope was withdrawn, and the esophagoscope again passed down to the pin; the point was engaged in the tube; the right angular forceps were again used and all were withdrawn together. The complete operation, including resuscitation, required seventeen minutes, the child leaving the hospital the following morning.

671 Broad Street.

RESUSCITATION BY CARDIAC MASSAGE WITH PARTIAL SUCCESS

GEORGE BLACKBURNE, M.D., EAST ORANGE, N. J.

A man, aged 59, was admitted to my service at Saint Michael's Hospital, Newark, N. J., May 25, 1921, with a history of having been struck by an automobile, sustaining, in addition to minor abrasions and contusions, a fracture of the upper third of the left femur, with lateral displacement and overlapping.

Repeated attempts at reduction were made by extension and counterextension in the Balkan frame and the double inclined plane under roentgen-ray control, without success. The patient being in fairly good physical condition, and not

even a fair position of the fragments being attained, it was decided to cut down and plate the bone.

June 10, 1921, rapid reduction and plating were accomplished with a minimum of trauma. Gas-ether anesthesia was administered by an intern, under the personal supervision of the staff anesthetist. During the course of the operation, the patient stopped breathing, and the heart stopped suddenly. Epinephrin was injected into the jugular veins and directly into the heart, and artificial respiration and the pulmotor were used without effect.

During this stage, there was a lapse of about ten minutes, when the upper abdomen was painted with iodine, a quick median incision made, and the heart, much dilated, was felt through the diaphragm. This was forcibly compressed about ten times before any response was elicited. Then there were four or five slow, irregular beats, followed by regular normal contractions. The operation was completed, and the patient returned to his bed in fairly good condition. Thirty minutes later, general muscular twitchings began; the temperature rose to 106 F., and on the following day the patient died without fully recovering consciousness, seventeen hours after operation.

Necropsy revealed cerebral thrombosis.

COMMENT

This case is reported because of the partial success attained in resuscitation by cardiac massage, and as a plea for the earlier use of this procedure in such cases. Had there been less delay with other measures in this case, the thrombosis might not have occurred.

93 Hawthorne Avenue.

ADJUSTABLE, MULTIPLE COVER GLASS AND SLIDE HOLDER *

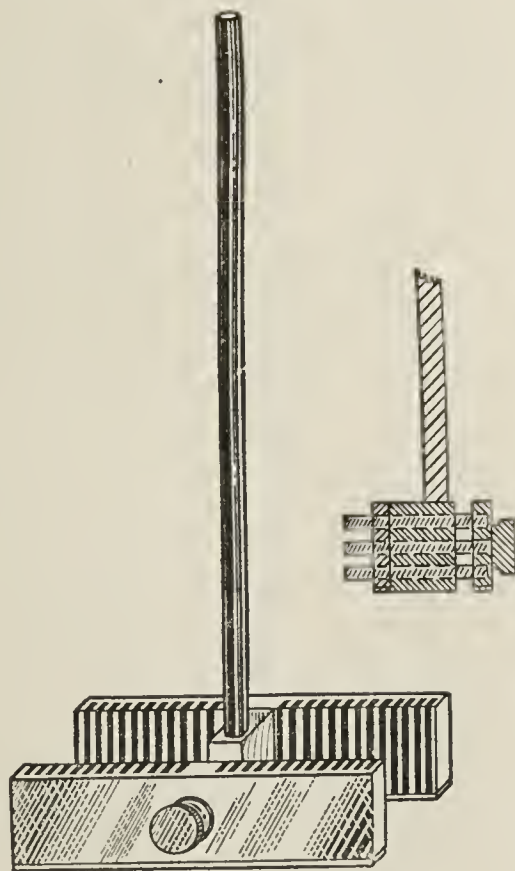
G. W. WAGONER, PHILADELPHIA

The holder consists of two rectangular metal plates, 73 by 17 by 3 mm., grooved vertically with twenty-six slots, 2 mm. in depth. The bottoms of the slots are closed by a narrow strip of metal. These two plates are approximated, one to the other, by means of an adjustable screw and two guide pins passing through a block, inserted in the top of which is the handle. The number of the slots permits the holding of twenty-six standard microscope slides or fifty-two cover slips, if placed back to back.

The adjustability of the instrument permits the holding of slides or cover slips whose width is within the range of from 13 to 33 mm. In addition to this feature, the instrument allows the staining of a large number of sections at one time, using thereby a small amount of stain and saving a large amount of time.

Several of these instruments have been in use in the laboratories of the medical school and have been found extremely useful. They may be obtained from either George P. Pilling and Son Company or the Harvey R. Pierce Company, both of Philadelphia.

3641 Locust Street.



Adjustable, multiple cover glass and slide holder.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

COPPER CITRATE (See New and Nonofficial Remedies, 1921, p. 88).

Copper Citrate-PWR.—A brand of copper citrate, N. N. R. Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC BENZOATE (See New and Nonofficial Remedies, 1921, p. 192).

Mercury Benzoate-PWR.—A brand of mercuric benzoate, N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC CYANIDE (See New and Nonofficial Remedies, 1921, p. 183).

Mercury Cyanide-PWR.—A brand of mercuric cyanide, N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1921, p. 196).

Mercury Succinimide-PWR.—A brand of mercuric succinimide, N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

SILVER CITRATE (See New and Nonofficial Remedies, 1921, p. 333).

Silver Citrate-PWR.—A brand of silver citrate, N. N. R. Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

SILVER LACTATE (See New and Nonofficial Remedies, 1921, p. 334).

Silver Lactate-PWR.—A brand of silver lactate, N. N. R. Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

PROCAINE-ABBOTT (See New and Nonofficial Remedies, 1921, p. 34).

The following dosage form has been accepted:

Procaine-Adrenalin Hypodermic Tablets No. 2.—Each contains procaine-Abbott 0.02 Gm. ($\frac{1}{2}$ grain), adrenalin 0.00004 Gm. ($\frac{1}{1500}$ grain) and sodium chlorid sufficient so that when the tablet is dissolved in 1 c.c. of water, the resulting solution is isotonic.

Injuriousness of Dust in Industry.—That dusts of various types are intensely harmful to mankind, occasioning in some industries terrible explosions that produce great loss of life and property, and in other trades standing responsible for a highly increased death rate from lung diseases, is emphasized by investigations being conducted by the United States Bureau of Mines. The fact that coal dust has tremendous explosive powers is now demonstrated frequently by the bureau in its own coal mine at Experiment, Pa. A number of severe explosions have occurred in industrial plants using powdered coal as fuel, and it is necessary that care be used in the installation and operation of such plants. Aluminum dust, the dust of various grains and hard rubber dust are also declared to be explosible. The dust of rock containing free silica, found in some metal mines in the West, settling in the lungs of the miners, is responsible for a heavy annual death rate from miners' consumption. In the Butte, Montana, copper mining district, the tubercular death rate of Butte miners is nearly thirteen times as great as that of residents of the state of Michigan. Pulmonary disease due to rock dust, among the miners of the Joplin, Mo., lead and zinc district, affects probably as high as 30 per cent. of the miners employed in certain classes of mines.

* From the University of Pennsylvania School of Medicine.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET · · · CHICAGO, ILL.

Cable Address · · · · "Medic, Chicago"

Subscription price · · · · · Six dollars per annum in advance

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SATURDAY, OCTOBER 29, 1921

THE FAR FLYING FLY

It is today an accepted fact that insects can communicate disease to man not only by serving as mechanical carriers from one person to another but also by becoming intermediate hosts for the microbic agent, which is subsequently transferred farther. Thus, individual cases and even epidemics of typhoid fever and dysentery have frequently been attributed to the carriage of the infective agents by flies. These living forms are further objectionable as pests without special reference to disease when they congregate in numbers in the vicinity of man and animals. For such reasons the dispersion of the various species of flies, like that of the even more objectionable mosquitoes, becomes a matter of importance. It is obviously futile to plan antily or antimosquito campaigns with reference to small localities if the insects concerned can readily be disseminated from far beyond the boundaries of the places under control. Efforts to eliminate insect breeding places in order to relieve a particular region may be entirely nullified if neighboring breeding grounds are near enough to keep up the supply of the offending insect. Modern progress in medicine has shown again and again how important a knowledge of the habits of insects is for human welfare in general and many public health problems in particular.

How far can flies travel, and what determines the direction of their flight? They have occasionally been reported many miles offshore; but in such instances it may have been the winds rather than their wings that were responsible for the long distance transport. In the course of a series of investigations of insects affecting the health of man and animals, the Bureau of Entomology of the United States Department of Agriculture has sought definite knowledge regarding the questions just raised. Bishopp and Laake¹ have liberated thousands upon thousands of marked flies, notably the common house fly, *Musca domestica*, the screw-worm fly, and the black blow fly, so as to ascertain the direction and speed of their travel. The maximum distance of spread from the point of release as recorded

in these tests was, for the several species: *Musca domestica*, 13.1 miles; *Chrysomya macellaria*, 15.1 miles; *Phormia regina*, 10.9 miles; *Lucilia sericata*, 1.2 miles; *L. caesar*, 3.5 miles; *Synthesiomyia brasiliensis*, 0.5 mile; *Sarcophaga* spp., 3 miles; *Ophyra leucostoma*, 7 miles; *O. aenescens*, 4.1 miles. The dispersion was in all directions from the point of liberation.

The government experts have come to the conclusion that under natural conditions the influence of moderate winds on dissemination is not of great importance. In general, the insects appear to go with the wind in greatest numbers; but they are shown to travel against and at right angles with it as well. Among the stimuli inducing dispersion, the desire for food and the desire for places for oviposition appear to be among the strongest. The records show an unexpectedly rapid spread in some cases—frequently eight miles from the point of liberation in less than a single day. These indisputable facts must be reckoned with hereafter. Our next-door neighbors are by no means the only persons with whom we must make an insect-suppressing pact. As Bishopp and Laake point out, the facility with which flies travel many miles emphasizes the importance of the general application of sanitary measures looking toward the suppression of fly breeding.

THE DIFFERENT PROTEINS OF MILK

As milk is the most prominent source of protein for the physiologic needs of the body, at least at certain periods of its development, it becomes fundamentally important to learn as much as possible regarding the quality of its nitrogenous components in comparison with that of the fluids and tissues for which it serves as nutriment. Furthermore, the secretion of milk, on which so much depends for the promotion of both human and animal well-being, involves the transformation of blood constituents into mammary gland products. The presence of casein, a protein found nowhere else in nature, in milk is a striking evidence that some at least of the milk components are not merely filtered off preformed from the blood. However, milk has been demonstrated to contain more than one protein. The biochemists have long differentiated the phosphoprotein casein, an albumin, and a globulin-like protein in milk; and recently Osborne and Wakeman¹ have announced the discovery of an additional somewhat unique alcohol-soluble protein which they regard as distinctly different from the others, so far as physical properties and amino-acid make-up will permit one to determine.

In view of the fact that immunologic specificity seems to depend on an essentially chemical basis, as has been beautifully demonstrated by Wells and Osborne²

1. Osborne, T. B., and Wakeman, A. J.: The Proteins of Cow's Milk, *J. Biol. Chem.* **33**: 7 (Jan.) 1918.

2. Wells, H. G., and Osborne, T. B.: *J. Infect. Dis.* **12**: 341, 1913; **19**: 184 (Aug.) 1916.

1. Bishopp, F. C., and Laake, E. W.: Dispersion of Flies by Flight, *J. Agric. Res.* **21**: 729 (Aug. 15) 1921.

In recent years, it becomes possible to test the identity or individuality of proteins on the basis of their immunologic behavior. By employing the anaphylaxis reaction as the test procedure, Wells and Osborne³ have lately demonstrated, in harmony with earlier observations, that biologically casein is quite as distinct from the whey proteins and the serum proteins as it is chemically. Furthermore, the biologic reactions and chemical composition of caseins from different species of animals show close relationships. Wells and Osborne have also clearly shown that the four proteins described for milk are immunologically distinct. This fact, as they say, furnishes another striking illustration of the dependence of immunologic specificity on chemical composition rather than biologic origin. Of these four proteins only one, the globulin, sensitizes to beef serum or causes reactions in animals sensitized to beef serum. This corresponds to the observation of Crowther and Raistrick⁴ that lactoglobulin and serum globulin are chemically indistinguishable. Employing entirely different chemical procedures, Woodman⁵ of Cambridge University, England, has offered further evidence of the identity of serum globulin and milk globulin. He has also demonstrated lactalbumin and serum albumin to be two distinct proteins. During the period of colostrum production, serum globulin would seem to be transferred quite freely to the mammary secretion. When normal lactation proceeds, the serum globulin, can, to quote Woodman's words, leak, as it were, in extremely small amounts into the milk secretion. The basal nitrogenous constituents of normal milk, namely, casein and lactalbumin, are elaborated by the mammary gland both in the colostrum and in the normal lactation periods.

MELLON ISSUES BEER REGULATIONS

The postponed regulations for the manufacture of beer, and its sale by druggists on physicians' prescriptions, have been authorized by the Secretary of the Treasury. The original Volstead act prohibited the manufacture and sale of "intoxicating beverages." The question whether the manufacture and sale of whisky, beer and wine for medicinal purposes was contrary to the law was passed on by Hon. A. M. Palmer, Attorney-General of the Wilson administration, who held that it was not the purpose of Congress to prohibit the use of liquor for nonbeverage purposes, and that the Commissioner of Internal Revenue is authorized, under the Volstead act, to issue permits for the manufacture and sale of liquor for medicinal purposes. When the present Congress met, an amendment to the Volstead act was introduced providing that only spirituous and vinous liquors may be prescribed for medic-

inal purposes, and that all permits to prescribe other liquors should be void. Thus the amendment ruled out beer as a medicine. It also limited a physician to 100 prescription blanks in ninety days. This bill, in slightly different form, passed both houses. The principal difference was in the last section, regarding the right of search and seizure, the so-called Stanley amendment. The Conference Committee proposed a compromise which was accepted by the House. In the last hours of the session before the recess, the Senate refused to agree and the bill was pigeonholed. It has not been brought up for discussion since the reassembling of Congress, so that the original Volstead act is still in force. Mr. Mellon, Secretary of the Treasury, first held that, as both Houses of Congress had voted in favor of prohibiting the use of beer as a medicine, he would not issue regulations authorizing its use. Evidently he has altered his point of view, since he now holds that the Treasury Department "has no right longer to withhold these regulations [i. e., regulations under the original Volstead act] and that in so doing the department is denying to those interested their clear legal right."

It is, of course, possible that these regulations were issued at this time for the purpose of putting pressure on the Senate to adopt the amendment prohibiting beer as a medicine. The new regulations provide that not more than 2½ gallons of beer or 2 quarts of wine may be prescribed at one time for the same person. The effect of these regulations will be to allow practically unlimited prescribing of beer and wine in those states which do not have laws prohibiting the use of wine and beer as medicines. There are only eleven states without such laws. These are Wisconsin, Missouri, California, Connecticut, Massachusetts, New Jersey, New York, Rhode Island, Pennsylvania and part of Louisiana and Maryland. In these states all that will be necessary to secure the maximum of liquor (and all "invalids" will require the maximum dose) is to secure a prescription from a physician.

Self-respecting physicians should and will resent any attempts to prostitute an honorable profession. Physicians who are indifferent as to their professional honor can doubtless reap an abundant harvest, so long as these regulations remain in effect. It is inconceivable, however, that the American people will long tolerate such a travesty.

Errors in Diagnosis of Brain Tumor.—A surprisingly small proportion of cases of brain tumor are diagnosed correctly. There are several reasons: First, the training and point of view of the physician in a hospital for the insane is psychiatric rather than neurologic, and he is preoccupied with the mental symptoms. Second, the most fundamental reason is that, as a rule, ophthalmoscopic examinations of patients presenting organic signs are not made unless brain tumor is definitely suspected. If such examinations were made, a much larger percentage of tumors would be diagnosed, and until they are made as a routine measure, the percentage of cases of brain tumor diagnosed will not be much raised.—M. E. Morse, *Bull. Mass. Dept. Ment. Dis.* 4:49 (Oct.) 1920.

3. Wells, H. G., and Osborne, T. B.: Anaphylaxis Reactions with Purified Proteins from Milk, *J. Infect. Dis.* 29: 200 (Aug.) 1921.
4. Crowther and Raistrick: *Biochem. J.* 10: 438, 1916.
5. Woodman, H. E.: A Comparative Investigation of the Corresponding Proteins of Cow and Ox Serum, Cow's Colostrum and Cow's Milk by the Method of Protein Racemisation, *Biochem. J.* 15: 187, 1921.

Current Comment

CANCER WEEK

Next week we shall be in the throes of another drive, this time on cancer. The purpose of Cancer Week is to acquaint the lay public with the essential facts concerning the disease, to encourage early diagnosis and treatment, and to reenlist the interest of the medical profession in controlling the disease. A large majority of fatalities in cancer have resulted from delay in treatment due to lack of recognition of the disease in its early stages. The responsibility rests on the public for delay in securing competent medical attention, and on the medical profession for delay in diagnosis and procrastination in treatment. The evidence accumulated by Dr. Bloodgood, as shown in his analysis of "Cancer of the Tongue" in this issue of *THE JOURNAL*, leads to the conclusion that the chief hope of reducing the number of deaths from cancer lies in educational propaganda. The campaign of education should be steady and continuous, and not a "flash in the pan."

STANDARDS IN JOURNALISM

Willard Grosvenor Bleyer, director of the University of Wisconsin school of journalism, in a recent address before the Joseph Medill School of Journalism discussed the need of elevating the standards of the journalistic profession, especially as it applies to newspapers. As examples for comparison, the speaker described briefly the development of the American Bar Association, and then in greater detail, the evolution of the present systematized training of physicians. He referred especially to the organization of the American Medical Association, its code of ethics, *THE JOURNAL*, and other powers for elevating the art and science of medicine. Professor Bleyer expressed the hope that every reporter and journalistic student had read "Nostrums and Quackery" for its excellent account of the way in which blood money is wrung from poor victims by nostrum exploiters. The Council on Medical Education, too, was praised for protecting prospective medical students against inferior schools. Finally, Mr. Bleyer asked: "Is journalism any less important than the law and medicine? They treat the members. We help or hurt the whole body politic. . . . Journalism," he said, "is the only great profession unorganized." And the remedy, he believes, lies in the formation of a strong body, which, like the American Bar Association and the American Medical Association, will be possessed of the influence to require reporters to have the fundamental training. A bane of newspaper work has been that men of high school education, who have no background of history, economics or the classics, are the ones purveying the news of today. Until the standards of journalistic training are raised, and until the ethics of the profession become a means of protecting scrupulously the body politic, it will continue to be possible for shyster journalists to fatten themselves on deluded dollars from "patent medicine" advertisements, and the public to look askance at the reliability of the press in general. A timely discussion is this of Professor Bleyer. His

criticism is not only fiercely destructive of the malignant growths which are attacking the life of modern newspaper journalism, but constructive in the suggestion of a systematically outlined and wholesome remedy.

THE RECORDING AND REPRODUCTION OF CARDIAC AND RESPIRATORY SOUNDS

At the Bureau of Standards in Washington, Hunt and Myres¹ recently succeeded in making permanent records of cardiac and respiratory sounds and in reproducing them by means of a telegraphone. The records are said to have been made audible throughout a room by means of audion amplifiers and a loud-speaking telephone. The method used is thus described by the experimenters:

A carbon telephone transmitter of ordinary type with rubber adapter substituted for the mouthpiece was used for the stethoscope. The currents from the telephone transmitter were amplified by means of a five-stage audion amplifier, which was connected to the recording element of a steel wire telegraphone. The magnetic records of the cardiac and respiratory sounds thus obtained were made audible by connecting telephone receivers to the telegraphone in the usual manner. The telegraphone currents were also amplified by means of a three-stage audion amplifier which was connected to a loud speaking telephone. In this way the sounds were made audible throughout the room.

Naturally, a method that will obtain permanent records of cardiac and respiratory sounds and that will make it possible to reproduce them offers most interesting possibilities of study of normal and abnormal conditions as well as of instruction to students, and further developments will be awaited with much interest.

EXTERMINATING YELLOW FEVER

In his presidential address before the American Medical Association in 1909, General Gorgas said: "The advances in tropical sanitation during the last fifteen years have shown that the white man can live in the tropics and enjoy as good health as he would have if living in the temperate zone. I dare to predict that after the lapse of a period equal to that which now separates us from the Norman conquest of England, localities in the tropics will be the center of as powerful and as cultured a white civilization as any that will then exist within the temperate zones." Evidently this prediction is to be fulfilled in much less time than General Gorgas anticipated. The seventh annual report of the International Health Board, just issued, shows that yellow fever has been narrowed down to limited and definitely recognized areas and is now confined to the east coast of Brazil, Ecuador, Peru, Guatemala, Honduras, Nicaragua, Salvador, Mexico and West Africa. An extensive battle ground, truly, yet how small compared to the former range of "Yellow Jack" from Edinburgh on the north to the Cape of Good Hope on the south. It is an achievement to have established definite boundaries for this disease: a still more hopeful feature is the steady shrinking of the infected area. The city of Guayaquil, Ecuador, has been for seventy-five years a breeding place for yellow fever. Modern

1. Hunt, F. L., and Myres, M. J.: Experiments on the Recording and Reproduction of Cardiac and Respiratory Sounds, *Science* 54: 359 (Oct. 14) 1921.

control measures were inaugurated in Guayaquil in November, 1918. As a result, Guayaquil has not had a case of yellow fever for more than two years. The quarantine was raised, Dec. 1, 1920. Mexico, Brazil and West Africa present great natural difficulties which will require time to overcome. But the infected regions are shrinking year by year. At the present rate of progress, it is quite possible that the great changes in the tropics, predicted by General Gorgas, may take place in the next hundred years rather than the next thousand.

CANCER PHOBIA

An inevitable accompaniment of directing special attention to any disease is to arouse in a certain number of persons phobias almost as terrifying as the diseases feared. To warn the public that "moles, excrescences, fistulas and warts" "are the first signs of cancer" is to erect a specter capable of shattering even a normal mentality. To say that "symptoms of indigestion" are "signs of cancer" is so small a part of the whole truth that it is better left unsaid. Carcinoma is in the beginning a local disease. It is definitely known that irritation of tissues favors its production. There has also been accumulated evidence as to the earliest signs by which malignant growths manifest themselves. It is well to give the public such facts as these, to advise early consultation with the family physician, and to point out that we have thus far but one sure method of treatment, and that is complete removal of the dangerous growth. The condition itself is sufficiently serious and needs no elaboration as to its terrifying aspects. Give the public all the facts—but facts only.

VIRCHOW CENTENARY

On October 13 occurred the centenary of the birth of Rudolph Virchow, the founder of cellular pathology, noted as pathologist, educator, investigator and statesman. At the age of 26 he founded the "*Archiv für pathologische Anatomie*," popularly known as "*Virchow's Archiv*." As indicated by Garrison, his first paper in this periodical advanced the idea that an unproved hypothesis of any kind is a very leaky bottom for practical medicine to sail or trade upon, and he scouted the notion that any one man is infallible in respect of judgment or knowledge. He was the annihilator of humoral pathology, replacing it with the cellular concept. But besides these statements of general principles he was the first to observe and define leukocytosis; he separated pyemia from septicemia; he created the doctrine of embolism; he pointed out the true relationship between lupus and tuberculosis; he gave the name "arthritis deformans" to rheumatic gout; he discovered the neuroglia and the lymphatic sheaths of the cerebral arteries, and he made numerous contributions to anthropology, medical history and general literature. With all this, he found time to serve in the Prussian lower house and in the Reichstag. In analyzing his work, the *British Medical Journal* considers his most characteristic service to scientific medicine his foundation of the *Zentralblatt* and *Jahresbericht* ideas. The collection of medical material now available, the British journal suggests—the mere presentation of facts discovered through objective

research since the time of Virchow—represents a stupendous accumulation, actually a plethora. Among the greatest men of medical science of the nineteenth century, Virchow was a peer: and, withal, a very human being.

SHEPPARD-TOWNER BILL IN THE HOUSE

Dispatches from Washington indicate that the Sheppard-Towner Bill (S. 1039) will soon come up for consideration in the House of Representatives. It has already passed the Senate. The House Committee on Interstate and Foreign Commerce, to which the bill was referred, has been asked to report on it as soon as possible. As has been repeatedly stated in previous issues, THE JOURNAL is opposed to this measure because (1) the principle of federal state aid as a means of financing public health work is an unsound financial policy; (2) public health work, except those activities which are clearly national in character, is essentially a function of the state and local government and should be supported out of state and local funds; (3) there are no reliable statistics by which it can be proved that the United States stands seventeenth in maternal death rate as the advocates of the measure claim; (4) the measures provided in the bill will not afford an effective remedy for existing conditions, and (5) and most important, if the federal government intends to inaugurate activities for the care of maternity and infancy or for any other public health measure, such work should be delegated to the United States Public Health Service and not to a bureau of the Department of Labor. The Hon. Samuel E. Winslow of Massachusetts is chairman of the committee to which the bill has been referred and his committee is interested in knowing how the physicians of the nation stand on the measure. Physicians who are interested should write to Mr. Winslow, expressing their views on this question. If the medical profession does not want to see this bill passed, now is the time to say so.

NEW NARCOTIC DRUG INSTRUCTIONS

In another column appears a summary of the new instructions from the Commissioner of Internal Revenue to the Narcotic Agents in charge of the enforcement of the Harrison¹ law. Physicians holding permits to prescribe narcotic drugs should read these instructions carefully, since they contain several new directions on the use of narcotic drugs in the treatment of acute and incurable diseases and of drug addicts. The regulations are more liberal than those heretofore issued. They place the responsibility on the physician where it rightly belongs and base the question of violation of the law on his good faith. They should be complied with strictly, in every case, since their observance is a matter of professional honor. If in doubt, physicians should ask for a ruling from the Internal Revenue officer of their district, giving all the facts and complying with the regulations until the ruling is received.

1. See General News, page 1431, this issue.

Mental Hygiene.—In the broadest sense mental hygiene touches everything that affects the mind of man—it is as broad as life itself; but specifically it means measures for the mental health of the individual.—M. C. Jarrett.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Appointments to State Board of Medical Examiners.—The governor has reappointed Drs. Robert A. Campbell, William R. Molony, Los Angeles; Percy T. Phillips, Santa Cruz; Charles B. Pinkham, San Francisco, and Harry E. Alderson, San Francisco, as members of the board for four-year terms.

Medical Meeting.—The Southern California Medical Association will meet, November 4-5, at Los Angeles, under the presidency of Dr. Charles L. Bennett. Dr. Alonzo Englebert Taylor of the Rockefeller Foundation, former professor of physiologic chemistry, University of Pennsylvania, Philadelphia, and Dr. Herbert McLean Evans, Berkeley, will address the meeting.

Hospital News.—The new Sutter Hospital, Sacramento, will be erected at a cost of \$500,000. The building will have a capacity of 150 beds and will be equipped with all modern improvements.—An appropriation of \$12,000 for road improvements and the new bath house at the U. S. Public Health Service Hospital, Arrowhead Springs, has been received from Washington, D. C. The number of patients is to be doubled during the coming year, and cottages for the medical staff are being erected in the grounds.

COLORADO

Medical Meeting.—A special meeting of the Medical Society of the City and County of Denver was held, October 10, under the auspices of the American Society for the Control of Cancer. Papers were read by: Drs. James C. Masson, Mayo Clinic, Rochester, Minn.; Leonard Freeman, Josiah N. Hall and Casper F. Hegner, Denver. A film which has been prepared to be exhibited before public audiences was shown for the first time.

Denver Tuberculosis Society.—The society has issued a statement to the effect that after weighing and measuring the children in nineteen schools in Denver, only 6 per cent. of the children were normal in weight for their height and age. Underweight is due to malnutrition, which is abnormal and should be treated as such. The causes of malnutrition are: physical defects, lack of home control, overfatigue, insufficient food and sleep, tuberculosis, impaired mentality and lack of power of concentration and attention.

CONNECTICUT

Personal.—Dr. Frederick P. Lee, New Britain, former health officer of the port of New York, has been elected health superintendent to succeed Dr. Jesse R. Harris, resigned.

FLORIDA

Public Health Meeting.—The annual convention of the Florida Public Health Association was held, October 4-5, at Jacksonville, under the auspices of the U. S. Public Health Service. Addresses were given by Dr. William W. Macdonnel, city health officer, Dr. Raymond T. Turck, state health officer and Rabbi Israel L. Kaplan, president of the association. Conservation of childhood resistance to disease, health habits and diet of children, tuberculosis and hygiene teaching in the schools were discussed during the conference.

ILLINOIS

Personal.—The governor has appointed Dr. Samuel A. Graham, Clinton, as district health superintendent in Health District No. 15, effective, October 17.

INDIANA

Personal.—Dr. Greene L. Rea, Fort Wayne, head of the city venereal clinic, has resigned to take charge of the venereal clinic in Charlotte, N. C., effective, November 1.

Hospital News.—A hospital for the exclusive treatment of negroes will be established by Drs. James R. and John W.

Norrel, J. T. Johnson and Samuel H. J. David, at Indianapolis, at a cost of about \$10,000.

IOWA

Physicians Plan Cruise.—Several Iowa physicians will make a midwinter cruise to the Mediterranean, Orient and Holy Land, leaving, Feb. 4, 1922, under the direction of Dr. James W. Cokenower, Des Moines. Physicians from other states who would like to join them should communicate with Dr. Cokenower.

Personal.—Dr. Mark Frederick Boyd, former Iowa state epidemiologist, has been appointed to a position on the international health foundation, and will sail in January, 1922, for Brazil to serve on the board for a period of three years. Dr. Boyd has just returned from doing research work in Galveston, Texas.

LOUISIANA

Larger Leper Colony Needed.—The New Orleans Association of Commerce has addressed resolutions to Louisiana senators in Washington, D. C., urging an immediate appropriation to enlarge the federal home for lepers at Carrville, so as to care for nearly 100 cases on the waiting list.

Hospital News.—A new hospital exclusively for treatment of diseases of the eye, ear, nose and throat will be erected in New Orleans at a cost of approximately \$350,000.—The Franciscan Sisters have purchased a site for the erection of a new hospital at Baton Rouge, which will be constructed at a cost of \$75,000.

MARYLAND

Health Tokens for Pupils.—The Public Athletic League is making systematic medical examination of all pupils in public schools in the state. When examination reveals no defects, the child is given a "health token medal," to signify perfect physical condition. If remediable defects are discovered, the child receives a green button which certifies the physician's permission to take part in school athletics. Nurses are sent to the homes of the pupils to make arrangements with the parents to remedy any defects in the children.

Annual Meeting of Therapists.—The fifth annual meeting of the National Society for the Promotion of Occupational Therapy was held in Baltimore, October 20-22. The address of welcome was read by Dr. John S. Fulton. Meetings were held at the Southern Hotel on the mornings of the twentieth, twenty-first and twenty-second, at which prominent physicians and others interested in occupational therapy gave interesting and instructive talks on the subject. On the afternoon of the twenty-first, an important meeting was held at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, and was opened by Dr. Adolf Meyer, the physician-in-chief. On the afternoon of the twenty-second, the members of the society were entertained at the Sheppard and Enoch Pratt Hospital, Towson, Dr. Ross McC. Chapman, superintendent.

MASSACHUSETTS

Institute for Physicians.—More than 2,000 physicians attended the Institute for Physicians of the Boston Tuberculosis Association, held October 26-27, at the Massachusetts General Hospital, Boston.

Personal.—Dr. Charles H. Hunt, physician to the New Bedford House of Correction for the last twenty-five years, has resigned, effective, September 1, and will be succeeded by Dr. Frank Matthewson.

School for Bodily Mechanics.—The Brookline board of health has announced a plan to establish a school for bodily mechanics, under the direction of Drs. Francis P. Denny, Fritz Talbot and Augusta G. Williams. Dr. Armin Klein, orthopedic department, Massachusetts General Hospital, will be in full charge of the work.

Public Health Conferences.—The Massachusetts department of health is conducting a series of five weekly round table conferences at the state house, the purpose of which is to afford citizens of the state an opportunity to familiarize themselves with the principles and scope of the public health movement and its developments.

Personal.—Dr. John Kolmer, Philadelphia, read a paper entitled "The Present Status of the Wassermann Reaction with Special Reference to the Clinical Value of a Standardized Technic" at the meeting of the Springfield Academy of Medicine, October 11.—Dr. John W. Bartol, president of the Massachusetts Medical Society, gave an address at the Worcester District Medical Society, held October 12.

War Heroes Honored.—As a permanent tribute to the memory of Howard W. Beal, Major, M. C., U. S. Army; William H. Buffum, Lieut., M. C., U. S. Navy; William W. Walcott, Capt., M. C., U. S. Army; Harrison B. Webster, Major, M. C., U. S. Army; Ernest Victor Keller, Major, M. C., U. S. Army, and Walter J. Dodd, Lieut., R. A. M. C., who were killed in the World War, the Massachusetts General Hospital's House Pupil's Alumni Association erected a large slate tablet bearing their names with a gilded star in front of each one, in the Treadwell Library of the hospital, which was unveiled, October 18, by Dr. Samuel J. Mixer, on the occasion of the seventy-fifth anniversary of Ether Day and the centennial of the opening of the Massachusetts General Hospital.

Hospitals Dedicate Circle.—Representatives of the Harvard Medical School, Mayor Peters, State Treasurer James Jackson, representing the commonwealth, and officers and nurses of the hospital dedicated the circle in front of the Harvard Medical School, October 18, in memory of Oscar C. Tugo, Base Hospital No. 5, who is believed to be the first enlisted man in the U. S. Army to be killed by the Germans. The ceremony was conducted by Rev. Malcolm E. Peabody, chaplain of Base Hospital No. 5. Wreaths were placed on the marker, taps were sounded, and the ceremony concluded with the playing of "The Star-Spangled Banner." The principal address was delivered by Surg. Gen. Merritte W. Ireland, who stated that the War Department will honor the memory of Oscar C. Tugo by naming for him a building at the Medical Field Service School, Carlisle Barracks, Pa.

Maternity Study.—For several years, measures for maternity aid have been under consideration by the legislature of Massachusetts. Some measures proposed financial aid; others attempted to deal with the problem as a matter of public health. The medical profession, as represented by the joint committee on legislation of the Massachusetts Medical Society and Massachusetts Homeopathic Medical Society, and the council of the Massachusetts Medical Society and various local societies have in general opposed any legislation for maternity aid. This subject has been referred to the next session of the legislature, which convenes next January. In February, 1921, the council of the Massachusetts Medical Society appointed a special committee of seven to study any measures for maternity and infant welfare. This committee added to its membership two representatives of the Massachusetts Homeopathic Medical Society, and on May 31 presented a unanimous report to the council pointing out that the published statistics gave a wrong impression because many so-called maternal deaths were not deaths at the time of confinement but were deaths included under the term puerperal state, and that therefore inferences drawn from the statistics were misleading. The committee believes, further, that comparative statistics, such as have been published in the professional and lay press, are not reliable because of changes and improvements in classification. As constructive suggestions, the committee recommended the development of obstetric wards, obstetric services and prenatal clinics in connection with existing hospitals and institutions as far as local conditions permitted. Adequate hospital records and greater accuracy in the filing of death certificates were also urged, as well as careful supervision of the licensing of lying-in hospitals. It has now been proposed that a letter of inquiry be sent to every physician in the state reporting a maternal death. It will be sent entirely impersonally and in no spirit of criticism. The replies will be confidential so far as names or any means of identification are concerned. The committee hopes to be able to point out ways in which the task of the physician, so far as it relates to obstetric practice, may be made easier and in which mortality and morbidity of mothers and infants may be lessened.

MICHIGAN

Hospital News.—The cornerstone of the new Saginaw General Hospital has been laid. The building will be erected at a cost of \$875,000, and will be equipped with all modern improvements.—Ground has been broken for the new Blucher Memorial and Research Hospital, to be erected at L'Anse at a cost of approximately \$150,000.

MINNESOTA

Medical Inspectors for Diphtheria.—The health commissioner of Minneapolis has appointed Drs. Henry J. Welles and Glen R. Matchen, senior medical inspectors of the health department, on the active list to answer calls and assist private physicians in making diagnoses of diphtheria suspect cases. With more than 150 cases of diphtheria in the city,

the board of public welfare considered this action necessary to prevent the further spread of the disease.

Society for Experimental Biology and Medicine.—A branch of the society organized in Minnesota held its first meeting, October 12, at the University of Minnesota, Minneapolis. Dr. Arthur D. Hirschfelder was elected executive secretary. There is only one other branch of the society. Dr. Edward Browning Meigs, U. S. Department of Agriculture, Washington, D. C., gave an address.

State Sanitary Conference.—The state board of health announces that its annual state sanitary conference will be held, November 3-5, at the University of Minnesota, Minneapolis. The assembling of county health officers is authorized by Regulation 10 of the state board of health. Public health agencies participating in the conference are: U. S. Public Health Service, the American Red Cross, the University of Minnesota, the state board of health, the state board of control, the state advisory commission for tuberculosis, the state dairy and food department, the state live stock sanitary board, the Minnesota Public Health Association and the American Waterworks Association.

MISSOURI

Personal.—The bipartisan state eleemosynary board, Jefferson City, elected Dr. Ethan E. Brunner, superintendent of the Farmington Hospital, to succeed Dr. Jesse L. Eaton.—Dr. Moses H. Topping, Flat River, has been appointed superintendent of the colony for the feeble-minded, Marshall.

NEW JERSEY

Hospital News.—Several new buildings will be added to the State Hospital, Morris Plains, at a cost of 163,117.—The contract has been awarded for the erection of the new maternity building at the Olean General Hospital, to be constructed at a cost of \$93,900.

Organization of New Society.—At the meeting held, October 14, at the Newark Academy of Medicine, a new association, to be known as the Professional Guild of Essex County, was organized with the object of amalgamating the professions of medicine, dentistry, pharmacy and nursing, for their scientific and material advancement, and to conduct an educational campaign for the public in health matters. The society will meet semiannually. The following officers were elected for the ensuing year: Dr. Frank W. Pinneo, president; Dr. David A. Kraker, treasurer, and Dr. Ambrose F. Dowd, secretary.

NEW YORK

Addition to Syracuse Hospital.—Work has been begun on an extension to the General Hospital of Syracuse which calls for the expenditure of \$40,000. A third story is being placed on the east wing of the building which will provide modern maternity rooms and a nursery to accommodate fifteen babies. A comprehensive plan for expansion in the way of professional services is being worked out by the medical staff of the hospital.

Medical Society's Centennial.—The one hundredth anniversary of the Erie County Medical Association was held, October 17, at Buffalo. Dr. John B. Deaver, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, gave an address on "Surgical Clinics," and Dr. Charles F. Hoover, professor of medicine, Western Reserve University, Cleveland, on "Medical Clinics." Dr. Irving W. Potter, Buffalo, spoke on "Demonstrations of Version."

Personal.—Dr. René Ledoux Lebard of Paris, France, addressed the historical section of the New York Academy of Medicine, October 13. The subject of his presentation was "Color Print Illustration of Medical Books up to the Year 1800"—Dr. George Herbert Ramsey of Olean has been appointed deputy commissioner of health in Michigan.—Sir Harold J. Stiles of Edinburgh, Scotland, delivered the Wesley M. Carpenter Lecture before the New York Academy of Medicine on the evening of October 20. His subject was "Surgical Tuberculosis in Children and Its Relation to the Milk Problem."—Dr. Frank F. Williams of Canton was recently elected president of the St. Lawrence County Anti-Tuberculosis Society.

New York City

New York Polyclinic to Be Reopened.—The New York Polyclinic Hospital will be vacated by the United States government and reopened in 1922, with enlarged facilities, as a graduate medical school. It is planned to give instruction in the various departments of medicine and surgery.

Movement to Introduce Physiotherapy.—A meeting of the Medical Association of the Greater City of New York was held, October 17, at the New York Academy of Medicine. A symposium on "Adapting to Civilian Practice the Newer Physical Treatment Methods Proved Out in the War Hospitals" was held.

OHIO

Medical Meeting.—The annual meeting of the Northwestern Ohio District Medical Association was held, October 7, at the Toledo Academy of Medicine. Drs. John F. Erdman and Herman Mosenthal, New York, gave addresses. Dr. Charles H. Clark, Lima, was elected president and Dr. W. C. Pay, Bellefontaine, vice president. Lima was chosen as the meeting place for the next annual session.

Personal.—Dr. Charles H. Clark, Lima, was elected president of the Northwestern Ohio District Medical Association at the annual meeting, held in Toledo, recently.—Dr. John H. H. Upham, professor of medicine, Ohio State University College of Medicine, Columbus, and former president of the Ohio State Medical Association, gave an address, October 18, at Lima, at the meeting for graduate medical study, under the auspices of the medical education committee of the Ohio State Medical Association.—Dr. Harold Newton Cole, Cleveland, gave an address on "The Treatment of Malignancy in Dermatology" at the meeting of the Ohio County Medical Society, October 7, at Wheeling, W. Va.

PENNSYLVANIA

Personal.—At the centennial celebration of McGill University, Montreal, Canada, the honorary degree of doctor of laws was conferred on Dr. Robert Tait McKenzie, professor of physiology, therapeutics and physical education, University of Pennsylvania, Philadelphia.—Dr. Lawrence Litchfield, Pittsburgh, president elect of the Medical Society of the State of Pennsylvania, read a paper "The Patient Himself," at the meeting of the Fayette County Medical Society, October 13, at Pittsburgh.—Dr. Arthur D. Cowdrick, Clearfield, has been appointed county health officer by the state department of health to succeed Dr. John W. Gordon, who resigned recently.—Dr. Harry Britton, Reading, has been appointed medical examiner for Cornell University, Ithaca, N. Y.

Philadelphia

Meeting of American Academy of Ophthalmology and Otolaryngology.—The annual meeting of the American Academy of Ophthalmology and Otolaryngology was held during the week of October 22, at the Bellevue Stratford Hotel. The following officers were elected: Dr. Walter R. Parker, Detroit, president; Dr. Ross H. Skillern, Philadelphia, vice president; Dr. W. L. Benedict, Minnesota, vice president; Dr. John J. Shea, Tenn., vice president; Dr. S. H. Large, Cleveland, treasurer, and Luther C. Peter, Philadelphia, secretary.

VIRGINIA

State Medical Meeting.—At the fifty-second annual meeting of the Medical Society of Virginia, held, October 18-21, at Lynchburg, under the presidency of Dr. Alfred L. Gray, Richmond, the following officers were elected for the ensuing year: president, Dr. Edward C. S. Taliaferro, Norfolk; first vice president, Dr. John Staige Davis, University; second vice president, Dr. Clarence Porter Jones, Newport News; third vice president, Dr. J. Beverly DeShazo, Ridgeway, and secretary-treasurer, Mr. G. H. Winfrey, Richmond (reelected). By a majority of two to one the society endorsed the majority report for the establishment of the Medical Department of the University of Virginia in Richmond.

WASHINGTON

Hospital News.—A nurses' home will be erected in connection with the Sacred Heart Hospital, Spokane, at a cost of \$240,000.—The Siloam Sanatorium, Soap Lake, consisting of 140 rooms, has been entirely destroyed by fire.—Mount Carmel Hospital, Colville, has been remodeled.—A hospital will be constructed at Okonogan in cottage style.—The new Detention Hospital, Tacoma, will accommodate thirty patients. It was originally the city hall annex.

Personal.—Dr. Frederick W. McKnight, Cle Elum, has been appointed health officer, to succeed Dr. Charles F. Stafford, resigned.—Dr. Perley R. Brenton, health officer of Tacoma, has resigned and will be succeeded by Dr. Joseph

P. Kane, Tacoma.—Dr. William H. Morse, Bureau of War Risk Insurance, Seattle, has been transferred to Spokane to the U. S. Public Health Service to succeed Dr. Frederick B. Nather.—Dr. Herman S. Judd, U. S. Public Health Service, Seattle, has been assigned to the Cushman Hospital, Tacoma, to succeed Major William Elder, resigned.

WISCONSIN

Personal.—Dr. Hugo P. Siefert was elected president of the Milwaukee Physicians Association at the annual meeting.—Dr. Harry M. Guilford, former Minneapolis health commissioner, has been appointed to the bureau of communicable diseases, Wisconsin State Board of Health, effective, October 12.

License Lost or Stolen.—A report states that Dr. Francis R. Janney, Milwaukee, has had his license to practice medicine in Wisconsin stolen; at least, it has disappeared from his office. The license was dated July 1, 1920, and was No. 5258. State board secretaries are advised to be on the lookout for it.

CANADA

Hospital News.—Dr. E. L. Proctor, director of the Freeport Tuberculosis Sanatorium, Kitchener, Ont., resigned his position, October 17. Dr. Proctor has been in charge since the hospital was opened by the army medical board shortly after the beginning of the war.—Dr. Kenneth Maitland, Brighton, Ont., and Dr. Homer McCuaig, Cornwall, Ont., have been recently appointed to the medical staff of the Rockwood Hospital, Kingston, Ont. Both are graduates of Queens University, and for some time have been on clinics at this hospital.

University News.—Dr. C. W. Service, Canadian medical missionary, at present in China organizing a medical and dental college at Chengtu, has made an appeal to the people of Canada through Dr. Walter Willmot, Toronto, to subscribe funds to aid him in this work.—A proposal was submitted to the Baptist convention at St. Thomas last Friday to offer a free site to McMaster University, Toronto, if it would locate in Hamilton. It was proposed to give a free site at Tyrell's Point, which is about ten minutes' motor ride distant from the center of the city of Hamilton. About 70 per cent. of the students now attending McMaster University come from within a radius of 40 miles of Hamilton.

Public Health News.—At a recent meeting of the executive committee of the Canadian Public Health Association, held recently in Toronto, a resolution was passed urging the government at Ottawa to appoint a dominion minister of health. Among those present were Dr. Henry E. Young, Victoria, B. C.; A. Grant Fleming, Toronto; Charles Hastings, Toronto; Gordon Bates, Toronto; William J. Bell, Toronto; Robert R. McClenahan, Toronto; John W. S. McCullough, Toronto, and John G. Fitzgerald, Toronto.—John W. S. McCullough, M.D., chief officer of health for Ontario, has informed the Lindsay Council that the matter of a laboratory for Lindsay will be brought to the minister's attention when the estimates for next year are under consideration.

Personal.—Dr. Clarence L. Starr, chief surgeon of the Hospital for Sick Children, Toronto, has resigned to accept the appointment of professor of surgery at the University of Toronto.—Dr. Murdock Mackenzie, Honan, China, gave an address on the contrast between the lives of Chinese and Canadian women, at the annual meeting of the Westminster Women's Auxiliaries, at Toronto, recently.—Dr. Graham Chambers, Toronto, who was lost in the woods near Port Arthur, Ont., September 29, was found by the searching party, October 13, on the shores of Deer Lake, in a very weakened condition. He had not tasted food for thirteen days, did not have matches, and his feet were slightly frozen. He described his trouble as akin to trench foot. Dr. Chambers is now convalescing at Fort Frances, Ont., and his present condition is reported as being favorable.

GENERAL

Christmas Seal Sale.—The National Tuberculosis Association announces the fourteenth annual Christmas seal sale for the benefit of the fight against tuberculosis. It is reported that there are 1,000,000 active cases of tuberculosis in the United States and 130,000 deaths yearly from the disease, averaging 120 per hundred thousand population. Seventy-five

thousand lives a year have been saved as compared with the death rate of fifteen years ago.

New Medical Society.—The Southern Society of Anesthetists will be organized at the annual meeting of the Southern Medical Association, to be held, November 14-17, at Hot Springs, Ark. Information may be obtained from Dr. William Hamilton Long, 1922 Deer Park Avenue, Louisville, Ky., organization secretary.

American Child Hygiene Association.—The annual meeting of the association, formerly known as the American Association for the Study and Prevention of Infant Mortality, will be held, November 2-5, at New Haven, Conn., with Dr. Joseph I. Linde in charge of the clinics. The program will include the following subjects: coordination of local, state and national child health activities; health education in the home; psychology of health education; rural problems—nutrition, habits, and county centers; day nurseries; special problems of directors of divisions of child hygiene; nursing, teaching methods and equipment in health programs for the child under 6 years of age, and volunteer workers.

Bequests and Donations.—The following bequests and donations have recently been announced:

Cornell University, Ithaca, N. Y., \$1,500,000, for a new chemical laboratory, by George F. Baker, New York City.

Harvard University, Boston, \$200,000 for the study of the origin and cure of cancer, to be known as the Elizabeth Worcester Mills Fund in memory of his wife by the will of Hiram F. Mills.

Fifth Avenue Hospital, New York City, \$100,000, for the completion of the building by T. F. and H. E. Manville; \$60,000 from an anonymous donor, and \$20,000 from Mrs. E. C. Converse, Greenwich, Conn.

Manhattan Eye and Ear Hospital, New York; the Masonic Hospital, Ithaca, N. Y., each \$10,000 by the will of Mrs. Jemina S. Simms.

Episcopal Hospital and Chapin Memorial Home for the Blind, Phila., each \$10,000; Pennsylvania Society to Protect Children from Cruelty, \$4,000; Episcopal City Mission, \$4,000; Children's Seaside Home, Atlantic City, N. J., and the Visiting Nurses' Society, each \$3,000; Seaside Home for Invalid Women, Atlantic City, \$2,000; Christ Home for Children, Angora, the Home of the Merciful Saviour for Crippled Children, the Children's Hospital, the Pennsylvania Society for Prevention of Cruelty to Animals, the Franklin Home for Inebriates, each \$1,000; Philadelphia Lying-In Charity, \$800, and \$500 to the Episcopal Hospital for memorial tablets to decedent's parents and the Douglas Memorial Hospital, under the will of Emily Dutilleul.

University of Pennsylvania, \$10,000 to the trustees for the maintenance of beds in the orthopedic ward of the University Hospital, Philadelphia, in memory of her parents, S. and K. E. Conrad, by the will of Edith E. Collins.

Jewish Consumptive Institute of Philadelphia, \$1,000; Jewish Sheltering Home, \$500; Mount Sinai and the Jewish Hospital, each \$200, by the will of Annie Wexlar.

Serbian Commission Visits American Medical Institutions. Under the auspices of the Rockefeller Foundation, a commission of medical men from Belgrade, Serbia, consisting of Dr. G. J. Nikolitch, undersecretary and first medical officer of the ministry of health, Dr. G. Joannovitch, professor of pathologic anatomy, and Dr. R. Stankovic, professor of internal medicine of the Belgrade medical faculty, are visiting American medical institutions. October 14, the commission visited Toronto, later going to Montreal and Cleveland. The members were entertained at the Western Reserve University Medical School and a dinner was given them by the faculty at the Cleveland University Club. October 20, they arrived in Chicago, remaining until October 26. The time was occupied in visiting all of the medical institutions of the city, particularly those showing industrial medicine and the handling of contagious diseases. They were entertained by the faculties of the various medical schools, and attended the Pasteur Lecture and banquet given by the Institute of Medicine. Following the visit to Chicago, the commission went to Rochester, Minn., and during the coming weeks will visit the University of Iowa, the Washington University, St. Louis, the University of Cincinnati, and medical institutions in Baltimore, Philadelphia and Washington, D. C., finishing their tour in New York.

New Regulations for Narcotic Drugs.—The Commissioner of Internal Revenue, under date of October 19, has issued instructions to narcotic agents and other officials concerned in the enforcement of the Harrison law, amending the instructions issued July 31, 1919, in regard to the application of the law to the treatment of incurable diseases and drug addicts. Regarding the use of narcotics in the treatment of acute disease, the Commissioner holds that "without reference to the question of addiction, a physician acting in accordance with proper medical practice may prescribe or dispense narcotics for the relief of acute pain or for any acute condition, such as influenza, pneumonia, renal calculi, broken limbs, etc." This practically gives the physician the right to use narcotic drugs for actual disease conditions, in accordance with the recognized usage of the medical profession.

Regarding the use of narcotics in the treatment of incurable diseases, the Commissioner instructs his agents that "a reputable physician directly in charge of bona fide patients suffering from diseases known to be incurable . . . may . . . strictly for legitimate medical purposes, dispense or prescribe drugs for such diseases, provided (1) the patients are personally attended by the physician, (2) that he regulate the dosage, (3) and prescribes no quantity greater than that ordinarily recommended by members of his profession¹ to be sufficient for the proper treatment of the given case." If the patient, through carelessness, secures more narcotics than are necessary, the physician will be held responsible. The prescription must show the date, the full name and address of the patient and describe in indisputable terms the exact nature of the ailment for which issued. It is not lawful, under any circumstances, to place in the hands of an addict, through prescription or otherwise, a sufficient quantity of narcotic drugs to last a week. In incurable, aged, and infirm cases, geographically isolated, the physician may, at his own risk, upon obtaining permission from the narcotic agent in charge of the district, prescribe or dispense a week's supply or more provided it is placed in the custody of a responsible nurse or attendant. Accurate records must be kept of such prescribing and administration.

Regarding the use of narcotics in the treatment of addicts, mere addiction alone is not regarded as incurable disease. The new instructions divide the addicts into two classes: (a) those suffering from infirmity or old age, who are confirmed addicts of years' standing and who, in the opinion of a reputable physician in charge of the case, require a minimum amount of narcotics in order to sustain life. Such addicts may be treated in the same manner as those suffering from incurable disease. A responsible physician may prescribe or dispense the minimum amount necessary to meet the absolute needs of the patient. The physician will be held responsible for the results. The physician issuing such a prescription must state on the prescription that the patient is aged and infirm, the age of the patient and the fact that the drug is necessary to sustain life. (b) Ordinary addicts must be treated in accordance with the experience of the medical profession, which is that ordinary cases yield to proper treatment, that so-called reductive ambulatory treatment is not effective and that any method of treatment which makes no provision for confinement during withdrawal is a failure in the great majority of cases. The bureau will not, under any circumstances, sanction the treatment of addicts where the drugs are placed in the addicts' possession or where the treatment covers more than thirty days or the patient is not confined in a proper institution. If a physician places narcotic drugs in the possession of an unconfined addict, such action will be regarded as showing lack of good faith. Doubtful cases or those not falling within any of these instructions will, upon request, be investigated and special instructions based upon the recommendations of the inspecting officers will be issued.

LATIN AMERICA

Election of Officers.—The *Amazonas Medico* brings word of the reelection of Dr. A. da Matta as president of the Sociedade de Medicina e Cirurgia do Amazonas; Dr. Galdino Ramos is vice president, and Dr. Fulgencio Vidal and Dr. Linhares de Albuquerque are the secretaries.

FOREIGN

Italian Congress of Medical Women.—Dr. Carcupino-Ferrari organized a conference of the women physicians of Italy at Salsomaggiore, October 14-16.

New Health Journal.—It has been announced by the Federation of Medical and Allied Sciences that a journal entitled *Health* will be published weekly in England.

United States Medical Standards for China.—Under the direction of the Philadelphia College of Pharmacy and Science, the United States Pharmacopeia is being translated into the Chinese language, so that American medical standards may be adopted.

Radium Hospital.—A new hospital has recently been opened at Manchester, England, to be used exclusively for radium treatment. In 1920, 8,000 treatments were given by the Manchester and District Radium Institute at the Royal Infirmary, Manchester, for the treatment of cancer in its various stages. This is the first hospital of its kind to be opened in Great Britain.

1. Italics ours.

Eightieth Birthday of Professor Murri.—A delegation from various medical societies, the medical department of the army, and scientific organizations brought a floral tribute to Augusto Murri, September 7, his eightieth birthday, and others showered him with congratulations. Murri celebrated the day, himself, by presenting the Bologna province seaside sanatorium with 100,000 liras, bringing to 500,000 his total donations to this institution. He was Baccelli's assistant until appointed professor of clinical medicine at Bologna.

The Cataract Memorial.—As mentioned on page 1192, the city of Tournai in Belgium was the scene recently of the unveiling of a memorial to Michel Brisseau. The *Scalpel* describes it as a bronze tablet placed on the church where he was baptized. The tablet bears the inscription: "A Michel Brisseau, 1675-1745, Bienfaiteur de l'Humanité pour la démonstration du siège de la cataracte. Erigé par un comité franco-belge d'ophthalmologistes. 25 Septembre, 1921." Brisseau's "Traité de la Cataracte et du Glaucome," published in 1709 at Paris, was dedicated to Messire Guy Crescent Fagon, the king's body physician, and it was reproduced in a limited edition with all its old illustrations, characters and parchment, as mentioned in the previous notice. Tournai was the scene of a famous tourney when Henry the Eighth, Maximilian of Austria, Margaret, the regent of the Netherlands, and Charles of Castille were gathered there. This famous tourney was reproduced in a pageant there in 1913.

Cause of Explosion at Oppau.—The *Medizinische Klinik* relates that this explosion and a similar one a few months ago in Silesia have revealed hitherto unsuspected properties in the mixture of ammonium sulphate and ammonium nitrate. At Oppau, 4,000 tons of the mixture were in a silo. It is hard, and pieces have to be chopped off. While ammonium nitrate has explosive properties, it requires so much energy to cause that reaction that this salt has been regarded as a safe substance. Some chemical transformation may have rendered it explosive, or the chopping off may have caused the explosion. Pieces had been safely chopped off up to the very morning of the day of the explosion. In the Silesia explosion a carload of ammonium nitrate exploded as it was being unloaded. The mixture of *ammonsulfat* and *ammonsalpeter* is used in production of fertilizers, and this has never been regarded as a dangerous trade. Our exchange adds that scientific and industrial safety research now have a responsible task before them in solution of the questions raised by this explosion.

Memorial to Lombroso.—The unveiling of the memorial to Cesare Lombroso at Verona was an imposing event, September 25, with procession, and fifty banners, with representatives of the government and medical and legal sciences, delegates from numerous scientific organizations in Italy and elsewhere and official representatives of France, Belgium, Switzerland and Spain. Twenty-three nations contributed to the fund for erection of the monument, which is the work of the sculptor Bistolfi. Lombroso was lauded as the apostle of the transformation of the prison from a place of punishment to a clinic for restoration to moral health. He was professor of psychiatry at Turin, but he was born at Verona. He died in 1909, three years after the Sixth International Congress of Criminal Anthropology had convened at Turin on the occasion of the fiftieth anniversary of his entering on his professional career. The inauguration of the monument was followed by a banquet at which Prof. Ugo Lombroso, his son, presided. The official ceremonies were in the theater in the evening where addresses were made by Antonini on Lombroso's work in combating pellagra, etc., and by Ferri on his work in criminal anthropology. Telegrams were read from Max Nordau, Murri and numbers of others.

Deaths in Other Countries

Dr. Lalit Mohan Banerji, Bengal, India, died from jaundice in July.—Dr. G. Hunter, examiner in physiology, Royal College of Surgeons, Edinburgh, author of "Galvanism in the Treatment of Neuritis," aged 79.—Dr. Herluf Arendrup, secretary of the permanent pharmacopeia commission of Denmark, and surgeon major.—Dr. E. G. A. ten Siethoff of Gravenhage, Netherlands, noted as an otologist and for his works on crystallography, the microphysical study of urine, etc.—Dr. L. C. H. Goossens of Rotterdam.—Dr. Hölker, of the Prussian ministry of the interior, killed in a street railway accident.—Dr. A. Casali, professor of ophthalmology at the University of Florence.—Dr. A. Debrunner-Albrecht, a Swiss gynecologist, aged 63.—Dr. P. Lupo, formerly professor of surgery at the University of Naples, aged 76.

Government Services

Veterans' Bureau Takes Over Naval Hospital

Fort Lyon, the naval tuberculosis hospital located in Colorado, has been transferred from the Navy Department to the U. S. Veterans' Bureau and will be used in the future for the treatment of tuberculous ex-service men. Naval patients afflicted with pulmonary troubles, who were inmates of Fort Lyon, were transferred to the Fitzsimmons General Hospital conducted by the Army at Denver for further treatment. Naval patients at Fort Lyon, who were too ill to be safely removed, will remain there indefinitely.

Decentralization in Care of Veterans

District managers of various regional offices of the U. S. Veterans' Bureau have been holding conferences in Washington for the purpose of decentralizing the work of the bureau and conferring powers on these regional directors for prompt aid to ex-service men. The President has taken a hand in the work by sending direct instructions that there must be rapid and effective efforts made to give World War veterans immediate attention in the way of hospitalization, compensation and vocational training.

Legislation for Additional Hospitals for Veterans

An appropriation of \$16,000,000 for the construction of additional hospital facilities to provide medical, surgical and hospital services for former service men is contained in a bill introduced by Representative Langley of Kentucky, chairman of the House Committee on Public Buildings and Grounds. The money is supplementary to the \$18,500,000 appropriated at the last session of Congress, the total of which has already been disbursed with the exception of \$1,339,000. In the new Langley measure \$15,500,000 will be used for hospitals and extensions to present facilities to be distributed under the supervision of the Secretary of the Treasury. The other \$500,000 carried by the bill will be assigned to the purchase of additional land and for the erection of new buildings at the Mount Alto institution. Representative Langley presented his bill after extensive conferences with representatives of the Treasury Department and with officials of the American Legion. It was agreed that this appropriation in addition to the \$18,500,000 already being used would be sufficient.

Colonel Forbes Denounces Present Vocational Training Methods

Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, has submitted a report to President Harding denouncing the present method of vocational training for disabled war veterans and recommending that a government vocational university be established. Colonel Forbes lays stress on the allegation that ex-service men at present taking vocational training are the victims of neglect as far as their physical welfare is concerned. He insists that the establishment of a central government university of vocational training will give the U. S. Veterans' Bureau the opportunity to care for their health and result in the upbuilding and the improvement of their physical well-being. He maps out an extensive program of turning Camp Sherman, Ill., into a large center for such training and states that this institution could be put into full operation giving training to thousands of disabled veterans within three months' time.

Speedway Hospital Renamed

It has been announced that the Secretary of the Treasury, with the President's approval, has designated the new Public Health Service hospital, formerly known as the Speedway Hospital, as the Edward Hines, Jr., Hospital, by request of the American Legion of Illinois, in honor of Edward Hines, Jr., Lieut., U. S. Army, who died in Chaumont, France, 1918. On Armistice Day the American Legion will plant a memorial avenue of trees in the grounds. A contract was awarded, October 24, for a recreation building at a cost of \$96,240. The hospital was erected at a cost of more than \$5,000,000, of which \$3,400,000 was appropriated by Congress and the remainder donated by Mr. and Mrs. Edward Hines.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 30, 1921.

More Diplomas of the "Oriental University"

In a previous letter (*THE JOURNAL*, Feb. 12, 1921, p. 461) I pointed out that the representative of the "Oriental University" of Washington, D. C., was offering for sale medical diplomas made out in France. *THE JOURNAL* pronounced at the time just censure on these peculiar offers, which cast regrettable and unjustified reproach on the medical instruction of the United States (*THE JOURNAL*, Feb. 12, 1921, p. 453). In France, also, this deplorable condition of affairs has aroused considerable indignation, and the minister of the interior has looked into the matter, as will be seen by the following letter addressed by the prefect of the police to the president of the syndicate of physicians of the department of the Seine:

Dear Sir:—I am informed by the minister of the interior that an institution terming itself the "Oriental University," the seat of which is at Washington, and which has established at Nice (33, rue Pasteralli) a branch establishment under the direction of Mr. Poulain de Marceval and Professor Dr. Comte Colloredo, is delivering, on the payment of sums ranging from 60 to 100 dollars (or the equivalent in francs), medical and dental doctor diplomas that are held to be worthless by competent American university authorities. I would therefore request that you be so kind as to put the members of your professional group on their guard against the activities of this organization. In case you know of persons practicing medicine without other show of authority than the possession of the diplomas issued by this organization, I would be obliged to you if you would give me their names.

Rights of Publishers with Respect to Manuscripts Offered Them for Publication

When the author of a scientific or literary work delivers to a publisher the manuscript of the work of his pen and asks him to publish it, the question arises as to what are the rights of the publisher when he consents to examine the manuscript. May he examine the manuscript not only from the commercial standpoint but also from the angle of the intrinsic value or the technical value of the work? If the publisher concludes that he is entitled to such rights, may he submit the manuscript to a specialist in order to secure his opinion? These questions are of interest to physicians and surgeons who enter into relations with publishers in regard to the publication of their works. The submitting of manuscripts to specialists has some delicate features. If it turns out that, as a result of the opinion rendered by a specialist, the publisher returns the manuscript to the author, saying that he does not desire to publish it, some fears may be entertained lest the specialist who examined the manuscript may take undue advantage of the privilege accorded him and may make use, to his personal gain, of the discoveries, the observations, etc., contained in the work in question. It may be feared that he will appropriate the main idea of the work—the original features in the conception of the author. It should be borne in mind that, in placing his work in the hands of the publisher, the author retains the exclusive rights thereto, so long as no contract or agreement between them has been entered into.

The *tribunal de commerce* of the department of the Seine recently had occasion to occupy itself with these questions in connection with a suit for damages brought by an author against the publisher to whom he had entrusted his manuscript. The court rejected the demand of the author, holding that the publishing trade, dealing as it does with works on widely different subjects, has the unquestionable right, with respect to inquiry into any matter, to examine into the publication of the manuscripts submitted to them, not only from the commercial standpoint, as regards the chances of success

of the publication or the risks of slow sale, but also from the angle of the intrinsic value of the work: the essentially new features, mode of presentation, utility, degree of general interest, etc., such a technical evaluation being of paramount importance in arriving at decisions in commercial affairs. Since, therefore, it is impossible to expect that a publisher can examine personally, from a scientific and literary standpoint, all the works submitted to him, he is of necessity compelled to have recourse to specialists in order to secure opinions on which to base his decisions. The publisher would be at fault only in case the counselors whom he employed, the choice of whom lies exclusively in his hands, did not present for the author all the guarantees of discretion that he has the right to demand. If it could be proved that the specialist to whom the publisher submitted the manuscript for an opinion abused the confidence placed in him by the publisher, the right of the author to recover damages would be unquestionable, since the work remains the exclusive property of the author. But when the author requests that his manuscript be published, it is not in contravention of his property rights to afford the publisher, who will often be compelled to go to heavy expense, if he publishes the work, an opportunity of inquiring carefully into his chances of not only getting back his original outlay but of also reaping a certain amount of profit from the sale of the work offered to him for publication.

Roentgenologists in Hospitals

The death of Dr. Charles Infroit, a victim of roentgen rays, having deprived the Salpêtrière roentgenologic laboratory of its director, the prefect of the department of the Seine has appointed as his successor a roentgenologist who is not a doctor of medicine. This appointment has aroused loud protests from the medical profession, and, more particularly, from the *Syndicat général des médecins français électro-radiologistes*. The president of this syndicate has addressed to Dr. Louis Mourier, director general of the board of public charities, a letter in which he emphasizes the desirability of conferring on doctors of medicine positions of responsibility in roentgenologic work in the hospitals. In fact, the establishment of a roentgenologic diagnosis at all worth while requires a technical knowledge of anatomy and clinical medicine such as only a physician can be expected to possess. In hospital practice the roentgenologist is the intimate collaborator of the physician and surgeon. At the present day, roentgenologic work in laboratories does not require so much the services of a skilful photographer and electrician. The main thing is the ability to interpret a roentgenogram or a fluoroscopic image—to point out their clinical significance. The president of the syndicate added that his protest was based furthermore on the formal opinion of the Academy of Medicine, which, as early as 1908, expressed the view that "posts of roentgenologists in hospitals should be held by doctors of medicine." Also the administrative council of the *Syndicat des médecins* of the department of the Seine fully endorsed the protest above mentioned.

BELGIUM

(From Our Regular Correspondent)

Oct. 4, 1921.

Proposed Changes in the Medical Curriculum

The commission appointed to examine into the questions pertaining to the proposed modifications in the medical curriculum, after a series of investigations covering a considerable period of time, has finally submitted its report to the Royal Academy of Medicine. From a strictly medical standpoint, the commission admits that the premedical course in the natural sciences should comprise two years of study. To a certain extent, the various studies that go to make up the

premedical course should be adapted to the special needs of the students pursuing them. For this reason, it seems advisable to establish somewhat divergent courses in physics, chemistry, zoology and botany to suit the requirements of these four classes: (1) medical students; (2) students of veterinary medicine; (3) future pharmacists and candidates for the degree of doctor in the natural sciences, and (4) future engineers (civil, electrical, etc.) and candidates for the doctor's degree in physics and mathematics. The instruction in the premedical course should comprise two years of study. It is recommended that a course in physiologic chemistry, with laboratory practice, be made an inherent and obligatory part of the regular premedical course. Every institute of physiology should include a laboratory for biophysical research, under the direction of a qualified person, who, in some instances, would be, at the same time, the director of the institute, and, under other conditions, an assistant. The course in comparative anatomy should be confined to the essential ideas, of interest to physicians. The duration of the studies for the doctorate should be three years. The course in internal pathology, external pathology, obstetrics, ophthalmology and psychiatry should be connected with the activities of the corresponding hospitals. Thus it would be possible to confine the theoretical instruction to the essential principles, and the drill work would be accordingly enhanced. At the same time, it would be possible to decrease the number of hours spent by the students on these courses. The course in pharmacology should be limited to the elements of pharmacognosy and pharmacography such as are absolutely indispensable to physicians. The course in pharmacodynamics should be chiefly experimental and accompanied by practical exercises. The essential principles of general and special pharmacology such as physicians need to know may be easily taught in connection with the instruction in pharmacodynamics. This is being done, at the present time, in several universities of Belgium. In other medical schools, on the other hand, separate and detailed instruction in special pharmacognosy, combined with general pharmacognosy, has been maintained. The commission condemned unanimously the latter system. A special therapeutic clinic where students may be taught to formulate and prescribe appropriate regimens is advocated. Students should be given, by a few practical lessons, some idea of roentgenology and physiotherapy. The course in general pathology should be confined to physiologic pathology. It should be an experimental course, accompanied by demonstrations and practical exercises. The following subjects should be omitted from the course in general pathology: (1) the ideas of chemical pathology; (2) immunity and the chapters connected therewith; (3) everything concerning neoplasms, and (4) all propedeutic theories. In fact, at the present time, no one person can compass the diverse and extensive knowledge demanded by the course in general pathology as conceived by the old curriculum and still applied in certain Belgian universities. It is very easy to restrict the course in general pathology to physiologic pathology and experimental pathology, and to entrust the ideas of chemical pathology, immunity, propedeutic theories and the field of neoplasms to professors who are especially qualified in these subjects, without increasing in any manner either the number of hours of instruction assumed by each teacher or the total number of professors. It is only a matter of dividing up the subjects in a more acceptable manner among the various instructors. The course in bacteriology and parasitology should be made obligatory and should be accompanied by demonstrations and practical drill work. The preliminary practical instruction in the medical and surgical policlinics should be given at the beginning of study for the doctorate, in order

that the students may, as early as possible, pursue to advantage the regular courses in the medical and surgical clinics. It is desirable to introduce into the regular curriculum an obligatory course, which must be, above all, practical, in the elementary principles of the various specialties that are indispensable to every practitioner. This course would require only a few hours of instruction. After the same manner, a short course in ophthalmology, which is so very important at the present time, should be given a place in the curriculum.

Medical Instruction and Examination

The instruction given in the medical schools should be, for the most part, objective and practical. Long dissertations should be reduced to a minimum, and when they do occur they should be accompanied by numerous demonstrations and observations. The majority of the courses should include practical drill work, during which the students should be aided by a number of assistants, monitors (senior pupils) and preparators. Overloading the course of study should be assiduously avoided. This may be accomplished by carefully limiting the duration of time given to each subject, in accordance with its importance. The medical faculties should draw up a detailed schedule of the subjects to be handled by the various professors, in order to avoid omissions and duplication of effort. It may possibly be advisable to restrict the use of the title of ordinarius to those professors who give the principal courses, in which the instruction continues throughout an academic year. Only such professors would be entitled to a vote at the faculty meetings. With reference to the relative importance of the various branches, the commission of the Royal Academy of Medicine adopted the following propositions: To the various courses and clinics, time should be assigned in accordance with their relative importance. Every course should be assigned to a period of the day at which there will be no conflicts. If a student has failed in his examination in one branch or several branches, he should not be allowed, during the next semester, to confine his work to the subjects in which he failed, unless he succeeded in obtaining seven tenths of the credits represented by all his subjects. If he secured less than seven tenths of his credits, the preceding semester, he should be obliged to take all the examinations at the end of the semester. Such a ruling exists in many foreign universities and seems to be just. The students of medicine have often demanded that it should be applied to them.

Training of Specialists

The commission held that it was not advisable to establish, as distinct from the examination for future medical practitioners, a second examination of a more narrow scientific nature, consisting, for example, mainly of a dissertation, which, while conferring the title of doctor of medicine, would not entitle the holder of the degree to practice medicine, but would take the place of the practitioners' examination as regards bacteriologists, anatomists, physiologists, etc. The commission regarded as dangerous such an innovation, which would create a category of laboratory men who would not have had the same training as the medical practitioners, and who, in consequence of their rudimentary clinical training, would run the risk of becoming ensconced in some narrow scientific field without comprehending the relations between their laboratory activities (whether applied to diagnosis or restricted to research) and the treatment and prevention of disease, which is the supreme goal of medical science.

The same motives induced the commission not to make any proposals in regard to splitting up the preparation and examination for the medical doctorate by creating special diplomas for internists, surgeons, ophthalmologists, roentgenologists,

etc. The commission was convinced that all physicians should have the same preparation and be given the same opportunity to learn all that is necessary in order properly to practice their profession. However, the commission expressed the desire to see inaugurated in every university a form of instruction designed to develop specialists (ophthalmologists, otologists, rhinologists, laryngologists, gynecologists, roentgenologists, etc.). The realization of such a plan would afford Belgian physicians an opportunity of specializing in a given field of medicine, after they had finished their general course.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 30, 1921.

Smallpox

The former Dr. Penna, president of the board of health, took great pride in the fact that he had eradicated smallpox from Buenos Aires through compulsory vaccination. Even in the provinces no epidemics occurred for a long time owing to the spread of vaccination, but just sporadic cases. Latterly, however, as the occurrence of an epidemic seemed most unlikely, people lost interest in vaccination. Unfortunately, this optimism must now vanish, as an epidemic has broken out in the province of San Juan. The disease apparently was imported from Chile. In a short time more than 1,000 cases occurred. The provincial board of public health has requested the assistance of the national department of health to control the epidemic. The national department has sent a commission to enforce vaccination and prophylactic measures. So much vaccine was sent that there is now a scarcity in the capital and coast provinces, where everybody wants to be vaccinated. At the vaccine institute they had to increase fivefold the number of calves furnishing vaccine. Even beyond San Juan some cases have already occurred, namely, at Cruz del Eje (Cordoba), and it is said to have appeared at Lanus, a ten minutes' ride from Buenos Aires.

Centenary of the University

Many celebrations were held to commemorate the centenary of the foundation of the University of Buenos Aires. Although the medical school was founded earlier, the reorganization of the faculties into one university took place on Aug. 12, 1820, thanks to the efforts of the progressive minister Rivadavia. The ceremonies were presided over by the president of Argentina, heads of departments, presidents of the two chambers of congress, the supreme court, rector of the university, deans, university boards, and others. Each school had in addition its own celebration. The medical school combined this ceremony with the closing exercises. A number of foreign delegates attended, among them Drs. O. Maira of Santiago, Chile, Brito Foresti of Uruguay, and Bruno Lobo of Brazil.

Bacteriologic Institute

After spending eight years in this country, Professor Kraus completed his contract with the national government and has given up the direction of the bacteriologic institute of the national department of public health. He has been engaged to head the bacteriologic institute of São Paulo (Brazil). Kraus' place will be taken by Dr. A. Bachman, professor of microbiology in the School of Medicine of Buenos Aires, and at present in charge of the antimalaria campaign at Tucuman. This appointment has made a very good impression. Dr. Kraus organized an important institute that produces large quantities of serums, vaccines and organic extracts which are supplied free of charge to hospitals, municipal and public assistance authorities and are sold to the people at a low price. He also organized some scientific laboratories that

have already done some valuable work. Unfortunately, during the last few years they rather went back than forward, as the government did not assist in the development of the institute, neglecting to fill vacancies in the higher positions, etc. Kraus made many studies on dengue, typhus fever, protein therapy, nonspecific therapy (especially in anthrax), Borna disease, goiter, and other diseases. His pupils have published many papers on serums and toxins (Sordelli), poisons (Houssay), dysentery (Riganti), leishmaniosis (Barbará y Neiva), etc. Before Kraus departed, a great banquet was given in his honor. More than 100 people attended, and speeches were made by Kraus himself and Drs. Araoz Alfaro, Lozano, Houssay and Sordelli.

Medical School of Rosario

Competing tests are now being held to appoint professors for the medical school of Rosario. The appointments so far made have been well received, although some of the appointees are mere beginners. The University Del Litoral has received an appropriation of 3,000,000 pesos, granted by the government. Over two thirds of this sum will go to the medical school of Rosario.

Interchange of Professors

Dr. Labbé, professor of general pathology and therapeutics in the medical school of Paris, is now here giving a series of lectures on nutritive diseases. The course includes twelve lectures and six biochemical demonstrations.—The annual interchange of professors with the University of Montevideo has already begun. Professor Butler has already come here and Prof. C. A. Castaño has been sent to Montevideo. —During his stay here, Prof. Bruno Lobo (Rio de Janeiro) gave two lectures, on "Biochemical Constitution of Living Beings" and "A Naturalist's Excursion to the Island of Trinidad."

PRAGUE

(From Our Regular Correspondent)

Oct. 4, 1921.

New Minister of Health

On September 20 the cabinet resigned and caused a change in the ministry of health where Dr. Proccházka has been replaced by Dr. B. Vrbensky. The new minister, although a dentist by profession, has had the full training of a physician as is usual in Czechoslovakia. He is a member of the national socialistic party and has been a member of two previous cabinets of the republic, once as minister of food control and once as minister of public works. Because of his political adhesion it is very likely that he will be able to overcome the opposition to the ministry of health which comes from socialistic parties. The resistance against the ministry grew so strong that some time ago it looked doubtful whether a minister of health would be reappointed in the new cabinet or whether the activities of the ministry of health would become a part of the ministry of social welfare. The opposition to the ministry was based chiefly on political reasons rather than any well grounded criticism and it is hoped that the nomination of a socialist to the position will solve the situation.

End of Medical Strike

The strike of the medical officers in the sickness insurance associations which has been progressing for three months has come to an end. The insurance associations declared their readiness to accept the conditions of the Central Organization of Czechoslovak Physicians. It was due to the loyal behavior of the physicians to their organization that about 75 per cent. of their demands have been obtained. The fees have been raised 50 per cent. and made retroactive to March

1. It was quite natural that bad feeling resulted between the medical profession and the socialists who control the insurance associations and that the socialists refuse to support any legislation favoring the medical profession.

Erection of State Institute of Hygiene

A contract has just been signed between the International Health Board of the Rockefeller Foundation and the Czechoslovak Ministry of Health with regard to the erection of State Institute of Hygiene in Prague. The project will cost 50,000,000 Cz. crowns. The Foundation contributes 27,000,000 and the Czechoslovak government will supply the rest. The institute will consist of a large central building, a smaller building for serology, stables, service buildings and a colony for employees. There will be divisions for bacteriology, serology, Pasteur treatment, control of drugs and foods, research laboratories in hygiene and a school of public health. The newspapers comment on the generous gift of the Foundation with recognition and point out its moral importance and significance to the young republic. The liability of the Foundation expires at the end of six years and therefore it can be hoped that by that time the project will be completed. It should be the most complete institute of hygiene in the world.

BERLIN

(From Our Regular Correspondent)

Sept. 30, 1921.

Increased Attendance of Women at Prussian Universities

According to recent statistics, there were 6,137 women studying in Prussian universities during the winter semester 1920-1921; among this number there were 325 foreigners. Of the total number, 4,832 were regularly matriculated students, while 1,305 had secured merely the privilege of attending lectures, not having presented evidence of maturity in the form of a diploma from a secondary school. The University of Berlin stands at the head of the list, with 1,830 students; the other universities presented the following figures: Bonn, 607; Cologne, 549; Breslau, 547; Münster, 493; Frankfurt, 487; Göttingen, 332; Marburg, 331; Königsberg, 298; Halle, 268; Kiel, 214; Greifswald, 181. Of the women students, 330 were under 20 years of age; 4,853 were between 20 and 30, and 954 over 30. The following statement will show their religious beliefs and tendencies: Protestant, 3,657; Catholic, 1,613; Masaic, 722. Seventy-five belonged to other confessions, while seventy admitted no religious beliefs. As to family connections, 5,761 were single, while 376 were married, widowed or divorced (separated). As to the circles of society from which they were sprung, 2,368 were from the families of higher public officials; 1,338 were of the mercantile class; 326 from the mechanics class, while 2,105 were from various other classes. By far the larger half were pursuing literary and philosophic studies, as may be seen from the following: philosophy (in the narrower sense), 480; philology (modern), 1,203, (ancient), 147; history, 312; art and history of art, 362; mathematics, 446; natural sciences, 530; agriculture, 53. Sixty-nine were studying theology; 183, law; 1,065, medicine; 162, dentistry, and 886, political science. As the purpose of their study, 1,625 designated "general culture"; 3,646, "preparation for examination in a given profession," and 866, "preparation for examination for doctor's degree." As to their previous scholastic preparation, it may be noted that 2,351 were graduates of a *Realgymnasium* (Latin but no Greek); 593 had finished the classic gymnasium (Greek and Latin training); 491 had completed the course of an *Oberrealschule* (no ancient languages); 741 had been admitted to university study on the basis of diplomas from secondary schools for girls, supplemented by additional study controlled

by entrance examinations, while 1,537 were admitted by reason of having passed the state teachers' examination.

It is instructive to compare these figures with those of former years: For example, the total number of women students during the winter semester of 1908-1909 was 1,680 and in the summer semester of 1914, 2,896. In the winter semester of 1918-1919 the number had risen to 5,131, and in the winter semester of 1920-1921 to 5,131. With respect to age, the increase concerns mainly the age-group under 30, while the figures for the ages above 30 have not changed materially. As regards the various branches of study, medicine seems to have been especially attractive to women, since the war. The number of women studying medicine at the present time is almost ten times that of the period twelve years back. The increase in the fields of law and political science is much the same. A comparison of the numbers belonging to the various confessions shows the great increase among Catholics. Whereas the increase among other faiths was only threefold, the increase among Catholics was tenfold. From a sociological standpoint it is interesting to note that the mechanics and day laborers classes are furnishing an ever increasing number of women students.

With reference to preliminary scholastic training, changes may be noted. Whereas, in the winter semester of 1908-1909, of the 1,680 women students, only 347 held diplomas from secondary schools of high standing, in the winter semester of 1920-1921, 3,435, or more than 50 per cent., presented such evidence. Finally, as for the purpose of study in general, the change that has come about is especially worthy of remark. Whereas, as recently as twelve years ago, the extension of general culture was given as the main reason for study, now, definite goals of a professional nature are coming rapidly to the front.

Pamphlet for the Enlightenment of the People in Regard to Cancer

The executive committee of the society for cancer research and control (das deutsche Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit) has published a pamphlet on cancer, for general distribution among the people.

Marriages

WILLIAM HOUSTON TOULSON, Baltimore, to Miss Helen Goodwin Joynes of Accomac County, Va., at Baltimore, October 15.

ERNEST FREDERICK RUSSELL, New York, to Miss Elizabeth Otis Buckingham of Pasadena, Calif., at Chicago, October 20.

ELDEN CHARLES BAUMGARTEN, Detroit, to Miss Emma Elizabeth Edkfeld of Unionville, Mich., October 17.

WELDON BRANCH KILTON, Harvel, Ill., to Miss Mildred Long of Monticello, Ill., October 5.

RALPH HENRY KUHN, Seattle, to Miss Margaret Sloss of Ross Valley, Calif., September 14.

PAUL WINTER WILLITS, Grand Rapids, Mich., to Miss Alice Reese of Chicago, September 14.

JOSEPH R. TURNER to Miss Clauddeana Toulon, both of Tacoma, Wash., September 1.

FREDERICK W. O'BRIEN, Boston, to Miss Sara A. Green, Brookline, Mass., October 10.

HOWARD F. ROOT, Boston, to Miss Hester Livingston King, at Baltimore, October 8.

BURTON R. CORBUS, Grand Rapids, Mich., to Miss Harriet Cooper, August 6.

WILKES ADAMS KNOLLE to Miss Helene Fredrichs, both of New Orleans.

JOHN BOECK to Miss Minnie L. Goffy, both of Boise, Idaho, September 10.

Deaths

Milton Howard Fussell ♂ Philadelphia, University of Pennsylvania, Philadelphia, 1884; died October 15, on a railroad train en route to Williamsport, Pa., from acute dilatation of the heart, aged 66. Dr. Fussell was physician to the University Hospital, physician in chief to the medical dispensary and professor of applied therapeutics at the University of Pennsylvania; pathologist at St. Timothy's Hospital and physician to the Episcopal and Chestnut Hill hospitals. He was a member of the Philadelphia Pediatric Society; the Association of American Physicians; the College of Physicians, Philadelphia; the Philadelphia Neurological Society and the Pathological Society of Philadelphia. He was editor of "Tyson's Practice of Medicine" and author of "Differential Diagnosis of Internal Diseases, in Monographic Medicine." Dr. Fussell was chairman of the section in pharmacology and therapeutics, 1907; representative of the section on therapeutics in the House of Delegates of the American Medical Association in 1909, and representative for the state of Pennsylvania, 1911-1912. He served also as second vice president at the U. S. Pharmaceutical Convention and as a member on its committee on revision.

George A. Phillips, Bar Harbor, Me.; Medical Department of the University of the City of New York, 1882; member of the Maine Medical Association; at the time of his death was serving his second term in the Maine legislature; president of the board of trade; member of the board of health and the school board; formerly U. S. Pension examiner; during the World War served on the Bar Harbor Exemption Board; died, October 9, from chronic nephritis, aged 67.

William Edward McGuire ♂ Richmond, Va.; University of Virginia, Richmond, 1886; emeritus professor of clinical medicine, Medical College of Virginia; former president of the Richmond Academy of Medicine; member of the Southern Surgical and Gynecological Association, and the American Gastro-Enterological Association; at one time professor of gynecology, University College of Medicine, Richmond; died, October 7, from heart disease, aged 61.

William Advance Potter, St. Louis; College of Physicians and Surgeons of St. Louis, 1892; Marion-Sims College of Medicine, St. Louis, 1895; member of the Missouri State Medical Association; served as captain, M. C., U. S. Army, during the late war; physician in charge of the Jewish Clinic and the clinic of the University of St. Louis; died, September 2, from pneumonia, at the Deaconess Hospital, aged 51.

Frances Peleg Sprague, Boston; University of Maryland, Baltimore, 1857; member of the Massachusetts Medical Society; veteran of the Civil war; formerly a surgeon at the Massachusetts Charitable Eye and Ear Infirmary, Boston; member of the American Ophthalmological Society, and the Boston Society for Medical Improvement; died, October 8, aged 88.

Myron M. Reppard ♂ Middlebourne, W. Va.; College of Physicians and Surgeons, Baltimore, 1892; president of the Tyler County Medical Association; several times mayor of Middlebourne; served in the World war as examining physician for Tyler County; died, October 5, from injuries received when his automobile ran over him, aged 54.

Ira Darius Spencer, Croghan, N. Y.; Eclectic Medical College of the City of New York, 1889; health officer of Croghan; member of the Medical Society of the State of New York; member of the state legislature, 1902; died, October 11, at a hospital in Watertown, following a surgical operation, aged 54.

Edward S. Kiley, Pawtucket, R. I.; College of Physicians and Surgeons (Columbia University), New York, 1894; member of the Rhode Island Medical Society; former president of the Pawtucket Medical Society; at one time a ship surgeon; died, October 12, after a long illness, aged 52.

Marcus C. Kerr, Wilkensburg, Pa.; Starling Medical College, Columbus, Ohio, 1892; member of the staff, Emergency Hospital of the Carnegie Steel Company, Carnegie, Pa.; died, October 9, in the Columbia Hospital, from injuries received when his automobile collided with a truck, aged 57.

Meigs Jackson Bartlett, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1895; at one time president of the Glenville and Parkersburg Railroad Company; died, October 11, from blood poisoning, aged 61.

Henry C. Shutte ♂ West Plains, Mo.; Missouri Medical College, St. Louis, 1881; ophthalmologist to the U. S. Pension Department; at one time president of the Missouri State Medical Association; died, October 12, in Chicago, from carcinoma of the throat, aged 63.

David Hobart Richardson, Barrington, Ill.; Rush Medical College, Chicago, 1882; member of the Illinois State Medical Society; school president and member of the board of trustees since 1895; died suddenly, October 16, from heart disease, aged 68.

Lloyd Moss Bergen ♂ Highland Park, Ill.; Rush Medical College, Chicago, 1889; head of the Highland Park board of health; former surgeon for the Chicago Northwestern Railroad and Northwestern Military Academy; died, October 17, aged 56.

Herman A. Brav ♂ Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; member of the Philadelphia Pediatric Society; was taken ill on a trolley car, October 12, and died on the way to the hospital, aged 51.

John David Riker ♂ Pontiac, Mich.; University of Michigan, Ann Arbor, 1890; mayor of Pontiac, 1904; member of the Detroit Oto-Laryngological Society; died, October 8, from cerebral meningitis, aged 55.

Samuel N. Willis, Vine Grove, Ky.; Louisville Medical College, 1878; member of the Kentucky State Medical Association; also a druggist; died, September 26, from bronchopneumonia, aged 70.

Paul H. V. Dejoie, New Orleans; Flint Medical College of New Orleans University, 1895; the first colored physician to pass the Louisiana State Board of Medical Examiners; died, October 7, aged 49.

Charles Miller Foss, Dexter, Me.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; a practitioner for more than half a century; died, October 9, from chronic nephritis, aged 74.

José Celso Barbosa, San Juan, P. R.; University of Michigan, Ann Arbor, 1880; member of the Medical Association of Porto Rico; member of the senate of Porto Rico; died recently, aged 63.

David Strack, York, Pa.; Jefferson Medical College, Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; died, October 4, from cerebral hemorrhage, aged 65.

Thomas Clayton Frame, Dover, Del.; University of Pennsylvania, Philadelphia, 1866; also graduated in law from the University of Pennsylvania; died, October 3, aged 81.

John F. Graves, Juno, Tenn. (license, Tennessee, 1910); member of Tennessee State Medical Association; died suddenly, October 7, from cerebral hemorrhage, aged 41.

David Richard Ginn, Dennisport, Mass.; Medical School of Harvard University, Boston, 1872; veteran of the Civil war; died, October 2, from cerebral hemorrhage, aged 80.

Harold B. Anderson ♂ Beloit, Wis.; College of Physicians and Surgeons (University of Illinois), Chicago, 1884; died, October 7, following a surgical operation, aged 56.

Josiah S. Hedges, Cleveland; Medical Department of the Western Reserve University, Cleveland, 1890; died October 9, from cerebral hemorrhage, aged 64.

Eli Denny, Nassau, N. Y.; Eclectic Medical College of the City of New York, 1888; died suddenly, October 4, in his garage, from heart disease, aged 65.

Albert W. Carson, Richland, Kan.; Medical College of Ohio, Cincinnati, 1875; practitioner for nearly half a century; died, September 29, aged 71.

William Francis Beckett, Titus, Ala.; Atlanta (Ga.) Medical College, Atlanta, 1856; practitioner for over fifty years; died, October 4, aged 88.

Bert Coffey, Connorsville, Ind.; Eclectic Medical College, Cincinnati, 1895; died, October 9, following a long illness, at Straughn, Ind., aged 50.

Everett Shipley, Seaford, Del.; College of Physicians and Surgeons, Baltimore, 1891; died, October 2, from angina pectoris, aged 65.

Isaac P. Gould ♂ Bellevue, Ky.; Medical College of Ohio, Cincinnati, 1891; died, October 3, from acute nephritis, aged 50.

S. John Frazer ♂ Detroit; Michigan College of Medicine, Detroit, 1885; died, September 30, aged 63.

Willis C. R. Ford, Lisbon, La.; University of Nashville, Tenn., 1899; died recently, aged 48.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

SAL HEPATICA

Sal Hepatica is a saline laxative sold by the Bristol-Myers Company of New York. Little information is given or, apparently, ever has been given, concerning the composition of this product. Many years ago the stock medical journal advertisement contained this statement:

"Composition.—Sal Hepatica contains all of the Tonic, Alterative and Laxative Salts of the celebrated 'Bitter Waters' of Europe, especially those of Bohemia, as determined by actual chemical analysis of these waters, and fortified by the addition of Lithium and Sodium Phosphates."

Sal Hepatica no longer "contains all the tonic, alterative and laxative salts . . .," etc., for the label on a package recently purchased reads:

"SAL HEPATICA is an effervescent saline combination possessing medicinal properties similar to the natural 'Bitter Waters' of Europe, and fortified by the addition of Sodium Phosphate."

In 1909, the *Druggists Circular* published an analysis of Sal Hepatica which showed that the preparation contained only 0.04 per cent. of lithium phosphate. By referring to the two quotations just given it will be noticed that today the manufacturers make no claim that their preparation is fortified with any salt of lithium. A circular accompanying recent trade packages states:

"Sal Hepatica is composed solely of harmless salts, being absolutely free from Acetanilid, Phenacetin, Caffein, Calomel, opium or coal tar derivatives."

Since neither the names nor the amounts of the "harmless salts" are mentioned, the composition of Sal Hepatica is secret. It is a trick of the nostrum exploiter, old but ever popular, to mention numerous drugs which his preparation does *not* contain; it helps to distract attention from the fact that he does not tell what the preparation *does* contain!

In the old-time medical journal advertisements, one reads: "Sal Hepatica is the most powerful solvent of Uric Acid known." (The same advertisement as it appeared in those days in THE JOURNAL shows that claim toned down to: "Sal Hepatica is a powerful solvent of Uric Acid"). In those easy-going days Bristol-Myers Co. declared that: "Diabetes is treated with decided advantage by means of Sal Hepatica . . . it . . . possesses the property of arresting the secretion of sugar in the liver." In the old days, too, Sal Hepatica was recommended in the treatment of cirrhosis of the liver, Bright's disease, gravel, phthisis, etc.

The present advertising circular recommends Sal Hepatica as an eliminant, laxative or cathartic in Gout, Autointoxication, "Bilious Attacks," Rheumatism, Acute Indigestion, Catarrhal conditions of the stomach, Pyorrhea, Headache, Dizziness, Heart Burn, "Summer Complaints," "Derangements of the Stomach and Liver," Skin Diseases, Colic, Alcoholic excesses, and as a "preventive of Seasickness."

In 1914 the Council on Pharmacy and Chemistry published² a report on Sal Hepatica declaring it secret in composition and sold under exaggerated and unwarranted claims.

In view of the inquiries which THE JOURNAL continues to receive it seemed worth while to make a chemical examination of the present-day product. Accordingly specimens were purchased and analyzed in the A. M. A. Chemical Laboratory. The report that follows was submitted by the chemists:

"Sal Hepatica is a white, granular, odorless powder. It effervesces on the addition of water in which it eventually dissolves. The aqueous solution, after boiling to remove carbon dioxid, has an acid reaction to litmus.

"Since a great many medicinal substances are sold in effervescent form, and since practically no information is

given by the manufacturer concerning the composition of Sal Hepatica, it became necessary to test for a considerable number of therapeutic agents. The absence of acetanilid, acetphenetidin, alkaloids, ammonium salts, benzoates, caffeine, citrates, heavy metals, hexamethylenamin, magnesium, potassium, salicylates and sugars was demonstrated by appropriate tests. The presence of a carbonate (probably in the form of a bicarbonate), a phosphate, a sulphate, a chlorid, tartaric acid, sodium and traces of lithium was shown by qualitative tests.

"Quantitative analysis indicated that the composition of the specimens examined was essentially as follows:

Sodium phosphate, anhydrous.....	4.4 per cent.
Sodium sulphate, anhydrous.....	26.5 per cent.
Sodium tartrate, anhydrous.....	12.7 per cent.
Sodium bicarbonate	19.5 per cent.
Tartaric Acid, free.....	20.8 per cent.
Sodium chlorid	8.9 per cent.
Lithium phosphate	trace
Water of hydration (by difference).....	7.2 per cent.

"From the results of the analysis, it appears probable that the composition of the mixture before 'granulation' was approximately as follows:

Sodium phosphate	4 per cent.
Sodium sulphate	25 per cent.
Sodium bicarbonate	30 per cent.
Tartaric Acid	30 per cent.
Sodium chlorid	8 per cent.
Lithium phosphate	trace
Water of hydration (by difference).....	3 per cent.

"Sal Hepatica, therefore, is essentially an effervescent mixture of dried sodium sulphate (Glauber's salt) and sodium tartrate with a little dried sodium phosphate and table salt added. It is similar to the effervescent artificial Carlsbad Salt described in the National Formulary.

"In 1909 the *Druggists Circular* published the following analysis of Sal Hepatica:

Sodium phosphate	29.80 parts
Sodium sulphate (Glauber's salt).....	26.27 parts
Sodium bicarbonate (baking soda).....	18.00 parts
Sodium chlorid (salt).....	13.05 parts
Lithium phosphate	0.04 parts
Citric and tartaric acids (to make 100)...	12.84 parts

"A comparison of the recent analysis with the earlier one would seem to indicate that considerable changes have been made in the formula since the first examination. The proportions of sodium phosphate have been greatly reduced, while the sodium bicarbonate and tartaric acid have been increased and the citric acid entirely eliminated."

Sal Hepatica, then, is a simple effervescent saline laxative, essentially secret in composition and sold under claims that would be laughed at were the full formula of the product a matter of public knowledge. The following journals advertise this product:

Medical Woman's Journal
Southern California Practitioner
Therapeutic Gazette
Western Medical Times
Memphis Medical Monthly
Archives of Pediatrics
Eclectic Medical Journal
Hahnemannian Monthly
Journal of National Medical Association
International Journal of Surgery
Medical Sentinel
Indianapolis Medical Journal
Medical World
Journal-Lancet
Medical Critic and Guide

Medical Times
American Medicine
Medical Brief
Laryngoscope
Medical Record
Medical Review of Reviews
New York Medical Journal
Medical Herald
Chicago Medical Recorder
Medical Standard
Southern Medicine and Surgery
American Journal of Clinical Medicine
Medical Summary
Western Medical Review
Albany Medical Annals

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Euca-Mul.—The Edward G. Binz Co., Los Angeles, Cal., in December, 1920, shipped a quantity of Euca-Mul which the federal authorities declared misbranded. The federal chemists reported that analysis showed the preparation to consist essentially of oil of eucalyptus, sugars, glycerin, gum, water and alcohol. The preparation was labeled in part:

"Euca-Mul . . . in croup . . . bronchial asthma, tuberculosis, whooping cough and other throat and lung affections. . . .
"Relieves . . . bronchial asthma.
"Especially effective in cough of phthisis and whooping cough."

These claims were declared false and fraudulent "in that the said article contained no ingredient or combination of

1. Some of the Sal Hepatica advertising has claimed that it "is a saline combination with the addition of Sodium Phosphate and Lithia Citrate!"

2. THE JOURNAL A. M. A., Feb. 7, 1914, p. 472.

ingredients capable of producing the effects claimed." In March, 1921, judgment of condemnation and forfeiture was entered and the Edward G. Binz Co., having entered an appearance as claimant, the court released the product to the company on payment of the costs of the proceedings and the execution of a bond, conditioned in part that the product be relabeled under the supervision of the Department of Agriculture.—[Notice of Judgment No. 9338; issued Sept. 24, 1921.]

Kalina Tablets.—A quantity of Kalina Tablets were shipped in part by J. M. Rutkowski, Buffalo, N. Y., and in part by the Kalina Co., Buffalo, N. Y., in May, October and December, 1920. The Bureau of Chemistry reported that analysis showed the tablets to consist essentially of plant extractives



including cascara, aloes, pepper and strychnin. Some of the claims made on or in the trade package for these tablets were:

- "Health Restorer For . . . Nervousness, Palpitation of the Heart, Female Troubles, Catarrh, Liver and Kidney Diseases, Headache."
- "A Great Blood purifier."
- "For Tired Feeling, Dizziness, Poor Appetite, Piles, Pimples on Face, Skin Troubles and all Blood Disorders."

These and a multitude of similar claims were declared false and fraudulent and in April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9337; issued Sept. 24, 1921.]

Howell's Lymphine Tablets.—In February and August, 1920, Charles H. Howell & Co., New York, shipped a quantity of Howell's Lymphine Tablets which the federal authorities declared were misbranded. An analysis made by the Bureau of Chemistry disclosed that the pills consisted essentially of iron (ferrous) carbonate, nux vomica, aloes, and phosphorus. Some of the claims made for these pills were:

- "Restore nerve and brain tissues."
- "Relieve all form of weakness . . . not only alleviate but in many cases cure mental and physical diseases . . . such as Neurasthenia or Nervous Prostration, Depleted Nerve Force, Impoverished or Impure Blood, Diseases of the Digestive or Eliminative System, Nervous Dyspepsia, Female Disorders attendant on the Change of Life, Irregularities of Uterine Troubles generally, etc."
- "Improve vital powers in both sexes."
- "Of inestimable value to sufferers from locomotor ataxia."



These claims, naturally, were declared false and fraudulent "in that the said article contained no ingredient or combination of ingredients capable of producing the curative and therapeutic effects claimed." In April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9308; issued Sept. 24, 1921.]

Wampole's Phosphorus, Nux and Damiana.—A quantity of a product labeled "Phosphorus, Nux and Damiana" consigned by Henry S. Wampole Co., Baltimore, and shipped in June and July, 1920, was declared misbranded. Analysis showed that the preparation consisted of the three drugs

named. The charge of misbranding was brought because of the claims made for the preparation. The article was labeled in part:

- "For an exhausted nervous system, Nervous weakness & Lost Vitality, Impotence, Insomnia, Hysteria, Nervous Depression and other Diseases of the Brain & Nerves Of Both Sexes."
- "Renewing Strength, Restoring Lost Vitality and Increasing All The Physical Powers."

These claims were declared "false, fraudulent and misleading" and applied "with a knowledge of their falsity for the purpose of defrauding purchasers." In December, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9322; issued Sept. 24, 1921.]

Correspondence

THE PREVALENCE OF INTESTINAL PROTOZOA AND RELATED ORGANISMS IN PORTO RICO

To the Editor:—During the summer of 1921, I had an opportunity to examine the stools of a number of natives in Porto Rico who were not suffering from intestinal disturbances and very few of whom had ever been away from the island. Specimens from fifty-five persons were obtained through the kindness of Drs. Hernández and Morales of the Sanidad in San Juan; from fourteen persons with the aid of Dr. R. B. Hill at Quebradillas, and from fourteen persons at the Presbyterian Hospital at Santurce. These specimens were examined within six hours after they were passed and usually within two hours. A small piece of fecal material was emulsified in distilled water on a slide, and nearby another portion of the stool was rubbed up in an aqueous solution of iodine with 2 per cent. potassium iodide. A single cover glass was then placed on the two drops. Living, motile organisms and cysts were looked for in the unstained area, and stained specimens in the portion mixed with the iodine solution. About fifteen minutes were devoted to the examination of each slide, and only one preparation was studied from each stool. By this method it was not expected that all the parasites present would be observed, since experience has shown that two, three or more samples must be examined from one case from stools passed at different times before the species of intestinal protozoa present can be determined with any degree of certainty; but a general idea of the prevalence of these organisms was obtained, and this was the object of the undertaking.

The number of persons examined was 83; the number found to be infected, 75. The organisms and the number of cases in which they were found were: *Blastocystis hominis*, 36; *Endameba coli*, 30; *Endameba histolytica*, 10; *Endolimax nana*, 6; *Iodameba bütschlii*, 5; *Giardia intestinalis*, 8; *Trichomonas hominis*, 3; *Chilomastix mesnili*, 3; *Spirochaeta euglyrata*, 1.

As might be expected from what we already know of intestinal protozoa, the motile flagellates were all found in loose stools. A rather large percentage of cases contained motile amebas mostly in formed stools. Of these there were five with *E. coli* and one with *E. histolytica*. Double and triple infections with different species of protozoa and with protozoa and worms of various species were the rule, but there was apparently nothing significant in the combinations observed.

The vital statistics of Porto Rico prepared by the commissioner of health include data that are of peculiar interest with relation to intestinal parasites. The commissioner's annual report indicates an average annual mortality of 24 per thousand inhabitants. Infant mortality accounts for 44.71 per cent. of the general mortality. This is due principally to four causes: (1) congenital debility, (2) rickets, (3) infantile tetanus and (4) enteritis, under 5 years. Diarrhea

and enteritis are the reported causes of almost one third of these deaths. The various types of enteritis are not distinguished in the commissioner's report, but the importance of this condition indicates a vital need for investigation. The situation is very favorable for the study of the relation of protozoa to intestinal disturbances which will help determine the degree of pathogenicity of the various species. It is hoped that some one will be able to take advantage of the wonderful opportunity presented by the prevalence of intestinal protozoa in Porto Rico to carry on investigations that may lead to a better knowledge of the rôle these parasites play in cases of diarrhea and enteritis, and to a general advance in the hygienic conditions on the island.

ROBERT W. HEGNER, PH.D., Baltimore.

Associate Professor of Protozoology,
School of Hygiene and Public
Health, Johns Hopkins University.

EARLY REFERENCES TO CANCER

To the Editor:—Cancer is not mentioned in the cuneiform texts. The Authorized Version has canker in 2 Tim. 2, 17: Their word will eat as doth a canker. The Latin Bible renders cancer, but the Greek original has gangrene, and this has been substituted for canker in the Revised Version. The Authorized Version gives gangrene in the margin. Greek γάγγραινα is derived from γράλνειν, to eat, to gnaw. The Arabic names for cancer are saratân, which denotes a crab, and âkilah, which means eating. Sartân is used also in Syriac and modern Hebrew. In modern Arabic, ri'ayah is used for itching, gangrene and cancer. Some of the great Arabic dictionaries, which were compiled after the last crusade (1270), state that saratân is "a black-biliary tumor which begins like an almond, and smaller; and when it becomes large, there appear on it veins, red and green, resembling the legs of a crab (saratân). There is no hope for its cure; and it is treated medicinally only in order that it may not increase." They also say that "this disease sometimes affects a man in his fauces, having relation to the blood and resembling the dubâilah," (i. e., a perforating ulcer). "Some say it is the disease called dâ'al-fil." (i. e., elephantiasis). We know now that the filarial form of elephantiasis is due to very slender parasitic worms (*Filaria sanguinis-hominis*). It may be spread by the agency of mosquitoes. The ancients could not distinguish between melanosis, gangrene, noma, perforating ulcer of the foot, pachydermia, nevus araneus, etc.

In the story of the Egyptian plagues (which was written about 500 B. C.) soot is said to have produced swellings breaking into ulcers, not boils breaking forth with blains, as the Authorized Version renders in Exodus 9, 10. The English Bible also has ashes of the furnace instead of soot, but the word used in the Hebrew original means soot. The Greek Bible has αἰθάλη, soot. The epithelioma seen in chimney-sweeps is supposed to be due to the irritating action of soot on the skin. But the sixth Egyptian plague was neither soot cancer nor bubonic plague nor smallpox nor anthrax (splenic fever); it refers to furunculosis orientalis, i. e., tropical ulcers on the face, neck, hands, arms and feet, known as Biskra button, Aleppo boil, Delhi sore, Bagdad date-mark, &c. They last about a year and leave ugly scars. They are due to minute parasites (*Hiclosoma tropicum*) which are very similar to the Leishman-Donovan bodies constantly found in certain tropical fevers, especially in Indo-Burma. They seem to be transmitted by bedbugs. The Leishman-Donovan-Wright bodies were not discovered before the beginning of the present century. The words "and upon beasts" in Exod. 9, 9.10 represent a later addition.

PAUL HAUPT, Baltimore.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CONVERSE TREATMENT FOR EPILEPSY

To the Editor:—If you can, please advise me of the composition of the "Converse Treatment for Epilepsy" made by the Converse Co., 30 Smith Plane Ave., Columbus, Ohio; proprietor Herbert E. Sanderson.

R. W. THOMPSON, M.D., Wesleyville, Pa.

To the Editor:—The enclosed treatment for epilepsy was brought to my attention by one of my patients. Can you furnish me any information regarding the same?

C. M. SWINDLER, M.D., Pittsburgh.

To the Editor:—Please advise if you have any information concerning the Converse Treatment for epilepsy sold by the Converse Treatment Co., Columbus, Ohio. If you have no information concerning the above preparation please advise how I may obtain an analysis of the same.

C. A. DOUTHUR, Clayton, N. M.
Field Agent, U. S. Public Health Service.

ANSWER.—The Converse treatment, with a number of other alleged cures for epilepsy, was investigated a few years ago and an article published on this nostrum in the Propaganda department of THE JOURNAL, April 24, 1915. The matter has been reprinted in full in the pamphlet "Epilepsy Cures" (15 cents). A condensed report of the American Medical Association Chemical Laboratory on this preparation reads:

Essentially each 100 c.c. of the solution contains about 7.3 gm. ammonium bromid, 5 gm. calcium bromid and 8.7 gm. potassium bromid. Calculating from the bromid determination, each dose 1 teaspoonful (1 fluidram) contains the equivalent of 14.5 grains of potassium bromid, or each daily dose (4 teaspoonfuls) corresponds to 58.0 gr., potassium bromid.

RESULTS OF EXPOSURE TO OXYGEN DEFICIENCY

To the Editor:—I have read with interest and appreciation Haggard and Henderson's article on "The Treatment of Carbon Monoxid Poisoning" (THE JOURNAL, Oct. 1, 1921, p. 1065). While it covered very completely the stage or condition of poisoning that it was intended to cover, namely, asphyxia, there has come under my observation another stage or sequela of carbon monoxid poisoning concerning which there is practically no information to be had, either in textbooks or medical journals. Either this condition referred to does not exist pathologically, or else no effort by those competent to do so has been made to discover it. The symptomatology is the best description of this form of apparent monoxid poisoning that I am able to give.

Before going farther with this subject, I should state that Pittsburgh is in the center of the large Kansas coal field, employing in this district approximately 12,000 coal diggers. Many cases of gas poisoning occur here annually and are of two varieties; monoxid poisoning following explosions which occur quite frequently during the fall, winter and spring, and which are usually fatal, and dioxid poisoning, which is occurring almost constantly in spite of the most approved methods of ventilation. Men work in the latter form of poisoned air for days, sometimes weeks, leaving the mine, at the end of the day's work, with a splitting headache and sometimes slight nausea, which wears off during the night, the man returning again in the morning to his work only to repeat the same experience; at length, he becomes incapacitated for work and about this time he consults the physician. His symptoms, varying according to the length of time the exposure has existed, almost always include headache, coated tongue, loss of appetite, and constipation. There is usually trembling of the fingers and tongue, when the latter is protruded. Almost all of these patients suffer from dyspnea, and this is true even when careful auscultation fails to discover râles in the lungs or valvular lesion of the heart. There is seldom pain anywhere, the most frequent and persistent subjective symptoms being weakness and inability to work; these symptoms continue for weeks and months in men who, up to the time of exposure to the poison, had reputations for energy and industry, and took pride in the large amount of coal they could produce. Some of these patients present a condition very much like miasmatic or malarial poisoning, but antimalarial agents do them no good, although there is plainly derangement of the liver, spleen and the digestive organs generally.

Is there a special or peculiar pathology following prolonged exposure to poisonous gas, and is it to be found in the blood, nerve centers or elsewhere?

A. J. DODDS, M.D., Pittsburg, Kan.

ANSWER.—It is probable that when our correspondent speaks of carbon dioxid poisoning he refers to what miners call "black damp." "Black damp" was formerly supposed to owe its effects chiefly to carbon dioxid. It has been shown, however, that these effects are in reality much more largely due to deficiency of oxygen. "Black damp" is essentially air in which by various chemical processes (reaction with iron pyrites, coal, etc.) the oxygen has been greatly reduced. In

Some cases "black damp" contains very little carbon dioxide. The effects of breathing "black damp" or air deficient in oxygen are essentially like those due to sudden exposure to great altitude, as in the case of aviators and mountaineers, and like those of considerable but not fatal carbon monoxide absorption in the blood. The clear description given by our correspondent of the signs and symptoms induced by prolonged daily exposure to oxygen deficiency leaves little to be added. It is a condition both in miners and in aviators remarkably like the staleness or overtraining of an athlete. It is an asthenic disorder in which the physiologic conditions are incompletely and the pathologic conditions almost completely unknown. In England experiments have been tried, with some apparent success, in which patients suffering from this disorder were kept for several days or weeks in a cabinet in which the air was enriched with oxygen. Rest and symptomatic treatment are, however, all that present knowledge indicates as generally applicable.

TREATMENT OF PSORIASIS

To the Editor:—Please let me know through Queries and Minor Notes what is considered the "latest" as to the etiologic factors in the causation of psoriasis. Is there anything "new" in treatment?

G. C. GILES, M.D., Oakland, Iowa.

ANSWER.—There is nothing new in the treatment of psoriasis that justifies hope that we have made any advance. The most satisfactory are the old methods of treatment with tar, chrysarobin, and ammoniated mercury that have been in use for many years.

MICAJAH WAFERS—ALCRESTA LOTION—STABLE SOLUTION OF STRYCHNIN—GOFFE OPERATION FOR UTERINE PROLAPSE

To the Editor:—1. What is the composition of Micajah's Uterine Wafers? Could a preparation of this class be of any benefit? Also Alcresta Lotion.

2. Please give an aqueous vehicle for dispensing strychnin that will not readily be decomposed.

3. In which issue of THE JOURNAL is the Goffe operation for uterine prolapse and cystocele described? If not in THE JOURNAL, in which other publication?

L. T. A. HOTTEN, M.D., Paris, Idaho.

ANSWER.—1. Micajah's Medicated Wafers (formerly called "Micajah's Medicated Uterine Wafers") were analyzed in the American Medical Association's Chemical Laboratory in 1910. They were found to consist essentially of dried "burnt" alum, boric acid and borax in about the following proportions:

Alum (dried)	59.9 per cent.
Borax (dried)	15.6 per cent.
Boric acid	5.7 per cent.
Water of hydration.....	18.8 per cent.

In 1919 the Council on Pharmacy and Chemistry (THE JOURNAL, Nov. 29, 1919, p. 1715), in reporting on this product, showed that whatever virtues might be possessed by the proprietary are those inherent in such well known astringents as alum, boric acid and borax. "Micajah's Medicated Wafers" are an excellent example of mischievous proprietary medicines. Physicians using this will be likely to overlook or pass over new growths, specific infections and diseases that require radical remedial measures.

According to a circular in our files, "Alcresta Dental Lotion-Lilly" contains "Emetin, the active amebicidal principle of Ipecac, together with Benzoic Acid, Thymol, Eucalyptol and Aromatics." The theory that emetin is an active amebicide against pyorrhea alveolaris has been exploded. In this connection it is interesting to note that the firm does not list the product in the latest catalogue in our files.

2. Strychnin sulphate is stable in aqueous solutions; at times it may be advisable to acidulate the solution slightly with diluted sulphuric acid in order to overcome alkalinity of the glass container which might precipitate the free alkaloid.

3. Goffe's operation for uterine prolapse and cystocele was described in THE JOURNAL, Sept. 3, 1898, p. 508; *Tr. Am. Gynec. Soc.* 22:235, 1897; *Am. J. Obst.* 35:865, 1897; *Med. News* 71:361, 1897; *Am. Gynec. & Pediat.* 11:825, 1897; *Tr. Am. Gynec. Soc.* 27:107, 1902; *Am. Gynec.* 1:355, 1902.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Montana April Examination

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held at Helena, April 5-7, 1921. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College.....	(1921)	87.6	89.1
University of Maryland.....	(1911)		80.8
John A. Creighton Medical College.....	(1917)		83
Baylor University	(1920)		90.4
Milwaukee Medical College.....	(1903)		82.3
Wisconsin College of Physicians and Surgeons.....	(1902)		80.2
University of Naples.....	(1897)*		77.6

College	FAILED	Year Grad.	Per Cent.
Northwestern Medical College, St. Joseph.....	(1893)		59

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1920)		Washington
Columbia University	(1905)		Washington

* Graduation not verified.

Ohio May-June Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, May 31 to June 3, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 186 candidates examined; 177 passed and 9 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1920)		81.3
Northwestern University	(1921)		81
Johns Hopkins University.....	(1920)	75.4	79.9
Harvard University	(1920)		87.7
St. Louis University School of Medicine.....	(1921)		78
Eclectic Medical College.....	(1921)		75
76.4, 76.8, 77.5, 77.9, 78.3, 78.7, 78.8, 79.8, 80.3, 80.4, 80.5, 81, 81.6, 82.2, 82.9, 83, 83.2, 83.4, 84.8, 85.9, 86.2, 86.2, 87, 89.7			
Ohio State University College of Homeopathic Med.	(1921)		76.1
81.8, 82.6, 83, 83.8, 84.2, 87.1			
Ohio State University College of Medicine.....	(1917)		83.5
(1921) 79.3, 79.3, 80.5, 80.8, 82.2, 82.5, 82.7, 82.9, 83.1, 83.2, 83.3, 83.4, 83.6, 83.9, 84.2, 84.3, 84.5, 84.5, 84.5, 84.6, 84.7, 84.8, 85, 85.1, 85.3, 85.5, 85.7, 85.7, 86.3, 86.9, 87, 87.1, 88.5, 91, 92.6			
University of Cincinnati College of Medicine.....	(1921)		77.1
77.3, 77.5, 78, 78.2, 78.2, 78.9, 78.9, 79.3, 79.4, 79.4, 79.9, 80, 80.1, 80.2, 80.3, 80.3, 80.3, 80.4, 80.5, 80.5, 80.7, 80.8, 81.5, 82, 82, 82, 82.2, 82.3, 82.4, 82.5, 82.7, 82.7, 82.9, 82.9, 83.1, 83.1, 83.1, 83.1, 83.4, 83.5, 83.8, 84.6, 85.2, 85.7, 85.7, 88, 89.8, 90.3			

Book Notices

Western Reserve University.....(1919)	84.3,
(1920) 85.2, (1921) 77.6, 78.4, 78.6, 80.1, 80.9, 81.2,	
81.7, 81.8, 81.9, 82, 82, 82.3, 82.3, 83.3, 83.4, 83.6,	
84.3, 84.7, 84.7, 85, 85.5, 86, 86.2, 86.4, 86.7, 86.9,	
86.9, 87, 87.2, 87.2, 87.5, 87.8, 92	
Hahnemann Med. College and Hosp. of Philadelphia..(1920)	80.7
Jefferson Medical College.....(1920)	77.9
Temple University.....(1919)	76
University of Pennsylvania.....(1916)	80.5
University of Pittsburgh.....(1920) 76.5, (1921) 82.7, 87.1	
Woman's Medical College of Pennsylvania.....(1920) 82.9, 88.4	
Meharry Medical College.....(1921)	77.2
Medical College of Virginia.....(1920)	77.6
University of Toronto.....(1920)	82
University of Budapest....(1896)* 75** (1912)* 75† (1914)*	75.8,
(1916)* 80.7, (1917)* 75.6	
University of Padua.....(1918)*	75

FAILED

Loyola University.....(1918)	66.7
Eclectic Medical College, Cincinnati.....(1921) 69.2, 73.6	
Meharry Medical College....(1918) 68.3, (1920) 69.8, (1921)	67.2*
National University, Athens.....(1913)*	64.1
University of Budapest.....(1917)*	65.3
University of Palermo.....(1918)*	57.4

Dr. H. M. Platter also reports that 32 candidates were licensed by reciprocity at the meeting held July 5, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California.....	(1907)		Oklahoma
Hahnemann Medical College and Hospital of Chicago	(1919)		Illinois
Illinois Medical College.....	(1902) Mississippi, (1905)		Illinois
Loyola University.....	(1919), (1921, 2)		Illinois
Northwestern University.....	(1920, 2)		Illinois
Rush Medical College.....	(1906)		Illinois
College of Physicians and Surgeons, Chicago.....	(1909)		Illinois
American Medical College, Indianapolis.....	(1897)		Indiana
College of Physicians and Surgeons, Baltimore.....	(1887)		W. Virginia
University of Michigan Medical School.....	(1917), (1920)		Michigan
St. Louis University School of Medicine.....	(1920)		Missouri
Lincoln Medical College.....	(1910)		Nebraska
Columbia University.....	(1919)		New York
Medical Department of the University of the City of New York.....	(1877)		Missouri
Eclectic Medical Institute.....	(1908)		Indiana
Pulte Medical College.....	(1893)		Kentucky
Jefferson Medical College.....	(1902), (1912)		Penna.
University of Pennsylvania.....	(1918)		Iowa
University of Pittsburgh.....	(1917), (1918)		Penna.
Meharry Medical College.....	(1897) Arkansas, (1906)		Alabama,
(1918) Kentucky, (1920, 2) Missouri			
Medical College of Virginia.....	(1920)		Virginia

* Graduation not verified.

** 6.3 per cent. given for years of practice.

† 1.6 per cent. given for years of practice.

Nebraska June Examination

Mr. H. H. Antles, secretary, Department of Public Welfare, reports the written examination held at Lincoln, June 7-9, 1921. The examination covered 9 subjects and included 90 questions. An average of 70 per cent. was required to pass. Of the 72 candidates examined, 70 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Hahnemann Medical College and Hospital of Chicago..(1901)			1
University of Illinois.....(1921)			1
Creighton Medical College.....(1921)			19
University of Nebraska.....(1921)			46
Eclectic Medical College, Cincinnati.....(1921)			1
Jefferson Medical College.....(1920)			2

FAILED

Creighton Medical College.....(1921)	2
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Wyoming June Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, June 6-8, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the two candidates examined, 1 passed and 1 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Osteopath.....			80.5

FAILED

St. Louis College of Physicians and Surgeons.....(1917)	*
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College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Little Rock....(1911)			Tennessee
Rush Medical College.....(1876)			Iowa
Indiana University School of Medicine.....(1919)			Indiana
Lincoln Medical College.....(1898)			Nebraska

* No grade given.

ORTHOPAEDIC SURGERY OF INJURIES. By Various Authors. Edited by Sir Robert Jones, K.B.E., C.B., F.R.C.S., Director of Orthopaedics, St. Thomas's Hospital, Liverpool. Two volumes. Cloth. Price, \$18. New York: Oxford University Press, 1921.

In these two volumes are described the growth and development, in the British orthopedic centers during the great war, of what has hitherto been termed orthopedic surgery, but which may now be better designated as reconstructive surgery. To the editor of this work, Sir Robert Jones, the British War Office assigned the task of developing these hospitals. The beginning was a 250-bed hospital. At the end of the war, there were 30,000 beds. With the development of this phase of work, it may be said that orthopedic surgery as a specialty or division of general surgery died and reconstructive surgery took its place. The result of what was learned by British reconstructive surgeons is contained in these two books. The first chapter of Volume I is devoted to a discussion, by Arthur Keith, of the principles and practice of Hugh Owen Thomas. Goldthwait of Boston contributes a chapter on the principles of orthopedic surgery as they apply to military needs. Jones writes on malunion of the femur, ankylosis, stiff joints and flail joints. His views are so well known that it is needless to repeat them here. Elmslie's chapter on amputations will appeal to surgeons. It is very full, although concise, and the subject matter is well illustrated. Lynn-Thomas describes the organization and equipment of centers for the limbless in England. The second volume is devoted to the discussion of injuries of the nerves, the head, the spine, functional and reflex disabilities, and the use of splints, plasters, electricity, massage, exercises and hydrotherapy in the treatment of orthopedic cases. It is interesting to note that the chapter on the scheme and organization of curative workshops is written by former King Manuel of Portugal, and is based on his activities during the war. The organization and administration of a military orthopedic hospital is described by Walter Hill, who was in charge of the military orthopedic hospital, Shepherd's Bush, London, during the greater part of the war. On the whole, this work is the result of extensive observation by men who were qualified, who were keen observers, and who were able to come to conclusions which cannot fail to be of value to any one who is interested in the rehabilitation of the physically incapacitated.

DIE RÖNTGENDIAGNOSTIK DER INNEREN ERKRANKUNGEN. Von Dr. Herbert Assmann, A. O. Professor der inneren Medizin, Oberarzt der Medizinischen Klinik in Leipzig. Paper. Price, 330 marks. Pp. 696, with 633 illustrations. Leipzig: F. C. W. Vogel, 1921.

The increasing tendency on the part of internists to equip themselves with facilities for roentgen-ray work renders it necessary for them to become acquainted with the various phases of roentgenology. The subject is so large and the literature so voluminous that it requires not only a large library, but, even more, considerable time, to go through the enormous literature and pick out what is of particular value in one's respective line. There are numerous books dealing with special phases of roentgenology, but this seems to be the first one sufficiently comprehensive to be of just the value to the internist that he would desire. The scope of the book is encyclopedic. Every subject that might be either directly or remotely connected with diseases of internal medicine is fully covered. Both the normal and the pathologic conditions are described. The subjects covered are: the heart and large blood vessels; the gastro-intestinal tract, including the liver, pancreas and spleen; pneumoperitoneum; the urinary tract, including pyelography; cranial and intracranial conditions; inflammatory and degenerative conditions of the osseous system. Considerable space is devoted to many of the borderline conditions, such as rickets, joint infections, bony changes in organic diseases of the nervous system, the chondrodystrophies and osteomalacia. There are countless illustrations in the nature of diagrams and reproductions, with twenty charts all excellently done and accompanied by complete descriptive legends. There are numerous citations of cases, both of the author and of others. There is an

extensive bibliography of European sources, mostly German; there are few references to American writers, and none at all later than 1913. Considerable stress is laid on the rôle of the blood vessels as furnishing the shadows in the normal lungs. Assmann will not accept the roentgenologic evidence of tuberculosis without a knowledge of the clinical course. While the Dunham tree is mentioned, the name of Dunham is omitted. Experience in the army has led the author to conclude that in no case in which a history of previous infection was not given was a large heart found, in the soldiers he examined. There is a large table giving the maximum, average and minimum size of the normal heart. Contrary to the opinion of many roentgenologists, he does not believe that stasis in the appendix without local tenderness is an evidence of a diseased condition. He does not lay much stress on the indirect evidences of ulcer. It is rather surprising that in his vast experience the author has not encountered any case of carcinoma of the duodenum. It is unfortunate that scant attention is given to the subject of gastric syphilis, and no mention is made of the demonstration of a noncalculous gallbladder on the roentgenogram. The book is well written, the paper excellent, and in many instances summaries at the end of the chapters help to give the important points in a short space. The book can be highly recommended both for the internist, even though he does not do his own roentgenology, and for the trained roentgenologist.

DAS SPUTUM. Von Professor Dr. Heinrich von Hoesslin. Paper. Price, 148 marks. Pp. 398, with 66 illustrations. Berlin: Julius Springer, 1921.

This monograph covers the entire subject of the sputum with an accuracy and thoroughness that make it one of the most valuable additions the clinical laboratory has received in a long time. The accumulated information on the topic has been brought together with detail and care, and not only are known facts critically considered but details of technic for the demonstration of every fact, whether microscopic, bacteriologic or chemical, are fully presented, together with a complete bibliography; practically every contribution that bears even indirectly on the subject is made available. The only drawback to be mentioned is that as the book was prepared for publication in 1914, and has been delayed until now, in bringing it up to date not all of the contributions on the subject for the last few years have been included; but most of the oversights in this respect have not been important.

Medicolegal

Injury to Physician Being Taken to See Patient

(*Pinckard v. Pease et al. (Wash.), 197 Pac. R. 49*)

The Supreme Court of Washington, in reversing a judgment obtained by the plaintiff, a physician, and dismissing his action for damages for personal injuries, says that one of the defendants was the husband, and the other the son, of a woman who lay critically ill. In fact, her condition was such that both of the defendants were doubtful whether she would survive until a physician could come five miles to her bedside. The telephone service being interrupted, the elder Pease asked his son Hugh to take their automobile and get the plaintiff. The plaintiff, thinking that the trip could be made more quickly by getting into the defendants' car, did so. It was snowing, and about an inch of snow lay on the ground. There were no chains on the car, and the plaintiff testified that he would not have stopped to put them on his own car had he been driving it. At the end of about a mile of straight and hard-surfaced road, over which the plaintiff testified that the car went from 30 to 35 miles an hour, there was a curve leading to the approach to a bridge, and after this curve had been partly turned the car skidded and went through the railing, and the accident occurred which resulted in the plaintiff's injury. The plaintiff's complaint was that Hugh Pease failed to slow down quickly enough for the turn and that this was negligence. The testimony was that as the curve was being entered the driver of the car applied the

brakes, but, the road being more slippery than he had judged it to be, the speed of the car was not lessened as much as he had anticipated, although lessened to a considerable extent. Under the circumstances of the situation, it could not be said that the car, going at the rate of speed which was testified to until it reached the point near the place of the accident, was being driven in a reckless or careless manner. The degree of care which the driver of the car was called on to exercise should be measured by what a reasonable man would have done in the same circumstances. He had with him a medical man whose purpose was at one with his; that is, to reach the bedside of Mrs. Pease in the shortest possible time. They were engaged on the same errand. In this degree they were actuated by the same feeling, and to hold either one of them liable for negligence under these circumstances, the negligence must have been practically gross or wilful. The exercise of a fine and discriminating judgment in such circumstances is not practical nor obligatory. The driver cannot be said to have done differently than a reasonably prudent man would have done under the same circumstances. The curve was not a specially sharp one, and the speed at which the car was going was not excessive in view of the imperative nature of the errand, and an attempt was made to slacken speed at the curve. So far as the defendant's responsibility to the plaintiff was concerned, the court can find no act of negligence, and at most it was, as agreed by the plaintiff, the result of a mistake of judgment. The plaintiff, of his own volition, submitted to the judgment of Hugh Pease in the operation of the car. He acquiesced in the speed, which was not extraordinary under the circumstances. If he himself had been driving, he would have driven as fast. It may be that he would have exercised his judgment in a better way in slowing down for the curve, because the necessity of the situation might have appealed differently to him, accustomed as he was in the practice of his profession to the presence of similar dangers, and because of the fact that it was not his mother who was on the point of death. This the plaintiff knew when he entered the car. He knew the state of mind that Hugh Pease must be in, and yet acquiesced in the manner of the driving, and for what at most may have been a mistake of judgment he had no right to complain.

Errors of Surgeons No Defense for Wrongdoers

(*Ryder v. Findlay (N. Y.), 187 N. Y. Supp. 579*)

The Supreme Court of New York, Appellate Division, Second Department, affirms an order setting aside a verdict for the defendant and granting a new trial in this action to recover damages from the defendant for his alleged negligently causing the death of a man through a collision of automobiles, because the trial judge, when a juror asked, "Suppose we find that he would not have died except for the negligence of the physician?" replied, "If he would not have died except for the negligence of the physician, then there can be no recovery here against the defendant." The court says that this answer may have given an erroneous impression. The rule is that an original wrongdoer, whose acts inflict injuries that might result in death, is not relieved by errors of a surgeon or nurse in treatment of the injury. And this extends also to the criminal law. If a felonious assault is operative as a cause of death, the causal cooperation of erroneous surgical treatment does not relieve the assailant from liability for the homicide.

Society Proceedings

COMING MEETINGS

American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, 1921, 22, No. 4

- *Metabolism Studies in Infants Suffering from Chronic Nutritional Disturbances (Athrepsia). K. Uthelm, St. Louis.—p. 329.
- *Etiology of Hemorrhagic Diseases of New-Born. C. F. Gelston, San Francisco.—p. 351.
- *Severe Infantile Malnutrition. Energy Metabolism with Report of New Series of Cases. F. B. Talbot, Boston.—p. 358.
- *Food Requirements of Children. II. Protein Requirement. L. E. Holt and H. L. Fales, New York.—p. 371.
- Capillaries of Normal Infant. K. M. Mayer, Chicago.—p. 381.
- Orthostatic Albuminuria. H. Saito, Nagasaki, Japan.—p. 388.
- *Incidence of Hereditary Syphilis. P. C. Jeans and J. V. Cooke, St. Louis.—p. 402.
- *Calcification of Skin in a Child. J. L. Morse, Boston.—p. 412.
- Review of Literature of 1920 on Genito-Urinary Conditions in Children. L. W. Hill, Boston.—p. 417.

Metabolism Studies in Infants.—Uthelm deals with that chronic condition of extreme malnutrition of infants which occurs independently of known infection and is not accompanied by acute gastro-intestinal or nervous symptoms. Experiments were made to determine what changes may take place in the intermediary metabolism of infants suffering from athrepsia. A diminished capacity of the organism to bring about such oxidations as the transformation of benzol to phenols was found. In the urine of athreptic infants the caloric nitrogen and carbon nitrogen ratios are high as compared to normal infants. There is no increase in the urinary excretion of creatinin, uric acid or amino-acid nitrogen in the urine of athreptic infants. During the severe stages of athrepsia there is an increased excretion of organic acids in the urine (as determined by titration). The ammonia excretion in the urine of athreptic infants is in a general way proportionate to the amount of organic acids present. With improvement in the nutritional condition the excretion of organic acids and of ammonia decreases. The organic acids in the urine of athreptic infants are for the greater part insoluble in ether. There is a greatly increased loss of food material in the stools during the severe stages of athrepsia. This loss as determined by the bomb calorimeter may be as great as 26 per cent. of the food intake. With improvement in the nutritional condition of the infant the utilization of food is much greater.

Etiology of Hemorrhagic Disease of New-Born.—In the case reported by Gelston, it was possible to demonstrate at the time of the hemorrhage a practical lack of prothrombin. Within eight hours after the cessation of the hemorrhage, prothrombin. Within eight hours after the cessation of the hemorrhage, prothrombin was present in normal quantities. The child was 3 days old. The clotting time of the whole blood was seventy minutes; recalcified plasma, 105 + minutes. Three injections of citrated whole blood were given, one of 10 c.c. into the buttocks, two hours after entry, one of 8 c.c. into the longitudinal sinus, and one of 35 c.c. into the same vein, at half hour intervals. The bleeding was then effectually checked. Eight hours after injection of the blood, the clotting time of the patient's whole blood was eighteen minutes; clotting time of whole blood of the control was seven minutes; clotting time of recalcified plasma of patient was normal; clotting time of recalcified plasma of control was normal. The baby was discharged in good condition on the third day. At no time was there evidence of hemorrhage from the mucosa or elsewhere.

Metabolism in Malnutrition.—Talbot's observations were to the effect that there is no appreciable change in the metabolism of cases of severe malnutrition until there is a loss of 20 per cent. in the body weight. Beyond this point there is presumably a loss of subcutaneous fat and a larger body surface in relation to the body weight. With increasing malnutrition the divergence from the normal becomes greater and body heat is lost more easily because of the lack of the insulating layer of subcutaneous fat and of the greater radiation of heat due to the relative increase in body surface as

compared to the weight. When the heat loss becomes greater than the heat production the temperature becomes subnormal. This condition can only be remedied by the application of enough external heat to make up for the loss. The basal metabolism per kilogram of body weight is higher in infants with severe malnutrition than in normal average infants, being higher the greater the degree of malnutrition.

Food Requirements of Children.—The average amount of protein taken in the usual mixed diet by over 100 healthy children ranged from 44 gm. daily in the second year to 130 gm. daily in the fifteenth year. The latter figure exceeds the average adult need and obviously should do so, since adults require protein for maintenance only. The amount of protein per kilogram of body weight taken by these children averaged about 4 gm. at 1 year, diminished to about 2.6 gm. at 6 years and remained at about this value until the end of growth. The children studied by Holt and Fales took about two thirds of their protein as animal protein and one third a vegetable protein.

Incidence of Hereditary Syphilis.—A study of the placenta and the Wassermann reaction on the cord blood was made by Jeans and Cooke on a series of 2,030 unselected infants in St. Louis. By examining the blood of 389 of these infants after 2 months of age, it was determined that the proportion of cases of hereditary syphilis that could be certainly diagnosed by placental examination alone was 27 per cent. while from the Wassermann reaction on the cord of blood, 63.6 per cent. of the cases could be recognized. By applying these two methods to the entire series the number of cases of hereditary syphilis in the whole group was determined. The incidence of hereditary syphilis established by this method is 15 per cent. in the colored race, 1.8 per cent. in the poor of the white race and less than 1 per cent. in the well-to-do social classes. By applying these figures to the entire population of St. Louis, it is estimated that the incidence of hereditary syphilis at birth in this city is 3 per cent., of which the colored population, although only 9 per cent. of the total, contributes approximately half the cases.

Calcification of Skin in Infant.—The history in Morse's case suggests strongly that the changes in the skin were due to infection. The histology shows no evidence, however, that an infectious process was the cause of the lesions in the subcutaneous fat. The microscopic appearances resemble in many particulars the fat necroses found in the abdominal cavity in acute pancreatitis where the lesion is, of course, due to the action of a lipolytic ferment. In spite of the difficulty in accounting for the presence of such a ferment in the subcutaneous tissue, such a possibility must be considered in this instance.

American Journal of Psychiatry, Baltimore

July, 1921, 1, No. 1

- Platelet Count and Bleeding Time in Catatonic Dementia Praecox. S. Uyematsu, Hathorne, Mass.—p. 15.
- Reaction in Dementia Praecox to Intravenous Administration of Non-Specific Protein. T. Raphael and S. Gregg, Kalamazoo, Mich.—p. 31.
- Connotations as Factor in Mental Health of Community. D. A. Laird, Iowa City.—p. 41.
- Psychologic Traits of Southern Negro: His Psychoses. W. M. Bevis, Washington, D. C.—p. 69.
- Control of Communicable Diseases in Psychiatric Hospitals. E. B. Saye, Harrisburg.—p. 79.
- Recreation for Mental Cases. R. F. L. Ridgway, Harrisburg.—p. 87.

American Journal of Public Health, Chicago

September, 1921, 11, No. 9

- Measles and Its Allies. J. G. Cumming, Ann Arbor, Mich.—p. 735.
- Tobacco in Its Relationships to Public Health. P. K. Holmes, Lexington, Ky.—p. 793.
- County Health Administration in Los Angeles County. J. L. Pomeroy, Los Angeles, Calif.—p. 796.
- Virginia Plan of Cooperative County Health Work. W. F. Draper, Richmond, Va.—p. 801.
- Relations of Society to Drug Habit. P. H. Bryce, Ottawa, Can.—p. 812.
- Hand Disinfection Investigation of Various Preparations. J. R. Conover and J. L. Laird, Philadelphia.—p. 816.
- Measuring Rods of Mortality Rates. D. M. Lewis, Charleston, W. Va.—p. 825.
- Industrial Application of Army and Navy Venereal Disease Records. R. H. Everett and M. A. Clark, New York.—p. 829.
- Influence of Peptone on Indol Formation by Bacillus Coli. F. W. Tilley, Washington, D. C.—p. 834.

October, 1921, 11, No. 10

- School Health Service in New York State. W. A. Howe, Albany.—p. 873.
Report of Committee on Medical Service of State and Provincial Health Authorities of North America. M. Nicoll, Jr., New York.—p. 888.
Unsolved Problems of Preventive Medicine. A. Arkin, Morgantown, W. Va.—p. 894.
Report of Committee on Full-Time Health Officer Legislation. E. R. Kelley, Boston.—p. 902.
Infant Mortality Rates for Paris. T. J. Duffield.—p. 905.
Theories Concerning Causation of Disease. L. W. Feczer, Minneapolis.—p. 908.
*Prophylaxis of Whooping Cough. M. D. Miller, Akron, Ohio.—p. 913.
Health Centers as Seen by Public Health Nurse. E. Ross, New Haven.—p. 915.
Third Measuring Rod in Mortality Rates. D. M. Lewis, Charleston, W. Va.—p. 917.
Sanitary Control in Manufacture of Foods and Its Economic Importance. G. Grindrod, Chicago.—p. 920.
Sanitation of Fruit and Vegetable Canners. H. M. Miller, Los Angeles.—p. 922.

Prophylaxis of Whooping Cough.—Miller urges immunization of children against whooping cough. In Akron, Ohio, use was made of a bacterin of a strength of 5 billion Bordet bacilli to 1 c.c. in doses of $2\frac{1}{2}$ billion followed by 4 billion three days later. In Miller's opinion the proper strength for either prophylaxis or treatment is at least 5 billion to the mil. Failures with Bordet bacillus in the treatment of cases are due entirely to insufficient dosage administered at too-long intervals. A safe principle in the use of whooping cough bacterin is, "the younger the child, the larger the dose required." However, no case has failed to respond if the injection was given not later than forty-eight hours after the preceding one and the dose doubled each time. Miller believes that public health authorities are justified in promoting immunization against whooping cough just as they are urging immunization against typhoid fever.

Boston Medical and Surgical Journal

Oct. 6, 1921, 185, No. 14

- Nontuberculous Pyelonephritis. A. H. Crosbie, Boston.—p. 397.
Subluxation of Shoulder—Downward. F. J. Cotton, Boston.—p. 405.
Mental Responsibility and Petty Crime. D. A. Thom, Boston.—p. 407.
Surgical Treatment of Ulcer and Cancer of Stomach. F. B. Lund, Boston.—p. 413.

Illinois Medical Journal, Oak Park

September, 1921, 40, No. 3

- *Taking of Temperature in Diagnosis and Treatment of Tuberculosis. G. T. Palmer, Springfield.—p. 161.
Epilepsy. J. C. Gill, Chicago.—p. 164.
Adiposis Dolorosa; Report of Cases. J. M. Neff, Chicago.—p. 169.
Capital Punishment the Parent of Lynching. G. F. Lyston, Chicago.—p. 178.
Lessons of World War for Internist. H. Brooks, New York.—p. 181.
*Cure of Cervical Endometritis by Aid of Multiple Scarification. H. T. Byford.—p. 187.
Insanity—A Quantitative Diagnosis. E. A. Foley, Chicago.—p. 189.
Injuries of Spinal Cord. L. J. Pollock and L. E. Davis, Chicago.—p. 191.
Syphilis of Stomach. A. A. Goldsmith, Chicago.—p. 197.
Etiologic and Therapeutic Considerations in Arthritis. G. Parker, Peoria, Ill.—p. 200.
Necessity for Antenatal Care in Obstetrics; Report of Cases. H. F. Lewis, Chicago.—p. 203.
*Incidence of History of Tonsillectomy in Two Series of Cases of Scarlet Fever. Is Tonsillectomy a Partial Prophylaxis? L. T. Gregory, Urbana.—p. 210.
Chronic Nephritis. W. A. Wiseman, Camargo.—p. 211.
Public Health Problems. C. W. Lillie, East St. Louis.—p. 213.
Occlusion of Left Posterior Inferior Cerebellar Artery; Report of Case. L. H. Anderson, Aurora.—p. 215.
Diagnosis of Late Hereditary Syphilis. B. B. Beeson, Chicago.—p. 218.
Medical Aspect of Aviation. C. M. Robertson, Chicago.—p. 222.
*Ulcer Cure Following Gastric and Duodenal Perforation. K. Meyer, Chicago.—p. 226.
Testicle Transplantation. Report of Case. C. M. McKenna, Chicago.—p. 228.
Improvement of Man and Higher Animals. C. L. Redfield, Chicago.—p. 230.
Venereal Wart Converted into Carcinoma by Cauterization. C. MacDonald, Chicago.—p. 233.

Temperature in Tuberculosis.—Palmer asserts that unfortunate results in the treatment of pulmonary tuberculosis are due in large measure to inaccuracy and neglect of very simple things and to no single factor so much as to the faulty taking and recording of temperature. With the diagnosis made, temperature is the determining factor in the classification of patients; in measuring the amount of rest and exercise; in prescribing the character and extent of occupational therapy;

in regulating the administration of tuberculins, vaccines and other specific medication, and, finally, in settling the most important of all questions—the quiescence and arrest of the process and the discharge of the patient. In spite of all this, Palmer says, 80 per cent. of tuberculous patients under medical care are handled and discharged without definite knowledge as to whether they are febrile or afebrile. If this rather sweeping assertion can be substantiated, the large number of reactivations after discharge should not be regarded with any degree of surprise; but should be looked upon as the result naturally to be expected.

Multiple Scarification in Cervical Endometritis.—The treatment Byford advocates is not new. It consists in using the old treatment in a way that makes it efficient. The puncturing of follicles becomes a multiple deep scarification and the local stimulation becomes a semicautey. Instead of using the scarificator only when cysts are discovered, from fifty to 100 punctures into the diseased area or areas are made at short regular intervals, viz., from once to twice a week. This not only evacuates follicles that cannot be felt, but it makes openings into the infiltrated area about the follicles into which the antiseptic and stimulating application can penetrate. The application is strong enough to destroy or cause atrophy of what remains of the epithelial cells in glands that are already seriously damaged by inflammatory action, but is not strong enough to destroy functioning glands that are supported by an unobstructed capillary circulation. The scarificator Byford uses is bayonet pointed and cuts in three directions, and thus leaves patulous openings for the escape of mucus and the penetration of the solution. The solution consists of one part each of iodine crystals and glycerin and two parts of phenol. For an area of almost complete degeneration the relative amount of the iodine is doubled in order to obtain quicker and somewhat more radical results.

Tonsillectomy as Prophylactic Measure Against Scarlet Fever.—Of sixty-two cases of scarlet fever in only four had tonsillectomy been performed previous to the onset of the scarlet fever. Three of these cases showed clinical evidence that tonsillectomy had not been complete. In a second series of twenty-five cases of scarlet fever, there were twenty with no tonsillectomy, two with tonsillectomy, and three showing no record. Gregory raises the question of the possibility that tonsillectomy may be at least a partial prophylaxis against scarlet fever.

Cure of Gastric Ulcer Following Perforation.—A study made by Meyer of fifteen patients after operation shows that a gastro-enterostomy is not essential to the healing of perforated ulcer, and that the percentage of postoperative gastric symptoms is far lower than after operation for nonperforative ulcer. From the clinical evidence and reasoning by analogy, Meyer says one can accept the observations of Balfour that artificial perforation and excision by cautery presents a very logical procedure in the cure of gastric and duodenal ulcer. Resection of the ulcer when a cure cannot be obtained under ulcer management has also proved to be of great benefit, but possesses added dangers to artificial perforation with the cautery.

Indiana State Medical Association Journal, Fort Wayne

July 15, 1920, 13, No. 7

- *Unusual Case of Temporary Incarceration of Transverse Colon within Bilateral Hernial Sacs. D. J. Royer, Fort Wayne.—p. 227.
Epidemic Encephalitis in Northern Indiana. R. V. Hoffman, South Bend.—p. 228.
Physician: Training of an Intern. F. B. Wynn, Indianapolis.—p. 232.
Acute Appendicitis. R. C. Ottinger, Indianapolis.—p. 235.
Autogenous Bone Graft. L. T. Rawles, Fort Wayne.—p. 238.

Incarceration of Transverse Colon in Hernial Sac.—Royer cites the case of a man who complained of "stomach and bowel trouble" dating back twelve or fifteen years. He had no gastric or intestinal symptoms, but complained of a feeling of distress in the left side of his abdomen in the left lumbar region. He said there was something in there that would not let the food pass out of his stomach. He had no constipation, yet he said the stool was very small. At a variable time after eating this distress would come on and he

would have to use an enema to obtain relief. On physical examination nothing of note was discovered. Roentgen-ray examination of the gastro-intestinal tract revealed a large stomach, centrally located, with the greater curvature two fingers breadth below the level of the iliac crests. There was hypoactivity. No filling defect was noted. The stomach was freely movable and not tender to pressure. At the twenty-four hour period the large bowel was filled from the cecum to the left extremity of the transverse colon. There was a rather small amount of barium in the descending colon and sigmoid, but the splenic flexure was not filled. On first sight, with the patient behind the vertical fluoroscope, the transverse colon appeared markedly dropped and manipulation was attempted to ascertain the degree of mobility. Instead of displacing the intestine upward as anticipated, it was found to be firmly bound down behind the pubes. On digital examination bilateral herniae were found. At the forty-eight hour period there was a considerable residue in the transverse colon; the remainder of the tract was empty. At the end of a week, the greater part of the time having been spent in bed, he was given another barium meal to study further the incarcerated colon, and to determine accurately the degree of stasis present. The upper alimentary tract showed practically the same condition as noted on the first examination. At the twenty-four hour period, instead of finding the expected condition, the transverse colon was found in a practically normal position with no evidence of the hernias. At the end of forty-eight hours the entire tract was empty.

Johns Hopkins Hospital Bulletin, Baltimore

October, 1921, 32, No. 368

- *Swelling of Arm After Operations for Cancer of Breast: Elephantiasis Chirurgica. W. S. Halsted, Baltimore.—p. 309.
Studies on Blood. Vitrally Stainable Granules as Specific Criterion for Erythroblasts and Differentiation of Three Strains of White Blood-cells as Seen in Living Chick's Yolk Sac. F. R. Sabin, Baltimore.—p. 314.
Oxidation Mechanisms of Cell. F. G. Hopkins, Baltimore.—p. 321.
Nonlipoid Components of Blood Serum in Relation to Its Antihemolytic Property. H. M. Clark, R. H. Zinck and F. A. Evans, Baltimore.—p. 328.
*Nucleus in Human Restiform Body. K. Hirose, Okayama, Japan.—p. 336.

Elephantiasis Chirurgica.—Halsted is convinced that swelling of the arm follows the plastic operations for breast cancer in greater proportion and in more pronounced form than is seen in the cases treated by skin grafting. And, moreover, in the skin grafting operations, done by Halsted as far back as 1895, conspicuously swollen arms became almost a thing of the past after the method of pressing back the flaps at the upper part of the wound, and stitching their edges to the underlying intercostal muscles was adopted. Halsted asserts that the records support this view that infection is very frequently, if not indeed usually, the overlying cause of the swelling of arms whose main lymphatic channels have been more or less blocked by operation. The infection may quite conceivably be so mild in degree as to escape the observation even of those intently on the lookout for it. If this view expressed by Halsted as to the cause of the swelling of the arm following operations on the axilla should prove to be correct he says, the term surgical elephantiasis (elephantiasis chirurgica) might be an appropriate one. The most common cause of the late postoperative swelling is, of course, the recurrence of the disease, a recurrence which blocks new channels. But swelling in its most aggravated form is seen with the recurrences accompanied by inflammation—it may be only the reactive inflammation incident to the rapidly growing neoplasm. The question presents itself as to whether the reactive inflammation in some of these recurrent cases may not be partly of bacterial origin—an inflammation superimposed on the tissues engorged from lymphatic and frequently also from venous obstruction. Lymphatic obstruction predisposes to streptococcal inflammation.

Nucleus in Human Restiform Body.—In thirteen human brains examined by Hirose, there was a peculiar nucleus, which, in transverse sections, appears in the dorsomedial part of the restiform body and is present in both embryonic and adult specimens. The inferior border of this nucleus is seen in the restiform body, about the level of the posterior vagoglossopharyngeal roots, and its superior border disap-

pears just as or after accessory auditory nucleus appears. Hence its longitudinal diameter is greater than the transverse, and averages in length about 0.5 to 1.3 mm. The hilum of the nucleus is directed mesially, when it is well developed. In most cases, however, it is either absent or very indefinite, and the nucleus itself is also in an undeveloped stage, appearing in transverse sections as a small round or elliptical mass. The following are the characteristics common to all the cases: (1) The situation of the nucleus in the restiform body is the same in all cases. (2) In transverse sections, when the nucleus appears elongated, the long axis runs always in a dorso-medial-ventrolateral direction. (3) When the nucleus appears elongated in transverse sections, it is curved and shows an incomplete hilum. (4) The type of nerve cells in the nucleus is the same for all cases. The type of cell found in this nucleus is similar to that of the inferior olive. The brains of certain other mammals, for instance, the monkey, dog, cat, rabbit and guinea-pig were used for similar studies, but in these thorough examination failed to reveal any such nucleus in the restiform body. Hence, it is possible that this nucleus is peculiar to the human species. The physiology of the nucleus and its relation to the other parts of the brain are entirely unknown.

Journal of Immunology, Baltimore

July, 1921, 6, No. 4

- Test Tube Rack for Serologic Work. O. Deibert, New York.—p. 249.
Immunologic Experiments with Catalase. T. C. Burnett and C. L. A. Schmidt, Berkeley, Calif.—p. 255.
Value of Tissue Extracts of Virus Pigs in Production of Anti-Hog Cholera Serum. T. P. Haslam.—p. 263.
Agglutinative and Hemolytic Action of Calf Serum on Sheep Cells. F. Maltaner and E. Johnston, Albany.—p. 271.
Immunologic Experiments with Denatured and Insoluble Proteins. C. L. A. Schmidt, Berkeley.—p. 281.

Journal of Parasitology, Urbana

September, 1921, 8, No. 1

- Cytology and Life History of the Amebae: Descriptions of two New Species. R. W. Glaser, Princeton, N. J.—p. 1.
South African Larval Trematodes. E. C. Faust, Peking, China.—p. 11.
Rhynchobothrium Ingens Spec. Nov. A Parasite of Dusky Shark (Carcharhinus Obscurus). E. Linton, Columbia, Mo.—p. 22.
Two Genera of Ectoparasitic Trematodes from Fresh-Water Fishes. H. J. Van Cleave, Urbana, Ill.—p. 33.
Experimental Ingestion of Ova of Fasciolopsis Buski; Also Ingestion of Adult Fasciolopsis Buski for Purpose of Artificial Infestation. C. H. Barlow, Shaohsing, China.—p. 40.
Case of Human Infection with Isospora Hominis Probably Originating in United States. F. G. Haughwout, Manila, P. I.—p. 45.

Journal of Urology, Baltimore

June, 1921, 5, No. 6

- *Clinical and Pathologic Study of Contracted Bladder. W. A. Frontz, Baltimore.—p. 491.
*Combined Tumors of Kidney. R. C. Graves and E. R. Templeton, Boston.—p. 517.
*Tropical Inguinal Granuloma in Eastern United States. A. Randall, J. C. Small and W. P. Belk, Philadelphia.—p. 539.

Contracted Bladder.—The essential lesion in the condition variously described as "elusive ulcer," "localized cystitis," "interstitial cystitis," "panmural cystitis," etc., Frontz says is a submucous fibrosis. In most cases other evidences of inflammatory change are noted in the different layers of the bladder wall, but these differ in no respect from in the average case of chronic diffuse cystitis. The cardinal symptoms of the condition are urinary frequency and pain, referred chiefly to the suprapubic region and resulting from overdistension of the bladder. The diagnosis is based on the history, the finding of a diminished bladder capacity, with urine not infrequently sterile, the production of intense suprapubic pain when an attempt is made to introduce fluid beyond its capacity and cystoscopic findings often comparatively slight and out of all proportion to the clinical picture presented. Hydraulic distension of the bladder, local application of various drugs, high frequency, etc., have been unproductive of permanent results. When the lesion occupies a portion of the bladder permitting resection, this procedure should be employed. In those cases in which resection is not feasible, deep cauterization should be practiced.

Combined Tumors of Kidney.—Two cases of true combined renal tumors are reported by Graves and Templeton. In one case there existed a papillary carcinoma of the upper portion

of the pelvis with extension into the kidney and a hypernephroma in the lower pole of the kidney. In the second case a papilloma of the renal pelvis and a papillary cystadenoma of the kidney were the two tumors present. In each of these cases the presence of combined tumors was evident on examination of the gross specimen. In neither case could there be any question of developmental relationship between the combined growths.

Tropical Inguinal Granuloma.—Randall and his associates assert that this disease has been present, practically constantly, in the Philadelphia General Hospital as long as any of the attending physicians and nurses can remember. It has masqueraded under various other diagnoses. Direct smears from the lesions, properly prepared and stained, constitute a very reliable method of diagnosis. The granuloma organisms have been grown in cultures in four instances. All the cases, with one exception, occurred in the negro. The only treatment of avail has been the intravenous injection of antimony tartrate in doses of from 0.4 to 0.1 gm.

Kansas Medical Society Journal, Topeka

September, 1921, 21, No. 9

Gonorrhea of Lower Genito-Urinary Tract in Women, with Special Reference to Its Treatment. M. O. Nyberg, Wichita.—p. 281.
Carcinoma of Uterus. R. C. Lowman, Kansas City.—p. 286.
Very Early Case of Gonorrheal Arthritis. F. A. Trump, Ottawa.—p. 288.
Doctor and So-Called Cults. C. C. Goddard, Leavenworth.—p. 289.
Law for Doctor. Right of Physician Selling Location and Practice to Resume Practice in Immediate Vicinity. L. Childs.—p. 292.

Medical Record, New York

Oct. 8, 1921, 100, No. 15

Management of Bone and Joint Injuries. A. P. Stoner, Des Moines, Ia.—p. 617.
Use of Round Ligaments in Retrodisplacement of Uterus. A. W. Collins, San Francisco.—p. 621.
Unusual Pituitary Case: Hypopituitarism. W. N. Berkeley, New York.—p. 624.
*Two Instances of Inveterate Epithelioma Formation. D. W. Montgomery and G. D. Culver, San Francisco.—p. 625.
Immunity in Tuberculosis. O. Paget, Perth, West Australia.—p. 627.
Heart Murmurs and Heart Disease in Children. G. Werley, El Paso, Texas.—p. 629.
Frigidity and Sterility in Female. B. S. Talmey, New York.—p. 631.
Review of Blood and Urine Examinations in 200 Cases of Chronic Focal Infection of Oral Origin. A. M. Crance, Geneva, N. Y.—p. 633.
Dietetic Treatment of Cancer. T. J. Allen, Eureka Springs, Ark.—p. 633.

Multiple Epitheliomas.—Montgomery and Culver report the case of a man, who at 35 had a fingernail-sized epithelioma in the hollow of the shell of the left ear. Under curettage and roentgen-ray irradiation healing was perfect, and there has been no return in this particular locality. Since then, however (eleven years ago), he repeatedly has had epitheliomas in different situations on the face, the left cheek, the forehead, the left zygoma, the left tragus, the nose, corner of the mouth, over the right cheek bone, etc., eleven tumors all told. All the later epitheliomas have been treated with radium. As the patient had a fatty skin, it was only natural to inquire into his fat intake. At one time he was taking more than sufficient butter and cream, but a diminution of this together with a lessening of his carbohydrates brought no noticeable amelioration. As the actinic rays of sunlight are known to be among the chief exciting causes of epithelioma of the exposed surfaces, and as the patient leads an outdoor life in San Joaquin Valley where the sunlight in summer is intense, and the bright days are continuous, he was advised to wear a broad brimmed hat, lined with yellow or red, to absorb the noxious rays. These precautions, however, brought no noticeable relief. The greatest advance made in the cure of this patient lay in the substitution of radium for the curet, cautery, and roentgenrays. Another similar case is reported.

Military Surgeon, Washington, D. C.

October, 1921, 49, No. 4

Some Lessons of World War in Medicine and Surgery from German Viewpoint. W. S. Bainbridge, Boston.—p. 361.
General Survey of Communicable Diseases in A. E. F. H. Emerson, New York City.—p. 389.
Hay-Fever and Its Treatment with Pollen Extracts. W. C. Williams.—p. 421.

Thrombosis of Cavernous Sinus of Otitic Origin. R. H. Goldthwait.—p. 430.
Epididymotomy in Thirty-Two Cases of Gonorrheal Epididymitis. C. D. Allen.—p. 439.
Injuries of Head and Eyes in Warfare. H. V. Wurdemann, Seattle.—p. 443.
Two Cases of Intestinal Obstruction by Meckel's Diverticulum Occurring in Same Individual and Complicated by Acute Appendicitis. D. F. Winn.—p. 464.
Higher Education in Army. E. Colby.—p. 467.

Northwest Medicine, Seattle

September, 1921, 20, No. 9

*Blood Transfusion in Children. Analysis of 600 Cases. B. Robertson, A. Brown and R. Simpson, Toronto, Ont.—p. 233.
Clinical Study of Thirty Cases of Cervical Adenitis. J. B. Manning, Seattle, Wash.—p. 244.
Ten Years Progress in Children's Diets: Vitamins. C. U. Moore, Portland, Ore.—p. 247.
Congenital Syphilis. J. J. Tilton, Spokane, Wash.—p. 251.
Clinical Records, Laboratory and General Practitioner. R. E. Colman, Vancouver, B. C.—p. 254.
Rocky Mountain Spotted Fever in Seattle. K. Winslow, Seattle, Wash.—p. 257.

Blood Transfusion in Children.—From their observations the authors have determined that some but not all of the blood groups are definitely established at birth. The groups as indicated by the reactions of the red cells may be established, although the agglutins in the serum may not be established till later. This means that even in all new-born infants, where transfusion is contemplated, the compatibilities of the blood should be tested. In 56 per cent. of the tests the father and in 57 per cent. the mother were in the same group as the child, while 25 per cent. of the tests both father and mother were in the same group as the child. The syringe cannula method, taking everything into consideration, is the method of choice for transfusion in infants and children, the citrate method being reserved for selected cases. The internal saphenous vein at the ankle is the site of election. The maximum amount to be transfused in children up to 18 months should not exceed 15 c.c. per pound of body weight and in older children the proportion decreases according to the age. The only benefit derived from transfusion in nutritional disturbances is in cases of severe decomposition with an associated secondary anemia and in acute intestinal intoxications. In the former group the mortality was reduced from 82 per cent. to 59 per cent. In the group of blood diseases the most striking results occurred in hemorrhagic diseases, with a mortality of 2.3 per cent. The next most striking results were obtained in uncomplicated secondary anemia. It is of no benefit in leukemia. In children suffering from a bacteremia the withdrawal of a certain amount of blood and the introduction of fresh adult blood was of benefit. In erysipelas, exsanguination transfusion is without doubt an improved therapeutic measure for this type of infection. In the toxic shock of superficial burns, where convulsions have occurred as a result of the toxemia, the mortality rate with any other form of treatment has been 100 per cent. The authors had eight cases with five recoveries (mortality, 38 per cent.).

Oklahoma State Medical Association, Muskogee

July, 1921, 14, No. 7

Radium and Roentgen-Ray Treatment of Cancer. E. S. Lain, Oklahoma City.—p. 169.
Early Diagnosis First Step in Curability of Cancer. A. S. Risser, Blackwell.—p. 172.
Cancer Deaths: Why So Many? G. A. Wall, Tulsa.—p. 175.
Surgical Treatment of Cancer. J. H. White, Muskogee.—p. 179.
Pathogenesis of Malignancy. H. A. Lile, Cherokee.—p. 180.

Porto Rico Medical Association Bulletin, San Juan

Aug. 31, 1921, 15, No. 132

*Differential Diagnosis of More Common Pyrexias in Porto Rico. A. Torregrosa.—p. 145. Cont'n.
*Calymmatobacterium Granulomatis. S. Giuliani.—p. 170.
*Roentgen-Ray Study of Pulmonary Disease. M. Guzman, Jr.—p. 172.
*Premature Separation of Placenta. J. S. Belaval.—p. 176.

Common Pyrexias in Porto Rico.—Previous instalments of Torregrosa's monograph have been reviewed in these columns, Nov. 6, 1920, p. 1293, and April 16, 1921, and June 25, 1921, p. 1132 and p. 1859. He here continues his analysis of pernicious malarial fever, describing the hemorrhagic, the comatous, the paralytic and the meningitic forms, the forms with delirium as the most prominent symptom, form simulat-

ing peritonitis or dysentery, the form with suprarenal insufficiency and the form mainly involving the kidneys. Examples are cited, and he warns that typhoid, measles, various septiciemias and influenza may assume a pernicious form in hot climates. The exclusively malarial nature of many cases with a pernicious clinical picture is demonstrated by the improvement under quinin, and exclusively under this. He adds that malaria must not be regarded as a museum where the entire pathology of the tropics can be catalogued. He mentions an instance of a cerebral hemorrhage with unilateral paralysis, deviation of head and eyes and stertorous breathing which was diagnosed the next day as malignant typhoid. This diagnosis was then "corrected" to pernicious malaria, notwithstanding that it was pointed out that the fever had followed not preceded the sudden onset of symptoms.

Calymmatobacterium Granulomatis.—Giuliani reports finding this micro-organism in Porto Rico, and the favorable action of tartar emetic in treatment of ulcerating granulomas.

Roentgenoscopy in Lung Disease.—Guzman expatiates on the instructive roentgen-ray findings in both incipient and advanced pulmonary disease, saying that the shadow cast by a half filled bottle is better evidence of its exact contents than the sounds made by shaking the bottle.

Premature Separation of Placenta.—Belaval has had four cases of this kind. Three of the patients were primiparas, and two of the four succumbed to internal hemorrhage. The patients are usually too weak to stand cesarean section when the true condition is recognized.

South Carolina Medical Association Journal, Greenville

September, 1921, 17, No. 9

- Unintentional Neglect of Children's Eyes and Throats in Schools of Rural Districts. C. E. Crosby, Greenwood.—p. 210.
- Some Indications for Cesarean Section with Report of Section Under Local Anesthesia. R. E. Seibels, Columbia.—p. 211.
- Importance of Early Diagnosis of Gastric Cancer. R. Wilson, Jr., Charleston.—p. 216.
- Surgical Renal Diseases. M. Weinburg, Sumter.—p. 220.
- Wassermann Test, Its Reliability, Significance and Limitations. H. M. Smith.—p. 225.

Texas State Journal of Medicine, Fort Worth

September, 1921, 17, No. 5

- Deficiencies in Surgical Training. J. E. Thompson, Galveston.—p. 239.
- Surgical Odds and Ends. J. F. Binnie, Kansas City, Mo.—p. 244.
- Flexion Power as an Index to Functional Efficiency in Appraisal of Disability in Upper Extremity, Resulting from Industrial Injuries. F. L. Barnes, Houston.—p. 247.
- Plea for Closer Cooperation of Internist and Surgeon or Specialist, in Diagnosis and Treatment. J. W. Torbett, Marlin.—p. 249.
- Bromoderma. J. B. Shelmire, Dallas.—p. 251.
- *Onychogryposis, Ichthyosis Hysterix and Keratosis Follicularis, Occurring in Two Children in Same Family. I. L. McGlasson, San Antonio.—p. 255.
- Roentgen-Ray Treatment of Commoner Dermatoses. J. C. Michael, Houston.—p. 256.
- Case of Actinomycosis of Jaw. J. M. Cadwallader, San Antonio.—p. 260.
- *Bacillary Dysentery in Texas. M. F. Boyd, Galveston.—p. 261.

Familial Onychogryposis.—McGlasson claims that his cases of onychogryposis occurring in two brothers are unique because no similar instance is on record so far as he has been able to learn. One boy was aged 17, the other 11. The deformity, clawlike nails, was very marked. The nails on the fingers varied from 2 c.m. to 5 c.m. in thickness. The toenails were about the same size and shape as the fingernails. In addition to the objective symptoms as to the toes, they were very painful and interfered with walking and the wearing of shoes. The overgrowth in the nails was in proportion on each finger and toe, to the normal nail. The lesions of ichthyosis were most marked in the flexure surface of the arms, around the neck and over the abdomen. Keratosis follicularis was more evident on the extensor surfaces of the arms and legs and scapular region, a few horny spines projecting from the follicles in other parts of the body. Both boys were otherwise normal. The parent's medical history was negative. The mother's brother was the only relative who had had onychogryposis.

Bacillary Dysentery in Texas.—Boyd reports three cases of acute dysentery caused by *B. dysenteriae* occurring in native Texans.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 24, 1921, 2, No. 3169

- Sensations as Reflex Manifestations of Disease. P. T. Herring.—p. 469.
- *Points in Abdominal Diagnosis. P. Daniel.—p. 470.
- Treatment of Syphilis in Male. R. W. MacKenna.—p. 473.
- *Syphilis in Women and Children. W. C. Swayne.—p. 476.
- Treatment of Gonorrhoea in Men. D. Lees.—p. 480.
- Local Use of Oxygen in Empyema. L. Gordon.—p. 488.

Importance of History in Abdominal Diagnosis.—Personal experience has impressed Daniel with the fact that a history of a case may be acquired most laboriously and painstakingly, and yet be of comparatively small value in diagnosis. All the facts of the case may be recorded, but they bear no relation to one another; they have no sequence; they fall over one another and confuse. Yet the taking of a history is the actual unraveling and elucidation of those warnings which, nearly always precede the crisis or climax, and is the key to its logical diagnosis. It is in the taking of a history that one person may ascertain new facts or correlate and elucidate already acquired facts in their true bearings, and so be enabled to stick to the real course of events and avoid the many by-paths among which a mere jumble of events is so apt to lead the unwary. The taking of a history does not mean asking questions merely; it entails the guiding of the answers, since in all cases there are salient facts and others which are immaterial, and one salient fact leads up to the succeeding ones. The taking of a good history—one, that is, which will inevitably lead to a logical deduction, in other words a diagnosis—necessitates a good working knowledge of all the abdominal viscera in health and disease.

Management of Syphilis.—Swayne maintains that the venereal diseases clinic should not be the only avenue of attack on the disease. Early diagnosis and continuous treatment are most important, and the cooperation of the family doctor is necessary for any real advance. Diagnostic difficulties are not greater than they were in years gone by, but diagnostic facilities are now much increased. The technic of modern methods of treatment is not difficult, and can quite easily be learnt if time is available. The family doctor can, with great advantage, treat a large number of the patients now attending clinics. Clinics should be much more largely consultative for diagnostic purposes, and should be used for such treatment as the family doctor feels he is not able to undertake, either on account of lack of time, or any other reason which may seem good to him.

Oct. 1, 1921, 2, No. 3170

- *Restoration of Normal Cardiac Mechanism in Cases of Auricular Fibrillation by Means of Quinidin Sulphate. A. N. Drury and C. C. Iliescu.—p. 511.
- *Manner in Which Quinidin Sulphate Acts in Auricular Fibrillation. T. Lewis, A. N. Drury, C. C. Iliescu and A. M. Wedd.—p. 514.
- *Enlargement of Spleniculus to Size of Normal Spleen. W. McA. Eccles and G. D. Freer.—p. 515.
- Cesarean Section. J. M. M. Kerr.—p. 516.
- Methods of Performing Cesarean Section. E. Holland.—p. 519.
- Treatment of Advanced Carcinoma of Cervix of Uterus by Radium. A. Burrows.—p. 524.
- Bronchopneumonia with Pyemic Skin Manifestations Resembling Smallpox. J. B. D. Galbraith.—p. 526.
- Sodium Biborate in Epilepsy: Results of Twelve Months' Treatment. J. McCartney.—p. 527.
- Cholecystostomy and Choledochotomy Followed by Cholecystectomy Ten Years Later. J. A. Reed.—p. 527.

Quinidin Sulphate in Auricular Fibrillation.—The thirteen cases reported by Drury and Iliescu were under continuous observation for varying periods of time. The method of treatment adopted has been, in the main, that used by previous workers. The patients after being cleared of digitalis or strophanthus, all received one or two preliminary doses of 0.2 gm. quinidin sulphate by mouth for the purpose of excluding the presence of quinidin intolerance; after which the quinidin sulphate treatment given in gelatine capsules by mouth, was commenced. In six cases the normal rhythm was reestablished, while in the remaining seven cases, although similar changes were produced in the retardation of the auricular rate the movement persisted without break, and the rate returned, on withdrawal of the drug, to its original level.

The authors state that quinidin sulphate has a very remarkable action on the auricle, and this action is of a potent nature. For this reason alone the method of direct leads from the chest is of importance, for it gives a record of the effect of the drug on the auricle itself; the effect on the auricle will vary considerably owing to the factors of absorption, individual tolerance, etc., and the direct leads enable the drug to be controlled.

Action of Quinidin Sulphate in Auricular Fibrillation.—The essential feature of the action of quinidin sulphate on the fibrillating auricle is an invariable and conspicuous reduction of the rate at which the auricle beats; in patients in whom treatment is successful this progressive slowing of the auricular action is abruptly disturbed, the disordered action ceases, and the normal action is at once resumed. Quinidin has a paralyzing action on the vagi, an action not altogether unlike, though less powerful than that of atropin; by reducing vagal tone the drug will increase the power of the junctional tissues to conduct, and lift the ventricular rate, as does atropin. Opposed to these actions is a direct action of the drug on the junctional tissues. This opposed action probably moderates in some measure the rise of ventricular rate which occurs during the clinical use of quinidin in cases of auricular fibrillation.

Enlargement of Splenculus Following Splenectomy.—Eccles and Freer cite the case of a man, a football player, who sustained a rupture of his spleen necessitating its removal. The patient had contracted malaria previous to the accident, and the enlargement of his spleen may have contributed to the ease with which it was ruptured. He made a somewhat complicated recovery, having what was thought to be mild malaria, and some trouble at the base of the left lung. On full recovery he was able to carry out his duties without any untoward symptoms, and states that he was assured that he would not suffer again from malaria as he was minus his spleen! He continued in good health for eight years, after which he began to have some attacks of weariness, and was found to have an evening temperature. It was considered by his medical advisers that this might be due to some obscure form of tubercle. His blood count was virtually normal. In general health he appeared well, was not anemic, and had no temperature elevation. There was a wide gap in the upper third of the left rectus, and on coughing a marked protuberance of abdominal contents took place. On opening the abdomen some adhesions of the omentum were found and separated. Then, to the astonishment of all present a well-formed, normal-looking spleen was seen in the usual position. The shape, size, notch, color, and consistency all appeared to be that of a normal spleen. That a splenculus may enlarge, after the removal of an ordinary spleen, is well known, but the rarity with which such an enlarged organ is actually seen, leads the authors to place this case on record.

Dublin Journal of Medical Science

September, 1921, 4, No. 19

- *Rifle Bullet in Heart. M. R. J. Hayes.—p. 385.
- Mobile Ascending Colon and Duodenal Obstruction as Common Causes of Equivocal Symptoms in Abdomen. A. A. McConnell.—p. 389.
- Case of Acute Meningitis. W. A. Winter and W. M. Crofton.—p. 404.
- Automatic Fluid Distributor. J. W. Bigger.—p. 407.

Rifle Bullet in Heart.—In Hayes' case the bullet was situated midway between the heart apex and the base of the ventricle (the auriculoventricular groove).

Edinburgh Medical Journal

October, 1921, 27, No. 4

- Epidemiology of Measles and Influenza. J. W. Crerar.—p. 185.
- Still-Birth: Its Causes, Pathology and Prevention. F. J. Brown.—p. 199.
- *Organism Obtained from Carcinomatous Growths. J. Young.—p. 212.

Micro-Organism Discovered in Cancer.—The organism described by Young was isolated from about forty cases of human carcinoma and two cases of breast carcinoma in the mouse. The youngest stage is minute, being just recognizable under the highest power of the microscope. This phase is derived from a germination of "spore" forms and it grows best in a highly acid fluid medium. It would represent the stage during which the original infection occurs. This stage

has not been cultivated separately, because it quickly passes into a somewhat larger phase (coccoid or bacillary), which grows well at ordinary temperatures when transferred to a plate medium. This phase passes into a comparatively large sporing phase, in which it may remain dormant for long periods. The investigations open up the possibility that the smaller phases may ordinarily be passed in the nucleus of the cancer cell. If this is so it becomes likely that the proliferation of the cells is due to the stimulus of the intranuclear parasite, and the continued and uncontrolled proliferation that characterizes a malignant growth would thus be explained by the fact that the daughter nuclei carry with them one or more germs in the dividing or vegetative phase. Finally, a record of three malignant growths apparently produced in healthy mice by the injection of the cultures tends to support the belief that the organism may possess some etiologic relation to tumor growth. Details as to growth and staining reactions are given.

Glasgow Medical Journal

September, 1921, 14, No. 3

- Modern School of Medicine in China. H. Balme.—p. 129.
- Surgical Treatment of Uterine Prolapse. S. J. Cameron.—p. 138.
- *Case of Fröhlich's Syndrome Following Injury to Sella Turcica. J. Hendry.—p. 147.

Fröhlich's Syndrome Caused by Injury to Sella Turcica.—Following on a fall when she struck the back of her head, Hendry's patient had almost complete loss of vision. Vision gradually returned and is now fairly satisfactory, though still impaired. Amenorrhea developed, the patient became quite stout and presented signs of thyroid insufficiency. Finally, she manifested a fairly well developed Fröhlich's syndrome—the dystrophia adiposogenitalis, with lethargy and somnolence; but by this time the menstrual periods had returned in a very scanty form. The roentgen ray showed a fracture of the base of the skull involving the sella turcica. The patient could ingest 300 gm. glucose without showing any glycosuria. Her temperature was steadily subnormal and her blood pressure low (105 mm. Hg). The patient improved under treatment with extract of the anterior lobe of the pituitary.

Indian Journal of Medicine, Calcutta

September, 1921, 2, No. 3

- Intracapsular Extraction of Lens in Cataract. G. Das Kapur.—p. 429.
- Algid Form of Malarial Fever. B. H. S. Bhatia.—p. 436.
- Treatment of Typhoid Fever. S. C. Sen Gupta.—p. 442.
- Hookworm. V. R. Baxy.—p. 453.
- Lamellibranchiate Mollusks. I. On Animal of Acar, Gray. E. N. Ghosh.—p. 457.

Indian Medical Gazette, Calcutta

September, 1921, 56, No. 9

- Chronic Dysenteric Peritonitis. J. W. D. Megaw.—p. 321.
- Results of Influenza Vaccine Inoculation. H. R. Dutton.—p. 323.
- Present Position with Regard to Treatment of Ankylostomiasis. J. B. McVail.—p. 324.
- *Bacilluria: Another Unnamed Organism. J. W. Cornwall and H. M. Lafrenais.—p. 325.
- Addendum to Autohemio or Autoserum Therapy. D. N. Sen.—p. 326.
- Osmosis Through Skin. D. P. Bhargava.—p. 328.
- Prevention of Deformities in Joints. R. R. M. Porter.—p. 331.
- Roentgen-Ray and Radium Protection Committee.—p. 333.
- Direct Record Scotometer, for Investigating Central Field of Vision. N. B. Harman.—p. 335.
- Case of Complete Unilateral Infantile Paralysis. A. R. Mazumdar.—p. 336.
- Successful Treatment of Case of Scalding. P. K. Dey.—p. 338.
- Case of Filarial Cyst on Eye. H. D. Gupta.—p. 338.

Unnamed Organism in Urine.—A man presented himself to Cornwall and Lafrenais for treatment on account of urinary symptoms. The urine was slightly turbid, showed the bacillary sheen and held a little suspended mucus. It was faintly acid and contained no albumin or sugar. In the deposit after centrifuging were small clumps of leukocytes which still retained ameboid movement, some epithelial cells, a few calcium oxalate crystals and numerous short, fat, sluggishly motile bacteria, single and in short filaments. On staining, only those leukocytes at the exterior of a clump showed phagocytosis. A pure culture of the bacilli was readily obtained. The authors compare this organism with other bacteria found in the urine and show wherein it differs.

International Journal of Psycho-Analysis, London

March, 1921, 2, No. 1

- Psycho-Analytical Observations on Tie. S. Ferenczi.—p. 1.
 Short Study of Life and Character of Mohammed. O. Berkeley-Hill.—p. 31.
 Psycho-Analytic Study of Christian Creed. C. Moxon, Los Altos, Calif.—p. 54.
 Communications: Womb and Birth Saving Phantasies in Dreams. M. J. Eisler.—p. 65.
 Numbers in Dreams. C. D. Daly.—p. 68.

International Journal of Public Health, Geneva, Switzerland

September-October, 1921, 2, No. 5

- Epidemic Encephalitis (Encephalitis Lethargica). I. Strauss and I. S. Wechsler, New York.—p. 449.
 Role of Medical Profession in Prevention of Tuberculosis. H. Rolleston.—p. 465.
 Garden City. G. Benoit-Levy.—p. 473.
 Proposals for Antimalaria Work in Palestine. H. Yofe.—p. 478.
 Suggestions for a Red Cross Health Program. C. E. A. Winslow.—p. 488.

Lancet, London

Oct. 1, 1921, 2, No. 5118

- Value of Pathologic and Roentgen-Ray Examinations in Abdominal Surgery. J. Sherren.—p. 689.
 Respiratory Efficiency in Relation to Health and Disease. M. Flack.—p. 693.
 *Disastrous Results of Certain Abduction Fractures of Ankle-Joint. W. A. Lane.—p. 697.
 *Nutrition and Growth on Diets Devoid of True Fats. J. C. Drummond and K. H. Coward.—p. 698.
 Use of Sulfarsenol in Treatment of Congenital Syphilis. E. Crawford and G. B. Fleming.—p. 700.
 *Copper in Tumors and in Normal Tissues. C. P. White.—p. 701.
 Case of Lupus-Epithelioma Treated with Radium. F. J. Jauch.—p. 704.
 Case of Labioglossolaryngeal Paralysis. J. C. Voigt.—p. 704.
 *Gaertner Meningitis Complicating Gaertner Enteritis. J. Smith.—p. 705.

Results of Ankle Fractures.—Much of the difficulty and failure which the surgeon experiences in the treatment of fractures Lane says is due to the fact that while in his preliminary studies he is called upon to acquire a transitory knowledge of much that is relatively useless to him in the efficient performance of his profession, the fundamental principles of mechanics upon which a knowledge of the function of the skeleton and soft parts and of the treatment of the variations they undergo from injury or disease is absolutely essential, are excluded from his education. The fault lies not with the surgeon but with the teacher.

Nutrition and Growth on Fat Free Diets.—Young rats were grown by Drummond and Coward from weaning to maturity on diets, deprived as far as possible of neutral fats, and have shown normal development and behavior. It is intended to ascertain whether the capacity for breeding and rearing the young is in any way inhibited by such diets. More deaths were encountered among the animals on the fat free diets than among those receiving fats. It would appear that neutral fats are, from a purely physiologic standpoint, dispensable constituents of a diet, provided the other foodstuffs supply a sufficiency of the vitamin frequently found in association with natural fats. The real value of fats as convenient sources of energy is obvious.

Significance of Copper in Tissues.—Copper appears to be universally present in the tissues of animals and plants so far as it has been looked for. The known catalytic action of copper and the presence of copper in seeds, eggs, and in fetal as well as in adult tissues, suggest to White that it has a physiologic significance. Copper is present to a greater extent in degenerating tumors than in those which are not degenerated.

Gaertner Bacillus Meningitis Complicating Enteritis.—Smith claims to have found only one case similar to his recorded in the literature. The clinical and bacteriologic findings showed that this was a case primarily of Gaertner enteritis. Two weeks after the onset of the disease the infection extended to the meninges.

Medical Journal of Australia, Sydney

Sept. 3, 1921, 2, No. 10

- Comparative Statistical Inquiry Into Prevalence of Diseases, Death Rates, Infantile Mortality and Birth Rates in Queensland. A. Breinl.—p. 173.

South African Medical Record, Cape Town

Aug. 13, 1921, 19, No. 15

- Some Problems in Medical Science Awaiting Solution in South Africa. M. R. Drennan.—p. 283.
 Schistosomiasis in Natal. F. G. Cawston.—p. 287.

Aug. 27, 1921, 19, No. 16

- Syphilis Among Colored Population of Pretoria: Record of Five Hundred Wassermann Reactions. A. Pijper.—p. 302.
 Bruschettini Treatment in Pulmonary Tuberculosis. F. Veglia.—p. 305.
 Case of Bilateral Renal Calculi. A. Radford.—p. 307.

Sept. 10, 1921, 19, No. 17

- Chronic Gastric Ulcers; Treatment. C. F. M. Saint.—p. 323.
 Laboratory Jottings. J. Pratt-Johnson.—p. 328.

Nourrisson, Paris

September, 1921, 9, No. 5

- *Pyloric Disease in Infants. M. Péhu and X. Pinel.—p. 257.
 *Denutrition in Infants. A. B. Marfan.—p. 291.
 *The Blood Pressure in the New-Born. P. Balard.—p. 304.
 *Desquamating Erythrodermia. G. Blechmann and G. L. Hallez.—p. 320.
 Classification of Digestive Disturbances in Infants. O. Cozzolino. Reply. A. B. Marfan.—p. 324.

Stenosis of the Pylorus in Infants.—Péhu and Pinel have been able to compile only 38 cases of this affection in France, including 7 personally observed, and only 17 cases in Italy. These small figures from the Latin countries are in marked contrast to the hundreds of cases reported from Anglo-Saxon and German countries. They compare the records, and say that to date nothing has been discovered that will tell positively whether the *maladie pylorique* is of an organic or functional nature, and hence whether medical or surgical measures should be applied. Even the evolution and the results of treatment do not allow a retrospective diagnosis of the variety of stenosis, whether it was from a malformation or spasm. Their views as to the nature and treatment differ from those currently prevailing, they say, as they will describe in a following article.

Diagnosis of Treatment of Hypothrepsia and Athrepsia.—Marfan remarks that the diagnosis of these conditions is mostly by exclusion of other causes for the denutrition. If the cause can be discovered and corrected and breast milk supplied, the infant may be saved. But it must have individual and not institutional care, and even these cannot arrest actual athrepsia once installed. If breast milk is not available, asses' milk may be given or buttermilk or desiccated milk or condensed skimmed milk is preferable to ordinary cow's milk. Caffein and camphor may prove useful stimulants. He gives them as for choleric diarrhea, 1 c.c. of a 1:200 solution of caffein by subcutaneous injection in the morning for three or four days, changing then to camphorated oil (1:20) and then suspending for a week. The previous instalments of Marfan's study of denutrition were summarized in THE JOURNAL, Aug. 6, 1921, p. 495, and in the preceding volume.

He maintains that the cause is the lack of certain ferments found only in human milk. He has sought to supply them parenterally by injecting 2 c.c. of tyndallized human milk, and the results were encouraging. But the difficulties of the technic and the fear that the tyndallization may destroy the needed ferments have made him hesitate. Rocaz of Bordeaux has reported excellent results from subcutaneous injection of 4 c.c. of raw breast milk three times a week. The injections are made in the abdomen. There is scarcely ever any general reaction, and he says that improvement has followed in infants that have not been getting breast milk. It seems also to protect them against infections. Some pediatricians have given brandy or have used oxygen and organotherapy, but Marfan states that these have shown no proof of efficacy. He gave an extract of human placenta in some cases but without results, although Hammel has reported that pulverized placenta tissue seems to stimulate the growth of young infants. The old experiences of Combe and Narbel with subcutaneous injection of oil containing 5 cg. of lecithin might be tried again, as we have learned since that lecithin is rich in fat soluble vitamin. Marfan has had no experience with the sugar solution which Dell'Orso has been using with good effect according to his recent report. He injected 2 or 3 gm. of a 100 per cent. solution of glucose, saccharose and levulose.

The Arterial Pressure in the New-Born.—Balard expatiates on the advantages of Pachon's oscillometer for studying the

blood pressure in young infants, and reproduces some typical curves. They are instructive in regard to the vitality, and the effect of various measures.

Desquamating Erythrodermia.—The infant of 3 months had first seborrheic eczema; this was followed by the desquamating erythrodermia. The child was getting only part breast milk, and five subcutaneous injections of 1 c.c. of breast milk were given, with epinephrin internally. The skin cleared up and the child increased in weight. No preceding treatment had displayed any efficacy.

Paris Médical

Sept. 10, 1921, 11, No. 37

*School Lunches. R. Gaultier.—p. 209.

*Cause of Fever in the Tuberculous. E. Bossan.—p. 214.

*Chronic Urethritis Without Acute Phase. S. Oekonomos.—p. 217.

School Lunches.—Gaultier gives tables of model school lunches compiled from the standpoint of nourishment, digestibility and expense. His menus vary for each day in the week, but beef, boiled or braised, forms part of each lunch after the age of 4. Vegetable soup and soft mashed potatoes or purée of beans, rice or spaghetti, and bread complete the lunch. The children should be trained to eat it slowly, and he urges that the medical inspector of the school should be on the school canteen committee.

Presse Médicale, Paris

Sept. 24, 1921, 29, No. 77

*Idiosyncrasy to Acetylsalicylic Acid. M. Labbé and J. Haguénau.—p. 761.

*Strophanthin in Fractioned Doses. D. Daniélopou.—p. 762.

*Anaphylactic Origin of Nasal Hydrorrhea. Pasteur Valléry-Radot, J. Haguénau and A. Watelet.—p. 764.

*Bradycardia in Typhoid Fever. R. Lutembacher.—p. 766.

*Herz' Phrenocardia. M. Nathan.—p. 767.

Desensitization to Acetylsalicylic Acid.—Labbé and Haguénau here report another case of idiosyncrasy to acetylsalicylic acid which they conquered by desensitization methods. Vidal and Valléry-Radot's report of their first case of the kind was summarized in these columns, April 10, 1920, p. 1055. The anaphylaxis to this drug had been noted for nine years in their case. In the case here reported by Labbé and Haguénau the drug had been taken only two or three times, and the anaphylaxis seems to be a kind of crossed sensitization, possibly from articles of food. They have encountered a case of this latter kind, anaphylaxis to strawberries having developed in consequence, apparently, of an injection of diphtheria antitoxin. Severe anaphylaxis phenomena followed the eating of strawberries afterward. The young woman was desensitized to acetylsalicylic acid by the usual method of repeated small doses, but this desensitization did not last very long, the anaphylaxis developing anew although she had not taken any of the drug in the interim. The antianaphylaxis method, on the other hand, proved invariably successful, that is, giving a small dose of the drug one hour before the full dose. The colloidoclastic nature of the phenomena observed was confirmed by the leukocyte count at intervals. One remarkable fact brought out by their research is that the most intense upset in the leukocytes occurs almost instantaneously, and hence it escapes detection unless the blood count is made at once and repeatedly. This instantaneous reaction seems to be peculiar to this drug, probably on account of its rapid diffusion; it is sometimes refound in the urine in two minutes.

Strophanthin in Fractioned Doses.—Daniélopou argues that as strophanthin has a cumulative action, the desired effect can be realized safely only by giving the drug in minute doses. For over ten years he has been giving it in two or three intravenous injections during the day instead of a single injection, thus fractioning the total dose which never surpasses 0.25 mg. Its action is similar to that of digitalis but it acts more rapidly although the effect does not last so long as with digitalis. By fractioning the doses in this way, it can be given even with extreme insufficiency of the myocardium, with kidney disease independent of the state of the heart, or after the recent use of digitalis.

Therapeutic Antianaphylaxis.—Valléry-Radot and his co-workers here describe the application of digestive anti-

anaphylaxis to the treatment of nasal hydrorrhea. The woman of 32 had periods of sneezing in the morning, followed by a copious discharge of a clear fluid from the nose. This hydrorrhea kept up for about three hours, with frequent sneezing and lacrimation, and these attacks had returned every day for ten years. Of late they had been recurring three times a day, first the hydrorrhea coming on between half an hour and an hour and a half after the midday meal and again after supper, with an attack of asthma at 2 a. m. terminating with hydrorrhea, and in the morning there were red patches on the skin. This sequence suggested digestive anaphylaxis, especially as it was learned that with an attack of influenza, during which she had been unable to eat anything for three days, these days had been free from the hydrorrhea. A test meal of albumins without meat was followed by a typical hemoclastic crisis, and this crisis just preceded the nasal hydrorrhea attack. Treatment with peptone was begun, the patient taking a capsule of 0.35 gm. of peptone one hour before meals. This warded off the hemoclastic crisis and also the hydrorrhea, asthma and eruption. For the first time in years she was free from asthma at night and from hydrorrhea during the day. The peptone was kept up for ten days, and during the following days without peptone a few slight attacks of hydrorrhea were observed, but in a few days they subsided and did not return after a few single doses of the peptone. Since May 19, when all peptone was discontinued, she has been entirely free from all tendency to the previous symptoms. The peptone used was 0.2 gm. of meat peptone and 0.15 gm. of fish peptone, but as a rule they use ordinary peptone of a good make, in a capsule containing 0.5 gm. They add that probably if the ordinary peptone had been used here the results would have been the same.

Psychosexual Cardioneurosis.—Nathan discusses whether the set of symptoms, described by M. Herz as phrenocardia, is an autonomous affection, and decides in the negative.

Revue Franç. de Gynécologie et d'Obstét., Paris

July, 1921, 16, No. 7

*Hysterectomy in Puerperal Fever. J. Péry and P. Balard.—p. 369.

*Sacral Anterior Meningocele. E. Weber.—p. 377.

Inaugural Lecture in Gynecologic Clinic. G. de Rouville.—p. 393.

Hysterectomy in Puerperal Infection.—Péry and Balard quote the conflicting views of various authorities on this question. Some advise hysterectomy if there is adnexitis, and others regard adnexitis as a formal contraindication. In a case described, the general condition was grave and there was tenderness of the uterus in contrast to the soft abdominal wall, the second day after expulsion of two fetuses, two or three weeks after various efforts to induce abortion. Hysterectomy seemed indicated and was planned for the next morning and a turpentine abscess was applied. When morning arrived, the abdominal wall was found rigid and the right adnexa formed a large mass. This was accepted as formally contraindicating vaginal hysterectomy, the only intervention the woman's condition would have permitted. They regarded this adnexitis as a useful localization of the septicemia, a proof that the general infection was arrested and anchored, at least provisionally, in the adnexa. The fixation abscess developed and the temperature dropped, and by the seventh day after the abortion the woman was on the way to health. By the end of the fourth week the adnexa could no longer be palpated, the whole inflammatory process having been resorbed. The question of hysterectomy in puerperal infection was one of the questions on the order of the day at the recent annual meeting of the Association of Gynecologists and Obstetricians of French speaking countries which was held at Paris, October 1.

Sacral Anterior Meningocele.—Weber's patient was a woman of 27 who complained of dysmenorrhea and sterility. A tumor was palpated which proved to be a large meningocele in front of the sacrum. He has found eighteen similar cases on record. In this instance the removal of the large cyst was followed by acceleration of the pulse to 140, and by the twelfth day intense headache developed, with stiff neck and fever to 40 C. (104 F.), pulse 100, and hemolytic streptococci were found in the lumbar puncture fluid. Improvement followed and no streptococci could be found at the fourth lun-

bar puncture, and recovery was soon complete. The woman had a double uterus but has passed through an apparently normal pregnancy since. He drained the cyst bed into the vagina, and is inclined to accept this as the cause for the streptococcus infection; it would have been better to have drained through a pararectal incision, he says.

Schweizerische medizinische Wochenschrift, Basel

Sept. 22, 1921, 51, No. 38

- *Antethoracic Esophagus. A. Fonio.—p. 865.
- Bilateral Luxation of Clavicle. J. Dubs.—p. 871.
- Bilateral Fracture of Clavicle. J. Dubs.—p. 871.
- *Konrich's Stain for Tubercle Bacillus. V. de Mestral.—p. 873.
- Kidney Disease in the Pregnant. P. Hüsey.—p. 874. Cont'n.

Plastic Antethoracic Esophagus.—Fonio reports a successful case in a woman of 36, and says that the use of a skin tube made as long as possible, with the shortest possible segment of intestine to bridge the gap, has reduced the danger of esophagoplasty to the minimum while restoring excellent function to the gullet. Swallowing the food proceeds easily and smoothly. When Roux inaugurated the antethoracic method in 1907, he used a very long segment of bowel, and this was almost inevitably doomed to gangrene. Fonio describes the various operations required in his case and the final outcome, and then gives summaries of all other methods and instances of esophagoplasty he has found in the literature. He remarks that scarcely any other surgical intervention has ever had so many modifications and changes as this antethoracic technic. He cites several surgeons who have more than one successful case to their credit, and adds that we are fully justified in proposing the operation after failure of systematic efforts at dilatation in all benign cases of impassable stenosis. With cancer, it is out of the question; the patient with malignant disease is incapable of standing the operation, and could scarcely survive long enough for the final steps of the procedure.

The Konrich Stain for Tubercle Bacilli.—De Mestral endorses highly the ease, simplicity and fine results of the Konrich technic. It shows up the dark red bacilli on a green background: staining with hot carbolfuchsin, for half to two minutes; then rinsing with water; decoloring with a 10 per cent. aqueous solution of sodium sulphite for from half to one minute; rinsing with water; then counterstaining with malachite green (50 c.c. of a saturated aqueous solution of malachite green in 100 c.c. distilled water) for from a quarter to half a minute. The fact that no alcohol is required he regards as an advantage. He found this technic especially fine for paraffin sections. Konrich's original communication appeared in the *Deutsche medizinische Wochenschrift* 46:741, 1920.

Pediatrics, Naples

Sept. 15, 1921, 29, No. 18

- *Rumination in Infants. Romolina Pastore.—p. 825.
- *Banti's Disease in Children. A. F. Canelli.—p. 832.
- *Etiology of Malignant Lymphogranuloma. G. Jemma.—p. 853.

Rumination in Infants.—Pastore describes three cases of merycism in infants of only 6 days, 2 and 3 months old. She thinks that it is probably more common than generally suspected but escapes detection in very young infants. She was able to cure the tendency in the older children by giving the food a little thicker, but as this was not possible in the youngest child, the rumination has persisted. The regurgitation may be induced by the child's sucking its hand or sucking without anything in its mouth.

Banti's Disease in Children.—Canelli found a subacute and chronic inflammatory process in the liver of a child of 8 months. There was hyperplasia of the connective tissue and atrophy of the parenchyma, and the spleen showed sclerosis and hyperplasia of the connective tissue, with other abnormal findings. It weighed 65 gm. to the total weight of 3,480 gm., that is, 1:212 of the total weight, instead of the normal 1:325. The Wassermann test gave a positive reaction in both the mother and child. He tabulates for comparison with this case 9 other cases in children from 9 weeks to 6 years old, and in 10 between 7 and 14, and in 12 between 15 and 17. Recovery is recorded in 7 of the cases and improvement in 5, all after splenectomy. With one exception with spontaneous

recovery at 17, all the others succumbed, including 3 splenectomized children. The duration of the disease was from five months to thirteen years, this oldest case terminating in recovery. Syphilis was suspected in 9 cases and tuberculosis in 2. The anemia was pronounced in some and slight or absent in others. The article is to be continued.

Malignant Lymphogranuloma.—In Jemma's case the 6 months infant with malignant lymphogranuloma had tuberculosis, and the Much granular form of the infection was found in the glands involved. The malignant lymphogranuloma seems to develop in children with a syphilitic or tuberculous or other taint or predisposed by some constitutional anomaly.

Policlinico, Rome

Sept. 19, 1921, 28, No. 38

- *Experimental Research on the Blood Pressure. A. Marrassini.—p. 1259.
- *Sequelae of Epidemic Encephalitis. O. Falzi.—p. 1264.
- *Idem. A. Guerricchio.—p. 1266.
- Chenopodium in Treatment of Ankylostomiasis. A. Filippini.—p. 1268.

Research on the Arterial Pressure.—Marrassini has continued his research on dogs given saline infusion after venesection or given transfusion of defibrinated blood, with or without venesection. All his experiences confirm the greater benefit from transfusion of blood rather than infusion of physiologic saline.

Parkinsonian Symptoms After Epidemic Encephalitis.—Falzi reports ten cases of slow and progressive development of the parkinsonian syndrome after an attack of epidemic encephalitis, emphasizing the total failure of all the measures applied to arrest it, including the arsenicals, sodium cacodylate and organotherapy. The patients were all adults. In Guerricchio's case the lad of 16 sleeps for three or four hours and then is awake for a little longer interval but is apathetic; irritable when disturbed. This sequence of sleeping and wakeful periods during the day is succeeded at night by intense psychomotor agitation, tics, and loud talking and complaining through the night.

Riforma Medica, Naples

Aug. 20, 1921, 37, No. 34

- Bacillus from Case of Pyemia. F. Stinelli.—p. 794.
- *Protein Therapy in Venereal Disease. M. Trossarello.—p. 796.
- *The Bacillus Colombersis. I. Jacono.—p. 798.
- Influence of Proteins on Phagocytosis. A. Dominici.—p. 800.
- *Fixation Abscess. W. Janowski.—p. 803.
- Epicondylitis from Industrial Accident. E. Aievoli.—p. 805.
- Colony for Heliotherapy. G. Mariani.—p. 813.

Protein Therapy in Venereal Disease.—Trossarello reports here on nearly 100 new cases of venereal glandular disease given parenteral injections of milk as a routine procedure, to an average total of four. He begins with 5 c.c. and increases to 10 or 15 c.c., and states that the results observed entitle this protein therapy to be regarded as superior for all venereal adenitis cases, especially the incipient, and in the complications of gonorrhea such as arthritis, adnexitis and epididymitis. The rapid febrile reaction is the healing factor, he says, aside from the increase in the proteolytic ferments, etc., and the enhancing of the vitality of the protoplasm molecule.

Bacillus Colombersis.—Jacono discusses the fevers and tendency to fever which can be traced to *Bacillus colombersis*, and reports experimental research on its biology.

The Fixation Abscess.—Janowski remarks that as turpentine is a poison for the kidneys, this has militated against the wider adoption of Fochier's fixation abscess. But other drugs can be used for the purpose, and he suggests a trial of 1 to 3 c.c. of a 5 to 20 per cent. solution of silver nitrate; 1 or 2 c.c. of petroleum; or 1 to 3 c.c. of creolin. The extent of the fixation abscess is generally proportional to the amount of the chemical injected, and either of these chemicals can be given more freely than turpentine, especially with diseased kidneys.

Aug. 27, 1921, 37, No. 35

- *Kinking of Colon by Membrane. L. de Gaetano.—p. 818.
- The Sachs-Georgi Reaction in Syphilis. P. A. Meineri.—p. 824.
- Composition and Origin of Melanin. P. Rondoni.—p. 825.
- *Special Epileptic Equivalent in Boy. G. Martini.—p. 827.
- Surgical Complications of Displaced Kidney. E. Aievoli.—p. 828.
- Symptoms and Diagnosis of Diabetic Acidosis. G. Molinari.—p. 829.

Intestinal Disturbance from Jackson's Membrane.—The woman of 44 was cured by operative intervention after eight years of pain and other symptoms in the ileocecal region, finally explained by compression of the ascending colon from Jackson's membrane. There were no signs of inflammatory origin, and de Gaetano is now studying in fetuses the origin of such membranes.

Special Epileptic Equivalent.—The convulsive movements are only in the thighs which are rubbed violently together for three to five minutes. The subject is a boy of 11, and the attack begins with pallor and is followed by a feeling of heaviness in the head for a few hours. The attacks began at the age of 30 months, and returned about every two or three days until the age of 6 when they spontaneously ceased, but returned again at the age of 11, occurring almost every day or even twice a day.

Archivos Españoles de Pediatría, Madrid

July, 1921, 5, No. 7

*Pernicious Anemia in Girl of Three. E. P. Lasnier.—p. 385.

*Idiopathic Panotitis in Boy of Five. A. Martín Calderín.—p. 395.

Another Madrid Child with Kala Azar. J. Bravo y Frías.—p. 403.

Pernicious Aplastic Anemia in Child.—The child of 3 had been healthy until what seemed to be measles—there was no eruption, but a frank case at the time in another child in the family. This was followed by headache and other pains, oliguria, and blood in urine and stools. The progressive anemia suggested acute lymphoid leukemia without leukocytosis during life, but necropsy at the tenth week showed evidences of pernicious aplastic anemia, the lack of any reaction on the part of the blood and lymph producing apparatus.

Idiopathic Panotitis.—Nothing could be found to explain the sudden onset of the acute bilateral disease in the middle and internal ear of the boy of 5, previously healthy except for measles at 3, and a mild and transient influenza about a year later. The parents were healthy. The acute panotitis developed with high fever and partial loss of consciousness, contracture of the back of the neck and a few convulsions. These subsided after two days but the child was then totally and permanently deaf. No benefit was derived from vigorous measures for revulsion, potassium iodid, pilocarpin, etc.

Archivos Latino-Amer. de Pediatría, Buenos Aires

July-August, 1921, 15, No. 4

*Fat Buttermilk in Infant Feeding. E. Gaing.—p. 261. Cont'd.

*Decompressive Operation for Fracture of Child's Skull. J. M. Jorge.—p. 272.

*Infant Welfare Work of Public Health Service. C. Ferreira.—p. 282. Cont'd.

*Ichthyosis. M. A. Guerrero.—p. 296.

Influenzal Croup. F. R. Fernández.—p. 301.

Tuberculous Meningitis with Polynucleosis in Boy. M. Lasala.—p. 303.

*Hydroa Vacciniforme. A. Carrau and M. Aguirre Aristegui.—p. 307.

*Acidosis and Acetonemic Coma in Girl. M. Ponce de León.—p. 312.

*Genital Tuberculosis in Boy of Five. V. Zerbino.—p. 317.

Fat-Rich Buttermilk for Infant Feeding.—Gaing's use of buttermilk with added cream—acid hyperfat milk, as he calls it—has already been mentioned in these columns. His further experience with it has increased his enthusiasm for this method of infant feeding. It can be used, he says, from the very first days of life to supplement or substitute breast feeding, and in various pathologic conditions later, as he describes. It supplies a food rich in calories, in small volume, and without carbohydrates. Even lactose is in small amounts. In this instalment he classifies the cases and results in 160 infants. He acknowledges that it conflicts with some of the theories of infant feeding in vogue, but the way the infants thrive on it answers all objections. (See page 1055.)

Early Trephining with Fractures of the Skull in Children.—Jorge reports the case of a boy of over 4 who fell from a height of about 45 feet. He was bleeding from mouth, nose and ears when picked up, and lay in coma for over five days, repeated lumbar puncture showing high pressure in the fluid, and the temperature kept high. Crepitation was apparent on palpation of the right temporal fossa. A skin and bone flap was cut and turned back here, and an extradural hematoma evacuated, and the middle meningeal artery ligated. The lateral ventricle was then punctured, releasing 200 c.c. of bloody fluid, and the dura began to pulsate. Camphor had

been injected regularly, and epinephrin given by rectal drip. The day after the operation the child moaned some, and took a little water by spoonfuls, and the day after this it roused from its stupor. Complete clinical recovery followed, the child, five months later, showing no trace either physically or mentally of the accident except the somewhat depressible bone in the trephined area where Jorge had sliced off part of the bone of the flap before replacing it. Roentgenography at the time of the fracture showed the crack in the petrous bone but five months later showed little trace of it. The hemorrhage is what renders the prognosis grave with fracture of the skull, and it is usually inside the dura. Bradycardia is an important symptom when present, but in this case there were hyperthermia and tachycardia although there was no infection. Trephining is the only means to ward off serious injury regardless of the seat of the fracture. A decompressive operation under local anesthesia will benefit in every case of fracture of the skull, especially in children, when repeated lumbar puncture does not bring relief. It may ward off serious sequelae.

The Public Health Service in the State of S. Paulo.—This is the official report on the work of the infant protection department and of wet-nurse inspection.

Hereditary Ichthyosis.—Guerrero reports a case of ichthyosis in a boy of 6 belonging to a family in which, in the course of several generations, there had been sixteen cases of ichthyosis, all in males, but always transmitted by the mothers, themselves free from it. The disease does not affect all the sons of these mothers but only those that resemble the mother. The sons that resemble the father seem to have escaped. There is a history of syphilis in the family of this case in the boy of 6, and specific treatment is now being pushed. If this fails, parenteral protein therapy will be given a trial.

Hydroa Vacciniforme.—Carrau and Aristegui state that the case of Bazin's estival hydroa described is the only one encountered in many years of practice. The boy of 8 looked as if he had smallpox, and the dermatitis persisted for forty-five days. He was kept in a cubicle with curtains to protect his skin from the light; there were no complications and the general health did not seem to suffer. Whitish scar tissue was left in the areas affected. It was the second time that the child had been thus affected. The urine had not been red, and tests for hematoporphyrin were negative.

Acetonemic Coma.—The girl of 6 had been subject to periodic vomiting, with acetonemia, from the age of 2. The attacks of vomiting were accompanied by slight fever, intense thirst and drowsiness, but the attacks lasted merely two or three days, and in the intervals she seemed entirely normal. The attacks grew gradually worse, finally entailing an irritable condition. The latest attack had been preceded by a few days of nausea and depression; then came the vomiting and stupor to actual coma with the odor of acetone on the breath. The palms and soles felt like parchment—a sign of acidosis. Tepid baths and sodium bicarbonate by mouth and rectum improved conditions, and by the third day the child seemed normal and hungry, but the acetonuria persisted for fifteen days longer. There was a slight acetonemia relapse two months later (February, 1921) as the diet of carbohydrates ordered had not been followed. Since then alkaline medication has been given occasionally to keep the reaction of the urine alkaline, and there have been no symptoms at any time. Ponce remarks that many cases of recurring supposed ordinary indigestion are probably of this type. The discovery of ketone bodies in an intensely acid urine is pathognomonic. In this case notwithstanding the gravity of the acetonemic coma, the child recovered rapidly without necessity for giving the alkalines by the vein. Fats, oil, etc., are contraindicated at first; milk is directly injurious in acetonemia on this account. He hopes that by keeping the urine alkaline it may be possible to ward off attacks.

Tuberculous Orchitis in Child.—The orchitis and epididymitis of tuberculous origin in the boy of 5 had followed a trauma of the region. The tuberculous process had apparently healed under several months of heliotherapy but flared up anew during intercurrent measles. It has been retrogressing since and the general condition has kept good throughout.

Zerbino calls attention to this acute and temporarily mild form of genital tuberculous lesions in children. But the stress of puberty may rouse them anew.

Brazil-Medico, Rio de Janeiro

Aug. 6, 1921, 2, No. 4

*Atypical Amebiasis. U. Paranhos and Paiva Reis.—p. 37.

*Roentgen-Ray Treatment of Uterine Cancer. O. Clark.—p. 39.

*Medicolegal Import of Ecchymoses. Chapot Prevost and Ricardo.—p. 41.

Atypical Forms of Intestinal Amebiasis.—Five cases are described in which nothing but discovery of ameba cysts in the stools explained the apparent mucomembranous enteritis, dyspepsia with neurasthenia, infantile gastro-enteritis, or chronic colitis. Under emetin, with or without epinephrin, the symptoms rapidly subsided, curing the apparent chronic invalids and arresting the sowing broadcast of the amebas. The stools should be examined within an hour or half an hour, and care should be taken not to compress the amebas. To avoid this, a fine silk thread can be laid around the specimen on the slide to protect it from the cover glass. No stain is required. If the stool cannot be examined within an hour, by keeping it at 37 C. for an hour the amebas may regain their movements.

Radiotherapy of Uterine Cancer.—Clark describes the anti-cancer propaganda in Germany and the success of deep roentgenotherapy at Erlangen.

Aug. 13, 1921, 2, No. 5

*Diagnosis and Treatment of Suppurative Foci. J. Monjardino.—p. 49.

*Acute Rheumatism Following Chorea. Ribeiro da Silva.—p. 53.

*Mode of Action of Arsenicals in Syphilis. Pomaret.—p. 54.

Diagnosis and Treatment of Empyema.—Monjardino gives an illustrated account of his treatment of twelve patients with empyema in the thorax. The healing was complete in less than a month in four; in less than two months in six, and in less than eighty days in two. He used six tubes to distribute and drain out the Dakin fluid, under bacteriologic and roentgenologic control throughout.

Postchoreic Acute Articular Rheumatism.—The girl of 8 had developed normally, with no signs of rheumatism, when slight chorea developed and subsided in a month. Contrary to the physician's orders, the child was allowed to return to school, and the chorea reappeared, very severe, rebellious to sedatives until arsenous acid was given in progressive doses by Comby's method. As the chorea subsided, acute articular rheumatism developed, the child screaming at the slightest touch.

Aug. 20, 1921, 2, No. 6

*Cancer in Brazil. O. Clark.—p. 65.

*Syngamus and Other Parasites of Cats. Lauro Travassos.—p. 67.

*Medicolegal Notes. Chapot Prevost and José Ricardo.—p. 71.

Cancer in Brazil.—Clark states that in Rocha Faria's service only forty cases of cancer have been diagnosed in the last ten years, and foreign writers refer to Brazil as a land where malignant disease is comparatively rare. But he presents arguments to prove that this rarity is only apparent. As necropsies are seldom possible in the service, the deaths are credited to malaria or other intercurrent disease, and the cancers escape detection. The rarity in the general population is due to lack of systematic records, the truth being that Brazil, and especially Rio, are not on a par with other countries in this respect. He explains that the increase in cancer of late years the world around is probably only apparent. The more advanced the hygiene and civilization, the greater the number of persons that will survive to die of cancer, and the greater the number of cases recorded, as vital statistics are compiled more carefully. But the obvious reason for the apparent increase is that progress in diagnosis reveals malignant disease that until recently would have escaped detection.

Gaceta Médica de Caracas, Venezuela

May 15, 1921, 28, No. 9

*Relapsing Fever. R. Pino-Pou.—p. 111. Cont'd.

Relapsing Fever.—Pino Pou announced in 1918 that he had found a case of relapsing fever in Venezuela. He here reviews the literature on relapsing fever in general and Franco's report on cases seen in Colombia in 1906, Cevallos' in Peru in 1919, and other cases in Venezuela, Panama, Mexico, Cuba, Chile and Bolivia. It probably has often

been mistakenly diagnosed as malaria. Examinations of the blood may not prove decisive but inoculation of rats is conclusive. The research of Tejera has established that the insect host transmitting the disease in Venezuela is a tick. This ornithodoros has habits like the bedbug, coming out to suck blood at night and hiding in cracks during the daytime, preferring high, cool localities. Monkeys, dogs, guinea-pigs, hens and rabbits seemed to be refractory to the virus, but rats developed the disease with remarkable facility and constancy, inoculated directly from a man or other rats, but the experimental disease was mild. Only one of the monkeys inoculated developed a very mild form. The spirochetes were very scanty in the blood in the Venezuela cases. Sometimes as many as 100 or 200 microscopic fields had to be examined before even one was discovered, and in some cases only inoculation of animals revealed the spirochetes. This characteristic links together the relapsing fever of Venezuela, Colombia and Panama, and classifies it apart from the European and African types, which are pathogenic for monkeys, but for rats only after passage through a monkey or rat. The cases observed in Venezuela by Pino Pou and others are summarized, and illustrations are given of the tick transmitting the disease.

Semana Médica, Buenos Aires

July 14, 1921, 28, No. 28

*Perforation in Typhoid. N. D. Rosso.—p. 33.

*No Morphin in Kidney Colic. J. Nin Posadas.—p. 47.

*Tuberculous Laryngitis. A. Cetrángolo.—p. 48.

*Hernia as an Industrial Accident. A. A. Masciotra.—p. 49.

*The Soler Oscillographic Pulse Pressure Recorder. F. L. Soler.—p. 56.

*Deep Roentgen-Ray Treatment of Cancer. C. Heuser.—p. 58.

Perforation in Typhoid.—Rosso does not believe that it is possible always to distinguish between the sharp and persisting pain low in the abdomen from perforation in typhoid and the symptoms from endocrine insufficiency which may deceptively simulate it. But he advises immediate operation, even in case of doubt, and the earlier the better. Some typical instances are described; the perforation was not suspected in one case until irreparable damage had been wrought. In the next case the only symptom was the sudden acute and localized pain, and the laparotomy and suture of the perforation followed within four hours, the results ideal. In another case the interval before the operation was only one hour, but the escaping feces had already set up peritonitis. The pain in one of the cases related developed under the physician's hands as he was palpating the abdomen. As circumscribed peritonitis was found in every case, he thinks there must have been an inflammatory reaction before actual perforation. This is another argument in favor of early intervention. In a fourth case a sudden intense localized pain in the epigastrium was assumed to be from a perforation but before the arrangements were made for the laparotomy, the pain subsided, the abdominal walls were soft throughout, and under epinephrin and pituitary treatment the condition continued to improve. An upset in the endocrine balance had evidently been responsible for the pain and tenderness. The laparotomy in these cases of false perforation has always disclosed extreme congestion of the bowel vessels, with partial dilatation of the bowel, the suffering of the solar plexus simulating the pain from a perforation. The pain spread to McBurney's point, and fluctuated, and palpation increased the pain; the pulse also fluctuated, and there were painful spasms in bladder and heart, and waves of dysuria and tachycardia, the whole pointing unmistakably to a pluriglandular disturbance from the typhoid toxins, affecting the suprarenals predominantly.

Treatment of Renal Colic.—Nin Posadas warns that morphin arrests the peristalsis of the ureter, and hence it checks the downward passage of the calculus causing the colic, and perpetuates the pain. Morphin should not be given but some other sedative such as papaverin or pure opium, which does not have this action on smooth muscle fibers.

Tuberculous Laryngitis.—Cetrángolo declares that this pathologic condition would lose much of its bad reputation if we were in the habit of looking for it so that we could discover it in an earlier and curable stage.

Deep Roentgen-Ray Treatment of Cancer.—Heuser writes from Frankfort to describe the work being done in this line in Germany.

Siglo Médico, Madrid

July 2, 1921, 68, No. 3525

Epinephrin in Muscular Dystrophia. R. del Valle y Aldabalde.—p. 621.
Innervation of Cicatricial Tissue. S. Ramón y Cajal.—p. 623.

Improvement of Muscular Dystrophia Under Epinephrin.—The muscles in the young man, especially those of the shoulders and legs, had become very weak in the last fourteen months, presenting a pseudohypertrophic atrophy of the Duchenne-Griesinger type. No benefit was derived from any of the various measures applied until epinephrin was given systematically, with massage and electricity. Great improvement was realized, the patient now walking without crutches, and, except that the muscles tire easily, seems almost normal. All authors agree that the most that can be hoped is to arrest the progress of the dystrophia.

Innervation of Scar Tissue.—Cajal excised a portion of a richly innervated tissue such as the lip, the tongue, or the skin of the paw in young rats, kittens and rabbits. The defect healed over rapidly. In five days the mutilated ends of the sensory nerves had sent out fibers which, after ramifying, twisting and turning, finally by the twentieth to the twenty-fifth day reached to the epithelium. The cicatricial tissue had no glands or hair bulbs, but these experiments demonstrate that in young animals and in tissues exceptionally well innervated, regeneration of sensory nerves does occur on a small scale. The new nerve fibers in their capricious twists and turns seem to be seeking the missing tactile corpuscles. It would be interesting, he adds, to study the partial or total regeneration of Meissner's and Krause's corpuscles and of the pacinian and genital corpuscles when the connected mesodermic factors have been cut out. It would be interesting, further, to learn whether the mutilated nerves under extensive loss of skin substance form small neuromas like those in a stump after amputation. He refers to the research on regeneration of nerves done by others, especially by Tello on the retina, by Boeke on the nerves of taste, and Cardenal's study of amputation stumps in his own laboratory, and Marinesco's, likewise on amputation stumps. But none of these seem to have studied whether there is regeneration of the mesodermic apparatus with which the nerves were formerly connected. "The nerves may regenerate, but if there is nothing for them to innervate, will they atrophy?"

Beiträge zur klinischen Chirurgie, Tübingen

1921, 123, No. 2

- *To Correct Shortening of the Femur. Kortzborn.—p. 241.
- *Projectile in Heart. Koch.—p. 266.
- *Unilateral Dislocation of Pelvis. W. Haumann.—p. 278.
- *Central Dislocation of Head of Femur. H. Rahmann.—p. 308.
- *Surgical Treatment of Gastric Ulcer. H. Brütt.—p. 324.
- *Import of Urochromogen Elimination in Surgical Tuberculosis. G. Düttmann.—p. 454.
- *Swine Erysipelas and Erysipeloid. Idem.—p. 461.
- *Swine Erysipelas in Man. E. Schmidt.—p. 471.
- *To Bridge Gap in Quadriceps. F. Schreiber.—p. 480.

To Correct Crippling from Shortening of Femur.—In the case reported by Kortzborn the femur had healed after a war fracture with a shortening of 10 cm., and contracture of the quadriceps held the knee flexed. This muscular contraction had more of a crippling effect than the shortening of the bone, and measures to correct this may render an operation on the bone unnecessary. In the case described, the five year shortening of the femur was reduced from 10 to 4 cm. by osteotomy and nail extension in semiflexion in a hammock support. The patient was instructed to exercise his knee actively as much as possible, and to return in a year for an operation on the quadriceps if the contracture still persists. Success has been found more certain with a plastic operation on the sartorius, according to Payr, than in the bone lengthening interventions.

Unilateral Luxation of the Pelvis.—Haumann has a record of 18 cases of this kind, including 6 recent ones and 9 in which he was consultant later. In 3 of the cases the dislocation was accompanied by fracture of a bone in the other half, and in 6 cases in the same half. The outcome was favorable as a rule in from one to seven months. In some of the old cases the luxation had not been recognized and corrected, and the parts had healed in abnormal relations, but the pelvis

seemed strong and only in 3 cases was there curvature of the spine, and it was slight. The bladder disturbances rapidly retrogressed, and the tendency to paresis of the leg also promptly subsided. In 2 cases the nerves in the calf seemed weak for years afterward. Full earning capacity was regained in 8 cases, and in 3 others the disability was estimated at 10 per cent. In no instance was it over 25 per cent. One of the men died the ninth day, and another during the eighth month from the effects of the accident. Bandages applying traction reduced the dislocation in 2 cases, and instances of spontaneous reduction have been published. The dislocation is often complicated by torsion.

Central Luxation of Head of Femur.—Rahmann concludes from his sixteen cases that strict bed rest plus massage and exercising the joint are all that is necessary as a rule with central luxation of the head of the femur; at most, extension. Even when the central displacement of the head was not recognized, and hence not treated, the disability did not amount to more than from 15 to 40 per cent. by the end of the second year. With medicomechanical measures the outcome is still better. By keeping the limb in abduction, adduction contracture is warded off.

Surgical Treatment of Gastric Ulcer.—Brütt's 130 page article analyzes the experiences in this line in Kümmell's service at Hamburg, with the remote results in 260 cases recently reexamined. Among his conclusions is the dictum that transverse resection gives the best remote results with a hard ulcer elsewhere than at the pylorus. The mortality was only 5 per cent. while it was 4 per cent. with gastroenterostomy alone.

Test for Urochromogen in Surgical Tuberculosis.—Düttmann declares that a positive response to the M. Weisz test for urochromogen is a reliable index of the severity of the pathologic condition and its modification by treatment. Patients excreting urochromogen continuously must be regarded as in a grave condition. It should turn the scale in favor of radical rather than conservative treatment with a tuberculous process in bone or joint. If the response persists positive after the operation, this is a sign that the operation was not radical enough or that there is some other focus elsewhere. Not until the urochromogen disappears from the urine are we justified in counting on a favorable outcome. With amyloid degeneration of the kidney, the urochromogen cannot be eliminated, and this is a bad omen. The urochromogen represents the preliminary stage of the diazo reaction but is more sensitive than the latter. The simple technic has been repeatedly described, as on page 1371 of THE JOURNAL for October 22.

Swine Erysipelas in Man.—Düttmann has observed 8 cases recently which he is convinced were instances of rötlauf in man. The source of infection from a pig with the disease was known in three of the cases, but in the others there was no suspicion of the origin of the symptoms in the patient, and erysipeloid had been the label. In his cases as also in four reported by Schmidt in the following article, recovery was complete in from one to three days under serotherapy.

Deutsche medizinische Wochenschrift, Berlin

Aug. 11, 1921, 47, No. 32

- Metabolism in Obesity. F. Rolly.—p. 917. Begun No. 31, p. 887.
- *The Urine Test for Tuberculosis. G. Farago and P. Randt.—p. 919.
- Debye-Much Partial Antigens in Pulmonary Tuberculosis. W. Düll.—p. 921.
- Diagnosis of Hydatid Cyst of the Liver. F. Partsch.—p. 923.
- *Temporary Exclusion of Phrenic Nerve for Hiccup. F. Kroh.—p. 925.
- *The Physiologic Significance of Adenoid Tissue. O. Fleischmann.—p. 925.
- Motor Device for Prosthesis of Lower Extremity. Nossen.—p. 926.
- Trismus Caused by Acute Circumscribed Edema. E. Ball.—p. 927.
- Cowpox Inoculation as Protection Against Pertussis. Hammes.—p. 928.
- Ovarian Treatment of Exophthalmic Goiter. S. Koslowsky.—p. 928.
- Present-Day Views on Uremia. H. Strauss.—p. 929.
- Treatment of Abortion. L. Blumreich.—p. 930. Cont'n.

Wildbolz' Own Urine Reaction.—Farago and Randt give the results of their investigations on the Wildbolz own urine reaction for the determination of the activity of tuberculosis. The concentrated urine of patients with active pulmonary tuberculosis (with positive tubercle bacilli findings) yielded in persons sensitive to tuberculin twenty-seven positive, and only one negative, reactions. But also with the

urine of persons who did not offer the slightest evidence of tuberculosis (physicians, hospital personnel and patients with mild ills) they obtained thirty-seven positive and four negative reactions. They conclude that the own urine reaction is caused essentially by the traumatic and chemical effects of the injected concentrated urine, and has therefore no value for the diagnosis of tuberculosis. Whether the urine of tuberculous subjects contains specific substances that, after elimination of disturbing factors (salt effect), have a diagnostic value, remains to be decided by further investigations.

Temporary Exclusion of the Phrenic Nerve.—In eight very severe cases of hiccup Kroh found blocking of both phrenic nerves an exceedingly effective remedial procedure.

The Physiologic Significance of the Adenoid Tissue.—Fleischmann states that the peculiar manner in which atrophic rhinitis develops (following trauma, for example) throws light on the physiologic significance of the adenoid tissue. It secretes substances easily oxidizable, and supplies thus material on which the oxygen that passes through the buccal and nasal cavity may satisfy its oxidizing tendency, thus protecting the tissues from its otherwise harmful effects.

Zentralblatt für Gynäkologie, Leipzig

Aug. 6, 1921, 45, No. 31

Baneful Effect of Pregnancy on Cancer of Uterus. Frankl.—p. 1094.
Gynatresia Hymenalis Associated with Pregnancy. Gross.—p. 1095.

*Effect of Labor Pains on Angiospasm. H. Hinselmann.—p. 1096.
Stasis Hemorrhage in Eclampsia and Pregnancy Kidney Disease. E. L. Zöllner.—p. 1097.

Inquiry into Origin of Amniotic Fluid. F. Bertkau.—p. 1099.

Fourth Maneuver in External Examination of Parturients. Baumm.—p. 1101.

*Puncture of Fetal Membranes Plus Quinin for Induction of Labor. A. Fülöp.—p. 1103.

Influence of Labor Pains on Angiospasm.—Hinselmann recalls that albuminuria and eclampsia arising during pregnancy are frequently ascribed to a disturbance in the blood supply to the organs concerned, and that many have suspected that angiospasm were the cause of the poor blood supply. The latter supposition has received support by the observation that, in the capillaries of the skin, angiospasm can be demonstrated as being abnormally increased in the presence of albuminuria and eclampsia. In a curve registering synchronously the pains and angiospasm, during the first stage of labor, in a patient suffering from a pregnancy kidney affection, Hinselmann points out that the labor pains coincided markedly with the angiospasm, and holds that the supposition that labor pains may increase angiospasm seems proved. This factor makes it clear why all affections with which is associated poor capillary circulation are unfavorably influenced by the birth process.

Puncture of Fetal Membranes Plus Quinin for Induction of Labor, Normal or Premature.—Fülöp is convinced that the simplest and, from the standpoint of infection, the least dangerous procedure for the induction of labor is the puncture of the fetal membranes by the Scheel method. However, one disadvantage of the method lies in the fact that the effect of such intervention is too slow (in one case labor did not commence until after eighteen days). A further disadvantage is that if version becomes necessary, the absence of the amniotic fluid renders this more difficult. Fülöp has sought to eliminate the disadvantages of the method by combining quinin medication with the puncture of the membranes, thus inciting the uterus to greater activity, reenforcing the pains and shortening the duration of birth, so that it was but little above normal. The labor pains began in 2.3 hours, on the average, in fifteen cases. The duration of birth averaged 24.9 hours.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1920, No. 10. Parallel Dutch-English Edition

*Insanity in Dutch East Indies. F. H. van Loon.—p. 2.

Suggested Measures for Promoting Hygiene. J. J. van Lonkhuijzen. p. 50.

Influenza in Netherlands Indies, 1918.—p. 76.

Insanity in Dutch East Indies.—This is the official report to the authorities on the insane of the Acheen province of Sumatra. The proportion of dangerous lunatics is said to be very large.

1920, No. 11, Parallel Dutch-English Edition

*Work of the Public Health Service in Dutch East Indies, 1911-1918. C. D. de Langen, P. C. Flu, A. A. Hulshoff and J. Huizinga.—p. 4.

The Public Health Service in the Dutch East Indies.—This bulky volume shows the progress realized in sanitation and welfare work in general in the Netherlands Indies. Smallpox seems to have been nearly eradicated, but plague still keeps a foothold although under control. In 1914, there were 15,703 victims, and in 1915 the subdirector of the Pasteur Institute, Dr. W. A. Borger, succumbed to pneumonic plague. Twenty leper asylums have been provided. It is planned to treat yaws with arsphenamin. But malaria is the main danger, and this has been incessantly and zealously combated. [Although the conditions for exterminating mosquitoes are exceptionally unfavorable on account of the extensive coast line and frequent lack of slope for drainage, the service is said by experts elsewhere to have accomplished wonders with the means available.]

Hospitaltidende, Copenhagen

Aug. 24, 1921, 64, No. 34

*Surgical Treatment of Chronic Nephritis. T. Rovsing.—p. 529.

Surgical Nephritis.—Rovsing has now a record of 77 cases of aseptic nephritis and nephrosis in which he slit and loosened up the capsule. This form of nephrolysis, he insists, is entirely harmless, which, he adds, cannot be said of the operation of slitting the kidney. His first operation of the kind was done in 1892, when he slit and loosened up one capsule and thus released an accumulation of blood on the surface of the chronically diseased kidney. The sudden onset of intense pain had compelled intervention on assumption of a calculus. Edebohls' decapsulation is practically the same thing, and many remarkable recoveries have followed these operations. In one case the young man developed edema, and albumin up to 24 per thousand was found in the urine. Eight months of hospital treatment on a milk diet brought no relief, the edema becoming more pronounced even under a month of salt-free diet. When Rovsing saw the case there were also tube casts, 30 to 56 per thousand albumin, and 10 gm. urea in the urine but the residual nitrogen and the blood pressure were normal; hemoglobin 46 per cent. Other symptoms confirmed the chronic tubular nephritis or nephrosis. He slit the capsule of the right kidney and loosened it up. It was not taut but rather loose, and the kidney tissue contained innumerable small yellowish white spots. The edema, hydrothorax and ascites showed great improvement, the girth becoming reduced from 108 to 78 cm. The ureter catheter nearly a month later showed only 8 per thousand albumin and a few isolated tube casts in the urine from this kidney, while they were still numerous in the urine from the other kidney and the albumin formed 41 per thousand. These findings encouraged him to operate on the other kidney, and after this second nephrolysis all traces of edema disappeared and also the albuminuria and the patient seems perfectly well.

How to explain this cure by the nephrolysis is a question. The capsule was not stretched nor abnormally adherent and the circulation had not been hampered, and the benefit was too prompt to be ascribed to development of new blood vessels. Slitting the capsule may possibly have released some toxic substances that had accumulated under it, and been the source of the nephrosis. In other even severer cases the course was the same, and in one case the interval since has been eleven years with no sign of further disturbance. He reports also some remarkably favorable experiences with advanced contracted kidney, the blood pressure falling and the process apparently arrested and life prolonged. In one case in a woman of 44 there has been no return of the formerly frequently recurring hematuria during the three years since. He does not resect the capsule, but always takes a scrap of the kidney for microscopic examination, and catheterizes both ureters before and later. The only instances in which no benefit was apparent were 2 cases of unilateral hemorrhagic parenchymatous nephritis. One was cured later by nephrectomy and the other, he thinks, might have been. In his 3 cases of glomerular nephritis the two unilateral cases were cured by nephrolysis but the bilateral case was

only improved. All were cured of the 26 cases of interstitial nephritis and perinephritis with attacks of pain and hematuria but no albuminuria in the intervals. There were signs of the uric acid and oxalic acid diathesis in these cases, and he is inclined to incriminate toxic action from these as responsible for the disturbances. Of the 32 cases with albuminuria, 19 were entirely cured, mostly those of the urate group. The cases with only more or less improvement were of the contracted kidney type. In conclusion he warns that chronic nephritis is unilateral more often than is generally recognized.

Norsk Magazin for Lægevidenskaben, Christiania

September, 1921, 82, No. 9 and Supplement

- *Arteritis Neither Tuberculous nor Syphilitic. F. Harbitz.—p. 609.
- *Seropurulent Meningitis. H. F. Høst.—p. 631.
- *Acute Psychosis with Valvular Defect. H. F. Høst.—p. 634.
- *Unilateral Syringomyelia. H. Krohn.—p. 637.
- *Spontaneous Fracture of Patella. T. S. Hanssen.—p. 641.
- *Extralimbal Tangential Sclerectomy for Glaucoma. S. Holth.—p. 645.
- Inversion of Testis with Torsion of Spermatic Cord. J. Borchgrevink.—p. 652.
- *Operative Treatment of Brain Tumors. V. Magnus. Supplement.

Arteritis of Unknown Origin.—Harbitz refers to arteritis for which neither syphilis nor tuberculosis is responsible, describing some cases of a hitherto unknown microscopic structure. In one case the arteritis was found in a kidney removed for persisting hematuria in the young man, the organ otherwise normal. In the cadaver of a man of 40 who had presented the clinical picture of rheumatic purpura, an infiltrating and proliferating inflammatory process was found in the arteries and veins in the skin. In two other cases the arteritis was in the brain; one of these patients was probably syphilitic. In a fifth case, cerebral syphilis was accompanied by changes resembling periarteritis nodosa in some respect. If sought for, he says, arteritis of obscure origin might be found more common.

Serous Meningitis?—Høst reports a case of meningitis with sudden stormy onset in a young man with fever to 40.4 C. (105 F.) intense headache, stiffness of the back of the neck, vomiting and vertigo when he tried to sit up, but the mind was clear and there was nothing to suggest paralysis. The pupils were uneven but reacted well. The Lasègue sign was positive. The third day the headache disappeared, and the stiffness of the neck the following day, and by the seventh day the temperature was normal and recovery was complete. Lumbar puncture was applied three times but the fluid was sterile although turbid and with positive Pandy reaction and lymphocytosis; pressure, 130 to 120 mm. The findings differed from those in Quincke's serous meningitis; in this the fluid is clear and under high pressure. The fluid at the first puncture seemed typical of tuberculous meningitis, but it had cleared up by the second puncture. Treatment had been only ice to the head, and, the first day, acetylsalicylic acid to relieve the pain.

Acute Psychosis with Valvular Disease.—The woman had been given bromids in the course of hospital treatment for mitral and aortic insufficiency. An acute psychosis followed for which, Høst thinks, the bromid must be incriminated although she had taken only 60 gm. of potassium bromid at the time.

Syringomyelia.—A case of incipient unilateral syringomyelia in a man of 57 is described in detail. Considerable improvement was realized under repose, baths, massage and roentgen exposures of the spine.

Osteopsathyrosis.—Hanssen reports two cases of fracture of the patella, both in young men, both with extremely fragile bones. The fracture occurred without direct injury; in one case during the bending of the knee, in the other in jumping down steps.

Operative Treatment of Glaucoma.—Holth describes with illustrations what he calls a new technic: tangential and extralimbal sclerectomy in chronic glaucoma, and he enumerates five special advantages of this method.

Surgery of the Brain.—Magnus' monograph is published as a separate pamphlet of 138 pages, and describes his experience with 112 cases of brain tumors, 1903 to 1920, with a total of 197 operations. The immediate mortality was 8.1 per cent. He has also operated in 20 cases of epilepsy and

in 31 of trigeminal neuralgia, with recovery in this last group of all but one. His record is unique in that he was responsible for both the diagnosis and the surgical treatment in the 112 brain tumor cases. They are described in detail, and the necessity for palliative trephining is emphasized, as soon as a brain tumor is diagnosed and choked disk is discovered and no certain signs to point to the focus can be detected, or evidence of the metastatic nature of the lesion. The earlier it is done, the better the chances for preserving vision. The dura should always be opened and as amply as possible. With typical jacksonian epilepsy, an exploratory operation on the skull should be done without waiting for choked disk. If the tumor seems to be deep seated, the bone must be cut away extensively and the dura opened up wide. If the dura is distended, he has found that it is better to puncture the lateral ventricle preliminary to opening the dura. Traumatic epilepsy must always be trephined and the dura opened, and with persisting headache after a trauma to the head search should be made for choked disk at intervals of a few weeks at longest. His experience has further confirmed that when alcohol injections fail to relieve trigeminal neuralgia, there is no recourse except resection of the pontine root of the gasserian ganglion. Of his 112 brain tumor patients, 12 were clinically cured by the operation, with earning capacity restored, the intervals since from four to ten years. In 48 cases the operation relieved the pain and saved vision, till death from six months to five years afterward. In 7 others great improvement followed, but a cerebral defect was left. Fully 50 per cent. of the total patients thus benefited more or less from the operation. No improvement was realized in the 10 cases of genuine epilepsy.

Uppsala Läkareförenings Förhandlingar, Uppsala

Sept. 1, 1921, 26, No. 5-6. Only first half indexed

- *J. Aug. Hammar Festskrift.
- *Diagnosis of Perforation of Gastric Ulcer. B. Bager.
- *Ocular Nystagmus and Railroad Nystagmus. R. Bárány.
- *Hereditary Ataxia. E. Bergman.
- *Lesions in Oblongata and Pons. G. Bergmark.
- *Effect of Epinephrin on Healthy Persons. A. Bjure and J. Svensson.
- Gallbladder Originally Part of Liver. I. Broman.
- *Operative Treatment of Dysmenorrhea. H. Forssner.
- Anatomy of Thymus in Aging Rabbit. E. Gedda.
- *Tests for Reducing Substances in Dead Tissue. W. Geschwind.
- *Genesis of Tongue Papillae in Man. T. J. Hellman.
- *Localization in Cerebellum. C. Hesser and A. Troell.
- *Development of Falx Cerebri and Tentorium. O. Hultén.
- *Agenesis of Corpus Callosum. J. V. Hultkrantz.
- *Structure of Healthy Ovaries. P. Häggström.
- *The Childhood of Obstetrics. C. D. Josephson.
- *Access to Pons and Cerebellum. J. Karlefors.
- *Epidemic Encephalitis. A. Kristenson.

Hammar Festskrift.—This bulky and handsomely illustrated volume is dedicated to Prof. J. A. Hammar on his sixtieth birthday. It contains thirty-eight articles by members of the Uppsala Medical Society and others, and opens with a list of Hammar's works, ninety in all, mostly on constitutional anomalies and the endocrine system. Each article is paged separately in the Festskrift, which is a regrettable feature. All the articles but one are in German or English.

Roentgen Diagnosis of Perforated Gastric Ulcer.—Bager reports two cases in which the discovery of air free in the abdominal cavity gave the clue to the diagnosis of perforation of a gastric ulcer.

Ocular Nystagmus and Railroad Nystagmus.—Bárány offers here an explanation of the phenomenon observed by him of nystagmus in an abnormal direction in testing for "railroad nystagmus."

Hereditary Ataxia.—Bergman describes three families with Friedreich's spinal ataxia and one with Marie's cerebellar ataxia, with the family trees. The families were all Swedish and agricultural, and one of the families is well to do; the others are poor farm laborers' families. In the Friedreich cases signs of degeneracy are common, but in the Marie case the family stock is good; except for one death from diabetes at 16, the family history is excellent. In none of the families is there a history of syphilis or abuse of alcohol. In one of the families with Friedreich's ataxia, six of the fifteen children present it; in one other family four of the eleven children. In none of these three families were other cases of the ataxia known in parents or grandparents.

In the Marie family there was one member affected with the cerebellar ataxia in three generations, and no other instances were known in the other generations or among the twenty-one other members of the four families descended from the one couple in the second generation. Besides the fourteen patients with pronounced spinal or cerebellar ataxia in these families, Bergman gives the details of the other members of the families who present signs of degeneracy although free from ataxia. The article is in English.

Sensory Disturbances from Lesions in Pons and Oblongata.—Bergmark gives an analysis of the disturbances in sensibility, in the power of localization, in space sense, and in muscle sense, as studied with three cases of tumor in the pons, medulla or in the greater foramen. His article is in English and fills 109 pages, and has forty-five illustrations.

Effect of Epinephrin on Healthy Persons.—Bjure and Svensson devote eleven pages to the tabulated minute details of the phenomena observed in five healthy medical students after intramuscular injection of 1 mg. of epinephrin. The sugar content of the blood invariably increased, reaching its maximum in forty-five minutes. Comparison between the reactions in different persons and in the same person at different times shows considerable variations in the response, especially in the lymphocytosis observed with a maximum about half an hour after the injection. They add that the variability imposes caution in estimating the effect of epinephrin on the sick or the well. (In English.)

Operative Treatment of Dysmenorrhea.—Forssner admits that an unstable nervous system and tendency to emotionalism are important factors in painful menstruation. In the 153 cases of dysmenorrhea for which he was consulted during the last ten years, and for which no appreciable cause could be discovered, he found that in 88 these subjective factors were responsible for the disturbances to such a degree that by training the patient in self-control and will-power the dysmenorrhea was often practically cured. In 65 other cases he found that while this helped, yet something more was needed. The premenstrual congestion of the uterus mucosa seems to be the cause of the pains, as the uterus is too narrow, and in seeking to correct this, the uterus contracts, as with a labor pain. Among the arguments advanced to sustain this view is that the first childbirth usually puts an end to the dysmenorrhea permanently, as the uterus gets stretched. Another argument is that patients in labor with their first child have told him that the labor pains were just like those they had had in the painful menstruation. His intervention is therefore merely to stretch the uterus and cervix, aiming to induce contractions as with labor. He dilates the cervix with Hegar bougies. With young girls this cannot be done with more than a No. 10 or 12. Then he tampons the cavity of the uterus as completely as possible, and leaves it for forty-eight hours, which often induces quite painful contractions of the uterus. The tampon is then removed and a larger bougie introduced, up to No. 20. He then investigates the uterus with the finger and usually follows with abrasion. Then he tampons anew and leaves the tampon for another forty-eight hours. He has never had any mishaps with this technic and never infection. If the patient objects to this treatment he never tries to urge her. In 54 of the 58 cases in which he applied it, 46 per cent. have never had any dysmenorrhea since. In 34 per cent. of the cases there is still a little pain at menstruation but nothing to compare with the previous disturbances and the women keep up and about which was never possible before. About 20 per cent. of the total say that the dysmenorrhea is the same as before or the improvement was only for a few months. The interval since has been from ten to seven years in 14 and from one to five years in the others. If disturbances return, it might be possible to banish them anew by repeating the procedure. The other women in his list passed through a pregnancy not long after and are omitted from his figures. In conclusion he remarks that this proportion of 80 per cent. cured or immeasurably improved commends this harmless method for treatment of severe dysmenorrhea. (In German.)

Tests for Reducing Substances in Dead Tissues.—Geschwind's critical study of the different methods in vogue

was interrupted by the death of the young worker. (In German.)

Genesis of the Papillae of the Tongue in Man.—Forty-two illustrations accompany this report of research in the Anatomy Institute of which Hammar is director. (In German.)

Localization in the Cerebellum.—Hesser and Troell remark that it is by no means established that the cortex of the cerebellum is a motor sphere, although this seems to be generally accepted. Their experiments on cats and dogs have apparently demonstrated sensory (receptor) properties, as they explain. The cerebellar cortex seems to be a functioning mechanism of remarkably complicated construction and distribution of function. The control of balance and coordination seems to be connected with the association tracts rather than with the cortex itself. (In German.)

Development of the Falx Cerebri and Tentorium.—Hultén discusses this subject from the standpoint of a case of congenital malformation of these parts. (In German.)

Effect of Lack of Corpus Callosum.—Hultkrantz states that the hundred or more of cases on record of agenesis of the corpus callosum throw little light on the effect of the absence of this great commissure of the brain, as there was usually defective development of other parts at the same time, which might have been responsible for the symptoms observed. He describes the case of a farm laborer of 21 who succumbed to sepsis from a carbuncle, and necropsy showed the complete absence of the callosum. In this, as well as in twelve similar cases of which he gives summaries, this absence of the great commissure did not seem to affect brain functioning to any extent. At least, retrospective investigation of the subject's behavior and mentality failed to reveal any striking abnormalities. In his case the motor, sensory and mental functions seemed to have been normal, so far as could be ascertained. He theorizes to explain this lack of symptoms; at most, somewhat backward development had been noted. In eighteen others of the thirty investigated, there was actual imbecility. (In German.)

Analysis of Ovaries.—Häggström made serial sections of the ovaries of a healthy woman of 22 who had been killed suddenly by illuminating gas poisoning, and he reproduces the figures in respect to size and number of the different elements, etc. (In German.)

Obstetrics in Ancient Times.—Josephson quotes from the Westcar papyrus, 1700 B. C., a description of the birth of triplets. After the cord was cut, the babe was laid on a bed of bricks. He explains this as probably warmed bricks or a brick stove with a cloth laid over it. The room was chosen for the lying-in room possibly on account of having this brick stove in it. In the Scandinavian countries the room with the stone hearth used to be selected for the same purpose. The next oldest description of childbirth is in the First Book of Moses. It is stated in regard to two child-births, "in the time of her travail, behold, twins were in her womb," and Josephson queries whether it is possible that the Hebrew midwives could have diagnosed the twin pregnancy before delivery. It is stated that the midwife bound upon the protruding hand a scarlet thread, saying, "This came out first." In conclusion Josephson analyzes the description of the birth of Hercules by Hesiod, by Homer and by Ovid, an instance of superfetation, according to the description, as both Zeus and Alcmena's husband cohabited with her the same night, and one twin was the son of Zeus, the other of her husband. Josephson comments that there is no conclusive evidence against the possibility of superfetation, but the instances of it on record are not very convincing. (In German.)

Access to Subarachnoidal Space in Pons and Cerebellum Region.—Karlefors urges the necessity for examining this region in all cases of disease of the internal ear, and describes a special method for access which is simple and convenient. (In German.)

Epidemic Encephalitis.—Kristenson analyzes an epidemic in three Swedish regiments, and emphasizes the importance of abortive cases in the spread of the disease. He thinks that we may even admit the possibility of healthy carriers. Nervous symptoms should be sought for.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 19

CHICAGO, ILLINOIS

NOVEMBER 5, 1921

SOME CURRENT TRENDS IN ENDOCRINOLOGY *

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The attempt to estimate the significance of endocrinology to present day medicine presents a difficult task. To one class of practitioners, endocrinology betokens a mass of extravagant absurdities on a par with phrenology or mesmerism. To another class it betokens a new gospel, the light of which is destined to guide medicine to glorious heights. The first class dismisses with a laugh the work of such men as Kocher, Minkowski, Trendelenburg, Hammar, Schafer—to mention only a few of those to whom endocrinology is most indebted. The second class betrays a remarkable obliviousness to the history of fashions in medicine.

Both classes, the ultraconservative and the ultraradical, are exerting an influence detrimental to further progress. There is a crying need at the present time for careful students to take up and carry to successful completion a study of the numerous difficult problems with which the endocrinologist is confronted. Many of the problems can be studied best, or, indeed, only in the clinic. When in addition to the intrinsic difficulties of research in this field a young investigator is to meet the openly expressed contempt of men in high places, few but the most hardy—or foolhardy—are likely to venture in. The overenthusiastic class exerts an unfortunate influence largely by giving point to the strictures of the first mentioned group. In the long run their very extravagance will serve as its own antidote, but as a passing phenomenon their confident exploitation of systematized delusions is awakening false hope in the minds both of patients and of physicians. The conservative group would keep medicine pure and undefiled; but it should be realized that efforts aimed merely at purity have not infrequently, as their most significant end-result, sterility. The history of attempts to purify medicine by aloofness offers little encouragement.

The overenthusiastic group offer in justification of their imaginative daring and therapeutic rashness the plea that it is only by extensive experience that we can hope to learn either the possibilities or the limitations of endocrinology as a branch of practical medicine. In fact they are, of course, occupying an impregnable position. But, as has been well said, to not a few men a hundred repetitions of the same blunder constitute experience." Recklessly administering endocrine

products to all sorts and conditions of patients, happily claiming as therapeutic triumphs all changes for the better and ignoring failures, is not likely to result in any very substantial progress. Some patients will be benefited; others, harmed; while many—judging from the vast amount of supposedly inert glandular debris administered—will be left precisely where they would have been if any other placebo had been similarly employed. Only one group stands to gain in any case, namely, the venders of the endocrine preparations.

As a matter of fact, so-called "practical" experimentation is precisely the method that has placed the history of therapeutics in the humorous literature of the ages. The long continued practice of phlebotomy or of mercurial purgation to the point of salivation in the face of most definite contraindications may serve to illustrate the point. Any number of absurdities have appeared, are appearing and will appear because men so readily believe that which they wish to believe. There is only one way to circumvent the post hoc fallacy, and that is to maintain adequate and rigid controls.

The crux of the whole situation lies precisely here. The mere fact that hundreds of physicians and thousands of patients have testified to having profited by the use of this or that endocrine preparation carries no conviction of its actual value to one who reflects that the pharmacopeias are filled with useless medicaments of which the same can be said. Reports of cures are convincing only when accompanied by adequate evidence that suggestion and other accessory therapeutic measures, as well as mere coincidence, have been ruled out as the determining factors. One would feel constrained to apologize for the mention of anything so obvious were not the literature filled with examples of violation of the principle mentioned. So long as practitioners fail to realize the essential requirements of scientific evidence and to educate their patients along this line, not only pseudo-endocrinology but also a multitude of other pseudoscientific cults will continue to flourish.

So much for the status quo. To one who approaches the subject with an open mind, it is obvious that endocrinology has contributed not a few valuable diagnostic and therapeutic procedures to practical medicine. There is no little real gold, however it may bulk in comparison with the amount of fool's gold that has been more or less honestly mined and minted. And it cannot be doubted that much more real gold remains to be secured both in the mines already worked and in those not yet found.

Of the current trends in the field of endocrinology, the most significant seems to be the sharp reaction that

has set in from the riot of extravagance and absurdity of the past two decades. Cushing¹ has recently voiced in a picturesque way the feeling that all conservatives must have regarding the so-called "impressionistic school." Other critics, some competent and constructive, some merely carping, are being heard in increasing numbers.

All well informed students of endocrinology realize the fact that reliable cartographers have as yet penetrated merely a few segments of the outer zone of the field. They have taken long range views of some further territory. But the detailed maps of the inner fastnesses that are engagingly offered, and by many eagerly received, are not in the end likely to prove more accurate than other maps drawn up in advance of actual careful exploration. The outstanding fact is that endocrine physiology is largely in a state of uncertainty, whereas the facile applied endocrinology with which we are so unfortunately familiar assumes a large body of substantiated fact.

Deductive reasoning, which is the mainstay of a considerable class of self-styled practical endocrinologists, can be productive only when the premises are sound. A few examples of more or less dubious premises in current vogue may be cited. We are glibly told of the "complex hormonal equilibrium" of the blood. However probable the existence of numerous circulating hormones, proof of their existence is almost completely lacking. "For all we know to the contrary, the ductless glands may function, in most cases, by subtraction rather than by addition," as was assumed in the earlier "detoxication" theories. No deduction stronger than antecedent probability can therefore be drawn in most cases from this assumption of circulating hormones.

Much is made by some writers of "hormonal antagonists." For example, if the suprarenal medulla is too ambitious, we can check its exuberance with pancreas extract. In this connection it is convenient to ignore the fact that such ambition is probably existent only as a brief emergency reaction, since any degree of epinephrin discharge producing significant pharmacodynamic effects anywhere in the body paralyzes the intestines. Moreover, according to practically all clean cut evidence, pancreatic extract as a source of hormone is inert. Altogether, the only definite evidence of pancreatic-suprarenal "antagonism" is that epinephrin is destroyed by alkaline pancreatic extract just as it is by soda solution. In short, the existence of hormonal antagonism remains yet to be proved, however fascinating it is to theorize about.

A fantastic theory that has had some currency is that the body cells have a capacity to select from a pluriglandular mixture any hormones they happen to need and to discard the rest. All the evidence is to the contrary. Both clinically and experimentally it is sufficiently plain that the law of mass action has not yet been repealed. If the blood is flooded with thyroid substance, for example, the subject dies of thyroid intoxication quite as would be expected. Many other guesses, masquerading as facts, could be cited, but let these suffice.

To deduce from the unfortunate existing situation, however, the conclusion, which certain shallow observers seem to have drawn, that the field of endocrinology itself is merely a mirage, is quite as crass a mistake as to accept as substance every flattering

prospect the eye discerns. Difficult as is the actual exploration of this field, not a few well equipped parties are busy with pick and shovel as well as with chain and transit. A detailed review of their work would require much more space than is available, but a few of their more recent findings may be mentioned.

In case of the thyroid gland, the outstanding accomplishments of recent years are well known. Of these, the final isolation of thyroxin is no doubt the greatest. This illustrates, excellently, the cost of advancement in fundamental endocrine physiology. After a flash of light, many months of tireless effort and of baffling failure, and more than a ton of thyroid material were required for the final solution of the problem. The story is a medical epic. To Kendall, science is indebted for all time.

Of more immediate clinical interest is the work that has been done toward the diagnosis of thyroid disorders. Although the Goetsch test has been widely utilized, opinion as to its value still fluctuates. The essential fact is, of course, that a positive reaction indicates merely hyperirritability of the sympathetic system, from whatever cause. Thyroid intoxication, according to available evidence, is the commonest cause of this condition, but obviously sympathetic neuroses in general should give the same reaction. One group of investigators regards augmented basal metabolism as a more significant criterion. Since this indicates merely augmented oxidative reactions, it can hardly be more specific than the Goetsch test—in fact, on a *priori* grounds, it would seem even less conclusive. The complement fixation test is promising but is yet in the experimental stage. The hyperthyroidization test would seem to be well calculated to give valuable information, but potentially dangerous in augmenting the symptomatology of susceptible patients. Its use in borderline cases, however, for which the test was especially devised, should give rise to no significant difficulties. The test is, of course, ambiguous in that a positive reaction may mean either unusual susceptibility to thyroid in small amounts or a preexisting excess of circulating thyroid secretion. Bram has recently reported that in states of overactivity of the thyroid a remarkably high threshold to cinchonism appears. In practice, increasing doses of quinin up to tolerance or to 100 grains are administered and the degree of resistance thereby determined. In Bram's experience, this test has proved almost pathognomonic.

Plummer, especially, has repeatedly emphasized the unique influence of thyroxin as a general cell stimulant. It is altogether likely that much of the popularity of organotherapy depends, as Cushing intimates, on this influence. Thyroxin appears to be, therefore, the "tonic" *par excellence*. It would be a valuable contribution to determine more accurately and convincingly the indications for and limitations of thyroid merely as a nonspecific tonic. Numerous aspects of the problem are obvious. Offhand, one thinks of such conditions as slow healing of ulcers and fractures, depression psychoses, or gastro-intestinal atony. While there is no paucity of data bearing on the problem, they are in need of systematic organization.

It has been claimed, and with no little plausibility, that even the slowing down of cell metabolism incident to old age can be more or less prevented by the judicious use of thyroid. Interesting, in this connection, is the claim that under suitable conditions of dosage the anabolic as well as the catabolic processes

1. Cushing, Harvey: Disorders of the Pituitary Gland, J. A. M. A. 76: 1721 (June 18) 1921.

can be augmented by thyroid medication. Incidentally, the whole problem of the relation of the thyroid to senescence demands more extensive and more careful study. Thewliss states that the anatomic changes of old age do not in themselves account for the functional deterioration. The implication of this is that the tissues are capable of greater activity than they display.

The trend of the evidence of recent years regarding the thymus indicates that this organ should be deleted entirely from the endocrine congeries. The most convincing evidence with which I am familiar is that of Pappenheimer.² He found that rats, at least, survive in perfect health complete thymectomy. The work of this investigator has the distinction of being adequately controlled, the tissues of the experimental animals having been studied in serial section to demonstrate the completeness of the thymectomy. Of similar negative tenor is the careful work of Park and McClure³ on dogs. Their own experimental work as well as their analysis of the literature suggest that the much quoted results reported by certain earlier investigators were due merely to poor kennel hygiene. Recent work on tadpoles, which are especially valuable subjects for this type of study, leads to the same negative conclusion. It would seem that whatever function the thymus may have is concerned with resistance to infection.

One of the fundamental hypophysis problems has been reopened by the work of Camus and Roussy,⁴ Leschke,⁵ Houssay⁶ and Bailey and Bremer.⁷ These observers have found that the classic symptoms of "hypophysial deficiency," i.e., diabetes insipidus, infantilism or dystrophia adiposogenitalis, can be produced experimentally by injuries in the juxtahypophyseal region of the brain, which leave the hypophysis itself intact. It is quite possible, therefore, that even these manifestations of assumed hypophysial deficiency are merely "neighborhood symptoms." The burden of proof, however, is on the proponents of this view to show that the experimental procedures employed have not interfered with the functional integrity of the gland. In the suprarenal field, perhaps the most interesting recent development is the rapprochement between those who accept and those who doubt the "emergency theory" of suprarenal physiology. The evidence that has been offered by Stewart and Rogoff that the suprarenals are under central control is practically tantamount to proof that they are subject to reflex influences, as Cannon believes. The technical point most recently at issue is whether or not acceleration of a denervated heart following emotional or sensory stimulation is valid evidence of epinephrin discharge. Stewart and Rogoff have controverted this on the ground that, under some conditions, such acceleration can be recognized even after the suprarenal glands are disconnected from the circulation. Restudying the problem, Cannon and his collaborators⁸ have found that from the liver of animals well fed on meat a substance is liberated when the hepatic nerves are irritated that stimulates the heart much as does epinephrin.

With this factor ruled out, the acceleration can still be evoked, under "emergency" conditions. The acceleration can be accounted for, so far as is now determinable, only by discharge of epinephrin.

In the German literature there have recently appeared several articles on unilateral suprarenal extirpation in the treatment of epilepsy. A certain proportion of the patients have been reported as definitely cured or distinctly benefited. Whether the results have any more significance than that any new treatment of epilepsy is likely to result in temporary benefit remains to be seen. In the present state of our knowledge of suprarenal physiology it is to be hoped in any case that suprarenal extirpation as a therapeutic procedure will be restricted to localities where life is not worth living.

Of great fundamental significance is the work that has appeared of late years on the factors that modify the reaction to epinephrin. A given dose of this drug may send blood pressure up when initial pressure is low, and down when initial pressure is higher. Similarly, the hydrogen-ion content of the menstruum or the depth of the anesthesia can determine diametrically opposite reactions. Collip's observation⁹ that in deep anesthesia only rise of pressure can be produced, accounts, perhaps, for the fact that the depressor influence of the drug was for many years disputed by various careful workers. In view of the tenacity with which the so-called tonus theory is still held by those who believe in clinical "hyper-" and "hypo-adrenalism" (to use the current hybrid term) it may again be mentioned that when accessory conditions are kept normal, epinephrin in normal concentration in a normal subject causes fall of blood pressure.

The fact, and it is an uncontrovertible fact, that, with change of dosage, exactly opposite effects are produced, is highly significant. If the same reversal is true of other hormones than epinephrin, precisely the conflicting results that have been reported from the administration of active endocrine gland products are to be expected. This fact is another indication of the imperative necessity for rigid control in therapeutic experimentation in this field.

For purposes of this discussion, one other gland only may be mentioned, namely, the testicle. Despite the inevitable facetiousness of smart paragraphers on "monkey gland" therapy, the accumulated evidence demands serious consideration at the hands of conservative investigators. Steinach's method of rejuvenation by ligation of the vas deferens has been reported as successful in the hands of some, and as a failure in the hands of others. Perhaps Vecki's¹⁰ suggestion explains the disparity of results. The rationale of the method apparently is the deflection of nutrition from the seminiferous to the endocrine elements of the gland. It is essential, therefore, that the vasectomy leave the circulation intact, an accomplishment not to be expected from mere careless "cutting and tying" technic.

Perhaps, at the present stage of progress, testicular grafting offers a preferable method because a more direct approach to the problem. That testicular grafts in dogs can be made to "take" and maintain their functional integrity for months has been shown experimentally by Wheelon and Shipley.¹¹ These

2. Pappenheimer, A. M.: *J. Exper. Med.* **19**: 319, 1914.
3. Park, E. A., and McClure, R. D.: Results of Thymus Extirpation in Dogs. *Am. J. Dis. Child.* **18**: 317 (Nov.) 1919.
4. Camus, J., and Roussy, G.: *Endocrinology* **4**: 507 (Oct.-Dec.) 1919.
5. Leschke: *Ztschr. f. klin. Med.* **87**: 201, 1917.
6. Houssay, B. A.: *Endocrinology* **2**: 94 (April-June) 1918.
7. Bailey, P., and Bremer, F.: Unpublished report read before Association for Study of Internal Secretions, Boston, 1921.
8. Cannon, W. B., Uredil, J. E., and Griffith, F. R.: Unpublished report read before Association for Study of Internal Secretions, Boston, 1921.

9. Collip, J. B.: *Am. J. Physiol.* **55**: 450 (April) 1921.
10. Vecki, V. G.: Effect of Ligation of Vas Deferens on Testes. *J. A. M. A.* **77**: 880 (Sept. 10) 1921.
11. Wheelon, H., and Shipley, J. L.: *Am. J. Physiol.* **39**: 394 (Feb.) 1916.

investigators have submitted graphic objective evidence from which all elements of suggestion were carefully excluded. The attempts, however, to implant whole testes into the normal intrascrotal position are indicative of a greater concern for cosmetic niceties than for sound surgery. Better results are to be expected if the ordinary principles of tissue grafting are observed. Perhaps Stanley's injection method may prove even simpler and better. Several indications for testicle grafting are obvious, such as surgical or spontaneous eunuchism or eunuchoidism, infantilism, and definite homosexuality. As Biedl has emphasized, however, clean cut favorable results are to be expected only in cases in which true hypogenitalism is the essential etiologic factor.

Although many failures have been encountered in the administration of testicular extracts, the subject is by no means closed. There is enough positive evidence on record to justify further studies along this line. Granting that the testicle produces a true hormone, the essential problems are how to secure and preserve it in sufficient concentration to be effective, in what dosage to use it, and how to administer it. Oral, intrarectal and parenteral routes should all be utilized in researches along this line.

Two other trends in endocrinology may be mentioned only in passing. Keith¹² has recently published some intriguing speculations regarding the endocrine glands as possible factors in anthropology. This particular piece of arm-chair endocrinology has had the effect of stimulating a group of investigators in China to a concerted study of the relation of the thyroid gland to normal mongolism. Several other fascinating problems along this line are suggested. Here again, however, careful investigation, not facile theorizing, is needed.

Closely akin to the foregoing problems in normal morphology are those suggested by Pende's term, "endocrinopathic constitutions." While the conception has been carried to fantastic lengths, evidence is slowly accumulating to substantiate the plausible *a priori* conclusion that endocrine anomalies play an important rôle in rendering the subject especially vulnerable to certain diseases, or bring about developmental deviations from the norm. The much derided dental signs of hypogenitalism, for example, are by no means intrinsically absurd. Otherwise stated, the fact is that the teeth may share in the morphologic expression of infantilism.

If the foregoing plea for conservatism seems to be in any sense destructive—if it is not 100 per cent. constructive—the aim of the paper has not been achieved. The end of the whole matter is this: Endocrinology is one of the most difficult fields of biology. The problems presented are fundamental and quite as fascinating as can be found in any field. In fact, their very fascination is in a measure unfortunate in its almost irresistible tendency to evoke the imaginative daring of those who are oblivious of Elliott's dictum: "Medicine owes no thanks to him who, without proof, would formulate her theories." Imagination has a legitimate function as a guide to research, but in this field at any rate, the exogenous variety is entirely superfluous. Those who do the work alone deserve the luxury; and great circumspection is expedient, even for these.

There is no easy road in endocrinology, either to discovery or to knowledge already gleaned. On the other hand, it would be unfortunate to assume that none but supermen can hope to bring forth significant results. There are many problems demanding solution, which require, not genius, but merely accuracy and patience together with recognition of the ordinary criteria of evidence in any field. What is needed is more work, carefully planned and carried out, less shallow theorizing on the part of those dabbling with the problems, and the consistent but discriminating support of the medical profession.

ALCOHOLISM IN RELATION TO MENTAL DEPRESSION*

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(Translation)

Alcoholism is certainly one of the most baneful manifestations threatening our day and generation. In order to combat it, we must understand it. I beg therefore the privilege of presenting to you some reflections on the psychic state of alcoholics.

America appears to have taken a radical and decisive step toward the suppression of alcoholism by prohibiting the indiscriminate sale of alcohol. That is an excellent measure, but is it entirely adequate? Is it not likely that the wretched alcohol addicts, in an effort to procure their preferred poison, will, in their despair, wage a bitter fight against all prohibitory measures? And if they do not succeed in securing alcohol, will they not procure other poisons that exert an analogous effect? In order to give the needed support to legal measures; that is, in order to discover ways and means by which medical and moral forces may act on the underlying cause of alcoholism, it seems to me that we must study something else besides alcohol. In order that we may bring relief or effect a cure, we must study alcohol addicts themselves and learn the nature of the disorder that impels them to drink alcoholic beverages.

CHARACTERISTICS OF THE ALCOHOLIC

What constitutes a true alcoholic? You will understand, I am speaking from a psychologic standpoint and do not refer to physiologic defects. What disorder of actions and conduct characterizes an alcoholic? It is not sufficient to say that an alcoholic is a man who drinks alcoholic beverages, nor even to add that he partakes of such beverages in large quantities and often. We must not fail to distinguish between alcoholism and excess in drinking. An ordinary drunken man (*ivrogne*) is not an alcoholic. He may possibly become one, but he is not one yet. He does not present the moral defects of an alcoholic. He is not subject to the same accidents. He is not so dangerous for future generations. Drunkenness consists in a disorder of actions and idea-association, which is rapidly evoked by the absorption of alcohol. A drunken man is a person whose mental condition was normal but who, under the influence of alcohol, rapidly enters an abnormal state. Nothing of the kind takes

12. Keith, A.: *Lancet* 2: 553 (Sept. 27) 1919.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

place as regards the alcoholic. On the contrary, he does not become intoxicated. I recently observed the case of a man, aged 30, one of our soldiers, who on account of mental trouble had been sent back from the front and dismissed from the service. This young man told me, as he entered the room: "I just drank ten glasses of brandy before I came in to see you, so that I could talk to you clearly." He presented no disorders whatsoever, either of equilibrium, of speech or of idea-association, and I was obliged to tell him that he would have to come back again, when he had not been drinking, so that I could discover the nature of his disorder. Not only is it true that alcohol does not cause in alcoholics disorders of drunkenness, but it often suffices to cause the disorders present to disappear and to restore normal activity. A man of 40 happened to cover this point in an accidental remark: "It seems strange, but, just when I might expect to be getting intoxicated, I begin to feel normal. I then feel able to carry out my plans. My energy seems inexhaustible. . . . I can formulate a program and carry it out. Everything goes as if on wheels. . . . I can talk readily. My face wears a continual smile and I am affable with everyone. Ordinarily, I am embarrassed and do not open my mouth, but now I scarcely know myself. . . ."

Another man speaks in a similar vein: "I am never really a sensible human being, conducting myself properly, except when I am under the influence of alcohol." This character is general and fundamental, and deserves to be well understood, for all alcoholics tell you, when you give them advice: "But I never become intoxicated. My mind is never so clear, and I can never work so well as after I have had my drink." This, then, is the first important characteristic. The alcoholic is an individual who needs alcohol in order to be normal.

If we draw the necessary conclusions from this observation, we are forced to admit, as I have often tried to show, that alcoholism is not an intoxication of an accidental nature, which will disappear and leave no traces if alcohol is suppressed. I have tried to show that we are dealing with an alteration of the mind—a mental disease—antecedent to the present absorption of alcohol and in one sense independent of alcohol.¹ This antecedent alteration explains the rôle that the absorption of alcohol plays and also the intense craving that alcoholics manifest for their particular form of poison.

In order to give a clear view of the problem, I have, in my previous works, presented the results of my inquiry into the mental state of a large number of alcoholics before they manifested their impulse to drink alcoholic beverages. I have examined into the circumstances under which the impulse developed and into the other troubles that developed at the same time, for it is a great mistake to regard this impulse as an isolated phenomenon. I have also sought to inquire into the effects on such patients of the absorption of alcohol and into the causes of the impulse itself.

The persons on whom we made our observations were members of families in which there were found a large number of nervous and mental diseases of

every kind. Of 100 alcoholics on whom I made observations, I found that twenty-five were descendants of alcoholic parents; ten had parents that were or had been insane; twelve, parents gravely neuropathic, and ten, parents that presented arthritic and gouty symptoms.

Not all of these had been alcoholic all their life, but they had presented pathologic symptoms before they began to drink. If we inquire carefully into the matter, we shall discover that they gave evidence of many neuropathic symptoms before they acquired the drinking habit. In my series of 100 alcoholics, I noted in twenty-eight instances convulsive seizures of various kinds; in thirty-four cases, somnambulism and various symptoms of hysteria; in forty-one cases, obsessions, phobias and morbid impulses; in eighteen cases, pathologic fears, disturbed emotions, and mental depression of the melancholic type, and in twenty cases various visceral symptoms characteristic of neuropathic disorders. When exact information in regard to their past history can be secured, we find in alcoholics evidence of compulsory ideas expressed in the form of questions, abulia, and various signs indicating diminution of the powers of will and attention. That is the idea that we commonly express when we say, in speaking of those who become alcoholics, that they have a weak character. We must not allow this indulgent and commonplace remark to deceive us and prevent us from recognizing a truly pathologic condition.

In the majority of cases, the impulse to drink alcoholics began on a certain date that was connected in some way with some particular event in the person's life. It is easy to show that alcoholism begins under the same conditions as various forms of mental depression. I have seen persons who for years had easily resisted temptation, even though living in cabarets, but who became alcoholics as the result of an infectious disease—typhoid or a slight attack of tuberculosis. I have seen persons fall into the habit of alcoholism, just as one might sink into a state of depression, as the result of physical or mental overwork, a change of surroundings, a change of position, as the result of a rupture, disappointment in a love affair, etc. In the majority of cases of alcoholism, if we take time to investigate the origin, we shall find beginnings of this kind. That is the general rule, and there are fewer exceptions than we imagine.

In order to understand the onset of alcoholism after such untoward incidents in life, there is one very important fact that should be emphasized—a fact that is generally overlooked—and that is that the diseases mentioned, the overwork and the disturbed emotions do not give rise solely to the impulse to drink alcoholics. In fact, as a rule, they produce this impulse rather slowly, unless possibly the subject was predisposed to this impulse by previous attacks of alcoholism. Such conditions as I have just described give rise to a group of disorders of various kinds, sometimes analogous to previous neuropathic disorders, and sometimes presenting a new and distinct type such as the subject had never experienced before. These subjects all have, to a marked degree, sensations of want or incompleteness, which are distressing and are the result of mental depression—sensations of restlessness, ennui, emptiness, vagueness, dreaminess, fear, incapacity, false recognition, failure of interest disorientation, division of personality, distress, death, etc. "It is certainly

1. Obsessions et psychasténie 1: 529, 1903; 2: 423, 1903; L'alcoolisme la dépression mentale, communication à l'Académie des sciences morales, Bulletin de l'Académie, September, October, 1915; Les méditations psychologiques 3: 344, 1920.

sad and shameful," remarked a woman of 33, "when one feels continually that there is nothing in life; nothing that makes life worth while; nothing that is worth the effort. I am astonished when I see persons weeping because they have been disappointed about something—to think that they should feel that it was worth while to weep." At the basis of such mental states we always find disorders of the will and powerlessness to act, especially in a social sense, which make up the essential character of their depression. Such subjects are incapable of the slightest effort and are horrified at the thought of the slightest action that they have to perform. This difficulty—this inability to act in a social sense—which finds its expression in the ordinary marks of timidity or rudeness, or in diverse kinds of disorders masking timidity, is one of the prominent characteristics of the majority of alcoholics. It is dependent on the weakness of the will, the reduction of the ability to act, and the mental depression that exists, in my opinion, in the great majority of alcoholics—however, not as a result of their intoxication, but before any intoxication occurred.

In these subjects we note another fact that is of particular interest for our present study, and that is that they present very often other impulses besides that which impels them to drink alcoholics. In a large number of alcoholics we find bulimia, erotomania, fugues, the impulse to wander aimlessly (which in one patient alternated with the alcoholic impulse properly so called), and kleptomania. One of these kleptomaniacs, especially, was a curious type. He robbed his employers and used the money to pay for the drinks taken in a cabaret with a group of chance acquaintances. He felt happy and consoled in the midst of the merry crowd, even though they were strangers to him. As I have already pointed out elsewhere, he was excited by the success of his theft and by the gratification to his pride that this rôle of a modern amphitryon afforded. All these secondary impulses are, to be sure, well known to us. They are impulses to exciting acts, commonly associated with morbid depression. To be sure, the mental depression of alcoholism is not always without relation to previous intoxication by alcohol, either on the part of the subject himself or on the part of his parents. As stated by Legrain, in his article on alcoholism, which was awarded a prize last year by the Académie des sciences morales, "Alcoholic decadence becomes hereditary in all persons, and it finds its expression in an impairment of the will—a sort of constitutional asthenic condition." That may be true in certain cases, but not in all. However, that does not do away with the important fact that, either as the result of a previous intoxication, or in some other manner, the alcoholic is suffering from a morbid depression analogous to that of the obsessed psychasthenic, or the patient afflicted with melancholia, and that this depression plays an essential rôle in his impulsive craving for alcohol. Lasègue once said: "It isn't everybody that can be an alcoholic." There must be a preexisting deficiency of mental activity, together with new excesses, which are the direct result of such deficiency.

DEVELOPMENT OF ALCOHOLISM

The absorption of alcohol has, indeed, a remarkable effect on alcoholics. It comforts and "cures" them for the time being. The verification of this statement, as

shown by our observations, is an easy matter. All the neuropathic accidents that we have noted in alcoholics disappear following the absorption of alcohol. Here is the central point of the whole question: alcoholism in its entirety is the result of the fact which we have already demonstrated and which is corroborated by our recent observations; namely, that alcohol does not act on a normal person in the same manner as it does on a person in a state of mental depression. It takes the former from a state of normalcy and plunges him rapidly into a state of drunkenness, whereas, it takes the latter from a state of inertia and impotence and returns him to a normal state. To be sure, every person in a state of mental depression who becomes normal through the use of alcohol is not necessarily an alcoholic, but he is on the road toward alcoholism. He has only a few steps to go. He should take account of the fact that the distressing sensations of want or incompleteness, the necessary accompaniments of mental depression, are transformed by alcohol and that he longs for this transformation. All that is needed is that he shall discover or imagine that alcohol alone has this power, that nothing can take the place of it, and he will have an irresistible craving for alcohol. A patient, a woman of 33 and a confirmed alcoholic, gave expression to her fateful passion in these glowing terms: "Alcohol keeps me from being stupid; it gives me the ability to act. When I have had a drink, I am no longer sad, weak, without hope. I feel like another person and I have the ambition to live instead of dreaming of death. . . . Alcohol gives a value to things, for it is unbearable not to be interested in anything. . . . When I drink I feel that I am alive, I am conscious of my personality, and I like to live and to know that I am alive. . . . What would you have me do? If I drink it is to drive away the shadows, for it is the gloom that comes over me first that impels me to drink. . . ."

The question arises as to the nature of the mechanism that produces this strange stimulation. In this connection, I have put forward an hypothesis in regard to the rôle of poisons, which is analogous to our conception of the part played by sudden and great dangers in mobilizing the forces of the nervous system. "We may assume that, at the start, the introduction of a poison into the organism puts all functions on guard and brings about, as in the beginning of a war, the mobilization of all the forces of the organism, whereby the general activity is increased and the mental tension is raised. But if the ingestion of poison continues in increasing doses, if the war lasts too long, the reserves of the organism become exhausted, intoxication sets in, the system is invaded, and mental depression becomes such that nothing can suppress it." These hypothetic interpretations of facts as yet so imperfectly analyzed may possibly furnish us a mental picture which will bring the mechanism of the physiologic stimulations by poisons into a certain relationship with our previous interpretation of the mechanism of psychic stimulations by simple actions lying in the past, and which will, at the same time, help us to understand that the stimulations have their limits that it is dangerous to exceed.

From these observations it becomes evident that alcoholism develops when two conditions are concomitant: (1) when this subject, as the result of con-

stitutional inferiority, or accidentally, owing to overwork or great emotion, has fallen into a state of mental depression, and (2) when the subject has experienced the stimulating effect of alcohol and has discovered that his craving desire for stimulation finds its complete satisfaction in alcohol. The mode of onset was characteristically shown by various observations. J—, a man of 35, had had for some time his phobias for bridges, for water and for death, when, in order to console him over the death of a brother, his companions induced him to "take a glass." It was then that he discovered for the first time that after drinking a few glasses he became a jolly good fellow. The same thing happens over and over again. An especially frank illustration of this mode of onset is given by an observation previously published. A foreign physician around the age of 40, who had reached the last stage of alcoholic intoxication, recounted to me the beginnings of his terrible passion for alcohol: "From my early youth, I was subject to a distressing disorder. From time to time—every year or every two years—I would sink into a profound state of sadness. For several months, I was unable to do anything, say anything, and worst of all, to decide anything. The slightest action required an untold, I may say, an unmerciful effort; but more especially, I suffered frightful mental torture on account of an awful sentiment of disgust with myself—a feeling of moral shame. I had a delusion that I had become a wretch and that I polluted every place I went. You cannot imagine what a person suffers under such circumstances. I had tried in vain all sorts of treatment, when one day a crowd of students called for me just as I was having one of my worst attacks and carried me off to a university banquet. They dragged me along and made me drink almost in spite of myself. The result was extraordinary. After having drunk an enormous amount of alcoholics, I felt no signs of intoxication, but on the contrary, perceived that I was becoming more and more normal. The veil, as it were, that enveloped my head was rent. It seemed to me that I was born anew, that I was beginning a new life. I could talk and act as of old, and my sensation of happiness was as exaggerated as my sentiment of shame had been. I returned home without any trouble. I could eat a full meal and sleep soundly, which I had not been able to do for a long time, and I awoke 'cured.' What could you expect? When my horrible state of sadness returned a few days later, I sought again the remedy—at first, from motives of curiosity, but later, with frenzy, and since that time I have not been able to stop."² It would be easy to report not only a few but fifty or more observations on the same order. This type of evolution I have encountered in connection with various impulses—the impulse to the opium or morphin habit, even the impulse to theft and to sensual debauch, but especially in the development of the impulse to drink.

Alcoholism will be more or less grave and will take on different forms according as to whether the subject is able to resist his craving or whether he is induced to yield to it in a more or less resistless fashion. In the beginning and for a certain length of time, he will not resort to his remedy except on particular occasions. Alcoholics drink constantly, as they admit, "when they

feel the need of something to brace them up"; that is, when the circumstances demand that the psychic tension shall rise to the level of the efforts. To this extent, alcoholism is not determinative but depends on the circumstances in which the individual is placed. It is with alcoholism as it is with all impulses affecting persons in a state of depression—it decreases if the subject leads a simple, easy life, but increases when the actions required by the situation are more strenuous and of a more elevated character. I will give an observation as an illustration of this point: An honest workman, a tailor, who was married and the father of a family, never drank a drop. By dint of economy he was able to save up enough money to establish himself in a tailoring business of his own, in which he employed several workmen. From this time on, he began to drink; drank more and more, until finally he was plunged into a very serious type of alcoholism. What was the reason for this? As his wife explains it and as he himself well knows, it was because he now had customers to receive, business plans to work out and large sums to pay. He is embarrassed, timid and restless, and he is unable to attend to his business affairs until he has his alcohol. The change in his position and the load of responsibility were too much for his weak mind; he became depressed and therefore an alcoholic, merely because he had undertaken something that was too difficult for his weak intellect. But if the conditions can be changed; if life can become more easy, and particularly, if the mental depression decreases, the subject soon ceases to drink alcoholics.

Unfortunately, if the alcoholic is left to himself, he does not ordinarily remain very long in the stage in which alcohol is a remedy. He soon reaches the second stage in which alcohol has become a food. He is impelled to drink more and more violently. He cannot stop with doses such as might be needed to brace him up a little. He cannot resist resorting to alcohol in periods in which it is not indispensable. Several psychologic causes intervene and influence the evolution, all of which bear a relation to the disorder of the will occurring in psychasthenics. Certain manias intervene—a mania for continuation, for repetition; a mania for going to extremes: "If I stop drinking before I am fully under the influence of alcohol, it seems to me that I have not finished—that something is wanting and that I must start in again. . . ." "I am always an extremist; I always have to go to extremes with everything." The fear of a relapse—of suffering again from mental depression—increases continually. D—, a woman of 33, always has the feeling, when under the influence of alcohol, that she will lapse into a state of depression if she stops drinking, "and the horror of that awful gloom throws me into a state of despair. I prefer to continue in spite of everything. I haven't the strength of will to stop." If we recollect that alcohol rescues alcoholics from terrible suffering, we shall understand that it involves for them temptations that a normal person does not feel. The patient whom I just quoted made a statement, bearing on this point, which makes one smile. "You do not know the most terrible mental anguish a human being can suffer." "What is that?" I asked. "To have before you a bottle of whisky from which you have already taken a nip, and let something happen that prevents you from finishing it." That is why she drinks when she becomes agitated about some-

2. Obsessions et psychasténie 2: 424, 1903.

thing and is afraid of a relapse of mental depression. "As soon as I suffer any emotional excitement and mental depression sets in again, I am obliged to drink continually." The principal cause of the development of this impulse lies in the continuation and aggravation of the mental depression, which gradually breaks down the will power. The subject becomes less and less able to break the habit, to expose himself to suffering, and, at the same time, he becomes more and more impotent; finds himself powerless to execute various acts of more and more importance, and feels much more frequently the need "of something to brace him up."

Finally, the impulse becomes more and more fixed, more and more an integral part of his mental make-up, until it becomes quite irresistible in extreme cases of dipsomania, which are not so distinctly different from those I have described as is commonly supposed.

I have already come to recognize that impulses which impel the individual to seek stimulation are much more powerful than the obsessive impulses of the scrupulous—than their so-called criminal impulses, for example. We must also recognize the fact that, in certain cases, the impulse to stimulation by alcohol seems irresistible, for it suppresses even individual consciousness and memory and is yielded to while the patient is in a state bordering on automatism (*état second*). Throughout the dipsomaniac fugues of R—, a man aged 37, and also of Maria, the subjects were in a state of automatism. The patient does not recover normal consciousness until toward the end of his fugue, and has no personal recollections of what happened except for the last few days. While all patients do not reach such an extreme condition, many have, during the attack, very little consciousness of their personal identity. Their one thought is, to drink, and no other consideration appears within their conscious mind to contend against this impulse. Again, when they have begun to drink, they manifest none of the scruples such as we observed in the case of the preceding alcoholics. They are not stopped by any consideration. They will deprive themselves of anything they possess; will sell even the clothes they have on their person or will pawn family belongings—in fact, they will sacrifice their most precious possessions in order to procure an alcoholic beverage. After their attack is over, they have no comprehension of what they have done. One woman stated: "I know very well that my husband and my children will leave me if I go on like this. I really do love them—they are more to me than my own life. How is it I never think of them a single moment when I am drinking?" Hack Tuke tells the story of a man who had voluntarily entered for treatment a certain sanatorium at which patients received only water to drink. One day he noticed that the physician in charge gave a glass of liquor to one of the patients who had been seriously wounded. Without hesitation, he took a hatchet and cut off one of his hands that he might have the right to demand a glass of liquor. This old story may serve as an illustration to show that this craving for alcohol may become irresistible—without the realm of reflection. This manifestation may be explained by an aggravation of preceding disorders: mental depression, unendurable feelings of incompleteness, diminution of will-power and automatism. It may be observed that, in addition to this, phenomena occur, suggesting the

confusion, the narrowing of the mental field of vision and the susceptibility to suggestion commonly found in cases of hysteria, and it should be noted that intoxication may occasion phenomena of this kind. I have stated elsewhere that certain alcoholics, under the toxic influence of alcohol, present a mental state analogous to that of patients with hysteria. It is possible that chronic alcoholic intoxication entered in and complicated the primary mental depression and added new disorders. Persons such as D—, a woman aged 33, felt at first (in connection with a slight emotion), the simple need of a glass of liquor as a stimulant; but at the end of several years they become subject to a severe attack of dipsomania if the slightest thing goes wrong. It is well to distinguish this new form of the disease from the preceding by designating it dipsomania or alcoholomania, but it must be considered simply as a later stage of the preceding. It must also be remembered that fundamentally all these impulses are of the same kind, and that they all have a common starting point in that the subjects seek alcoholic stimulation in order to escape mental depression.

TREATMENT

In order to combat the development of alcoholism, we must study certain accessory causes in addition to the craving for stimulation found in those who are mentally depressed. We must dispel the widespread and dangerous belief that alcohol nourishes and fortifies the system; that it enlivens the mind and gives one courage. As M. Legrain has said: "All kinds of virtues have been attributed to alcohol. If the subject wishes to forget, alcohol is known to have a stupefying effect. If he desires pleasure, he recalls the sensation of euphoria during the beginning stage of drunkenness. If he wishes enthusiasm, he recollects the rapid flow of ideas when the mind is no longer held in check by the reason. If sadness is desired, it will be remembered that wine often induces tears. Alcohol is present at all festal occasions and at all occasions for mourning."

I may mention still the absurd theory that alcohol possesses a certain ethnic value, so to speak; that it is wine that gives to the French their character. All that is profoundly absurd: a substance that kills and at the same time costs a big price is a sad kind of food. A potion that takes away the sense of fatigue, stupefies and deprives one of all one's ambition, is a deplorable stimulant. It is not wine that produced French character any more than it is the fig of the desert that made Arabs what they are or rice the Japanese. Racial character has roots more profound and more complex than those that can be imputed solely to the alimentary regimen.

But along with the campaign that must be waged to uproot these false theories, the essential concern of the hygienist and physician should be the study of the general mental depression that today is so widespread. Infectious diseases, intoxications, alcoholism of parents (which constitutes a genuine vicious circle), misery, insanitary dwellings, poorly prepared food and factory life—all that no doubt plays an important part. I have already had occasion to point out in this connection a type of mental overwork that is typical of the age in which we live. The philosophic ideas in regard to the equality of men have brought to a common level the ambitions of all classes. They have subjected all minds, no matter what the caliber, to efforts that our fathers never thought of making in the same

manner. A dramatic author once said: "Several generations are required to make a minister out of a janitor's son." We have said so often to the janitor's son that he might become a minister that he has tried to skip the "several generations." You cannot imagine how many medical observations I can produce on this subject, whereby I have been filled with concern in regard to the effects of endeavoring to educate certain types of individuals beyond their natural capacity. I cannot pause to discuss at length this very delicate question, material for which presents itself on every hand during the course of my observations of pathologic cases. I can only refer to it briefly. Formerly, minds that could not stand a heavy tension accepted beliefs already made and easy to assimilate. But nowadays, and, as it would appear, without reason, we say again and again that everybody ought to have the right to reason out his own beliefs and not be expected to accept as true anything but what seemed to him to be proved. That would seem to be perfectly just and right. We may say, That is merely applying to life the method of Descartes. But here is the problem: Have all the young boys and girls the brain of Descartes? Please note that it is not a question of condemning or regretting the progress of democracy and the freedom of thought. It is great progress that the human mind has been making in France, and it is possible that we have in this respect made more rapid and more thorough progress than the other nations. I wish merely to state that our progress has been arduous and costly, and that our people are paying for it in overwork and mental depression.

Diminution of alcoholism is primarily the work of the hygienist and the mental specialist. Those who have devoted themselves to the work of supplying workmen's cottages; who are seeking to give to families healthful places of abode, with plenty of fresh air in their rooms, are doing more than one would at first imagine for the cure of mental depression and of alcoholism. Those who endeavor to assure workingmen, and more especially working women (who are certainly in need of it), a good, substantial diet at a reasonable price have made an important contribution toward the suppression of alcohol. But in addition to the physical side of public health improvement, shall we not some day study into the mental hygiene of our people? If we could make the social struggle less severe; if we could check the desire to attain social position too rapidly, and if we could discourage dangerous ambitions, could we not unite what now seem irreconcilable: freedom of thought and tranquility of beliefs? These are great questions and more closely linked to the problem of alcoholism, and also that of race suicide, than is commonly supposed.

As for the physician, he should not be concerned solely with the disintoxication of the patient. He should not occupy himself merely with the problem of alcohol but should consider also the alcoholic who created the alcohol problem and who will substitute some equivalent dose if alcohol is suppressed. He should take an active interest in the disorder of depression which called forth the craving for the poison before the intoxication took place and which will bring back the same craving after disintoxication, no matter how complete it may be, has taken place.

Aside from certain special care which their state of intoxication demands, the treatment of dipsomaniacs

and toxicomaniacs coincides in reality with the treatment of impulses toward stimulation, of which we have just spoken. We must combat the exclusiveness of the impulse. We must seek various other sources of stimulation. We must make the patient perceive that there are stimuli of a mental nature, just as there are physiologic stimuli. We should try to lessen the craving for stimulation by decreasing the depression, by raising the psychic tension through every means possible, etc. These are the difficult problems, into the various possible solutions of which I have been studying. Patient D—, mentioned above, was hypnotizable. As the result of an esthesiogenic hypnotic séance she could feel the same stimulation as that produced by alcohol. She was a woman who needed to be directed by others and whose mental output diminished when she felt that she could count on outside support. Within three months it proved possible to relieve her of an alcoholic impulse that had persisted for years. In other cases, methods of repose, a simpler mode of living, or stimulation through work accomplished good results. The treatment of toxicomaniacs presents no special problems other than those of the treatment for intoxication by a given poison. It brings us back to the ordinary difficulties of treatment of neuropaths suffering from mental depression.

The problem of alcoholism is a problem of general medicine; it seems to raise only problems relative to intoxication and disintoxication. It may not be inapt to repeat, what has so often been remarked before, that all problems of medicine are interrelated and that the study of alcoholism cannot be undertaken with profit if it is not connected up with the study of neuropathic and psychic disorders.

ABSTRACT OF DISCUSSION

DR. TOM WILLIAMS, Washington, D. C.: Dr. Janet's thesis is one we do not think of enough with reference to the alcohol problem, namely, that often a man is an alcoholic because of a particular difficulty he has in adapting himself to the realities of life. Dr. Janet has emphasized the factor of heredity. These individuals are fated to be inferior; they are unable to adapt themselves on the occasion of some particular event in their life; yet we are beginning to realize that we can do much to educate them to adjust themselves to the conditions of life. When we cannot do that, we can recommend a change of environment which will fit their particular constitutional weakness. There is another fact with regard to legislation in this country regarding alcohol. We think more of the alcohol and less of the alcoholized man, and Dr. Janet brought out the comparison between the "jolly drinker" and the alcoholic who is so miserable when he does not drink. He draws a distinction between those men. But we must remember that if the constitutionally inferior person cannot get alcohol or morphin he may find some other means for uplifting himself. I have found the determining factor has been the accessibility of alcohol. Every facility has been given toward directing their effort to feel better by taking a drink, and if the present legislation in this country is successful, that temptation at least will be removed. We should remember the factor of the psyche in this important social problem which Dr. Janet has presented so well and with which I heartily agree.

Infectious Origin of Dementia Praecox.—Cases of dementia praecox, of confusional insanity or of delirium, of pseudotumor, and of various other mental conditions have pathologic changes which are similar. It is quite apropos to assume that certain cases of dementia praecox are due to infectious or toxic processes.—H. I. Gosline, *Bull. Mass. Dept. Ment. Dis.* 4:105 (Oct.) 1920.

PHYSICAL CHARACTERS AND ENZY- MATIC ACTIVITIES OF DUO- DENAL CONTENTS

FINDINGS DURING GASTRIC DIGESTION IN NORMAL
YOUNG MEN *

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The present communication gives the main results of an investigation of the physical characters and enzymatic activities of the duodenal contents during gastric digestion in normal young men. For the purposes of this work the duodenal contents were obtained by means of the Rehfuess gastroduodenal tube. The tube was passed at a time when the stomachs were in the fasting state. After the tip of the tube had reached the second portion of the duodenum, as determined by fluoroscopy, an attempt was made to aspirate whatever contents might be present in the duodenum; the subjects then were fed one of five types of meals. These meals consisted of: (1) 300 c.c. of a mixture of milk, water and cottage cheese; (2) 300 c.c. of 20 per cent. cream; (3) 300 c.c. of 0.5 per cent. cooked cornstarch solution in which were dissolved 15 gm. of lactose, and (4) 300 c.c. of tap water. To each meal was added 40 gm. of barium sulphate. A fifth type of meal consisted of 40 c.c. of 20 per cent. cream and 10 gm. of barium sulphate. The presence of the barium salt permitted the behavior of the meals in the stomach and duodenum to be observed by means of the fluoroscope.

After the subject had ingested one of these meals, he reclined on his right side and a small amount of duodenal contents was aspirated with a syringe, following which the contents of the duodenum were siphoned off. Siphonage did not give a uniform flow but the contents came in jets from the tube, at intervals varying from a few seconds to a minute or more, with more or less dripping from the end of the tube between jets. The amounts obtained during the period of collection were never less than several hundred cubic centimeters. The period of collection varied from two to four hours, depending on how rapidly the stomach emptied itself. The latter was found to vary with the type of meal fed. In general, water left the stomach in from one to one and one-half hours, the starch and lactose solution in from one and one-half to two and one-half hours, the milk and cottage cheese mixture in from three to three and one-half hours and the 300 c.c. cream meal in from four to five hours, while the 40 c.c. cream meal left the stomach in about one hour's time.

Duodenal contents collected after feeding the water meal were greenish yellow during the first hour and light golden yellow during the second hour. The specimens of the first hour were but slightly viscid, and those of the second hour somewhat more so. The contents obtained from the starch and lactose meal were yellowish brown during the first hour of collection, while the subsequent specimens were golden yellow or

pale yellow. The contents obtained from this meal were somewhat more viscid than those obtained from the water meal. The material returned through the duodenal tube after the ingestion of the milk, water and cottage cheese meal was deep golden yellow and more viscid than any of the duodenal contents previously described. The duodenal contents collected after feeding the 300 c.c. cream meal were deep golden yellow with the exception of the first two hourly collections in one subject, which were greenish yellow. The duodenal contents collected after feeding the 40 c.c. cream meal were greenish yellow during the first hour and lemon yellow during the second hour. The contents from both cream meals were very much more viscid than those collected from any other type of meal, while in one subject the contents were almost semisolid in consistency. Therefore, the duodenal contents obtained, after feeding the various types of meals, all contained bile, showed rather characteristic degrees of viscosity, varied in color and were usually very largely liquid, containing but a very small amount of the food originally fed. The finding of the differences in viscosity and color suggests that the character of the fluids entering the duodenum is in some way dependent on the kind of food ingested.

Before beginning the study of the enzymatic activities of duodenal contents it was deemed expedient to devise methods which would conform to the basic principles of the physical chemistry of enzyme action. This was necessary because in all previous methods¹ used for the estimation of enzymatic activities in duodenal contents many conditions which profoundly influence uniformity, proportionality and stability of enzyme action are not considered. Uniformity of enzyme action means that, under a certain set of experimental conditions, a given specimen of duodenal contents will give the same results on repeated analyses. By proportionality is meant the relation existing between the amounts of material digested by varying quantities of duodenal contents; i. e., two units of duodenal contents should digest about twice as much material as does one unit. Stability of an enzyme is a term used to express the length of time an enzyme will remain active. Obviously, methods which neglect such important factors as these give results whose interpretation is problematic.

The methods we have devised obviate the sources of error present in those previously described. This has been accomplished by the use of mixtures of disodium phosphate and potassium acid phosphate solutions, whereby the degree of alkalinity (hydrogen ion concentration) necessary to bring about uniformity and proportionality of enzyme action has been obtained. In these methods proteolytic activity is estimated by allowing duodenal contents to act on a solution of soluble casein. The amount of digestion which occurs is estimated by an adaptation of the method of Folin and Wu² for the determination of nonprotein nitrogen developed. Amylolytic activity is estimated by the action of duodenal contents on starch solution. The amount of sugar thus developed is determined by the method of Folin and Wu³ for the determination of sugar in the blood. Lipolytic activity is estimated by the action of duodenal contents on a true emulsion of cottonseed oil, and is represented as the number of

* From the Medical Clinic and Radiographic Department of the Peter Bent Brigham Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Euler, H.: General Chemistry of the Enzymes, translated by T. H. Pope, New York, 1912.
2. Folin, Otto, and Wu, H.: J. Biol. Chem. **38**: 81 (May) 1919.
3. Folin, Otto, and Wu, H.: J. Biol. Chem. **41**: 367 (March) 1920.

cubic centimeters of tenth normal sodium hydroxid necessary to neutralize the acidity developed.⁴

Figures representative of the degrees of enzymatic activities found in duodenal contents obtained in twenty-five experiments after the ingestion of the various meals, together with those of the hydrogen ion concentrations, are given in the accompanying table.

Study of the table shows that in the hourly specimens of duodenal contents derived from the milk and cottage cheese and the cream meals there were sufficiently uniform degrees of enzymatic activities to permit the estimation of average figures for the degree of each type of enzyme action. For this reason the results obtained by the use of these meals have been used as a standard.

For practical purposes the use of the meals of 300 c.c. volume offered several difficulties, such as non-palatability, too large bulk to be easily ingested, and too great dilution of the duodenal contents when the stomach emptied itself with abnormal rapidity. Such dilution produced abnormally low degrees of enzymatic activities in the duodenal contents. For this reason it was deemed advisable to make a study for the purpose of finding a meal which would obviate these difficulties; and the 40 c.c. cream meal was finally decided on as the most suitable. Duodenal contents collected during the first hour after the ingestion of this meal show enzymatic activities comparable to those outlined in the table.

ENZYMATIC ACTIVITIES AND HYDROGEN ION CONCENTRATION OF DUODENAL CONTENTS COLLECTED FROM VARIOUS TYPES OF MEALS

Subject	Proteolytic Activity Expressed in Mg. Nonprotein Nitrogen in Specimens Collected During				Lipolytic Activity Expressed in C.c. of N/10 NaOH in Specimens Collected During				Amylolytic Activity Expressed in Mg. of Glucose in Specimens Collected During				PH of Specimens Collected During				Type of Meal Ingested by the Subject
	First Hour	Second Hour	Third Hour	Fourth Hour	First Hour	Second Hour	Third Hour	Fourth Hour	First Hour	Second Hour	Third Hour	Fourth Hour	First Hour	Second Hour	Third Hour	Fourth Hour	
B	3.0*	1.8*	1.3*	Milk, water and cottage cheese
	3.4*	....	....	....	2.0*	....	....	....	1.0*	....	....	....	....	....	....	....
	1.7*	....	....	....	0.6*	....	....	....	0.7*	....	....	....	....	....	....	....
	3.0*	4.2	5.2	5.2	1.6*	2.4	1.7	1.8	1.5*	1.1	1.6	2.3	....	6.4	7.1	7.0
D	3.9	2.7	3.1	3.7	2.0	1.0	1.8	1.6	1.7	0.8	1.8	1.0	5.1	4.5	4.0	300 c.c. 20% cream 40 c.c. 20% cream Starch and lactose Water Fasting duodenum
J	3.4	3.0	3.0	3.5	3.0	2.3	2.8	2.2	1.9	1.9	2.4	2.4	5.1	6.1	6.8	6.2	
L	3.9	....	....	....	2.8	....	....	....	2.0	....	....	....	6.3	....	....	....
E	2.3	3.0	4.8	....	1.4	1.6	2.6	....	0.3	0.4	1.7	....	....	....	....	....
D	2.1	3.5	0.2	0.2	0.4	1.9	Water
I	1.8	....	....	....	0.5	....	....	....	0.3	....	....	....	....	....	....	....

* Specimen collected over a period of fifteen minutes.

Duodenal contents derived from the fasting duodenum or from the water meals and in specimens collected over periods of only fifteen minutes showed degrees of enzymatic activities considerably below this standard. Similar results were also obtained occasionally in duodenal contents derived from the starch and lactose meals. These findings suggest the existence of some relation between the kind of foods eaten and the degrees of enzyme action in duodenal contents.

The degree of acidity, i. e., the hydrogen ion concentration, of the duodenal contents derived from the various types of meals was determined by means of a potentiometer. The hydrogen ion concentrations were found to vary between 5 and 7.5, with, however, an occasional exception between 4 and 5. These findings are similar to those of McClendon and his co-workers.⁵ No relation was found between the degrees of enzymatic activities and the hydrogen ion concentrations. This observation, together with the finding of variations in the degrees of enzymatic activities in relation to the type of materials ingested, suggests that food plays a more important rôle in the production of the presence of enzyme action in the duodenum than does the degree of acidity. This finding supports Pawlow's contention in contradistinction to that of the "secretin theory" of Bayliss and Starling.⁶ It will be recalled that the latter theory assumes secretin to be a product of the action of hydrochloric acid on the duodenal mucosa and to function as the stimulant to pancreatic secretion. On the other hand, Pawlow⁷ believed he proved, in dogs, that food substances controlled the secretion of pancreatic enzymes.

Enzymatic activities have been determined in the hourly specimens of duodenal contents derived from fifteen normal young men, after the ingestion of milk and cottage cheese or one of the cream meals. On the basis of this number of observations the normal minimum for enzymatic activity, as determined under the experimental conditions outlined, is considered to be, for proteolytic activity, 2 mg. of nonprotein nitrogen; for lipolytic activity, 1 c.c. of tenth normal sodium hydroxid, and for amylolytic activity in the neighborhood of 1 mg. of glucose.

FRACTIONAL ANALYSIS OF THE DUODENAL CONTENTS IN NORMAL INDIVIDUALS

SOME OBSERVATIONS *

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The value of fractional analysis of the gastric contents in the diagnosis of disturbances of the stomach is well recognized. It is an established fact that the results of analyses of stomach contents obtained an hour after an ordinary Ewald test breakfast are often notably inadequate, and that the results of such examinations may even lead to erroneous conclusions. As the passage of the duodenal tube can now be practiced with but little difficulty and the contents obtained for purposes of examination, it is important to avoid draw-

4. Detailed description of the technic of these methods will be found in the Archives of Internal Medicine 27: 706 (June) 1921.
5. McClendon, J. F., and Myers, F. J.: J. Biol. Chem. 41: 187 (Feb.) 1920. McClendon, J. F.; Bissell, F. S.; Lowe, E. R., and Meyer, P. F.: Hydrogen-Ion Concentration of the Contents of the Small Intestine, J. A. M. A. 75: 1638 (Dec. 11) 1920.
6. Bayliss, W. M., and Starling, E. H.: J. Physiol. 28: 325, 1902.
7. Pawlow, I. P.: The Work of the Digestive Glands, London, 1910.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

ing incorrect conclusions in duodenal analysis, as is frequently done following a single gastric analysis. On this account Einhorn¹ has called attention to the value of fractional analyses of the duodenal contents. Before one, however, can draw conclusions regarding pathologic states, the normal should be definitely settled. Einhorn has given us the curves of the fractional analysis of the duodenal secretion in two perfectly normal individuals, who were in no way affected with any subjective symptoms. In his other

be accomplished within a half hour. Formerly in order to have the tube enter into the duodenum it was necessary to pass it at night, when it ordinarily found its way into the duodenum on the following morning. It is quite unnecessary, however, to pursue this long procedure. As a rule, if the tube is passed in the morning in the fasting state, it can usually be made to enter the duodenum in from twenty to forty minutes. In order to accomplish this process quickly, the method as advised by Lyon should be followed.

FRACTIONAL ANALYSIS OF DUODENAL CONTENTS

No	Name	Gastric Contents: Fractional Analysis	Date and Time	Appearance	Alka- linity	Amy- lopsin	Steap- sin	Trypsin
1	Mrs. B. S.	Minutes 15 30 45 60 75 80 FA 0 0 14 15 54 30 TA 13 16 34 18 63 43	March 6, 1920 Fasting ½ h.a.b.* 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Golden yellow..... Lemon yellow..... Lemon yellow..... Lemon yellow..... Golden yellow.....	70 45 60 0 10	6.5 4 0 0 0	5 4.5 6 2.5 5	4 2 2 4 4
2	Dr. L. R.	Minutes 15 30 45 60 75 90 105 120 FA 0 0 0 0 14 17 26 22 TA 10 12 17 22 28 35 42 32	April 11, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Golden yellow..... Golden yellow..... Golden yellow..... Golden yellow..... Golden yellow.....	33 Alk. 40 20 35	2 4 8 2.5 10	2.5 2 3 2 2	1 3 3 4.5 2.5
3	W. S.	Free HCl plus	April 12, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Golden yellow..... Golden yellow..... Golden yellow..... Orange yellow..... Orange yellow.....	30 Acid 20 25 30	7 5 5 3 6	5 0 2 4 2.5	2 2 3 0 2
4	B. W.	Minutes 15 30 45 60 75 90 105 120 FA 0 0 10 22 30 35 30 25 TA 5 15 18 20 30 50 55 50	March 28, 1920 No bouillon ½ hour 1 hour 1½ hour 2 hour	Golden yellow; turbid..... Golden yellow; clear..... Golden yellow; clear..... Golden yellow; clear.....	20 20 30 30	7 6.6 2.5 12	1 1 3.5 1	3.5 1 2 0
5	J. T.	Minutes 15 30 45 60 75 90 105 120 FA 0 0 15 32 38 30 25 25 TA 5 28 36 40 44 55 54 58	March 28, 1920 No bouillon ½ hour 1 hour 1½ hour 2 hour	Golden yellow; clear..... Golden yellow; clear..... Golden brown..... Golden yellow.....	10 50 Neut. 60	3 8 12 8	4 2 2 5	4 2.5 2 6
6	D. B.	Minutes 15 30 45 60 75 90 105 120 FA 0 10 26 20 30 35 42 .. TA 20 23 34 30 51 45 60 ..	April 18, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Light golden yellow..... Golden yellow..... Flaky golden yellow..... Flaky golden yellow..... Clear golden yellow.....	12 12 12 10 20	6 8 7 6 10	3 2.5 3 2 5	0 1 0 4 1
7	D. R.	Minutes 15 30 45 60 FA 25 26 45 41 TA 33 47 55 58	May 25, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Clear golden yellow..... Clear golden brown..... Golden yellow..... Golden yellow..... Golden brown.....	20 15 20 40 10	8 6 6 4 1	4 5 2.5 2.5 2.5	3 3 2 3.5 4
8	C. S.	Minutes 15 30 45 60 75 90 105 FA 0 0 22 38 36 44 42 TA 10 20 32 45 58 54 50	April 15, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Clear golden yellow..... Cloudy golden yellow..... Clear golden yellow... Clear golden yellow..... Clear golden brown.....	30 — 20 20 10	15 6 7 2 1	5 2 3.5 0 0	5 5 5 5 3
9	M. B.		March 2, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Golden yellow; turbid..... Golden yellow..... Lemon yellow..... Lemon yellow..... Lemon yellow.....	30 10 15 Neut. 20	5 3 6 8 6	5 2 2 4 4	3 2 2 2 2.5
10	D. R.	Minutes 15 30 45 60 75 90 105 120 FA 0 0 18 20 40 45 42 25 TA 5 15 30 45 52 60 54 50	April 4, 1920 Fasting ½ h.a.b. 1 h.a.b. 1½ h.a.b. 2 h.a.b.	Golden yellow..... Turbid golden yellow..... Clear golden yellow..... Clear golden yellow..... Clear golden yellow.....	60 30 40 30 33	8 7 6 6 8	12 3 6 5 7	5 12 4 4 4

* Hours after bouillon; FA, free hydrochloric acid; TA, total acidity.

examinations the individuals had definite disturbances, and the results therefore which were obtained cannot be classified under the head of normal curves. With these facts in view we have examined the duodenal contents in ten perfectly normal individuals with the object that these findings may serve as a basis for the future study of pathologic variations. In most of our examinations the duodenal tube was swallowed in the morning in the fasting state and fractional analyses were made of the gastric contents first, utilizing 300 c.c. of strained oatmeal broth as a test meal. After the completion of this process, the tube was allowed to enter the duodenum, which can usually

1. Einhorn, Max; Am. J. M. Sc. 156:817 (Dec.) 1918; The Duodenal Tube, p. 46.

The tube is swallowed to the 55 cm. mark. A small glass of water is given to increase peristalsis, and the patient, then lying on his right side, is required to make slow swallowing movements which gradually induce the passage of the tube to the 75 cm. mark. As Lyon points out, and our observations are entirely in accord with his, the slow swallowing movement is often the secret of the rapid entrance of the tube into the duodenum. In order to determine whether the tube has entered the duodenum, one need only aspirate, when at first usually a light golden yellowish fluid appears. At times the contents may be slightly amber in color, and turbid or golden brown. The secretion is usually alkaline, though rarely it may be neutral or even slightly acid in reaction.

From 15 to 20 c.c. of contents is now slowly aspirated and placed aside in a beaker. Following this procedure, a test meal of beef bouillon is given according to the plan of Einhorn, consisting of one bouillon cube to a cup of hot water. This process stimulates the flow of the secretion. The duodenal contents are now aspirated at half hour intervals for at least two hours, from 15 to 20 c.c. being obtained at each aspiration. If the secretion is abundant in the fasting state, it may not become necessary to stimulate with a test meal, as under such conditions the flow is frequently quite sufficient for the various examinations. The specimens obtained should be promptly examined, since they are likely to undergo rapid disintegration on standing. With each aspiration, the reaction, color and consistency of the contents are noted and the degree of alkalinity is determined by titrating with tenth normal hydrochloric acid solution, methyl-orange solution being utilized as an indicator. The examination for the ferments is practiced according to the method of Einhorn² with his special agar tubes, the preparation of which has been fully described in his various papers.

The mode of procedure is as follows:

A starch, oil and hemoglobin tube is taken, the paraffin at one end scraped off, and the tube placed vertically in a small test tube containing the duodenal secretion. A few drops of toluene are added, after which the test tube should not be shaken, and the contents are kept at the body temperature for twenty-four hours in an incubator. The agar tubes are next removed from the test tube by means of a hemostat, and the surface is wiped off and inspected. "The hemoglobin tube shows a change of appearance (due to the action of the trypsin and a clearing up of the end part), becoming more or less transparent; the oil tube manifests a bluish appearance (the steapsin ferment splits the oil into fatty acids producing this color) at the end. The lengths of transparency in the hemoglobin tube and of the bluish color in the oil tube are measured and stated in millimeters. The starch tube is further examined by pushing out the agar column and dipping it into a weak iodine solution. The portion of the starch column remaining colorless indicates the part changed (by the amylopsin ferment) into sugar and is given in millimeter lengths."

According to this method of Einhorn, the hemoglobin determines the quantity of the trypsin ferment, the olive oil the steapsin, and the starch the amylopsin.

In the study of our ten normal individuals, the duodenal contents were first examined in the fasting state and then again at half hour intervals according to the method described above. The accompanying table presents the fractional analyses of the duodenal contents, its appearance, the degree of alkalinity and the quantities of amylopsin, steapsin and trypsin as estimated in millimeters of digested portions of the agar columns. As a matter for comparison, the fractional analyses of the gastric contents are given in most instances. The duodenal contents consist of pancreatic secretion, bile and duodenal secretion. Under normal conditions, this secretion, according to our observations, is golden yellow or brown in appearance; is alkaline and free of odor, but changes its appearance and odor on standing for a few hours. According to the observations of Einhorn, when three or four teaspoonfuls of glycerin are taken daily the duodenal contents will not decompose for two or three days. A similar effect may be produced when glycerin is

directly added to the contents. The alkalinity varies between 15 and 40; the quantity of ferment: (1) amylopsin, from 1 to 15 mm.; (2) steapsin, 1 to 12 mm., and (3) trypsin, 1 to 12 mm., varying with the time of extraction. Under normal conditions the alkalinity is usually highest in the fasting state, decreases immediately after the test meal, and then gradually rises.

Similarly, the ferments are usually at their height in the fasting state and fall to their lowest level immediately after the test meal has been administered and then gradually increase; this condition, however, is not constant. The strength of one ferment is independent of the other, so that any change in amount of one is not ordinarily accompanied by a similar change in the other, each running its independent curve. The average of the amount of amylopsin observed is 2.29 mm.; of steapsin, 3.5, and of trypsin, 5.8. Finally, no apparent relation exists between the curve of gastric acidity and duodenal alkalinity.

CONCLUSIONS

From our observations on the fractional analyses of the duodenal contents in the ten normal individuals, we feel justified in concluding that this method of examination presents a simple means of determining quantitatively the degree of alkalinity as well as the quantity of ferments present for several hours after the stimulation of the duodenal contents by means of a test meal. The degree of alkalinity is usually highest in the fasting state, and falls immediately after the test meal is given and then gradually rises; it bears no relation to the curve of gastric acidity. A similar effect is observed usually in regard to the ferments the strength of one ferment being wholly independent of the other. Finally, these findings, obtained under normal conditions, appear sufficiently definite to serve as a basis for further study of pathologic changes in the duodenal contents.

FRACTIONAL EXAMINATION OF THE DUODENAL CONTENTS IN PEPTIC ULCER

OBSERVATIONS IN FORTY CASES*

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NEW YORK

In a previous paper¹ it was shown that in normal individuals and in a great many patients the duodenal contents are ordinarily alkaline at any time after a bouillon test meal or in the fasting condition.

As the duodenum is the next door neighbor to and in constant communication with the stomach—an organ which manufactures and at considerable lengths of time daily contains a free inorganic acid—the mechanism of neutralizing and alkalizing the inflowing stream must be very subtle and important.

It appeared of importance to ascertain whether this essential function of the duodenum, of neutralizing the acid chyme, remains unaltered in organic affections

* From the Lenox Hill Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Einhorn, Max: The Fractional Examination of the Duodenal Contents, *Am. J. M. Sc.* 156: 817 (Dec.) 1918.

2. Einhorn, Max: *Tr. Am. Gastro-Enterological A.*, 1912; *M. Rec.*, Jan. 15, 1910; *Tr. Am. Gastro-Enterological A.*, 1915, p. 79; *The Duodenal Tube*, p. 42.

of the stomach and duodenum. We selected for our investigation peptic ulcers because they are usually accompanied by higher acidities of the gastric juice than the normal, thus making the task of neutralizing harder, and on account of the probable influence the lesions are apt to exert on the duodenal function.

Altogether, forty cases of peptic ulcers were examined as regards their duodenal contents with the fractional method after a bouillon test by the stomach. The method of procedure was as follows:

With the duodenal tube in place (i. e., in the duodenum), the fasting contents were aspirated and examined. Then a test meal of bouillon (one bouillon cube Armour & Co. to one cup of hot water) was given by the mouth, and

aspiration of the duodenal contents performed every half hour, until two hours, after the test meal. In each case an examination of the gastric contents after the usual test breakfast of Ewald and Boas had been undertaken a few days in advance, in order to acquaint us with the gastric secretory function. The diagnosis of peptic ulcer had been established in all cases by the clinical symptoms and the string test, and in the majority also by positive roentgen-ray findings indicative of ulcer.

All cases are given in the table containing the acidity of the gastric juice and the fractional examinations of the duodenal contents.

It appeared appropriate to group the cases according to the location of the ulcer into gastric, pyloric and duodenal ulcers, and to range them in the table according to their gastric secretory function, beginning with the low acidity and progressing accordingly. As all the forty cases showed the presence of free hydrochloric acid in the gastric contents one hour after the test breakfast, we simplified the table by stating merely the figures of the total acidity, omitting the free hydrochloric acid amount, which for the stomach was on an average 20 less than the total

acid. In the duodenal contents, likewise, we gave the figures of alkalinity or total acidity, not mentioning the free hydrochloric acid, which here, ordinarily, averaged about 10 less than the total acidity.

Among the forty cases of peptic ulcer whose duodenal contents were examined, there were sixteen patients showing at times an acid state in the duodenum, either in the fasting condition or at one time or another during the fractional examinations after the bouillon. Two of these revealed a steady acidity of

the duodenal contents in the entire period of the fractional examination after the bouillon. In twenty-four patients the duodenal contents were always alkaline in

NEW CASES OF PEPTIC ULCER IN WHICH FRACTIONAL EXAMINATIONS OF THE DUODENAL CONTENTS HAVE BEEN MADE (OCTOBER, 1920, TO MAY, 1921)

Name	Date	Diagnosis	Gastric Contents	Examination of Duodenal Contents				
				Fasting	After Bouillon			
					1/2 Hr.	1 Hr.	1 1/2 Hrs.	2 Hrs.
1. J. L. R.	1/15/21	Gastric ulcer	Acid 40	15	20	25	25	15
2. Mrs. S. S. ...	1/30/21	Gastric ulcer;	Acid 50	20	20	25	20	20
3. Mrs. J. V. ...	11/25/20	cholelithiasis	Alk.	..	..	..	10	15
4. Miss E. W. ...	2/ 2/21	Gastric ulcer	Acid 60	25	10	15		
5. Miss F. R. ...	4/27/21	Gastric ulcer	Alk.	10	10	20	15	20
6. L. K.	4/19/21	Gastric ulcer	Acid 60	15	20	25	20	20
7. R. A. A.	10/26/20	Gastric ulcer	Alk.	15	20	30	30	20
8. Mrs. S. L. ...	1/20/21	Gastric ulcer	Acid 70	40	..	..	..	25
9. Miss E. T. E.	12/15/20	Gastric ulcer	Alk.	..	20	25	25	
10. Mrs. W. A. H.	3/ 1/21	Gastric ulcer;	Acid 80	10	..	20	20	
11. Dr. J. de G. .	3/11/21	probable cholecystitis	Alk.	15	20	20	25	10
12. Wm. R.	2/16/21	Pyloric ulcer	Acid 55	20	30	15	20	20
13. Mr. McC.	5/ 3/21	Pyloric ulcer;	Acid 60	15	15	20	20	15
14. Mr. M. B. ...	3/ 9/21	cholecystitis ?	Alk.	10	35	50	30	15
15. Dr. F. A.	10/19/20	Prepyloric ulcer	Acid 65	20	25	25	20	10
16. L. S.	3/22/21	Pyloric ulcer	Alk.	25	20	..	15	15
17. D. R.	3/ 1/21	Pyloric ulcer;	Acid 70	10	20	25	20	20
18. H. T.	2/16/21	cholecystitis	Alk.	10	20	25	20	20
19. C. C. M.	12/11/20	Pyloric ulcer	Acid 75	20	..	15	..	15
20. J. D.	2/17/21	Pyloric ulcer	Alk.	10	20	20	..	20
21. I. B.	11/23/20	Pyloric ulcer	Acid 80	15	20	25	20	20
22. J. E. B.	12/16/21	Pyloric ulcer	Alk.	10	15	20	20	20
23. W. D. B.	3/15/21	Duodenal ulcer	Acid 120	15	15	10	15	10
24. Mrs. R.	12/14/20	Duodenal ulcer	Alk.	20	15	25	20	20
25. Mrs. J. L. B.	3/ 8/21	Duodenal ulcer	Acid 40	15	20	25	25	20
26. Mrs. L. H. ...	5/ 4/21	Duodenal ulcer	Alk.	35	25	20	20	20
27. H. P.	3/ 2/21	Duodenal ulcer	Acid 60	20	..	..	..	10
28. J. G. B.	3/ 2/21	Duodenal ulcer	Alk.	10	20	15	20	20
29. U. E.	3/26/21	Duodenal ulcer;	Acid 65	15	20	25	20	25
30. S. F.	5/ 3/21	chronic cholecystitis	Alk.	15	25	20	20	20
31. N. O. J.	12/ 3/20	Duodenal ulcer;	Acid 70	20	20	25	15	15
32. H. R. H.	11/29/21	chronic cholecystitis	Alk.	20	20	25	15	15
33. H. K.	11/25/20	Duodenal ulcer	Acid 75	15	..	..	30	40
34. W. P. W.	11/20/20	Duodenal ulcer	Alk.	10	10	15		
35. M. B.	4/19/21	Duodenal ulcer	Acid 80	15	20	20	20	20
36. E. C. D.	3/17/21	Duodenal ulcer	Alk.	20	25	25	30	20
37. H. C.	4/ 7/21	Duodenal ulcer	Acid 80	20	25	25	30	20
38. J. G. R.	3/21/21	Duodenal ulcer	Alk.	15	15	20	..	15
39. H. A.	4/27/21	Duodenal ulcer;	Acid 100	30	..	10	20	15
40. W. H. S.	10/10/20	chronic cholecystitis	Alk.	20	25	25	25	20

the fasting state as well as at all times during the fractional examinations after the bouillon test meal. In dividing the entire class of peptic ulcers into those involving the stomach, pylorus and duodenum, the following may be noted:

Among ten cases of gastric ulcer the duodenal contents were at times acid after the bouillon test in three, while they were always alkaline in seven.

In all pyloric ulcers the duodenal contents after the bouillon test meal were always acid in two, at times acid in three, and always alkaline in six.

In nineteen cases of duodenal ulcer the duodenal contents after the bouillon meal were at times acid in eight, while they were always alkaline in eleven.

The degree of acidity of the gastric contents does not seem to be the determining factor for the occurrence of acidity in the duodenal contents. Case 13, for instance, with an acidity of the gastric juice of 60, shows a permanent acidity of the duodenal contents after the bouillon, while Case 20, with an acidity of the gastric juice of 80, shows an alkaline reaction of the duodenal contents in all the examinations. It is well

known that the high acidity of the gastric juice will probably favor the occurrence of acidity in

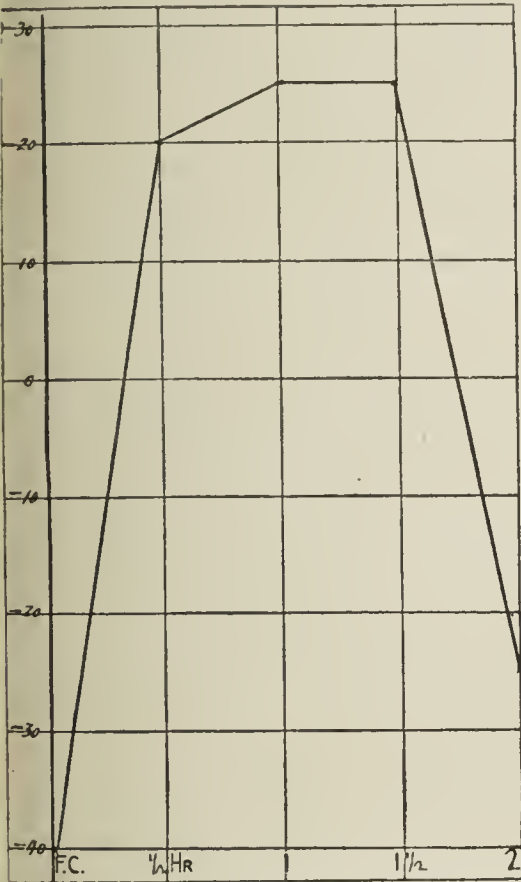


Chart 3.—Reaction in Case 7; acidity of gastric contents, —70.

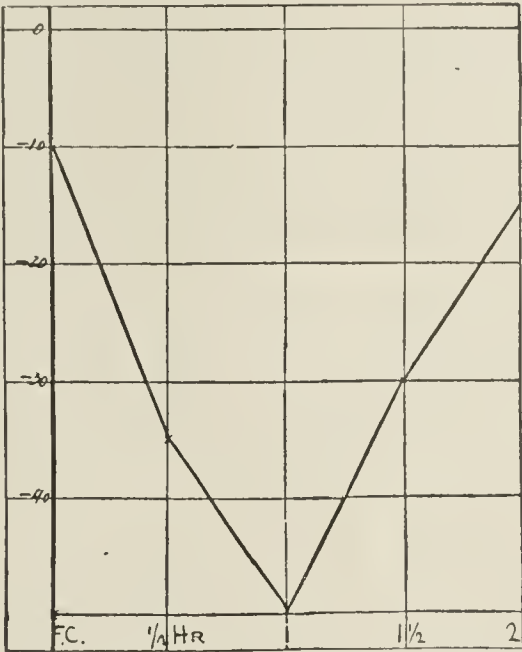


Chart 4.—Reaction in Case 13; acidity of gastric contents, —60.

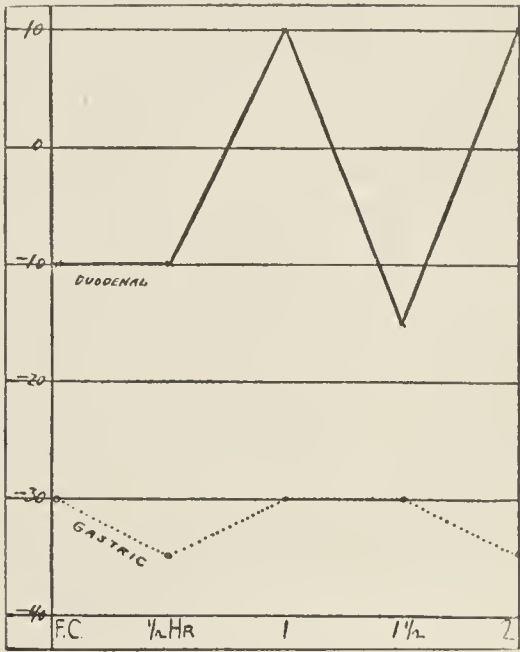


Chart 5.—Reaction in Case 13 after treatment; simultaneous gastric and duodenal examinations.

the duodenal contents. Cases 21 and 40 are good illustrations of this fact: Case 21 revealed an acidity of the gastric juice of 120, and the duodenal contents were acid at all times after the bouillon; Case 40, likewise, showed a gastric juice of 112 total acid and the duodenal contents were acid at times after the bouillon test meal.

In looking over the table with regard to the examinations of the duodenal contents in the fasting state and after the bouillon in peptic ulcers, we can discern the following four types:

Type I (Case 1). The duodenal contents are always alkaline in the fasting state as well as at any time after the bouillon test meal.

Type II (Case 9). The duodenal contents are alkaline in the fasting state and at times acid after the bouillon test meal.

Type III (Case 7). The duodenal contents are acid in the fasting condition and at certain periods after the bouillon test meal.

Type IV (Case 13). The duodenal contents are always acid in the fasting state as well as at any time after the bouillon test meal.

Type I represents the normal. The majority of cases of peptic ulcer (twenty-four in forty) show a normal condition with regard to the alkalinity of the duodenal contents. In a number of peptic ulcers (sixteen in forty) the abnormal types (II, III and IV) were found. The severity of the disturbance is least in Type II, greater in Type III, and greatest in Type IV.

Type IV we encountered in two cases of pyloric ulcer (Cases 13 and 21). It is hardly necessary to say that in these particular instances we made sure by all kinds of tests that the tube was in the duodenum while the duodenal contents were obtained. It is in this way proved that under adverse conditions the duodenal contents can be acid at all times (fasting and during the period of digestion).

This is of importance, for, generally, in ascertaining the position of the tube, the conclusion is made that acid contents come from the stomach and indicate that the tube has not left this organ. It is therefore necessary to apply the milk or raspberry or coffee test before deciding this point definitely.

It is evident from what has been stated above that

the greatest disharmony in the neutralization faculty of the duodenal contents (namely, their being acid at all times) can exist in cases of peptic ulcer. In the table we find two cases of pyloric ulcer with completely disturbed function of the neutralization power of the duodenum.

The question arises as to how these cases act after a treatment applied for the cure of the ulcer. We had occasion to examine one of these two patients (Case 13), two days after a two weeks' period of duodenal alimentation. We used in this case the gastro-duodenal aspirator in order to be able to compare the gastric acidity cycle with the duodenal reaction curve.

This simultaneous examination of the duodenal contents revealed:

DUODENAL CONTENTS

- Fasting: Greenish yellow, turbid; $\text{ACl}=5$; $\text{Ac.}=10$; 8 c.c.
- After bouillon 30 minutes: Watery, clear; $\text{HCl}=5$; $\text{Ac.}=10$; 7 c.c.
- After bouillon 60 minutes: Dark yellow, turbid; $\text{alk.}=10$; 4 c.c.
- After bouillon 90 minutes: Grayish, tinge of yellow; turbid; $\text{HCl}=5$; $\text{Ac.}=15$; 5 c.c.

After bouillon 120 minutes: Light yellow, slightly turbid; alk.=10; 5 c.c.

GASTRIC CONTENTS

Fasting: Grayish, turbid; HCl=20; Ac.=30; 10 c.c.

After bouillon 30 minutes: Grayish, turbid; HCl=25; Ac.=35; 2 c.c.

After bouillon 60 minutes: Grayish turbid; HCl=15; Ac.=30; 6 c.c.

After bouillon 90 minutes: Grayish, turbid; HCl=15; Ac.=30; 5 c.c.

After bouillon 120 minutes: Grayish, turbid; HCl=25; Ac.=35; 6 c.c.

It can easily be seen that after treatment the neutralizing power of the duodenum has improved considerably in this case. If we compare Chart 4, which gives the reaction curve in the duodenal contents after a bouillon test meal in the same patient before treatment, with Chart 5, after treatment, it is evident that the duodenum now acts much better. Twice we find the contents in the last examination alkaline, and even when acid the degree of acidity is much less than before the treatment.

It will be advisable to examine a greater number of these cases of disharmony of the duodenal neutralization function before and after treatment.

Aside from the physiologic interest presented by the fractional examinations of the duodenal contents after the bouillon test, they may be useful in the diagnosis of peptic ulcers. Although an acid state even at times has been encountered in less than half of the cases of peptic ulcer, this is nevertheless of some diagnostic import and can be utilized in conjunction with some other signs suggestive of this affection.

In this short paper I have dealt with the fractional examination of the duodenal contents in peptic ulcers. Diseases of the pancreas, liver and gallbladder have much to do with possible disturbances of the neutralization function of the duodenum, which could be recognized by these fractional examinations. It is my intention to make further investigations regarding this subject and to report them at some future time.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. MCCLURE, WETMORE AND REYNOLDS, FRIEDENWALD AND SINDLER, AND EINHORN

DR. I. O. PALEFSKI, New York: Dr. McClure has well emphasized the necessity of improvement in the technic of enzymology of duodenal contents. It appears from recent studies that little attention was given to the fact that duodenal juice is essentially an indefinite admixture of several secretions, each endowed with accelerating or retarding influences on enzyme activity. I agree with Dr. McClure regarding the use of cottonseed oil emulsion for the examination of lipase. The chemical and physiologic changes caused by the use of barium sulphate and the time required for the determination of the end-products of digestion of starch and casein are the drawbacks in the method suggested by Dr. McClure. Bile colored, acid duodenal contents may be obtained normally when the tip of the tube is still at the pylorus or in the first part of the duodenum; in common bile duct obstruction and in partially obstructed pylorus or duodenum by ulcer, adhesions, growth, or by external pressure. The tube, then, may remain at the point of obstruction for many hours. In twenty cases, including one pyloric and six duodenal ulcers examined by the beef bouillon meal as advocated by Dr. Einhorn, the duodenal juice was alkaline in sixteen, and showed free hydrochloric acid in two and combined acid in two others. In the two free acid cases, the tip of the tube was located by the roentgen ray at the point of obstruction by ulcer. There was a tendency toward a higher alkalinity of the duodenal juice on the empty stomach. The fractional examination of the gastric contents after

the beef bouillon meal revealed the latter to have passed out of the unobstructed stomach within an hour, while in pyloric and duodenal ulcer, it remained over two hours. Its gastric stimulating effect was distinctly less than by the Ewald meal. While passing into the duodenum, the tube stimulates gastric and probably also pancreatic secretion. If further stimulation by test meals is deemed necessary, the duodenal contents should be examined immediately after the former has entirely passed out of the stomach. Experience has shown that during gastric digestion, the duodenal juice is weakest in pancreatic enzymes, owing to dilution and destruction by the excessive acid gastric contents.

DR. CLEMENT R. JONES, Pittsburgh: We must guard against drawing conclusions as to the total duodenal contents from small samples obtained at points not settled with exactness and not including the whole mass. As 10 c.c. of gastric contents does not always represent the average acid and ferment contents of the stomach, we may conclude that a small amount of duodenal content represents only the contents at the point at which the tip of the tube may be at the time of securing the sample. Food and secretions move rapidly through the duodenum, and with our present methods we are only beginning to study the problem. Let us proceed with care and with no preconceived ideas search for such truth as improving procedures may make possible of discovery.

DR. J. D. DUNHAM, Columbus, Ohio: There has been considerable discussion in the last few years about the effect of barium and bismuth on the emptying time as compared with ordinary meals. I should like to ask Dr. McClure whether he carried out any experiments showing the variability of the enzymatic activities with or without barium.

DR. ANTHONY BASSLER, New York: Our observations in the study of the duodenal contents in estimating the various enzymes were so variable that last year we simplified our method, using a diastatic enzyme as a standard. We use 2 per cent. standardized Japanese starch cells, which is 100 per cent. starch, and the only 100 per cent. starch obtainable. We put 15 c.c. of it into each of ten test tubes. We add varying amounts of B bile, from 0.2 to 10 c.c., and we immerse these ten tubes in a water bath for ten minutes. We use a testing solution of standardized iodine, essentially a Gram solution, which is about 2 c.c. of Gram solution in 100 c.c. of water, so it is very weak. We add a definite proportion of this standardized solution to each of these ten tubes after they have been taken from the water bath, and from this we know the activity of B bile specimen. We have done this on 100 individuals, mostly normal, for the purpose of obtaining a normal standard, and have found that the diastatic activity of the pancreas seems to be more staple, more definite than the other enzymes. We have found from 0.7 to 0.9 c.c. of B bile representing about the normal standard of pancreatic activity. It is a simple method. It has served us much more satisfactorily than the other methods of testing the proteolytic enzymes.

DR. FRANKLIN W. WHITE, Boston: I wish to emphasize two points in connection with these papers. First, the value of the study of the enzymes in normal persons. Without it we have no basis and guide for our pathologic studies. This work that Drs. McClure and Friedenwald have done is of real importance. Any one who has studied duodenal contents realizes the great variability and inconstancy of tests for ferment. In Dr. McClure's method we have here a real advance in detecting the amount of ferments present. It is a method which will give us constant quantitative results in ferment estimation, which is not true of other methods which I know. The next point is the passage of the duodenal tube. The duodenal tube to the general practitioner looks like a difficult instrument to insert. Our recent observations show that it is easy to get in, as a rule. Our record of the last 100 cases watched by the fluoroscope showed that the tube passed into the duodenum within from twenty to thirty minutes in 80 per cent. of cases. After the tube has reached the stomach, it can be easily passed into the duodenum by putting the patient in the right Sims position and having him swallow the tube slowly for six or eight more inches.

DR. MARTIN E. REHFUSS, Philadelphia: A physician studying duodenal contents in our laboratory noted that as far as

he enzymes were concerned in duodenal activity it was possible to obtain bile from almost all. He questioned whether complete modification of the lipase took place in normal duodenal contents in the ordinary laboratory procedure. Regarding duodenal contents in normal blood, some of you have seen normal duodenal contents in achylia. We examined six normal students. In five out of the six we got bacterial contents. In four out of six we got colon bacillus and in one streptococcus. When I was in Canada Dr. Beauregard told me that he covered the tube with paraffin and then introduced it until it went into the duodenum. Then he took a syringe and withdrew the contents. He got the first contents, which are as nearly sterile as possible. In 100 cases he never failed to get the contents. This is a simple method and rather an ingenious one.

DR. CHARLES W. McCLURE, Boston: The results were the very best we could get under existing conditions. No attempt has been made to duplicate conditions in the small intestine. I know of no way in which we can duplicate conditions present in the small intestine and maintain uniformity of enzyme action. One reason why lack of uniformity of enzyme activity is not always obvious when estimated by the old methods is that the procedures for quantitatively determining the degrees of enzyme action were too rough to show any more than the very grossest differences. Bile from human gallbladders obtained at operation, when added to duodenal contents, had no effect on the degree of enzyme action as determined by the methods we have devised. Duodenal contents derived from a patient with complete obstruction of the common duct, and in whom no bile was being secreted, showed degrees of enzymatic activity comparable to those obtained from normal men. The main object has been to devise experimental conditions under which uniform degrees of activity would be obtained for each type of enzyme, proteolytic, lipolytic and amylolytic. We have then attempted to find out whether the uniformity in results was the effect of a poor method or whether it was the apparent effect. We have then determined whether the uniformity obtained was the result of imperfect methods or whether it represented the true enzymatic action in the duodenal contents. By using various types of meals and repeating over and over again on the same subjects—and all of these were normal young men without any gastro-intestinal trouble—we have shown that we can get a low enzymatic action and a high enzymatic action by varying certain sets of conditions, and that the degrees of enzyme action remain constant for each set of conditions. One thing I did not point out was that we were not working with small amounts of duodenal contents. We were working with amounts of 100 c.c. to 1 liter or more. The suggestion that barium might modify enzyme action is a very good one and one on which we worked. We found there was no appreciable difference between the duodenal contents containing barium and those containing no barium. We have used chemically pure barium sulphate, which is insoluble. As regards the uniformity of action of diastase, that enzyme gives the most variable degrees of action as determined by the methods we have used.

DR. MAX EINHORN, New York: Dr. White said he could get the tube into the duodenum in from twenty to thirty minutes. In one case I got the tube in in ten minutes. If you have to deal with pathologic conditions it may take a long time. I have had cases in which it took from twenty-four to forty-eight hours. I have no doubt that those men who apply the tube in any way they want will have some difficulty or will not get it in. In obstructive cases it will not go in. In regard to applying only one ferment, as Dr. Bassler said, this is not adequate because in pancreatic diseases we find that only one of the ferments may be present and that may be the one we are testing. The three ferments do not always go together. If we are going to get results we must have a test for all three. We must be able to manage with a small quantity—a pint or a quart will not do, as it is not always at our disposal. We must have three tubes, because that saves us the trouble of having to use great quantities of duodenal contents. Dr. Palefski spoke about duodenal contents changing. To each sample we add a few drops of toluene. That prevents the bacterial activity.

FOCI OF INFECTION IN CASES OF PYELONEPHRITIS

STUDY II *

HERMON C. BUMPUS, JR., M.D.

AND

JOHN G. MEISSER, D.D.S.

ROCHESTER, MINN.

In the report ¹ of a recent study we attempted to show that pyelonephritis may often be due to focal infections and that the colon bacillus, which is usually found in the urine and believed to be the cause, is a secondary infection. In this work we injected laboratory animals with cultures obtained from possible foci in patients with pyelonephritis, and demonstrated the selective localization of these bacteria for the urinary tract. We desire now to report further progress in this study, and to give the results obtained in a series of six additional cases, with especial attention to one typical case. This will be reported in full, and only the results will be given in the twelve cases.

Because of the almost constant presence of the colon bacillus in the urine of patients suffering from pyelonephritis, attention has been centered almost entirely on it as the etiologic cause of the disease. The apparent direct lymphatic connection between the kidneys and the colon has led many research workers and clinicians to consider these lymphatics as the pathway of renal infection, and a colon teeming with bacteria an ever constant source from which the urinary tract may be infected. The natural inclination to ascribe to oral sepsis, which is frequently the cause of other infections, a contributory rôle in pyelonephritis was rejected because colon bacilli are rarely isolated from such foci, and their predominance in cases of pyelonephritis seems to exclude such a theory. Rosenow,² however, by his experimental work on the elective localization of streptococci, opened a field of investigation far reaching in its variety of application. The increasing evidence that bacteria are carried by the blood to the kidney and excreted, as demonstrated by Brown,³ Cunningham⁴ and others who obtained tuberculosis bacilli from the urine of patients who had pulmonary tuberculosis but no renal lesions, and the well known fact that the urine of patients with typhoid fever contains typhoid bacilli, indicate that renal infections may be of hematogenous origin.

That the organisms which reach the kidney and produce lesions later resulting in a colon bacilluria may be other than colon bacilli was suggested by Le Fur.⁵ He attempted to produce vesical ulceration in laboratory animals by the intravenous injection of various bacteria. The results were so unsatisfactory that the intravenous injection was abandoned and the

* From the Section on Urology and the Section on Dental Surgery, Mayo Clinic.

¹ Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Bumpus, H. C., Jr., and Meisser, J. G.: Focal Infection and Selective Localization of Streptococci in Pyelonephritis, *Arch. Int. Med.* **27**: 326-337 (March) 1921.

2. Rosenow, E. C.: Elective Localization of Streptococci, *J. A. M. A.* **65**: 1687-1691 (Nov. 13) 1915.

3. Brown, Lawrason: The Significance of Tubercle Bacilli in the Urine, *J. A. M. A.* **64**: 886-890 (March 13) 1915.

4. Cunningham, J. H.: Facts Regarding the Relation of Tuberculosis of the Kidney to Tuberculosis of the Lungs, *Boston M. & S. J.* **165**: 872-875, 1911.

5. Le Fur, R. F.: Des ulcerations vésicales et en particulier de l'ulcère simple de la vessie, Paris, Steinheil, 1901, 810 pp.

organism was injected directly into the bladder or into the perivesical space. Ten different strains of bacteria, including the streptococcus, pneumococcus, colon bacillus, and so forth, were used. When the colon bacillus was injected it was recovered in pure culture; when other organisms were injected, the colon bacillus was frequently recovered with the injected organism. In three cases the colon bacillus alone was recovered, even though a different organism had been injected in pure culture. This is certainly suggestive evidence that the colon bacillus may be a secondary invader; and, considered with the well-known fact that any disturbance in the urinary tract, such as the presence of a stone, a stricture or a prostatic obstruction, is generally followed by a colon bacillus infection, makes the possibility of its playing a similar secondary part in cases of pyelonephritis seem credible.

With this idea in mind, we selected patients with pyelonephritis in whom possible foci were demonstrable. In the search for such foci the patients were carefully examined for evidence of past as well as present oral sepsis.

The examination of the teeth included not only roentgenograms to demonstrate the presence of apical abscesses and devitalized teeth, but also careful examination of all teeth by means of the pulp tester to ascertain their viability. This was done because in making routine cultures of extracted teeth we have found that at the apexes of pulpless teeth pure cultures of a green-producing streptococcus may be isolated even when the roentgenograms do not show evidence of periapical infection. It is not generally appreciated that there may be a vast number of organisms around a devitalized tooth before they destroy sufficient bone to make their presence manifest in the roentgenogram. We believe, therefore, that it is a mistake to exclude the teeth as a possible focus of infection simply because apical abscesses are not demonstrable by the roentgen ray. The same may be said of the tonsils. The fact that they are not enlarged and that pus cannot be expressed from them does not exclude them as possible foci, and it is our custom to have tonsillectomy performed in all cases in which the urinary infection may be reasonably believed to be of focal origin. Since we have adopted this procedure, a surprisingly large number of apparently negative tonsils have been found to hide deep seated virulent infections.

In cultures obtained from the extracted teeth, green-producing streptococci were always isolated; from the tonsils a more varied flora was obtained which, however, always included a green-producing streptococcus.

Rabbits were injected intravenously with from 3 to 5 c.c. of such cultures. In order to be certain that the selective localization of these streptococci was not due to their incubation in artificial mediums or to an overwhelming dosage resulting from their increase in numbers, salt solution suspensions of tonsillar tissue were injected without incubation in several cases. In order to ascertain that the colon bacilli in the urine of patients did not possess specificity for renal tissues, pure cultures made from the urine of patients prior to the eradication of their foci were injected intravenously into nine rabbits, and necropsies performed. In none of the animals could lesions of the kidney be demonstrated. This finding is in keeping with the work of Helmholtz and Beeler,⁶ who injected colon bacilli obtained from patients into sixty-six rabbits and obtained lesions in the kidney in only eight.

The technic employed in isolating the bacteria and injecting the animals was that used by Rosenow in similar studies. The material from the infected teeth or tonsils and from the urine was spread on the surface of blood-agar plates and inoculated into tall tubes of glucose-brain broth. The cultures were incubated at from 35 to 37 C. The injections, from 3 to 5 c.c., were made intravenously with the primary culture in glucose-brain broth as soon as profuse growth had occurred, usually in from twelve to twenty-four hours. The viability and identity of the organisms injected were determined by plating on blood-agar. The growth thus obtained was then compared with that obtained on the blood-agar inoculated directly. The animals were anesthetized



Fig. 1.—Section from rabbit's kidney showing necrotic area with marked leukocytic infiltration four days after intravenous injection of cultures of streptococci from an infected tooth (Case 344376).

usually from three to six days after inoculation and thoroughly examined for lesions. Cultures were made as a routine on blood-agar plates and in glucose-brain broth from the lesions and from the blood, bile, urine, joint fluids, kidneys and spleen. The character of the lesions was determined by studying sections stained with hematoxylin and eosin, and the causative organism was identified in the lesions by gram stain. In the earlier cases the cultures thus recovered were again injected into other animals and produced like lesions of the kidney. In some cases a third animal passage was made. This was not done in the second series of experiments because of the scarcity of rabbits at the time.

Following the extraction of the suspected foci an acute exacerbation of the urinary symptoms usually occurred accompanied by chills of more or less severity, and a rapid rise of temperature. We have regarded

6. Helmholtz, H. F., and Beeler, Carol: Focal Lesions Produced in the Rabbit by Colon Bacilli Isolated from Pyelocystitis Cases, *Am. J. Dis. Child.* 14: 5 (July) 1917.

such reactions as clinical manifestations of the specificity of the bacteria released from the removed focus, and believe that such increase in the severity of the disease should be considered favorably and an indication that the right focus has been eliminated. The correctness of this supposition was enhanced by the fact that prior to the eradication of the suspected foci only colon bacilli were obtained from the urine cultured, and that following the eradication of the foci streptococci appeared for a time. Specimens of these mixed cultures from the urine containing both colon bacilli and streptococci were injected intravenously into ten rabbits, and lesions of the urinary tract occurred in six of the animals, although, when the colon bacilli alone were injected, lesions did not result.

The six patients in this series had symptoms of the usual type of the disease. The duration of symptoms varied greatly; the shortest was three weeks, following an attack of tonsillitis; the longest was seven years. In two of the patients, tonsillitis and grip were considered possible etiologic factors; in four, the clinical histories gave no suggestion of the source of the infection. In all the patients, cystoscopic examinations were made; the urine from the kidneys was infected.

Cultures were made from both teeth and tonsils of one patient, from the tonsils of two, and from the teeth of three. These seven strains of bacteria were injected intravenously into twenty-six rabbits, twenty-one of which showed lesions in the kidneys at necropsy. There were lesions in both kidneys and in the bladder in two, and lesions in the ureter in one. There were, also, four lesions in the muscles, one in the stomach, and one in the gallbladder. The extra-urinary lesions were relatively slight compared with those of the urinary tract.

The catheterized urine from the rabbits was normal before injection; after injection a small amount of albumin with relatively few red blood cells, epithelial cells and a larger number of leukocytes were usually present.

The kidneys of the animals were about normal in size, or slightly swollen. In no instance was there a picture of diffuse parenchymatous nephritis, but always of localized infection. The capsule stripped readily in all. The cortex often presented small, opaque, yellowish-white areas, and on section the cut surface often revealed marked swelling and edema, especially of the medulla, sometimes associated with areas of hemorrhage varying in size from 1 to 4 mm. Varying numbers of necrotic areas were found in the medulla, some areas so small they were scarcely visible, others

large, grayish-white streaks, necrotic-like in appearance, and gradually disappearing as they approached the cortex. These areas were surrounded by zones of congestion and hemorrhage. In only one instance was a hemorrhagic lesion found in the ureter.

On microscopic examination, no evidence of diffuse nephritis was found. The glomeruli were almost wholly free from lesions other than varying degrees of congestion. The necrotic areas showed marked destruction of the epithelium and marked leukocytic infiltration (Fig. 1). The parenchymatous cells immediately surrounding these areas were often granular and swollen, and the nuclei of many failed to take the stain. Sections stained by the gram method contained varying numbers of gram-positive diplococci, singly, in groups, or in short chains (Fig. 2). The leukocytes often contained many diplococci in various stages of digestion, depending on the duration of the experiments.

REPORT OF A TYPICAL CASE

Mrs. M. H. (Case 344376), aged 45, came to the clinic complaining of bladder trouble. Three weeks before, at the onset of her menstrual period, she had noticed a slight irritation at the neck of the bladder, and burning at the end of urination. Two or three days before she had stayed up all night with a daughter who was suffering with tonsillitis. She became chilled, and had a sore throat for the next few days. The bladder trouble grew gradually worse, and she called the local physician, who attended her for the next two weeks, during which time her temperature ranged from 99 to 104.5 F.; the night before she came to the clinic it was 104.5. She complained very little of pain except at the end of urination; she felt a slight soreness around the crest of the right ilium. A cystoscopic examination had been made two days before, and inflammation found around the right urethral orifice. Colon bacilli were recovered from the urine. A diagnosis was made of mild cystitis.

Examination revealed some slight tenderness in the left abdomen and over the crest of the right ilium. The temperature was 101. Four teeth revealed evidence of periapical infection in the roentgenograms; one was devitalized, but the roentgenogram was negative, and two had cavities of sufficient size to expose the pulps. From the tonsils, which were not greatly enlarged, fluid pus was expressed.

An occasional red blood cell and a large amount of pus were found in the urine. Stained specimens were negative for *Bacillus tuberculosis*. Roentgenograms of the urinary tract were negative. Two cystoscopic examinations, made before the suspected foci were removed, showed that the bladder was negative, but the urine recovered from the kidneys contained pus and gave a pure culture of gram-negative bacilli. Three rabbits were injected with cultures of these bacilli, and in none could evidence of lesions be found. The day after the second cystoscopic examination, two of the teeth with apical abscesses were removed, and cultures were made on blood-agar plates and in glucose-brain broth. In both,

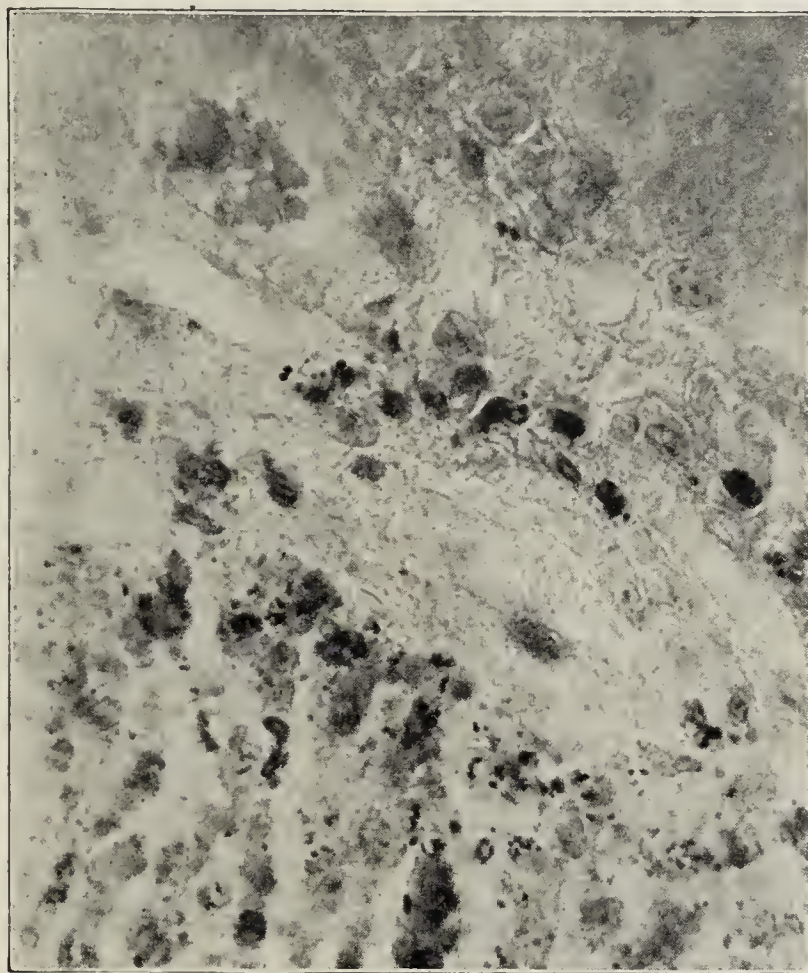


Fig. 2.—Diplococci and streptococci in and around the leukocytes in the necrotic area shown in Figure 1.

green-producing streptococci were isolated on the blood-agar plates; a few colonies of staphylococci were also present. Three rabbits were injected; all had lesions of the kidney, and one had multiple minute hemorrhages in the right ureter near the pelvis of the kidney. Streptococci in pure culture were recovered from these lesions. The patient experienced no immediate reaction, as often occurs following the extraction of infected teeth, although for the next few days her temperature reached 101.

Six days later, three other teeth were removed, including one which did not show evidence of apical infection in the roentgenogram, but it had been devitalized and the root canal was filled. All gave pure cultures of green-producing streptococci. These were injected into three rabbits, resulting in lesions of the kidney in two, one of which had been injected with bacteria from the devitalized but otherwise negative tooth. The third rabbit did not have lesions. The day following the removal of these teeth the patient had a severe chill, and her temperature reached 106; a profuse sweating and falling temperature followed. During this reaction a blood culture was taken and large numbers of green-producing streptococci were recovered. Two rabbits were injected intravenously with this culture. Both developed lesions in the kidneys, and cultures made from these lesions yielded green-producing streptococci, while cultures from the gallbladder, blood, spleen, liver, etc., were negative.

RESULTS FROM ANIMAL INOCULATIONS

Streptococci from Teeth and Tonsils	Strains of Streptococci Injected	Animals with Lesions in									
		Kidney	Bladder	Kidney and Bladder	Joints	Muscles	Stomach	Gallbladder	Endocardium	Myocardium	Intestines
First study:											
On isolation.....	6	27	24	8	8	4	4	3	0	3	0
Second animal passage....	3	11	7	2	1	0	1	1	0	0	0
Third animal passage.....	2	6	3	0	0	0	0	0	0	0	0
Second study:											
On isolation.....	6	26	21	2	2	4	4	1	1	0	0
Streptococci from:											
Patient's blood.....	1	2	2	0	0	0	0	0	0	0	0
Patient's urine.....	3	10	6	2	0	0	1	1	0	0	3
Total.....	82	63	14	11	8	10	6	1	3	3	3

The febrile attack was so acute and severe that doubt was expressed with regard to its renal origin. The possibility of its being a respiratory infection was suggested, although there were no pulmonary symptoms. In order to clear this point, cultures were injected directly into the trachea of five guinea-pigs. At necropsy no pulmonary lesions were found, but in one guinea-pig the kidneys and ureter were markedly involved.

Urine obtained from the bladder the day of the chill, the day following, and on the fourth day, contained only colon bacilli. On the fifth day, however, the patient being sufficiently recovered to permit of cystoscopy, the urine obtained from the kidney and bladder contained occasional streptococci, but it contained colon bacilli in far greater numbers.

Samples of the mixed cultures were injected into five rabbits; three developed lesions of the kidneys. Streptococci and colon bacilli were recovered from the lesions in two rabbits; the three remaining had lesions in the intestines.

In order to study the relative ability of the two organisms to grow in urine, a twenty-four hour sample of the patient's urine was autoclaved, on three different occasions, and after being proved sterile, samples were inoculated and incubated with colon bacilli, some with streptococci and some with both. It was found that while the colon bacilli multiply readily the streptococci have no such ability, and only a few more than were planted could be recovered. We believe that this explains the reason for the frequent absence of the etiologic organism in the urine of patients with pyelonephritis. Occasionally, as in a case reported by Kretschmer,⁷ secondary colon bacillus infection does not occur and streptococci are found in pure culture.

Eighteen days after the second extractions, the patient's remaining infected teeth were removed without incident. Pure cultures of streptococci were recovered. Four animals were injected; two developed lesions of the kidney, one very pronounced; one had lesions of the joints and one of the muscles. Pure cultures of streptococci were recovered from all the lesions, the unaffected organs being sterile.

During the intervals between the extraction of her teeth, cystoscopic examination of the patient was made four times, and at each examination pus cells were found in the urine from the kidney, and cultures therefrom contained colon bacilli; a few streptococci were also found after the second extraction.

After all the patient's infected teeth had been removed, six cystoscopic examinations were made. The specimens of urine from the kidneys were free from pus, and on culture a gram-negative bacillus was the only organism found. Cultures made at each successive cystoscopic examination yielded fewer organisms; the last one which was taken at the time of the patient's dismissal, one month after the last of the septic teeth had been removed, contained only fifteen colonies on a blood agar plate from urine from the right kidney; cultures from the left kidney were negative.

During the time pus was found in the urine from the kidneys, the pelvis was lavaged with a 1 per cent. solution of silver nitrate, but after the disappearance of the pus following the extraction of the last teeth only boric acid was employed.

A specimen of the patient's voided urine was brought to the clinic one month after her dismissal. It was negative except for three pus cells to the microscopic field. Her physician stated that she was free from symptoms, had had no fever, and was planning to return to the clinic for a tonsillectomy.

CONCLUSION

A summary of the results in our second series of cases, with the results in the six cases previously reported, shows that eighty-two rabbits were injected with strains of a green-producing streptococcus obtained from the teeth, tonsils, urine and blood of patients suffering with pyelonephritis, and that in sixty-three of the animals lesions of the kidneys were found. This, we believe, is evidence for concluding that pyelonephritis may often be due to focal infections harboring streptococci which have a selective affinity for the urinary tract, and that the colon bacillus, which is commonly found and generally believed to be the cause, is of secondary importance.

ABSTRACT OF DISCUSSION

DR. E. G. CRABTREE, Boston: Urologists are indebted to Dr. Bumpus and his co-workers at the Mayo Clinic for investigation of the selective action of bacteria for organs. If it is a definite fact that an organism, either because of its previous environment or because it belongs to certain strains, will infect kidneys and not other organs, that fact is of exceedingly great significance. Dr. Bumpus has pointed out that the colon bacillus stands out as the infecting agent in mixed infection with cocci. I have long been interested in this occurrence. It is well exemplified in the colon pyelitis which occurs only when there is a simultaneous infection with the coccus from the tooth cavity. This fact is quite similar to clinical occurrences in infectious diseases. I have investigated a series of "idiopathic" colon bacillus pyelonephritis cases. In many instances the condition took its beginning during an acute infection from some definite known organism, such as the typhoid bacillus, pneumococcus or influenza bacillus. The organism which produced the urinary infection was not the one concerned in the infection of the patient, but the colon bacillus. In other instances the infection began during the course of a wasting disease, such as carcinoma, after exposure, underfeeding, and in the first month or two of pregnancy. It seems to me possible that the association of the streptococcus from teeth in the experiments recorded in

7. Kretschmer, H. L.: Discussion following paper by Schmidt, L. E.: Bacteriuria, Tr. Sect. Genito-Urin. Dis. A. M. A., 1918, p. 276.

Dr. Bumpus' paper is similar to these cases cited, and that the selective action means nothing more than that the combined action of the bacteria makes possible invasion and infection by that organism—the colon bacillus—which most readily invades the urinary tract. In case there is renal invasion and infection by multiple organisms, the tendency of the colon bacillus to persist, outgrow and usurp the whole field is well known.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: A patient with iritis was sent to me to find out where the infection was. There was no history of urinary infection of any kind, but as she had two crowned teeth she was sent for roentgen-ray examination, and two abscesses were found under these teeth. The teeth were removed and in two or three days the patient had a rise of temperature. Later she had a rigor, and a catheterized specimen of urine showed pus and colon bacilli. Later these were found to come from the right kidney. Under lavage, these symptoms cleared up completely. This patient had had no trouble with the urinary tract, and the teeth were removed as being a point of infection producing the iritis. A man about 60 years old had some vasomotor disturbance causing trouble with the lower extremities. A roentgen-ray examination was made of his teeth. Two or three infected teeth were extracted. Pyelitis followed. We found pus and colon bacilli in both kidneys. This patient died from uremia. Is it not true that pyelitis resulted in these two cases from absorption of the infection through the denuded areas in the root cavities?

DR. HERMON C. BUMPUS, JR., Rochester, Minn.: It has been the experience of the Mayo Clinic that the removal of teeth, if they contain a focus of infection, frequently produces a very marked systemic reaction. Therefore, more than two or three teeth should not be removed at one time. Le Fur, in an earlier experiment to which I have referred, found that after the injection of different strains of bacteria intravesically the colon bacillus alone was frequently recovered. This, we have found, is still further indication that this organism acts as a secondary invader.

RHINOPLASTY, WITH SPECIAL REFERENCE TO SADDLE NOSE*

V. P. BLAIR, A.M., M.D.

ST. LOUIS

In the reconstruction of the nose, unless it can be made both functionally and cosmetically acceptable, it is better to give the patient a prosthesis.

Total restoration of the nose, while an interesting and thoroughly sporting surgical procedure, has in civil practice a very limited field compared with the correction of the more common nasal defects and incongruities; but when judged by the public at large, a somewhat crude complete restoration has heretofore been likely to attract more attention and elicit more favorable comment than some very nice piece of reconstruction of smaller extent that gives harmony to features previously somewhat unbalanced. This attitude on the part of the public will not last, and the time is not distant when actual visible results commensurate with the accepted ideals of natural facial contour and balance will be demanded.

The common causes of failure are a lack of proper support to bridge or tip, a lack of adequate lining, a lack of a definite ideal to work to, and a lack of accuracy in cutting the materials. I think the two essential advances in rhinoplasty during the war were

the universal recognition that the lining is as essential as the external covering and, to a very much less degree, that the reconstructed parts should be cut from carefully made patterns (Fig. 3).

A rhinoplasty might be divided into three essential parts: the providing of the lining, the covering and the supporting frame. Any case may entail a combination of two or all three of these (Figs. 6 and 9).

The most dependable tissue for covering the nose and one which can also be used for the lining is the



Fig. 1.—A, war injury with considerable loss and crushing of both cheeks and nose; B, nearly completed restoration in which the new nose, though of good shape, is a little large for the face and in this way mars the result.

skin and subcutaneous tissue of the forehead. The use of this is known as the Indian operation. The forehead defect can be immediately filled in by a full thickness skin graft from the abdomen, which, when carefully done, will make only a slightly noticeable repair (Fig. 5). The next most adaptable tissue is skin from behind the ear brought up on a long flap taken transversely from under the chin. The arm skin, the Italian method, or skin from the chest, or



Fig. 2.—A, almost total loss of nose and part of supporting tissue. Notice that, owing to loss of floor of nose, the upper lip has a more oblique position than normal. This is not quite so noticeable as it would be without the breathing tube. B, restoration, better balanced in this case and therefore more pleasing in spite of the fact that the upper part of the bridge is a little too high. Both ala and columella bear a good relation to the lip, which has been brought forward by restoring the lining of the nose.

skin from the abdomen by a "jump flap" do not so well conform in appearance to the normal nasal skin. One must remember that variations in the general adiposity can register in the transplanted flap. Small or even quite considerable flaps can be made from the cheeks, but with less accuracy than from the fore-

* From the Surgical Department of Washington University Medical School.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

head and the defect is more noticeable; but a columella is quite well made from the upper lip.

For the supporting tissue, sometimes the septum can be swung forward to hold up a cartilaginous bridge, a tripod of implanted cartilage can be brought up to meet at the tip of the nose, or a piece of costal car-

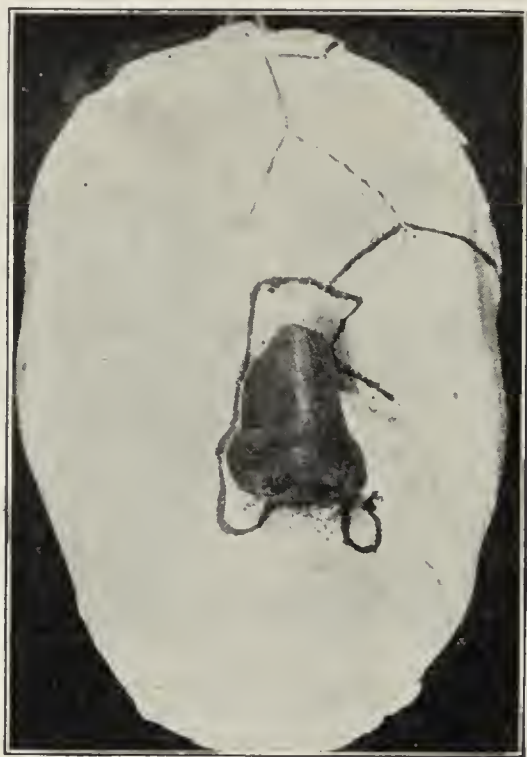


Fig. 3.—Plaster cast of face, on which has been built a clay nose of the type desired and on which also are traced the outlines of the flaps used in the reconstruction.

tilage or a piece of the junction of the rib and cartilage can sometimes be made to get its foundation along the upper two thirds of the nasal area and to protrude downward and forward so as to support the bridge and the tip and at the same time insure a breathing space (Fig. 4). The latter I believe to be the preferable way to use living tissue. It is frequently convenient to insert the cartilage into the site of the future flap some time before it is transplanted (Fig. 6). Celluloid has been satisfactorily inserted into the tissues and is the method of choice with some for the treatment of saddle nose.

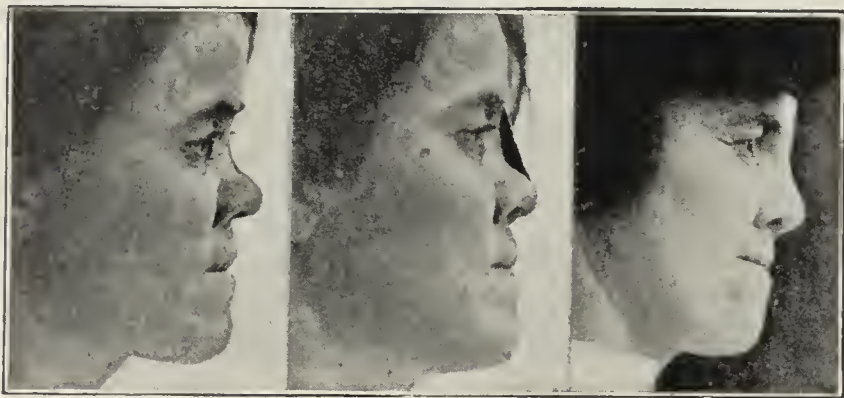


Fig. 4.—A, sinking in of bridge, and turning up of tip of nose. B, what the restoration would be if we simply filled the depression of the bridge without making the implant long enough to force the tip down to the normal position; C, result after a cartilage implantation. There has been some controversy as to whether these cartilaginous implants are best inserted from below the tip, from within the nostril or through a transverse incision corresponding to the spectacle bow. For simple raising of the bridge, the intranasal route or the incision under the tip may be satisfactory; but to do a concomitant lengthening of the nose, I believe the external incision will be found much more satisfactory. The line of incision is rarely noticeable after sufficient time has elapsed for the scar to loosen.

I am not sure but that for a complete rhinoplasty, a removable support passing through a hole in the hard palate and attached to a dental prosthesis, as

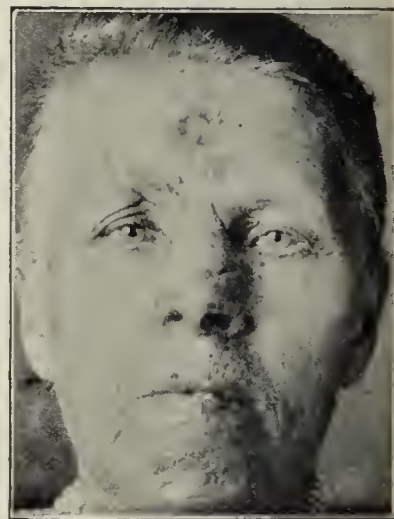
long ago devised by Martin of Lyons, is not, all things considered, the most exact plan.

Bone may be successful in some cases. I do not know. But the general observation is that transplanted bone without normal function does not survive, and in at least two cases of rib transplant for rhinoplasty that have come under my observation two years later the bone has been completely or almost completely absorbed. On the other hand, my observation is that where perichondrium remains in contact with two thirds of its circumference, the cartilage will persist. We have one case in which the transplanted cartilage has remained unchanged fourteen years.

For lining, the simplest procedure is the Thiersch graft applied either to the under surface of the covering flap some time before it is transplanted, or applied over a form; but in every case I have observed in which this plan was used, the subsequent contraction was so great as to demand a relining of the nose. I am not yet perfectly satisfied with our technic, but I believe that in the future a full thickness, free skin or mucous membrane graft



A



B

Fig. 5.—A, Defect, following use of a cancer paste, in which scar contraction has lessened the size of the opening and distorted the tip and ala upward. The correction in this type may be done by outlining two flaps on the forehead, one for a lining and one for a covering, the former having the base of its pedicle just above the defect and placed centrally. The base of the pedicle of the covering flap contains the angular artery. The latter flap is made very thin, taking up only sufficient tissue to insure nourishment. The lining flap contains both skin and muscle and in it is implanted, at a previous operation, the cartilage for the bridge. The vitality of these flaps is insured by delayed transplantation. B, result of operation, the forehead defect having been filled by an immediate full thickness skin graft. The scars are still plainly visible from recent operation.

is going to be the answer to all these lining problems. Up to the present, however, the pedicle flaps of skin or mucosa have been the successful plan, and they will never be entirely displaced. The sacrifice of a finger, in the present development of technic, is not advisable.

The peculiar deformities associated with faulty repair of harelip are to be corrected by the transplantation of the nasal bridge and the transplantation and resuturing of the ala.

I will present two cases of nasal restoration (Figs. 1 and 2) after war injuries to emphasize the statement made in the opening paragraphs, and then pass on to a very common type of nasal deformity that is objectionable both from a cosmetic standpoint and because it so commonly, and often unjustly, suggests the presence of venereal disease. I refer to saddle nose in its various types, and will present a series of illustrative cases.

The deformity may be due to a traumatic separation of the cartilages from the nasal bones which is restored by replacement and suture.

A common type is that in which the bony bridge has been lost or flattened from injury, surgical operation, local infection or sometimes systemic disease which causes a loss of the normal prominence of the bridge, an increase of the apparent distance between the internal canthi, and usually a turning up of the end of the nose with a loss in length (Fig. 4 A). The correction

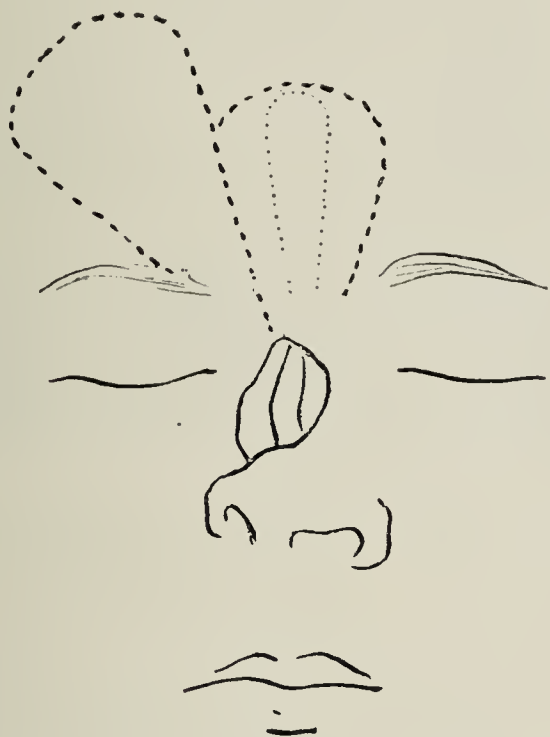
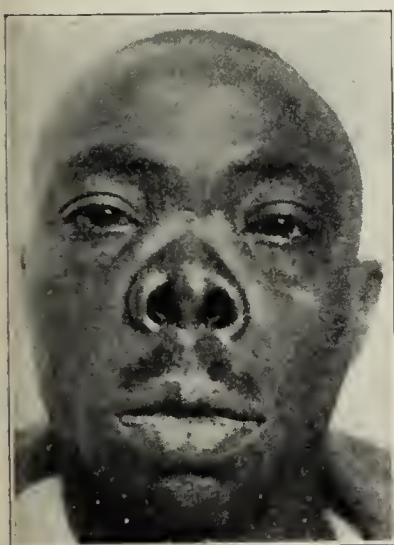


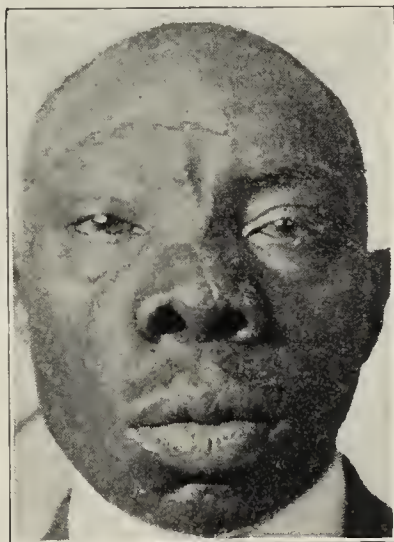
Fig. 6.—Diagrammatic illustration of the method of turning down the flaps.

of this by cartilage or prosthetic insert is a fairly simple procedure, but besides raising the bridge of the nose, we must correct the shortening and upturning of the tip (Fig. 4 B and C).

The whole thickness of the bridge, bone, cartilage, skin and mucosa may be destroyed, demanding the



A



B

Fig. 7.—A, deformity resulting from the removal of a tumor on the bridge of the nose in doing which there had been much destruction of the lining. A vertical incision was made through the left nostril and continued up along the midline of the bridge. Through this the lining scar was incised and the tissues undermined from the facial bones until the parts could be restored to their normal position. The resulting gap was filled with a flap from the forehead. B, restoration was made to correspond to the pronounced negroid type, which was what the patient desired.

formation of a lining, a covering and a cartilaginous insert (Fig. 5).

In another type of saddle nose there is an actual deficiency in the external length and also in the lining

membrane, with or without a corresponding deficit in the supporting tissues. In these cases an increase in the anteroposterior extent of the lining is the prime essential.

The deformity may be due to late ulceration, to the removal of a tumor (Fig. 7), or more com-



A



B

Fig. 8.—A, extreme retraction of nose and associated parts of the maxilla due to "snuffles." B, restoration by procedure described under Figure 9. Note that this procedure not only brought the nose forward and lengthened it, but has also changed the set of the lips.

monly to the "snuffles" in early infancy (Fig. 8) which, by thickening and scarring the mucosa, prevents the forward growth of the nose and those parts of the maxillary bone which are in contact with the nasal lining. In restoring the latter cases, the lining may be obtained from a forehead flap in the manner explained in the legends under the illustrations, from mucous flaps obtained from the cheeks, or from full thickness free skin grafts.

Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. FERRIS N. SMITH.
Grand Rapids, Mich.: I do not believe that there is any excuse for the surgeon's ever taking tissue from the arm and applying it to the face. The reason is the discomfort to the patient, the pain caused by the arm being in a fixed position. Patients have been known

to commit suicide as the result of this. In cases in which the apparatus has been worn with fortitude to the end of the period, when the apparatus was taken off there have been reports of death from embolism, and so on. By use of the pedicle flap the same result can be obtained, transplanting the skin from the chest or back without any discomfort. Therefore, the Italian method of obtaining soft parts for repair should be put in the discard. As to saddle noses, the function of the surgeon is first to restore function and, second, to produce a pleasing result. With that in view, it does

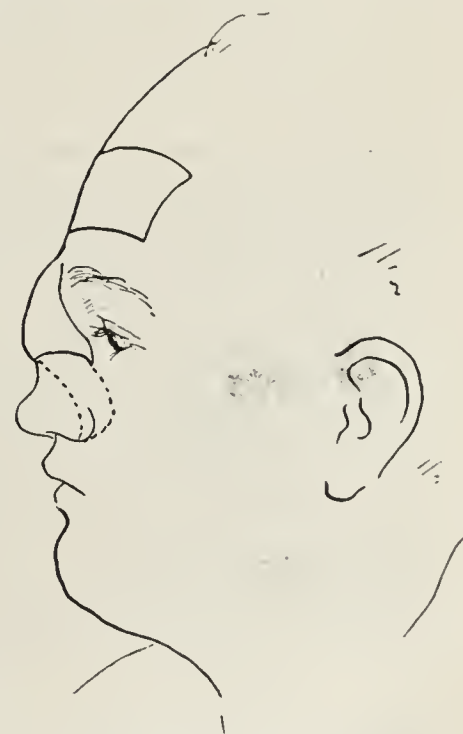


Fig. 9.—Scheme of implanting two flaps taken from the forehead for the purpose of extending forward the tubular lining of the nose. After this transplanted lining had acquired a blood supply from its new bed, the pedicle was divided and the remaining part used to piece out the dorsum of the nose (Fig. 8 B).

not seem that one is justified in splitting the nose lengthwise to put lining inside of it, if you can line over a vulcanized model held in place with a dental splint, or whatever apparatus one wishes to use. The only type of saddle nose which admits of immediate repair is one that is seen early and in which the saddle is very small.

DR. ROBERT H. IVY, Philadelphia: There is no question of the superiority of the forehead, or Indian method, and its modifications in the restoration of the whole or the major part of the nose. Given an extensive defect of the covering of the nose, the forehead flap method is the method of choice. It is in the lesser degrees of deformities of the nose that we are puzzled to know what is best to be done, that is, where to get the tissue. With even a small loss of the tip or alae, the forehead tissue supplies a skin that most closely resembles that of the nose, but it may be questionable whether in these minor cases of small losses we are justified in making additional scars on the face that may be more conspicuous for a time than the original nasal defect. Flaps taken from the cheeks for these small defects are open to the same objection of forming unsightly scars which may make the case worse than before. It is in these cases of small defects of the nose that the texture of the skin which is to replace the defect is not so important, and we can make pedicle flaps from either the neck or the chest, and by tubing them we can transfer the tissue for a considerable distance. When replacement of supporting tissue is necessary, we should rely on the autogenous living tissues and not depend on paraffin, celluloid or any artificial substance. Transplanted bone embedded in soft tissues without broad contact with living bone generally undergoes absorption, but cartilage thus transplanted usually will not absorb whether or not it has a covering of perichondrium. The perichondrium tends to protect the graft from infection. Also, the graft will become concaved slightly on the side on which the perichondrium is attached, and this may be of advantage if curvature of the graft is desired. In cases of depression of the lower or cartilaginous portion of the bridge of the nose, the cartilage transplant can be inserted from below rather than through the ordinary incision between the eyes. This has considerable advantage because the

plantation of a flap, by which he means that he first outlines the flap by incision and at a subsequent operation transplants it. I have been going a step further than that, particularly in elderly patients in whom the defect follows an operation for cancer. In such patients the vitality is low and the nutrition of the flap is poor at best. I first outline the flap as from the forehead and then, after five or six days, dissect up a portion of it under local anesthesia and continue to separate it a little at a time at intervals of five or six days. In this way the

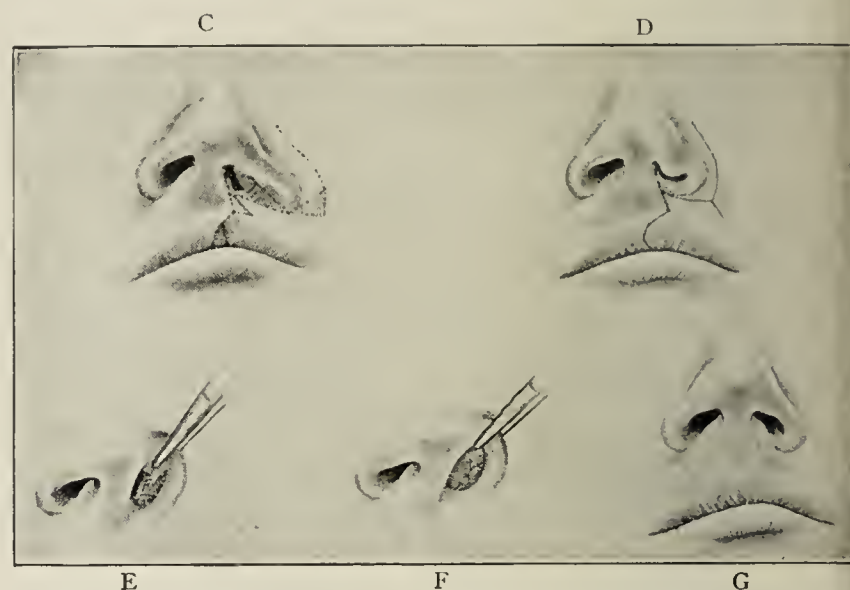


Fig. 11.—The dilation of the entrance of the vestibule was corrected by the incision shown at C, and suturing the tissues into the position shown at D. E, F, the collapse of the ala cartilage was corrected by excising the impinging part through a V incision in the roof of the ala and converting the V into a Y, giving the result shown at G.

blood supply of the pedicle is gradually built up and the flap can be transferred without fear of necrosis. After the flap has been put in place, the procedure is reversed and the pedicle is cut a little at a time at intervals of a few days, or it may be clamped for half an hour a day, beginning seven or eight days after the operation. The clamp should, of course, be very soft. A rubber band may be used instead. In basal cell carcinoma, or the so-called rodent ulcer, there is no metastasis in distant glands, though the basal cell cancer occupies the same region and has access to the same lymphatics as the spinal cell type of squamous cancer, which readily metastasizes in the neck. It seems that this must be due to some natural immunity of the tissues which is broken down by the proximity of the cancer itself. Taking advantage of this, I have made a practice of transferring a flap from a distant part after operations for basal cell cancer. In this way the natural immunity, which seems to exist in tissues at a distance from this cancer, is applied as soon as possible to the site of operation on a basal cell cancer. I believe this has an important bearing on the cure in this type of cancer.

DR. VILRAY P. BLAIR, St. Louis: I have never been tempted to make a nose from the hand or arm and do not even like cheek tissue. If you cannot get tissue from the forehead, the next choice is to take it from behind the ear; the resulting defect can be filled with a Wolfe graft. I have heard a great deal about the Thiersch graft for lining, but have never seen a case in which this was done that I did not think the graft should be replaced on account of the contraction which followed. I think the time is coming soon when we will use full thickness grafts for the skin or the lining. In all this work I use the delayed transplantation method, outlining the flap, resuturing it in its original bed and, when put in its new position, filling in the defect with a full thickness graft. In a basal cell cancer one can cut off as much of the nose as necessary and immediately bring down a flap, making repair with the tissue provided. An excision with a white hot cautery, not red hot, will heal just the same as if a knife was used.

Obstetric Teaching.—As teachers we must distinguish between what is safe for the trained specialist to do, and what is safe for us to teach our students to do; for we must all admit that we are not turning out a trained product in obstetrics when we graduate our men from a medical college. —J. O. Polak, *Am. J. Obst. & Gynec.* 2:239 (Sept.) 1921.

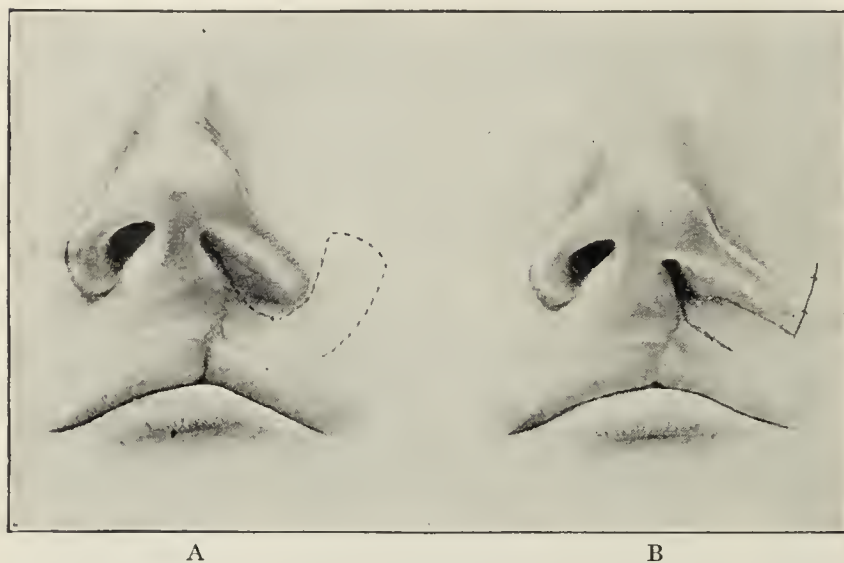


Fig. 10.—In this illustration and Figure 11 are given the steps in the correction of a case illustrating most of the nasal deformities that can follow in the wake of a poorly repaired harelip. Following an unsatisfactory repair of the lip on the left side, the nasal bridge has drifted to the right, the lower border of the septum has turned to the right, the body of the septum has buckled to the left, and the left ala has spread farther to the left side than normal; but, owing to the operator's having extended the lip incisions too high up into the nose, there is a constriction in the upper part of the nasal vestibule. The bridge of the nose is straightened by cutting the nasal bones free from the nasal processes of the maxillae subcutaneously with a chisel inserted through each nostril and by cutting the septum submucously from its attachment to the maxillary bones. To relieve the vestibular constriction shown at A, the floor of the vestibule was split and spread, and the flap outlined was implanted, giving the condition shown at B.

incision is nearer to the point at which the cartilage is to be placed. The incision in these cases should be made through the skin just behind the tip of the nose because of the danger of infection in going through the mucous membrane. The scar is in an inconspicuous place and very quickly becomes invisible.

DR. J. SHELTON HORSLEY, Richmond, Va.: Some time ago, Dr. Blair called attention to what he termed delayed trans-

THE BLIND SPOT

III. THE RELATION OF THE BLIND SPOT TO
MEDULLATED NERVE FIBERS IN
THE RETINA *HARRY S. GRADLE, M.D.
CHICAGO

In this, the third article of this series, the discussion will be limited to the relationship of the blind spot to medullated nerve fibers in the retina. Since von Jaeger's¹ first communication on this subject in 1855, it has been taken for granted that the presence of medullated nerve fibers, emanating from, or adjacent to, the disk was projected into the visual field in the form of an enlargement of the blind spot of Mariotte. This view persisted despite the anatomic examinations by Virchow,² Beckmann,³ von Recklinghausen,⁴ Schmidt-Rimpler⁵ and others, all of whom were agreed that the retina underlying the medullated nerve fibers was normal in respect to the light perceiving elements therein contained and corresponded anatomically to the functionally active retina of other locations. The one exception to these findings was reported by Mayerweg⁶ who described an eye with medullated fibers overlying a retinal area in which the rods and cones were entirely absent. But there were other pathologic conditions present that could account for this unusual finding.

Landolt⁷ was the first dissenter from von Jaeger's point of view, and, in 1909, he advanced the assertion that the enlargement of the blind spot does not always correspond either in size or shape to the ophthalmoscopic picture of the anomalous nerve fiber condition.

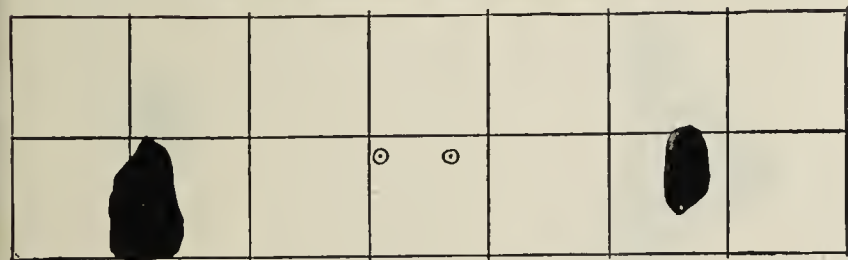
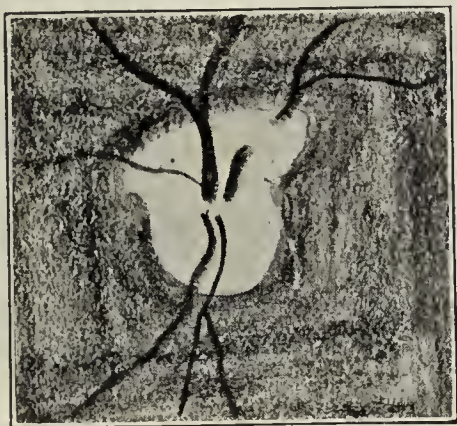


Fig. 1 (Case 1).—Medullated fibers in right eye. Enlargement of blind spot corresponds only roughly in shape, and not at all in size.

In support of this, he presented the findings in three cases in which he had made a most careful study of the blind spot, even employing the painstaking and

tedious technic advocated by Helmholtz.⁸ Landolt believed that the variation was dependent on the thickness of the medullated layers, which could not be estimated ophthalmoscopically. Two cases studied by Kleczkowski⁹ yielded identical results with those of the previous investigator. Leber¹⁰ corroborated this view in 1916 and added reports of two cases of his own, one of which had been observed over a long period of years without change. The variation in

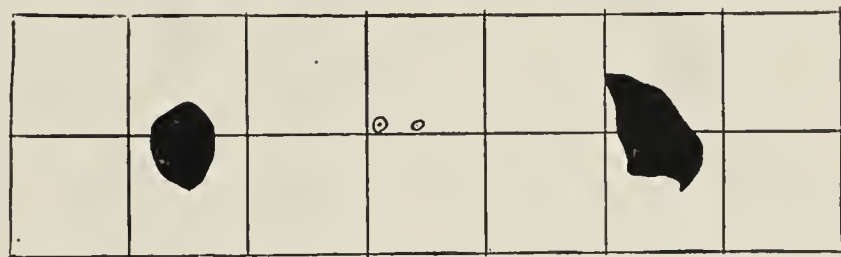
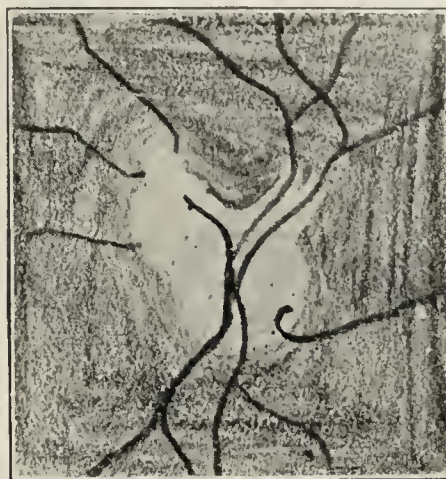


Fig. 2 (Case 2).—Medullated fibers in left eye. Note absolute lack of correspondence between ophthalmoscopic picture and blind spot enlargement.

thickness of the medullated layers was impossible of ophthalmoscopic determination on account of the high light reflexes. In 1910, Langenham¹¹ transilluminated various cases of medullated nerve fibers with the ophthalmodiaphanoscope and actually saw that the areas with medullated fibers transmitted light throughout their entirety, but in varying amounts, thinning out toward the peripheral edge of the ophthalmoscopically visible medullation. The area near the disk was correspondingly darker, dependent on the thickness of the layer. Only recently Koeppe¹² was able with his mirror addition to the Gullstrand slit lamp and the Czapski corneal microscope to study a case of medullated nerve fibers with 65 diameters magnification. He found that the medullation was heaviest adjacent to the disk and became thinner as the distance from the disk increased. Unlike the ophthalmoscopic picture, there was no sharp or even approximately sharp line of demarcation between medullation and nonmedullation of the fibers; but on the contrary, the medullation became gradually thinner and thinner until it disappeared from view entirely, as a very fine frayed-out rope end. The thinning of the medullation extended far beyond the limits of ophthalmoscopic visibility. This corresponds entirely to the anatomic picture described by Schmidt-Rimpler,⁵ who made sections in such a case, sagittally. He found that the medullation formed a triangular area in the superficial retina, with the base resting on the disk, and the apex drawn out

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Von Jaeger: Beitr. f. Path. d. Auges, 1855, p. 36.
2. Virchow: Virchows Arch. f. path. Anat. **10**: 170, 1856.
3. Beckmann: Virchows Arch. f. path. Anat. **19**, 1857.
4. Von Recklinghausen: Virchows Arch. f. path. Anat., 1854.
5. Schmidt-Rimpler: Klin. Monatsbl. f. Augenh., 1874.
6. Mayerweg: Arch. f. Augenh. **46**, 1903.
7. Landolt: Arch. d'opht. **29**: 337, 1909.

8. Helmholtz: Handbuch der physiologischen Optik, Ed. 3.
9. Kleczkowski: Post okul. **11**: 9, 1909.
10. Leber, Grafe, Saemisch: Ed. 2, 1916.
11. Langenham: Ztschr. f. Augenh. **23**: 201, 1910.
12. Koeppe: Arch. f. Ophth. **97**.

to a fine point in the distant retina. Further, there was always a thin layer of nonmedullated fibers between the medullated fibers and the limiting membrane of the vitreous.

The six cases herewith reported have been studied during the last five years with the tangential magnet scotometer that I described in 1916 and have been

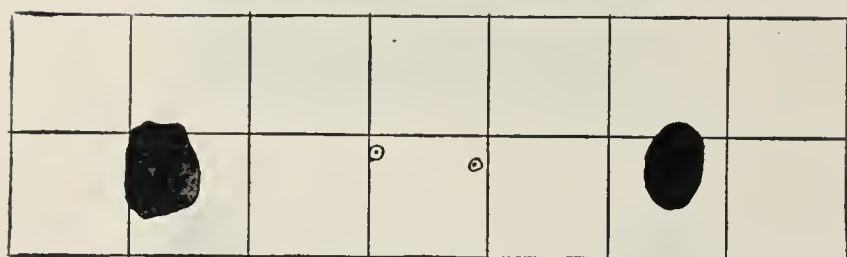
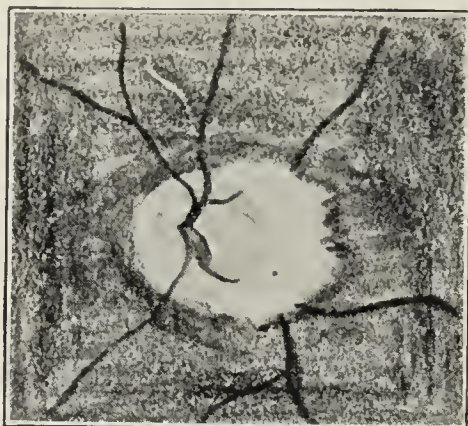


Fig. 3 (Case 3).—Medullated fibers in right eye, located laterally. Blind spot is only slightly enlarged, and does not correspond.

using ever since. The screen is at 60 cm. from the patient and there is a secondary fixation mark interposed between the patient and the primary fixation mark on the screen. The target is a 2 mm. steel ball that is rolled over the blank surface of the celluloid screen by means of a steel arm pivoted behind the screen. As this arm lies within the magnetic field of the solenoid that encircles the screen, it acts as a magnet and holds the steel target against the anterior surface of the screen. With each case is presented a sketch (as accurate as possible as to comparative size of disk and medullated fibers), the blind spot involved, and the blind spot of the other eye. In one case, the anomaly was bilateral, and comparison must be made with the blind spot of the unaffected eyes in the other cases.

REPORT OF CASES

CASE 1.—Mrs. W. J. W., aged 35 years, complained of headaches on close use of the eyes. She had a low degree of hyperopic astigmatism and normal vision. In the right eye were medullated nerve fibers covering the upper half of the disk and obliterating the outlines. Some of the larger vessels penetrated the fiber layer and disappeared from view, while others were visible throughout their entire course. The blind spot showed a fairly regular enlargement, not corresponding in the slightest to the shape of the mass of medullated fibers, with the single exception that the enlargement of the blind spot was downward, which corresponds to the upward location of the medullated fibers.

CASE 2.—Mrs. D., aged 38 years, complained of periodic headaches. There was a low degree of hyperopic astigmatism, with normal vision. Covering the upper nasal quadrant of the left disk was a mass of medullated nerve fibers completely obliterating the vessels from view. Following the superior temporal vessels were more medullated fibers, but these did not hide the vessels. The blind spot was moderately enlarged, but did not correspond in the slightest to the shape of the mass of fibers seen ophthalmoscopically.

CASE 3.—Mr. F. W., aged 43 years, said his eyes reddened on use. There was a low degree of hyperopia and hyperopic

astigmatism. Vision was normal. Covering the nasal border of the right disk was a mass of medullated nerve fibers about one-half disk diameter in width. No vessels could be seen through these fibers. The blind spot was slightly enlarged, but did not correspond in shape or size to the mass of medullated fibers.

CASE 4.—Miss A. H., aged 14 years, had broken her glasses. There was a low degree of hyperopia and hyperopic astigmatism. Vision was normal. The right disk was entirely surrounded by an irregularly shaped mass of medullated nerve fibers. In places, the vessels were hidden from view entirely; in others, they were only partially concealed, while again they seemed to lie free upon the surface of the fibers. The blind spot was enlarged and corresponded fairly accurately both in size and shape to the ophthalmoscopic picture of the mass of medullated nerve fibers.

CASE 5.—Mr. A. H. G., aged 70 years, complained of presbyopia. There was a low degree of hyperopia and hyperopic astigmatism. Corrected vision was slightly below normal. The lower third of the right disk was covered by a mass of medullated nerve fibers completely obliterating from view all of the vessels. Extending upward from the disk was a small nub of medullated fibers hiding the superior vessels from view. The blind spot was vertically enlarged, but did not correspond either in size or shape to the mass of medullated fibers seen.

CASE 6.—The patient was the same as in Case 5. The left eye was involved. Corrected vision was only 0.5. The nasal half of the disk was covered by a mass of medullated nerve fibers that extended from two to four disk diameters upward, downward and laterally from the disk. All of the vessels of this area were hidden from view by the mass. The blind spot

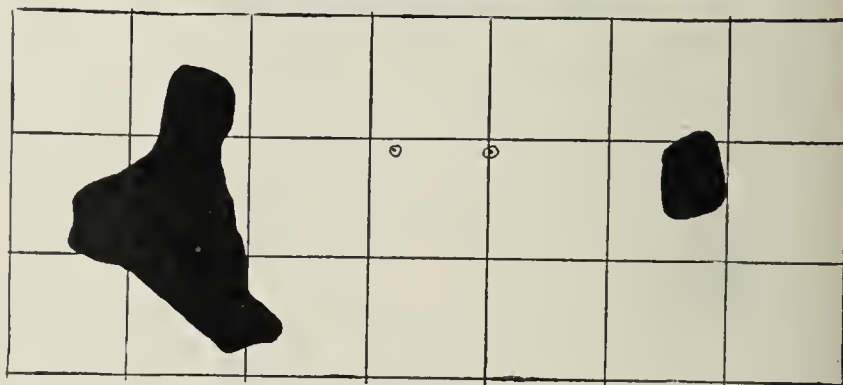


Fig. 4 (Case 4).—Medullated fibers in right eye. The enlargement of the blind spot corresponds fairly accurately both in shape and in size to the ophthalmoscopic picture.

was enlarged and corresponded in general contour to the ophthalmoscopic picture; but the size and details of the individual outline of the blind spot differed markedly from the mass seen in the fundus.

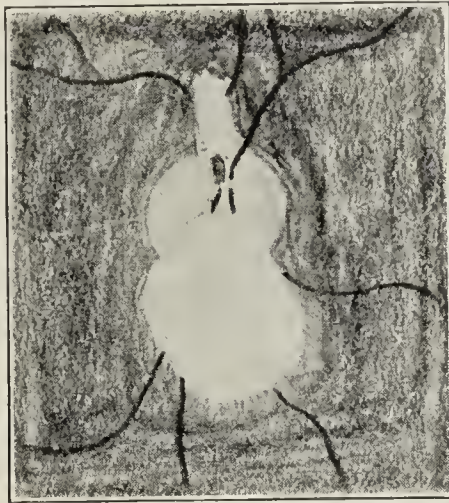
COMMENT

In one of the six cases (counting the two eyes of one patient as separate cases) there is a correspondence

in size and shape of the mass of medullated fibers as seen ophthalmoscopically with the blind spot as delineated by the magnet scotometer. In this one case, there was one of the largest areas of medullated fibers that I have ever seen, and it gave the impression of being a thick layer. But vessels were visible under the opaque fibers at different places. Ophthalmoscopically it could not be differentiated from a case that showed but little enlargement of the blind spot, corroborating Landolt's⁷ contention that it could not be determined, *a priori*, which cases would show an increase in the size of Mariotte's scotoma. Nor could any relationship be found in the other cases between the ophthalmoscopic picture and the outline of the blind spot as to the size, although the shape of the latter in every case was suggestive.

According to Piersol,¹³ the medullation of a nerve fiber is due to a sheath of delicate reticular framework, composed of neurokeratin. This sheath surrounds a cylinder of fatty substance called neolin to which is due the white color of the medullation, and which in turn surrounds the nerve fiber proper. Medullated nerve fibers, in the optic nerve proper and in their anomalous location in the retina, differ from other medullated nerve fibers in that they possess no neurilemma or sheath of Schwann. Within the optic nerve, the medullation develops late as a rule, not until after birth, and it ceases abruptly at the posterior aspect of the lamina cribrosa. In no case has medullation ever been found between that point and the surface of the nerve head, and in the majority of cases in which there are medullated fibers present in the retina, the medullation begins near the outer margin in the disk. This fact was especially emphasized by von Hippel,¹⁴ who in 1901 reported medullated fibers in a child, aged 2½ years, the earliest case on record. The cause of this sporadic medullation of retinal nerve fibers falls among the still unexplored phases of ophthalmology. The course of development of intraretinal medullation has never been observed; but it probably starts long after the remaining portions of the eye have passed through the developmental stage. The frequency of medullated nerve fibers within the retina is about 4 per thousand. That such medullation may retrogress is shown by Behr, who reported a case of traumatic descending atrophy of both optic nerves accompanied by a traumatic hypophysial dystrophy. Medullated fibers were visible in the retina when first seen, but these disappeared gradually within two months after the atrophy became ophthalmoscopically visible. A similar disappearance was reported by Wagenmann¹⁵ in a case of tabetic atrophy, in which the medullation of the fibers disappeared gradually with the appearance of the atrophy and completely with the onset of amaurosis. At times, medullated nerve fibers in the retina are found in association with other ocular anomalies, as in a case of heterochromia iridis, reported by Cabannes and Soulard.¹⁶

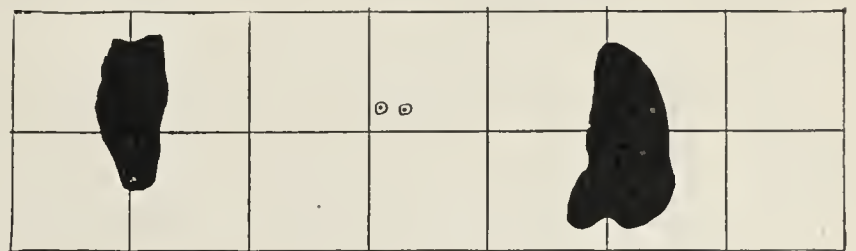
As previously mentioned, the earlier observers (von Jaeger, Becker,¹⁷ Doritz,¹⁸ Soelberg Wells¹⁹ Monesi,²⁰ and others) were firmly convinced that the size and shape of the blind spot corresponded completely to the ophthalmoscopically visible mass of medullated nerve fibers, and this theory was brought to light again recently by Hoeg.²¹ This author investigated a case of medullated nerve fibers with the Bjerrum screen, 5/2,000 (5 mm. target and screen 2,000 mm. from the patient) and found that the scotoma for white as well as for colors corresponded absolutely to the ophthalmoscopic picture. In his textbook, Weeks²² says, "A scotoma exists in the field of vision corresponding with the retinal areas occupied by the patch of opaque nerve fibers." De Schweinitz²³ expresses a more modified view with the statement that "the condition (presence of medullated nerve fibers at the disk) produces no change in vision except an increase in the size of the normal blind spot." Fuchs²⁴ bears the same opin-



Case 5



Case 6



Cases 5 and 6

Fig. 5 (Case 5).—Medullated fibers in the right eye. The enlargement of the blind spot (on the left) corresponds in position, but not in size or in actual shape. (Case 6).—Medullated fibers in the left eye. The enlargement of the blind spot (on the right) is not equal to the ophthalmoscopic picture, nor does the shape correspond.

ion, "The vision of such eyes (with medullated nerve fibers) is often reduced and Mariotte's blind spot enlarged." But a footnote by the translator Duane adds this modification, "The presence of medullated fibers does not necessarily cause a corresponding enlargement of the blind spot (Leber)." The careful work of Landolt,⁷ the exhaustive study of his cases by Leber,¹⁰ and the six cases herewith reported lead to the conclusion that, despite the findings of the earlier investigators (whose views were based on results

13. Piersol: Normal Histology, 1906.

14. Von Hippel: Arch. f. Ophth. 52: 1901.

15. Wagenmann: Cited by Behr, C.: Klin. Monatsbl. f. Augenh. 59: 241 (Jan.) 1917.

16. Cabannes and Soulard: Rec. d'ophth. 33: 6, 1911.

17. Becker: Wien. med. Wchnschr. 28, 29: 1861.

18. Doritz: Reichert and DuBois Arch., 1864. p. 741.

19. Soelberg Wells: Lancet 2: July 1, 1871.

20. Monesi: Arch. d'ophth. 29: 1909.

21. Hoeg, N.: Ophthalmologische Gesellschaft, March 13, 1912; Det Ophthalmologiske Selskab, København, April 28, 1920.

22. Weeks: Textbook of Ophthalmology, 1910.

23. De Schweinitz: Textbook of Ophthalmology, 1914.

24. Fuchs: Textbook of Ophthalmology, 1916.

obtained with crude apparatus and faulty technic), the presence of medullated nerve fibers within the retina does not necessarily cause a corresponding increase in the size and shape of the blind spot of Mariotte.

This conclusion is strengthened by the anatomically proved presence of the retinal light perceiving elements under the layer of medullated nerve fibers (quoted in the first paragraph of this article). In order that these elements may function, it is necessary that sufficient light penetrate the layer of opaque nerve fibers to stimulate the end organs. The amount of such necessary light is small, as the work of various investigators in dark adaptation has shown and it is probable that sufficient penetrates to produce vision. Qualitative vision does not come into question, because, as Sulzer²⁵ has shown, vision at the inner margin of the blind spot is only 1/22 of normal, while at the outer margin, it is still further reduced to 1/45 of normal. Therefore, the amount of light that penetrates the layer of medullated fibers may be sufficient to stimulate the end organs of light perception, but may be insufficient to penetrate the translucent nerve fiber layer and be reflected back from the retina again through the layer, in an amount large enough to stimulate the retina of the observer. This would account for the variation in visibility of blood vessels lying within the layer of medullated nerve fibers. In the majority of cases, the medullation becomes thinner in two dimensions as the peripheral edges of the mass of medullated nerve fibers is approached. This has been shown by three different methods: Schmidt-Rimpler⁵ in the anatomic investigation; Langenham¹¹ in the ophthalmodiaphanoscopy transillumination, and Koeppe¹² in the microscopy of the living fundus with his modification of the Gullstrand slit lamp. The point where the thinning is sufficient to allow the light rays to penetrate to the underlying light perceiving elements of the retina cannot be determined in the living eye except by a careful delineation of the blind spot.

CONCLUSIONS

1. Medullated nerve fibers in the retina adjacent to the disk, as a rule, cause an enlargement of the blind spot.
2. The enlargement of the blind spot found in such cases seldom corresponds in size or shape to the ophthalmoscopic picture of the medullated area.
3. The disparity between the size and shape of the blind spot and the ophthalmoscopic picture of the mass of medullated nerve fibers indicates that medullated nerve fibers within the retina are not opaque to incident light for the entire length of the medullation and that the degree of opacity cannot be deduced from the ophthalmoscopic picture.
4. In such cases, the enlargement of the blind spot indicates merely the amount of retinal area that is prevented from functioning by the presence of overlying medullated nerve fibers in a layer sufficiently thick to occlude incidental light.
5. The term "opaque nerve fibers" is a misnomer and should be discarded for the proper term "medullated nerve fibers."²⁶

22 East Washington Street.

25. Sulzer: *Encyclopedie française d'ophth.* 3, 1904.

26. In addition to the references already given, the following will be found of interest:

Gradle: *Ann. Ophth.*, October, 1915; *Ann. Ophth.* 25:740 (Oct.) 1916; Development of the Human Eye, *American Encyclopedia of Ophthalmology* 5.

Manz: *Arch. f. Augenh.* 29, 1894.

ABSTRACT OF DISCUSSION

DR. WILLIAM ZENTMAYER, Philadelphia: The priority for the invention of a tangential magnet scotometer, the device which was used in the present study, belongs to Dr. Gradle, because recently almost precisely the same method of mapping out scotomas was described, presumably as original, by a Dutch ophthalmologist who evidently was unfamiliar with Dr. Gradle's work. The findings in the studies of this retinal condition of M. Landolt having been confirmed by Klecewski, Leber, Ginsberg, Hoeg and Gradle, it would seem to be definitely settled that no conclusion can be drawn from the ophthalmoscopic appearances as to what the size and shape of the blind spot will be in the presence of medullated nerve fibers in the retina. Salzman states that medullation is completed at the latest within three weeks of birth, and believes that light favors the development of the medullary sheath. Babies that were born prematurely and have lived for some time show further advanced sheath development than fetuses of the same age which have remained in utero. In the light of this, it causes no surprise to learn that the perceptive elements of the retina are found beneath, and their presence therefore affords no theoretical basis for conclusion in this study. It is evident that light must penetrate to the perceptive elements, and this would explain the nonconformance of the anatomic and physiologic facts in a given case. I have seen three cases with very extensive medullated nerve fibers in the retina, in all of which there were a high ametropia and amblyopia. In 1913, Ginsberg reported a case in which there were three patches, none in juxtaposition with the papilla. Vision was normal, and no scotoma could be demonstrated. The same year Hoeg studied the visual fields in this condition and found that the enlargement of the blind spot was not so great as to correspond with the area of the patch, and stated that evidently considerable light penetrated to the perceptive layer of the retina. In discussion, Rönne stated that this was also the case with white exudates in the retina. According to von Hippel and Oppenheim, cases of medullated fibers in the retina occur relatively frequent along with other stigmas of degeneration in psychically abnormal people. The only clinical significance of the findings of Dr. Gradle that occurs to me is the presence of this condition in a case of suspected sinus disease. No doubt "medullated nerve fibers in the retina" is the better term for this condition. However, as to the observer the unaffected portion of the retina is transparent and the medullated portion is largely opaque white, the result of reflection of light without sensible absorption of the visible rays of the spectrum, and as the term "opaque nerve fibers" was evidently applied from the point of view of the observer, it can scarcely be termed a misnomer and is not without descriptive value.

DR. HARRY S. GRADLE, Chicago: In regard to the age at which the condition of medullated fibers is found: Von Hippel reported that the earliest case he was able to find in the literature was that of a child, aged 2½ years. Previous to that it does not seem to have been recorded at any time. There have been reported several cases of disappearance of the medullated fibers in conjunction with disturbances in the optic nerve. In the cases that I have had, the refraction has been practically normal.

Cancer at Madrid.—L. Lasbennes gives in the *Medicina Ibera* 15:47, 1921, a statistical study of the mortality from malignant disease at Madrid during the last twenty years. From 0.803 per thousand inhabitants in 1900 it has steadily increased to 1.164 in 1920. The women outnumbered the men in every one of the twenty years, but the cancer of the digestive tract in both sexes has shown a much greater increase than the cases of cancer of the genital organs. The mortality from pulmonary tuberculosis shows a constant rate of sixty men for each forty women, while sixty women die from cancer to forty men. In his own experience, cancer of the larynx occurred almost exclusively in men. If this should prove to be the fact elsewhere, he says, it might suggest the possibility of organotherapy and prophylaxis.

VAGINAL CYSTS

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Vaginal cysts have received frequent consideration in medical literature. Stokes, Cullen,¹ Breisky,² Winkel,³ Freund,⁴ Veit,⁵ Gebhard⁶ and Bandler⁷ have written important articles on this subject.

Small cysts in the vagina are unusual; a large cyst is rare. One large cyst and two small ones having come under my observation, I take this opportunity to report them.

Vaginal cysts undoubtedly originate from different sources; from inclusions of vaginal epithelium, from vaginal glands, persistent embryonic structures, possibly from urethral epithelium. It is often difficult or impossible to determine their origin. A cyst, originally lined by squamous epithelium, may undergo changes, many layers of cells being reduced to a single layer with the characteristics of a cuboidal cell.

A probable form of vaginal cyst is one that develops from inclusions of vaginal epithelium, crypts or folds adhering as a result of vaginitis, not uncommon in the young. Such an adhesive vaginitis may result from general systemic infections, from a highly irritating discharge, or from the ulceration of a foreign body.

The commonest form of cyst is the inclusion cyst found near the introitus. They are small and result from the inclusion of islands of squamous epithelium in the healing of perineal lacerations or during the repair of a relaxed vaginal outlet.

Such cysts occur in the posterior or lower lateral wall, often in scar tissue. They are relatively small, varying in size from that of a pea to that of a hazel-

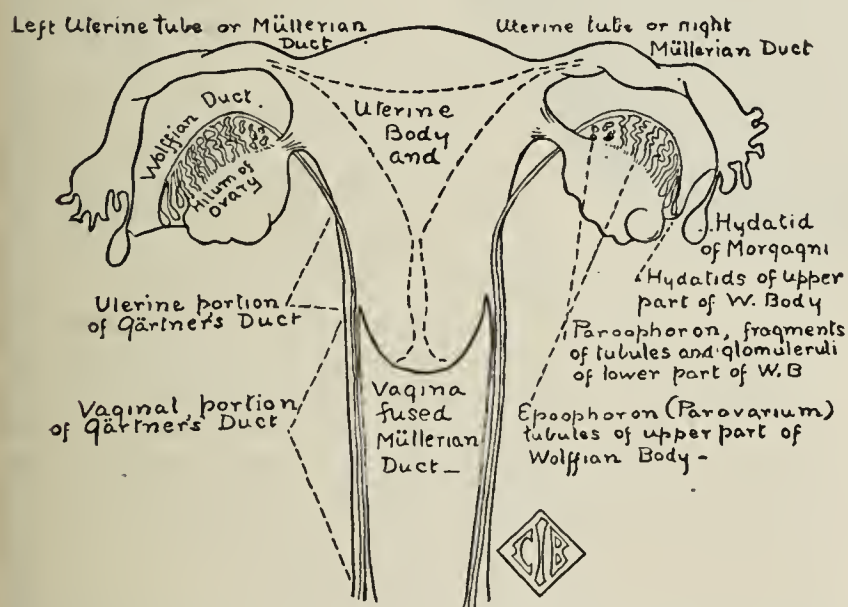


Fig. 1.—Relation of epoophoron, paroophoron, wolffian duct and Gärtner's duct, through their course in the broad ligament, cervix and vagina.

nut, usually single, and yellowish, or whitish, if larger. They are filled with a friable, sebaceous material resembling pus, and representing masses of degen-

erated exfoliated epithelium, detritus, fat droplets and cholesterol crystals. If large, the contents may be a clear fluid. Their walls, from 2 to 4 mm. thick, are of fibrous tissue lined by from two to thirty layers of squamous epithelium, usually thicker at one point than at another. The superficial cells are often devoid of nuclei and filled with vacuoles. The deepest layer is most often cuboidal.

Such a cyst, usually painless, occasionally causes a disagreeable irritation or vaginismus. The treatment is enucleation.

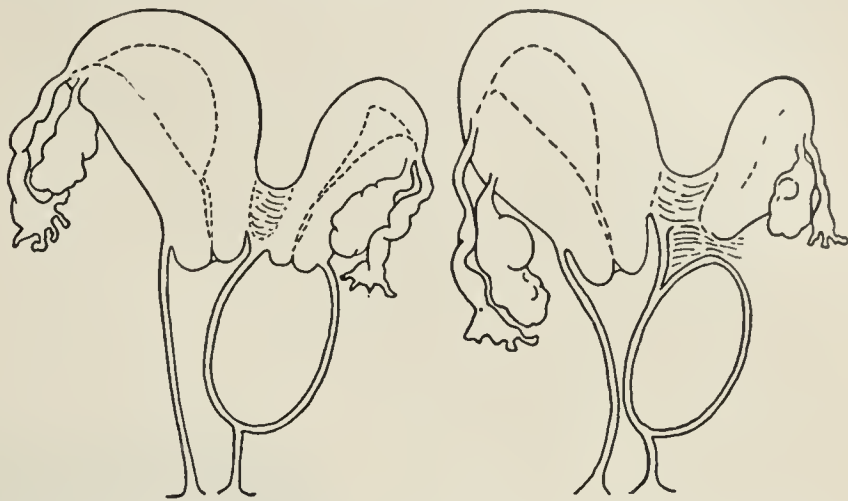


Fig. 2.—On the left, double uterus with cervixes communicating with a fully developed vagina, and a rudimentary vagina. The blind vagina is converted into a cyst by the accumulation of menstrual secretion. On the right, the small rudimentary uterus has no communication with its corresponding vagina which through accumulation of secretion has formed a müllerian duct or vaginal cyst.

It is generally believed that there are normally no glands in the vagina. Preuschen,⁸ in 1877, however, carefully made sections of thirty-six vaginas, and found definite vaginal glands in four. The necks of the glands were of squamous epithelium; the deeper portions were lined by cylindric epithelium in which cilia were detected. Hennig had described similar glands in 1870. Meyer⁹ found glandular formations in newborn infants, which on consolidation of the excretory ducts could develop into small cysts. Cullen ascribed vaginal glands as the source of three and possibly a fourth cyst in his series of cases. His careful histologic study seems to substantiate this origin. They are small cysts lined by a cuboidal or almost flat epithelium. The cavity is partly filled with mucus, with no evidence of degenerative changes.

Cysts having as their origin fetal remains, Gärtner's duct, may assume quite large proportions. They have been described as being as large as the fetal head. Klein¹⁰ was able to follow the wolffian ducts in a newborn infant and in an older child from the cervix to the hymen. The ducts may persist as either short segments or, as in a few instances, from the paroovarium to the uterus, running alongside, or through the musculature of, the uterus in the substance of the cervix and along the lateral vaginal wall, or in the anterior portion on either side of the urethra to the hymen. Some observers believe Skene's glands to be the ends of Gärtner's ducts.

Gärtner's duct has an inner lining of one layer of cuboidal or cylindric epithelium. Its outer covering is of fibrous tissue with a middle zone of nonstriped muscle, arranged longitudinally, transversely or running in both directions.

1. Cullen: Vaginal Cysts, Bull. Johns Hopkins Hosp., June, 1905.
2. Breisky: Cysten der Scheide, Stuttgart, Pittra and Billroth 55: 131, 1879.
3. Winkel: Die Scheidencysten, Lehrbuch der Frauenkrankheiten, Leipzig, 1886, p. 153; Ueber die Cysten der Scheide, Arch. f. Gynäk. 2: 383-413, 1871.
4. Freund: Beiträge zur Pathologie des doppelten Genitalkanals, Ztschr. f. Geburtsh. u. Gynäk. 1: 231, 1877. Echinococci, Gynäk. Klin., Strassbourg 1: 321, 1885.
5. Veit: Handbuch der Gynäkologie 1, 1897.
6. Gebhard, C.: Cysten der Vagina. Pathologische Anatomie der weiblichen Sexualorgane, Leipzig, 1899, p. 535.
7. Bandler; S. W.: Gynecological Pathology, Abel and Bandler, 1901, p. 206.

8. Preuschen: Ueber Cystenbildung in der Vagina, Virchows Arch. f. path. Anat. 70: 111, 1877.
9. Meyer, R.: Atlas der normalen Histologie, der weiblichen Geschlechtsorgane, Leipzig, J. A. Barth, 1912, p. 97.
10. Klein: Lehrbuch der Gynäkologie, Otto Küstner, 1910, p. 98.

Cysts arising from Gärtner's duct are most common along the anterior vaginal wall just to one side of the urethra, or on the lateral vaginal wall. They are sessile, rarely pedunculated, usually oblong. They may show at one end rudiments of the undilated duct; they are single, or there may be two or more following the course of the duct. The cyst may be small or like the one here reported, it may extend from the introitus to the vault of the vagina. Cysts have been reported which dissect upward between the layers of the broad ligament, or a parovarian cyst may dissect its way downward and encroach on the lumen of the vagina (vaginoparovarial cysts).

Gärtner's duct cysts grow slowly, as in my case, and as reported by others, pregnancy has a stimulating effect on their growth. Often they are first noticed during gestation.

Like the duct, they are lined by a single layer of cuboidal epithelial cells, occasionally cylindric or almost flat (Cullen). Robert T. Frank¹¹ reported a case in a multiparous patient in whom four large cysts developed along one side of the vagina, reaching from the skin deeply into the broad ligament, and necessitated a cesarean section. The lining of these cysts varied from low cuboidal, ciliated columnar, to a stratified transitional epithelium. The large cysts showed no epithelium; the smaller ones showed the variations reported. No derivation, excepting the wolffian duct, he states, is plausible, and so he makes the statement that different types of epithelium from a columnar to stratified epithelium exist in Gärtner's duct cysts.

Meyer⁹ states that "Gärtner's duct in the vagina and hymen shows a varied epithelium, single layers, or double and multiple layers; cylindrical, cuboidal, and largesquamous cells are occasionally found." The cysts may have squamous epithelium with stretches of cylindric epithelium between.

Gärtner's duct cysts contain a mucinous material, either colorless or straw colored, or after injury, brownish or reddened semifluid material, from blood pigment.

The walls are thin, usually not more than 0.5 mm. in thickness, and are composed of fibrous tissue with nonstriped muscle cells intermingled. These are difficult to make out in the larger cysts.

Freund,⁴ in 1877, first described the type of vaginal cyst resulting from an accumulation of fluid in a rudimentary vagina or Müller's duct. It is remembered that in fetal life, Müller's ducts fuse to form the uterus and vagina. Fusion may fail to occur and a double uterus and double vagina result.

Two forms of defective development occur which may give rise to Müllerian duct cysts. In the first, a well-developed horn communicates with an apparently normal vagina; the other horn is rudimentary, takes no part in menstruation and has no communication with its corresponding vagina. This incomplete vagina

accumulates fluid and forms a cystic tumor in the lateral wall of the normal vagina.

In the other type, there is the well-developed horn communicating with its corresponding vagina, while the rudimentary horn is sufficiently well developed to give off menstrual fluid which communicates with a rudimentary vagina below. This vagina has no communication with the normal vagina or with the exterior. It becomes filled with a chocolate colored fluid. It is not a true cyst. Tension may cause it to break into the well formed vagina, or becoming infected, it may form a large abscess.

The removal of such cysts occasionally causes serious surgical difficulty. They are often treated by incision and removal of the intervening septum, incorporating the cyst into the vagina.

Graves¹² reports a case in which the septum between the two vaginæ had become the seat of a great plexus of vaginal veins, so that an attempt to remove the septum and connect the two vaginæ into a single canal could not be carried out, hysterectomy with drainage of the infected cyst through the abdomen and vagina eventually dried up the cavity.

Cullen considers the possibility of vaginal cysts developing from the urethral (Littre's) glands. Such cysts are rare, if they ever occur. In two of his cases, the similar histologic picture led to the belief that such might be their origin.

The urethra and vagina are intimately associated. The posterior wall of the urethra is firmly attached to the anterior vaginal wall throughout its entire length. The mucosa of the urethra is longitudinally folded with the formation of club and tubular depressions. Some are simple lacunæ, others are glandular in nature and secrete a colloid material.

Lacunæ form the entire length of the urethra. While some are broad based and open by a narrow channel into the urethra, others are large, tubular, push into the propria, and often branch and run parallel to the urethra. The cysts described by Cullen had a lining of from three to eight layers, the superficial cells being cylindric and resting on underlying layers of flattened and deeply staining cells, the general arrangement being that of the lining of the urethra.

Dilatations arising from the urethra should not be confused with vaginal cysts. Probably most cysts of this type originate as periurethral abscesses, and pressure will usually cause such a cyst to empty itself through the urethra.

"Occasionally, a small cystic prominence may be met with in the lateral vaginal wall, on opening which there is an escape of urine with a resultant urinary fistula. This is an embryologic abnormality. Brödel and others have pointed out that when there is a double kidney on one side, the ureter from the lower kidney is ordinarily implanted into the normal site, while that of the upper

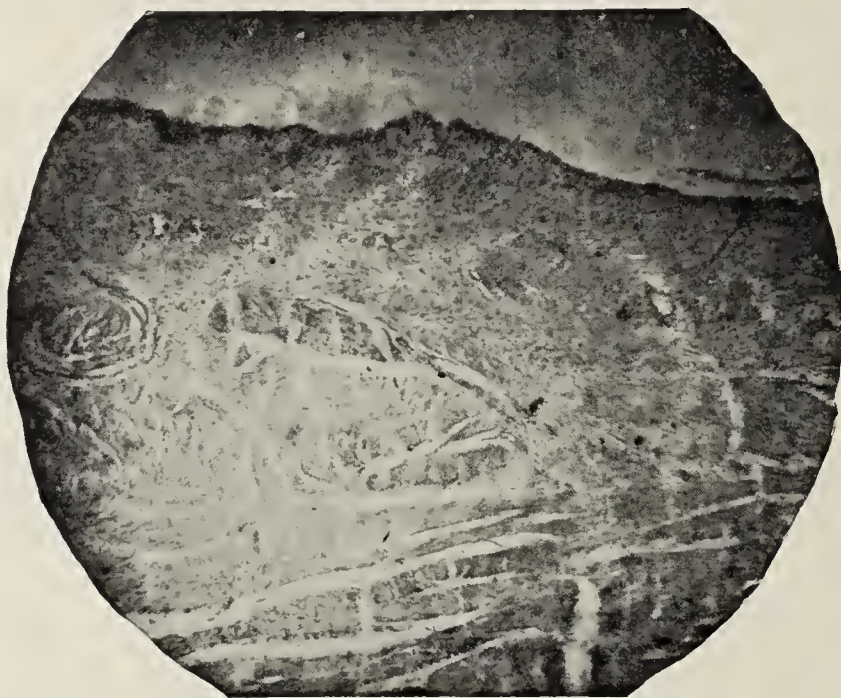


Fig. 3.—Low power photomicrograph, showing columnar epithelial lining of cyst. The muscle belongs to a portion of anterior vaginal wall removed with the cyst.

11. Frank, R. T.: *Am. J. Obst.* 72: 467, 1915.

12. Graves, W. P.: *Text Book of Gynecology*, Ed. 2, Philadelphia, W. B. Saunders Company, 1918, p. 299.

kidney is carried down further by the wolffian duct, and inserted more medialward and nearer the urethral orifice. Were this ureter carried a little lower, the blind pouch described in the vagina would be accounted for." Such an abnormality should be kept in mind when a small cystic protrusion is encountered in the lateral part of the vagina.

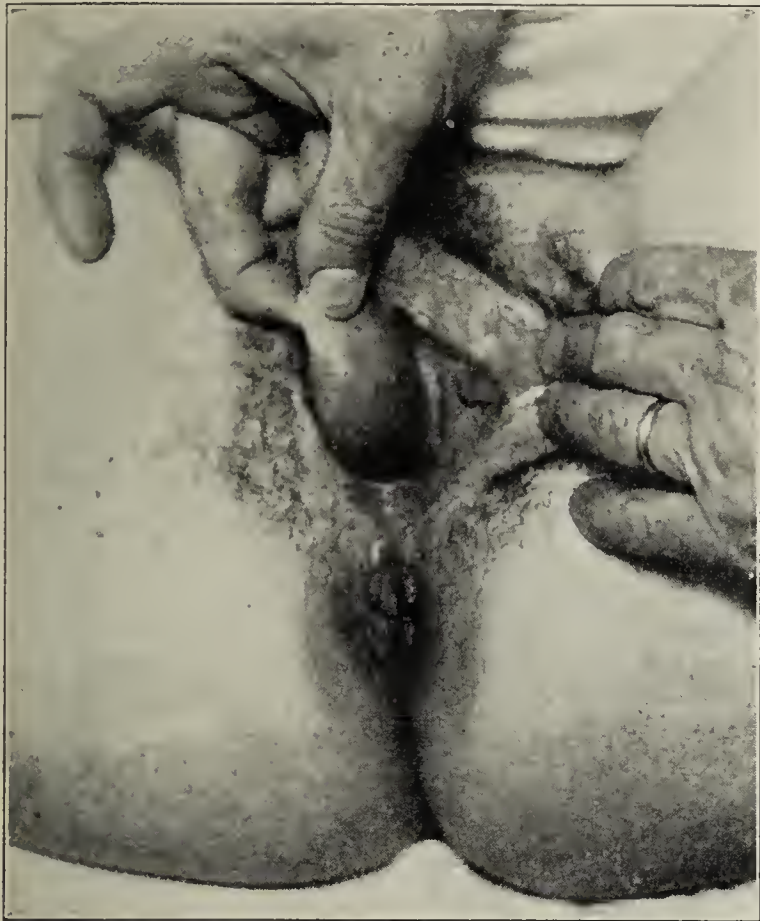


Fig. 4.—Gartner's duct cyst (author's case).

Dermoid cysts have been encountered developing in the rectovaginal septum. In countries where the echinococcus is prevalent, cases of echinococcus cysts of the vagina are reported.⁴ Cysts arising from Skene's glands must be considered under vaginal cysts.

A rare condition is colpohyperplasia cystica, described first by Winkel.³ Small cavities filled with clear fluid or gas, and forming elevations, appear on the vaginal mucosa. Lindenthal¹³ states that it is a condition due to infection with *Bacillus aerogenes-capsulatus*. Others have demonstrated this organism, while Jaeger¹⁴ has produced the cysts experimentally in animals. Though not amenable to treatment during pregnancy, when the disease usually makes its appearance, it usually disappears spontaneously after childbirth.

REPORT OF CASES

The two small cysts were both inclusion cysts, and followed perineal lacerations. They occurred in scar tissue near the vaginal orifice. One measured 1 by 1 cm. and was encountered while doing a perineal repair. The other was removed under cocaine in the office. It was described as the size and shape of a bean.

The description of both corresponds to that given for inclusion cysts, and they were filled with white sebaceous material.

The large cyst occurred in a primipara, 23 years of age. In the fifth month of pregnancy, there was a feeling of pressure in the vagina, and a month later a protrusion, resembling a large cystocele, appeared.

It has been said that vaginal cysts grow slowly, and it is often the case that they do not make their appearance until

during a pregnancy, when they fill rapidly. This cyst by the seventh month was the size of a goose egg, extended into the vault of the vagina, was sessile, with the anterior vaginal wall rather lax over the cyst.

When the patient went into labor at term, the cyst was tapped, and so collapsed as not to interfere with the birth, which was normal.

About six weeks after labor, the cyst had refilled, was not so large as during pregnancy, but protruded on walking, was annoying and for temporary relief was aspirated.

When the child was 4 months old, I removed the cyst. It extended from the vulva up into the left vaginal fornix and was the size of a goose egg. The cyst, thin walled, was attached between the anterior vaginal wall, urethra and bladder throughout the length of the vagina. It dissected away easily. The anterior vaginal wall was brought together after removing some of its redundancy, as in a cystocele operation. Its description follows.

The vaginal cyst was elliptic and measured 5.5 by 3 by 3 cm. (the dimensions here given are smaller than the size in situ, as the cyst had been partly aspirated and preserved in liquid formaldehyde. The wall was 1 mm. thick and had a smooth inner surface. Its contents were a colorless mucoid substance.

Microscopic Examination: The outside of the wall is lined by the vaginal squamous epithelium under which is a layer of loose connective tissue with a fairly rich blood supply, and a well developed layer of muscular tissue. The cyst has a thin capsule made up of fibrous tissue; no muscle cells are seen. The lining of the cyst is a single layer of columnar epithelium; no cilia are demonstrated (Dr. Philip Hillkowitz).

Metropolitan Building.

INJURIOUS COMBINED EFFECT OF ROENTGEN RAYS OR RADIUM, AND TOPICAL REMEDIES

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AND

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Now that roentgen rays are widely employed in diagnosis and therapy and radium is used extensively as a remedial agent, it is essential that physi-



Fig. 1 (Case 2).—Scars resulting from application of solid carbon dioxide following roentgen-ray treatment for keloid.

cians, even those who do not employ these agents, be cognizant of the dangers associated with the topical application in strength of irritating remedies to parts that have been or are to be irradiated. The injurious possibilities of such combined treatment does not appear to be appreciated by the majority of the medical profession. Want of knowledge and judgment in this

13. Lindenthal: Aetiologie der Kolpohyperplasia cystica, Wien. med. Wchnschr., 1897, Nos. 1, 2.

14. Jaeger: Das Intestinalempysem der Suiden, Arch. f. Tierheilk. 32: 425, 1906.

respect has been the cause of severe and even serious injury to the skin and subcutaneous tissue, and when such injury occurs, the blame is erroneously placed on the roentgen or radium treatment.

HYPERSENSITIVENESS CAUSED BY ROENTGEN RAYS AND RADIUM

Irradiation, whether or not followed by visible reaction, increases the sensitiveness of the skin to stimulating, irritating and caustic agents. The degree of hypersensitiveness depends on the dose of roentgen rays or radium, or on the amount of injury, temporary or permanent, microscopic or macroscopic, and on the time interval between the irradiation and the application of topical remedies. The strength and character of the local remedies and the manner of their application also are important factors.

Small doses of roentgen rays or radium, combined with topical irritants in strength, may result in severe injury. Large, but perfectly safe, doses of roentgen rays or radium, combined with mild topical irritants, may give the same result. Intensive and reactive irradiation, associated with topical irritants in strength, is the combination most likely to effect injurious results.

Hypersensitiveness is very marked immediately subsequent to a single intensive dose of roentgen rays or radium. The return to normal is probably in accord with biologic laws, and, in the absence of visible reaction (erythema) or of permanent injury, the skin will react normally to topical remedies in one month. If there has been a first degree radiodermatitis,¹ manifested by erythema, but no permanent injury, the skin is likely to remain hypersensitive for one month after the disappearance of the erythema. This may be two or three months subsequent to the treatment.

If there is permanent injury as evidenced by telangiectasia, atrophy or scarring, the skin may remain hypersensitive for months and even years.

Fractional irradiation is cumulative in effect, and the degree of skin hypersensitiveness will depend on the size of the individual doses and the interval between the applications. After several fractional doses, at intervals of a week or less, the effect is much the same as that following one large dose.

HYPERSENSITIVENESS CAUSED BY TOPICAL APPLICATIONS

The topical application of stimulants, irritants and caustics makes the skin hypersensitive to irradiation.

The degree of hypersensitiveness depends on the strength of, and the method of applying, the topical remedy; also on the time interval between the application of the topical remedy and the irradiation.

The length of time that skin may remain hypersensitive varies with the strength of the topical remedy and the manner in which it is applied. Usually the skin will react normally to roentgen rays and radium one month after topical applications have been discontinued, provided such applications have not produced a severe reaction. In instances of reactions (inflammation, ulceration), the skin is likely to remain hypersensitive for one month subsequent to subsidence of reaction or healing of ulceration.

REMEDIES THAT ENHANCE THE EFFECT OF IRRADIATION

Any drug, chemical, remedy, or agent that is capable of effecting an inflammatory reaction in the skin may make the latter more susceptible to irradiation.

Chrysarobin, scarlet R medicinal, iodine, mercury, pyrogallol, cantharides, resorcin, betanaphthol, tar, iodoform, sulphur, salicylic acid and remedies of this type effect hypersensitiveness of the skin. They cause the least trouble when used as powders; they are more potent in solution, and most potent in the form of ointments. We have known a 1 per cent. ointment of chrysarobin, a 3 per cent. ointment of iodine and a 5 per cent. ointment of ammoniated mercury (all considered mild ointments) markedly to interfere with roentgen treatment. Used in a strength of 10 per cent. (the usual strength), any of these remedies are capable of causing serious



Fig. 2 (Case 8).—Third degree radiodermatitis due to application of irritating chemicals to the skin following two erythema doses of roentgen rays.

injuries to the skin when applied during, or very soon before or after intensive irradiation.

Caustics, such as sodium hydroxid or potassium hydroxid, acid nitrate of mercury, zinc chlorid, trichloroacetic acid, nitric acid, silver nitrate, etc., all may enhance irradiation effects.

Ultraviolet light (sunlight; Kromayer lamp; Alpine lamp) especially if applied to the point of visible reaction, may enhance the effect of roentgen rays and radium.

Refrigeration (carbon dioxid snow; liquid air) must be used with great caution on irradiated skin. We have seen deep, very slowly healing ulcers follow a five second application of carbon dioxid snow with firm pressure in skin that had been permanently injured by roentgen rays two years previously.

Prolonged applications of heat or cold, and friction, especially if combined with liniments, may enhance irradiation effects.

1. Radiodermatitis is a term applied to reactions occasioned by both roentgen rays and radium.

Galewsky² reports the occurrence of a circumscribed, red, slightly scaly dermatitis on the chest of a patient who had been subjected to several roentgen-ray examinations for pulmonary tuberculosis. The eruption covered a rectangular area and appeared three weeks subsequent to the last irradiation. The patient had been receiving numerous neo-silver arsphenamin injections. Clinically, the exanthem resembled an arsphenamin dermatitis more than a roentgen dermatitis. One week after its appearance, a universal arsphenamin dermatitis became manifest. It presented the same picture as the rectangular area preceding it. There was a generalized erythema with small and large lamellated scales, slight hyperkeratosis of the palms and soles, and marked exfoliation of the skin of the face and head. It is possible that the irradiation established a locus minoris resistentiae in which the arsphenamin dermatitis prematurely appeared, demonstrating a changed susceptibility of the skin to allergic phenomena.

CLINICAL FEATURES

The combined effect of irradiation and topical stimulants, irritants or caustics, produces a reaction that is, as a rule, indistinguishable clinically and pathologically from radiodermatitis. The reaction may be of the first, second or third degree, and the sequelae are those of true radiodermatitis.

The subjoined illustrative case reports will enable the reader to visualize some of the results of combined treatment.

ILLUSTRATIVE CASE REPORTS

CASE 1.—History.—A woman had a roentgenographic examination of the nasal accessory sinuses. Two exposures were made, the radiation entering the head at the occiput. Three weeks later, the hair fell out, but there was no erythema. Three applications of tincture of iodine were then made to the affected part of the scalp, at daily intervals. The result was ulceration of the treated area, intense pain, and permanent alopecia. Three months were required for cicatrization.

Comment.—If the injury were due entirely to the roentgen rays, erythema would have preceded the alopecia. Roentgen alopecia resulting from a single exposure or numerous exposures over a period of a few weeks and unaccompanied by a visible reaction, such as erythema, is temporary. In this instance, the scalp had received an epilation dose of filtered radiation. If the iodine had not been applied, there would have been no ulceration and the hair would have regrown in two or three months.

The epilating dose for scalp hair is well established and is used daily in the management of tinea tonsurans and tinea favosa of the scalp. In such treatment, the thing we always fear is that the patient may deny the use of irritating applications previous to the irradiation, or that such applications may be made subsequent to the roentgen treatment, in spite of advice to the contrary.

CASE 2.—History.—A young girl had received roentgen treatment for keloid. The treatment was administered years ago, when it was considered harmless to roentgenize until a mild reaction ensued. The keloid disappeared, but there was some telangiectasia as a sequel to the roentgen reactions. A year after the irradiation, solid carbon dioxide was applied, with firm pressure for five seconds to each of seven dime-sized areas. The result was necrosis that involved the entire derma, subcutaneous tissue and, to a slight extent, the underlying muscular tissue. Healing was very slow, several months being required for cicatrization. The resulting scars were more disfiguring than was either the original keloid or the telangiectasia (Fig 1).

Comment.—In this instance the five-second application of solid carbon dioxide caused greater destruction than is usual

with an application of one minute. The ulcers in cases of this kind, so far observed, do not resemble third degree radiodermatitis. Pusey and others have called attention to the hypersensitiveness of the so-called "roentgen-ray skin" to solid carbon dioxide treatment.

CASE 3.—A man had received fractional radium applications to ten small patches of psoriasis. One week after the last treatment, a 10 per cent. chrysarobin ointment was applied to three of the lesions. Within a period of twenty-four hours, there was a violent reaction in the areas to which the chrysarobin had been applied. The reaction exhibited all the characteristics of a second-degree radiodermatitis, including subsequent atrophy. There was no reaction in parts treated with radium alone or with chrysarobin alone.

CASE 4.—A patient with confluent, inflammatory psoriasis of the palms and soles received erythema doses of roentgen rays to the affected parts, at monthly intervals, for three months. The palms, soles and dorsal surfaces of the hands received the same amount of irradiation. There was a slight first degree reaction after each application. The eruption underwent involution subsequent to the first treatment, but immediately relapsed. The second and third treatments were of no benefit. Three weeks after the last exposure, the patient soaked gauze in a mixture of equal parts of castor oil, balsam of Peru and cade oil and wrapped the hands in the gauze upon retiring. He was awakened during the night by a burning sensation, whereupon more of the mixture was added to the bandages. An hour or two later, the burning pain being very intense, the bandages were removed and it was noticed that the hands were red and swollen. The patient was seen the next day, at which time the hands were markedly swollen, tense and painful. The edema was cutaneous and subcutaneous. The skin was erythematous, but there was no vesiculation, excoriation nor ulceration. The symptoms endured for several weeks. The feet, which had received the same amount of radiation but to which the mixture had not been applied, remained normal. The patient was seen two years later, at which time he received roentgen-ray treatment for pruritus ani. The skin of the palms was slightly atrophic and dry, and there were a few dilated capillaries. The soles were normal.

CASE 5.—An epithelioma situated in the right eyebrow region of a woman was given one application of roentgen rays, consisting of 2 Holzknicht units at skin distance. This was followed by a mild second-degree reaction which healed in a month. Two months after the treatment, a single application of a 10 per cent. ointment of ammoniated mercury was followed within a few hours by erythema, burning pain and superficial edema. The inflammation subsided in two weeks. The same ointment when applied to another part of the body failed to provoke a reaction.

CASE 6.—A woman received three erythema doses of filtered roentgen rays to the breast, at intervals of six weeks. Each application consisted of 2½ Holzknicht units at skin distance, filtered through 3 mm. of aluminum. Each treatment was followed by a first-degree reaction. Three months after the last irradiation, the skin showed slight atrophy and loss of hair. An ointment containing 4 per cent. salicylic acid, 10 per cent. cade oil and 10 per cent. ammoniated mercury was applied to the affected part. After two or three applications the skin became inflamed, but use of the ointment was continued. In less than two weeks, a very painful, indolent ulcer resulted. The ulcer was indistinguishable from a third-degree radiodermatitis. It healed in six months. The end-result was scarring, atrophy and telangiectasia.

CASE 7.—A woman with psoriasis was referred by the late Dr. George T. Jackson for roentgenization. Dr. Jackson had directed the patient to apply a 2 per cent. chrysarobin ointment to the lesions of the left arm. Only the lesions on the right arm were to receive roentgen-ray treatment. The lesions of both arms were given three-fourths Holzknicht unit at skin distance. The lesions that received both roentgen rays and chrysarobin reacted vigorously: erythema, edema and vesiculation; the others disappeared without reaction.

CASE 8.—Mr. J. W., referred by Dr. H. M. Kalvin of Brooklyn, had a sarcomatous nodule on the flexor surface of the right forearm and two similar nodules in the right pop-

liteal space. Each area (lesions and considerable normal skin) was given roentgen rays, the dose being $2\frac{1}{2}$ Holzknicht units at skin distance, filtered through 3 mm. of aluminum. This was followed by a first-degree reaction, which subsided in two weeks. The lesions were much improved. One month after the first treatment, the same dose was again administered to each area. This treatment was followed by a first-degree reaction. The patient applied ointments containing compound solution of cresol, balsam of Peru and scarlet R medicinal to the popliteal space but not to the arm. The erythema of the arm soon disappeared. The area in the popliteal space became intensely red, hard and painful. The patient suffered excruciating pain for four months. The hardened area proved to be dry necrosis. The necrosed tissue turned into a slough in four months and began to separate. At the end of six months, there was an ulcer that involved the subcutaneous tissue and even the muscle. At the present writing, one year subsequent to the treatment, the ulcer is about one fourth its original size. The diagnosis is a third degree radiodermatitis due to the application of irritating chemicals to skin that had received two erythema doses of roentgen rays (Fig. 2).

In addition to the illustrative cases reported herewith, selected from a mass of clinical material, the opinions given in this communication have been verified experimentally.

CONCLUSIONS

Roentgen rays and radium may make the skin hypersensitive to stimulating, irritating and caustic agents locally applied. As a rule, the skin will react normally to topical remedies in a month; but if there has been a reaction, the hypersensitiveness may endure for several months, and if the skin has been permanently injured, the hypersensitiveness may be detected for a year or two, or even indefinitely.

Stimulating, irritating and caustic remedies, when locally applied, produce hypersensitiveness to roentgen rays and radium for about a month. If the skin reacted to the local remedy, increased "radiosensitivity" is the rule for one month after the complete disappearance of the reaction.

A physician about to prescribe topical applications of an irritating nature should first ascertain whether the parts to be so treated have been recently irradiated or are to be irradiated.

A physician about to apply roentgen rays or radium to a patient should first ascertain whether irritating topical remedies have been recently used; and the patient should be cautioned against additional local treatment without the knowledge and consent of the physician who applied the roentgen rays or radium.

The Italian Institute for Social Relief.—Prof. Ettore Levi, of the chair of neuropathology in the University of Florence, member of the national board of public health and vice president of the board in charge of war invalids, has organized a central institute for study of the problems affecting the social and economic welfare of the nation, especially the social diseases and their economic results, and legislative and financial means for prevention and relief, serving also as a center of propaganda, and for consultation for preventive and relief work in commercial and industrial organizations, and for study and experiment of new types of social work, such as vocational laboratories; training schools for social workers, etc. The institute is financed, mainly by a private firm in Genoa, and has the collaboration and support of the principal banks of Italy promised for a term of three years. A pamphlet by Professor Levi, entitled "Social Medicine in Defence of Life and Labor," was what started the organization of the institution, as he portrayed the need of some central body to coordinate and promote the efforts to heal the ills of the social and economic system of the present day. The address is Corso d'Italia 32 A, Rome.

MAGNESIUM SULPHATE SOLUTION AS AN AID IN ANESTHESIA *

ARTHUR H. CURTIS, M.D.

CHICAGO

Some years ago Meltzer studied the anesthesia produced in dogs by subcutaneous injections of magnesium salts. In his experiments large amounts of magnesium salt solution were necessary to produce complete anesthesia.

Recently, Gwathmey¹ has advocated preoperative hypodermoclysis of from 200 to 400 c.c. of a 4 per cent. chemically pure magnesium sulphate solution as an aid to nitrous oxid-oxygen or ether anesthesia. This solution is given one and one-half hours before operation, within a period of not less than thirty minutes. Gwathmey states that magnesium sulphate has no deleterious effect on any of the tissues or organs of the body.

Because of the greatly decreased postoperative nausea and distress reported to accompany this method of anesthesia, we tested the value of magnesium sulphate solution at the time of operation on ten patients who occupied ward beds in St. Luke's Hospital. In all of these ten patients less than the usual amount of nitrous oxid-oxygen or ether was required. Postoperative symptoms were slight; it was particularly noted that pain and vomiting were almost entirely absent.

This favorable preliminary evidence encouraged the routine use of the method. Unfortunately, one of the next three patients operated on died after sixty hours with symptoms of acute poisoning.

REPORT OF CASE

A well nourished woman, aged 35, married, complained of persistent abdominal pain and pelvic discomfort, following a pelvic operation nine years before. Examination revealed a fibromyoma of the uterus and evidence of lower abdominal adhesions. The urine contained a few hyaline casts. On the morning of operation, during a period of thirty-five minutes, the patient received a hypodermoclysis of 310 c.c. of 4 per cent. chemically pure magnesium sulphate solution. This solution was prepared from the salt used in making the solutions injected into the other two patients operated on the same day. Two hypodermics of one-eighth grain (8 mg.) of morphin preceded the nitrous oxid-oxygen anesthesia. The opened abdomen revealed a fibromyoma of the uterus and massive pelvic adhesions. Despite adhesions, the operation was not particularly difficult, and was completed in an hour.

The patient rested comfortably for six hours. Thereafter she was distressed by persistent nausea and repeated vomiting of small amounts. There was a gradual increase in the pulse rate and moderate elevation of the temperature. The abdomen became moderately distended, but gas and feces were freely expelled. Gastric lavage failed to relieve the symptoms. Urine was satisfactorily voided for eighteen hours; then it became very scanty, was deeply stained with bile, and contained many hyaline and granular casts. After forty-eight hours there was a pronounced jaundice; the pulse was 158; temperature, 102.8 F.; leukocytes, 16,000; breathing labored, but not notably accelerated. Death occurred twelve hours later, after a period of marked prostration.

A postmortem examination by Dr. Edwin F. Hirsch demonstrated a marked jaundice, marked acute fatty changes of the liver, marked cloudy swelling of the parenchymatous organs, multiple petechial hemorrhages of the pleura, pericardium and endocardium, a recent surgically repaired supravaginal hysterectomy, and other changes unrelated to the cause of death. The head was not examined. There was no peritoneal infection. The lining of the stomach and bowel was unchanged.

* From the Pathological Laboratory and Gynecological Service of St. Luke's Hospital.

1. Gwathmey, J. T.: *Current Progress in the Science and Practice of Anesthesia*, J. A. M. A. 77: 421 (Aug. 6) 1921.

Cultures of the heart's blood and pericardial fluid, grown both aerobically and anaerobically, were sterile after incubation. Histologically, the liver cells contained many fat vacuoles. The cytoplasm and nuclei failed to stain as deeply as normal tissue, and all the changes present were such as have been observed in liver tissue when death has resulted from an anesthetic. The renal epithelium was similarly changed.

Chemical analysis of the liver tissue revealed no trace of the heavy metals and no phosphorus; the magnesium content of the liver after deducting the amount normally present in human liver represented 5.33 gm. of $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$.

COMMENT

Because of the clinical symptoms and the changes found postmortem, the death of this patient could not be ascribed to any cause other than the anesthetic. Nitrous oxid-oxygen anesthesia is not known to produce the liver and kidney changes observed, and the evidence seems to point to magnesium sulphate as the noxious agent. That magnesium sulphate injections are not without effect in the body tissues is known from observation on lower animals that such injections produce a hyperglycemia and glycosuria.² Some of these observations³ were made with solutions of no greater concentration of magnesium sulphate than fourth molar (3 per cent.).

Further analysis of hyperglycemia⁴ associates this phenomenon with alterations in the p_{H} concentration (acidosis) of the liver tissue. It seems, therefore, that magnesium sulphate produces changes in the liver which cause a hyperglycemia or glycosuria, and when more profound liver changes are produced it is not impossible that severe tissue injury occurs.

CONCLUSIONS

1. Preliminary hypodermoclysis of magnesium sulphate solution usually lessens the requisite amount of other general anesthetic, and greatly relieves postoperative distress.

2. Study of the fatal case here reported, together with evidence from previous experimentation on animals, indicates that magnesium sulphate solution sometimes produces profound changes in the liver and cannot be considered a safe anesthetic for general use.

104 South Michigan Avenue.

STUDIES IN BLOOD FAT

PRELIMINARY REPORT *

DAVID MURRAY COWIE, M.D.

AND

LYNNE A. HOAG, M.D.

ANN ARBOR, MICH.

The total lipid content of human blood under several varying conditions was studied by the method advocated by Bloor, making use of the modifications and suggestions published by Gray. All recorded observations were made on human blood, a total of about 400 specimens having been examined. All single specimens and controls for series were taken before breakfast, following an overnight fast of fourteen

hours. No attempt was made to separate the total lipid content of the blood into its chief partitions—fatty acids, neutral fat, cholesterol, cholesterol esters and lecithin.

Even a brief experience with the method showed that the unavoidable yellow color of the sodium ethylate which was used to saponify the unknown, and not the standard, introduced a very real error into the nephelometric comparisons between the soap suspensions of the two. This could be obviated to a great extent by treating both solutions with sodium ethylate, except that the presence of any color, although in equal amounts, is not in accord with the principles of relative density readings as conducted in a nephelometer. The method now advocated by Bloor is the use of a small quantity of strong sodium hydroxid solution obtained by collecting the drippings from pure metallic sodium exposed to the atmospheric moisture.

In thirty determinations on children who were in the hospital because of fractures, clubfoot or other non-medical conditions, no significant variation in the average total lipid content was found in an age series from 3 to 11 years. The average figure was about 0.7 per cent. As has been pointed out by all other workers with this method, there is an occasional marked variation.

Following fourteen hours of starvation, weighed amounts of fat, in the form of analyzed cream, were fed to five normal children. A control was obtained from each before the ingestion, and a blood sample was taken every one or two hours thereafter, for from ten to twelve hours. The absorption-utilization curves thus obtained showed the maximum amount of lipoids in the blood from the fifth to the seventh hour after ingestion, thus corroborating results of Bloor on dogs. Three adults tested in a similar manner showed the maximum blood stream content at the sixth hour. This absorption-utilization curve was changed when the fat was given together with a large amount of sugar or carbohydrate, in that the highest point was reached at the second hour in the three adults examined.

The fat absorption-utilization curve of an adult diabetic patient was studied following the ingestion of 143 gm. of fat, 6 gm. of carbohydrate and 16 gm. of protein in a single meal. The maximum concentration in the blood was reached at the sixth and eighth hours, showing however, a rise of only 10 per cent. over the first hour after ingestion. A boy, aged 11 years, with diabetes, showed at the eighth hour a 26 per cent. increase over the first hour, following ingestion of 90 gm. of fat, 14 gm. of protein and 11 gm. of carbohydrate. These results show no gross variation from the normal curves.

All the eight diabetic patients examined showed an increase of total lipoids, the highest being 8.8 per cent. When these patients were fed a minimum of carbohydrate and protein, but large amounts of fat, ranging from 100 to 220 gm. daily, and furnishing an adequate caloric intake for the individual, the lipid content of the blood steadily decreased. The patient whose case is cited above had 8.8 per cent. on entrance, which was reduced to 1.5 per cent. before he was discharged from the hospital on a diet containing 220 gm. of fat.

Starvation produced a 182 per cent. increase in total blood lipoids in four days in a 7 year old boy, accompanied by the acidosis picture of diabetes. Another patient showed a 64 per cent. increase in three days of starvation, and this was also accompanied by marked acidosis. The lipoids of the blood rapidly decreased

² Meltzer, S. J., and Auer, J.: Physiological and Pharmacological Studies of Magnesium Salts, *Am. J. Physiol.* **14**: 366, 1905. Underhill, F. P., and Closson, O. E.: *Am. J. Physiol.* **15**: 321, 1906.

³ Kleiner, I. S., and Meltzer, S. J.: *J. Biol. Chem.* **20**: 24, 1916.

⁴ Langfeldt, E.: Blood Sugar Regulation, III, *J. Biol. Chem.* **46**: 103 (April) 1921.

* Read by title at the American Society for Clinical Investigation, Atlantic City, N. J., May 9, 1921.

* From the Department of Pediatrics and Infectious Diseases, University of Michigan Medical School.

when the patients were given a diet high in fat and low in carbohydrate and protein.

The blood fat content was analyzed at two-hour intervals following the intravenous injection of foreign protein, using dead typhoid bacilli. The subjects were deprived of their meals throughout the test, which covered a period of one day. As a control, the blood of one of the patients was examined at the same intervals during a fast day on which no foreign protein was administered. Following the injection of dead typhoid bacilli (500 million), this patient showed a decrease of total blood lipoids of 50 per cent. on one occasion and 34 per cent. at another time, the lowest point being reached in five hours, the fat rising again thereafter in spite of continued fasting. On the fast day, the same child showed only a 12 per cent. decrease in eight hours, with no tendency to rise at the end of this period. The second case showed no fall in blood lipoids following foreign protein during the first series, and only 10 per cent. decrease during eight hours in the second series; this was no more than could apparently be accounted for by the fasting. This patient did not show as marked a temperature reaction as did the first patient.

320 South Division Street—608 Hill Street.

Clinical Notes, Suggestions, and New Instruments

RECOVERY AFTER HYSTERECTOMY FOR CARCINOMA OF THE FUNDUS UTERI

REPORT OF CASE IN WHICH RADIUM HAD BEEN USED UNDER THE
DIAGNOSIS OF FIBROID *

ASTLEY P. C. ASHHURST, M.D., AND C. Y. WHITE, M.D., PHILADELPHIA

History.—Lucy M., aged 52 years, unmarried, weight 43 kg. (95 pounds), height 160 cm. (5 feet, 4 inches), was admitted to the Episcopal Hospital, under the care of one of us (A. P. C. A.) Nov. 6, 1920. The family history was negative. She had had the usual diseases of childhood but had been in fair general health until twenty years ago, when she suffered a "nervous breakdown," and since that time she had been an invalid, though she had not had any serious illness. Her heaviest weight had been 47.5 kg. (105 pounds). The present illness began about three years ago, when menstrual disturbances first appeared. Menstruation, which commenced at 15 years of age, was regular up to three years ago, and though at times painful, the bleeding always had been moderate in quantity, and had lasted only four or five days. In March, 1918, however, she began having uterine hemorrhages; and after three or four months of bleeding, she was admitted to the Cooper Hospital in Camden, N. J., where the uterus was curetted. (Inquiry at this hospital in May, 1921, as to whether any pathologic examination was made of the tissue obtained, was answered thus by Dr. Thomas B. Lee:

"The report of the examination of the scrapings, I will give you verbatim: 'Chronic hyperplastic endometritis. There is a great excess of glandular substance, the interglandular tissue being almost absent in some areas; but there is no evidence of malignancy at present. Frank B. Lynch, Jr., M.D.'")

The hemorrhage stopped for a few months, but then commenced again. In June, 1919, she was under the care of an experienced gynecologist, who made a diagnosis of uterine myoma, and who gave her radium treatment. There was not sufficient tissue obtained at this time by curettage for microscopic study. No bleeding occurred after this until March, 1920, a free interval of eight months. Since March, 1920 (eight months previous to admission to the Episcopal Hospital), she had been bleeding almost continuously, in small

quantities; there had been a constant vaginal discharge, and she had been more of an invalid than previously.

April 8, 1920, the same surgeon who had made the radium application amputated the left breast. His preoperative diagnosis was "chronic cystic mastitis"; but microscopic study showed the tumor to be a fibro-adenoma. The patient had noticed this tumor only about a month before the operation; but it seemed to grow rapidly, and was the size of a small egg when removed. She did not recuperate well from this operation.

She spent the summer of 1920 at the seashore, in the hope that the bleeding and discharge would stop, with an improvement in her general health. She gained in weight from 43 to 47.5 kg. (95 to 105 pounds) while away, and was in comparatively good health for her. She was able to do a little tutoring, being transported to and from her place of employment in her employer's automobile. A week after her return home, she was again admitted to a hospital, in October, 1920. During the three weeks she remained there, she lost all the weight she had gained during the summer. She was then transferred to the Episcopal Hospital, the sole reason for her transfer being a financial one, as the board of managers of the latter hospital generously placed a private room at her disposal gratis. Indeed, the superintendent of the hospital was given to understand by those seeking her admission that hers was "a hopeless case" and that she could not live more than a few weeks.

The physician under whose care she had been from June, 1919, to October, 1920, and who was consulted by one of us (A. P. C. A.), confirmed by telephone conversation the essential points of the above history, and gave the additional information that the uterine cavity, which measured 9 cm. (3½ inches) in June, 1919, was smaller in September, 1919, after the radium treatment. When asked what was his objection to performing hysterectomy in the case of this patient, he replied he considered it unnecessary, as further radium treatment should prove curative, and instanced as an additional reason the patient's poor recuperative power. He considered her a poor operative risk.

Examination.—On admission to the Episcopal Hospital, Nov. 6, 1920, the patient was frail, worried looking, rather anemic and very thin, presenting the appearance typical of a neurasthenic. She was very emotional, and anticipated death as the only relief from her suffering, which she alleged to be great.

Urinalysis was negative except for hyaline and light granular casts. The quantity, up to the time of the hysterectomy, varied from 300 to 1,000 c.c. (10 to 32 ounces) daily. After operation, it varied from 500 to 1,300 c.c. (16 to 44 ounces) daily. A phenolsulphonephthalein test before operation showed excretion of 15 per cent. during the first hour, and of 5 per cent. during the second hour: total 20 per cent. Blood examination showed red blood cells, numbering 4,520,000, white blood cells, 11,240 (polymorphonuclears, 70 per cent.; lymphocytes, 20 per cent.). Fluoroscopic examination of the gastro-intestinal tract by Dr. Bromer was negative except for moderate gastropnoia and colopnoia. Vaginal examination disclosed a moderately enlarged but freely movable uterus, with constant slight bleeding. The cervix felt normal.

Dr. M. H. Fussell saw the patient in consultation, and furnished these notes: "The thyroid is somewhat enlarged. There is considerable muscular tremor. The heart dulness extends to the right edge of the sternum, and to the left mid-clavicular line. At the aortic area is a systolic murmur; over the body of the heart is a systolic murmur which is conducted to the axilla. There is no arrhythmia, no diastolic or presystolic murmur. Lifting the arm above the head does not lessen the impulse of the radial pulse." Dr. Fussell advised against any operation on account of the condition of the patient's heart; unless it should be the introduction of a radium tube which could be done under a brief nitrous oxid anesthesia.

In spite of these unfavorable opinions, it was believed by one of us (A. P. C. A.) that the patient would withstand a hysterectomy under general anesthesia; and from his own examination of her heart he believed ether would be preferable to gas, even in spite of the apparently precarious condition of the patient's kidneys. Therefore, she was advised to have the uterus removed for these reasons: She was an

* Read before the College of Physicians of Philadelphia, June 1, 1921.

elderly, unmarried woman, with a diseased uterus (the pre-operative diagnosis was fibroid uterus), who had been treated by radium with only temporary benefit, and who was steadily losing ground. She was no longer in a condition for temporizing, but required radical treatment to insure removal of the disease. Though radium treatment might sometimes be justifiable in the case of a comparatively young woman with myomatous uterus, certainly, in older women hysterectomy afforded a more certain and, therefore, a more desirable remedy.

Operation.—Under ether anesthesia, Nov. 26, 1920, three weeks after the patient's admission, the abdomen was opened by a left paramedian incision, 18 cm. in length. The omentum was adherent at one point to the anterior parietal peritoneum; but this adhesion was not disturbed, nor was the appendix vermiformis removed, as any prolongation of the operation was deemed inadvisable. The uterus, which was about twice its natural size, was free from adhesions, and presented a mass just posterior to the fundus. The fundus was grasped with volsella, and the uterus was drawn into the wound, the remainder of the peritoneal cavity being excluded by gauze pads. The volsella tore partly out of the fundus (which was then entirely outside the abdominal wound), disclosing a gray, friable and malignant looking uterine wall. The uterus, with its cervix, was removed; but the tubes and ovaries were left, as it was not desired to increase the patient's neurasthenia by precipitating the menopause. The stumps of the round and broad ligaments were implanted into the vaginal vault, which was closed with interrupted chromic gut sutures. The abdominal wound was closed in layers without drainage.

Result.—The patient stood the operation without any unfavorable symptoms referable to the heart or kidneys, and except for nausea and occasional vomiting, prolonged for a period of two days, made an uneventful recovery. She left her bed twenty-five days after operation, and before her discharge from the hospital, Jan. 15, 1921, she had learned that she could walk up and down stairs and take strolls about the hospital grounds. Her weight on discharge was 44.5 kg. (98 pounds).

Since returning to her home, she has been able to resume the normal life of a woman of her age and station. She reported in May, 1921 (six months after hysterectomy), looking the picture of health, and said that she felt perfectly well, weighed more than 49 kg. (108 pounds), and was about to accept a situation as governess.

Pathologic Report on the Uterus.—Gross Appearance: The uterus is about twice its normal size: its weight is 78 gm. and its dimensions 9 by 8 by 5 cm. It presents a tumor at the fundus, involving the posterior more than the anterior wall. The outer surface of the uterus is smooth, with the exception of the site of its normal attachments, which have been removed by operation. The thickness of the wall at the site of the tumor is 25 mm.; that of the unaffected uterine wall is 17 mm. This thickening is due not only to the growth on the mucous surface but also to involvement of the muscular wall in the tumor. The uterine wall does not show any evidence of fibromas.

On the mucous surface of the uterus, the tumor extends from the fundus on the posterior wall to a point 30 mm. from the internal os, and on the anterior wall to a point 55 mm. from the internal os. The dimensions of the tumor on the mucous surface of the uterus are 45 mm. on the posterior wall, and 20 mm. on the anterior wall. The mucous surface of the tumor is ulcerated, and this ulceration is deep in some areas, showing undoubted evidence of necrosis. The endometrium over the tumor is generally roughened, with folded cauliflower-like projections. The membrane elsewhere is injected, and the tumor mass is friable.

Microscopic: The growth is typical of adenocarcinoma. It infiltrates into the muscular wall in all directions with the formation of large pockets of carcinomatous tissue. It shows no evidences of treatment (by radium), there being no increase of fibrous or cicatrizing tissue.

Diagnosis: Adenocarcinoma.

2104 Spruce Street—Episcopal Hospital.

A NEW NEEDLE FOR COLLECTING BLOOD FOR SEROLOGIC TESTS

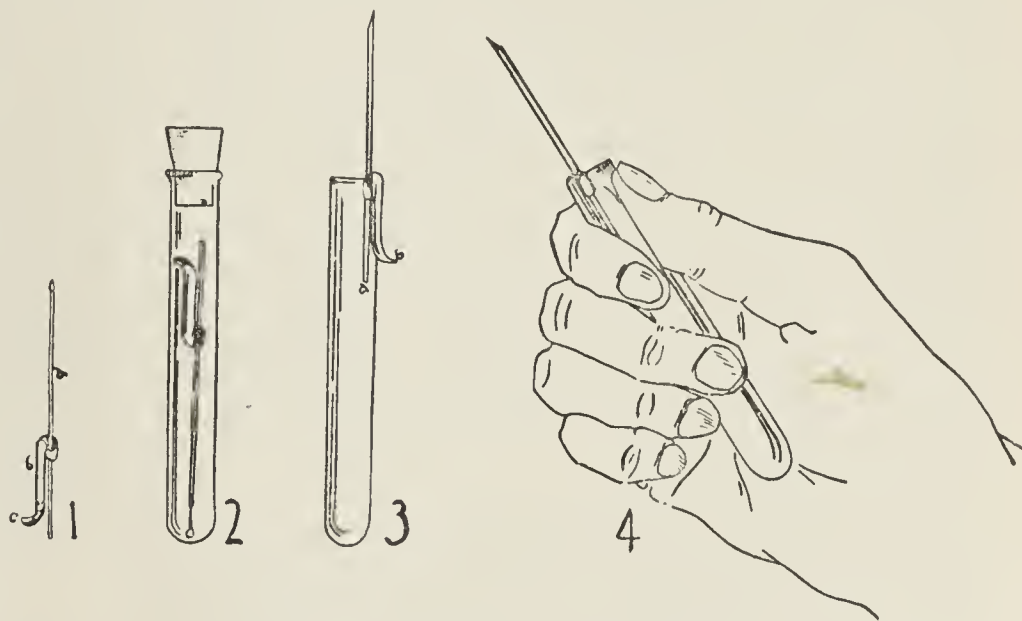
S. A. PETROFF, TRUDEAU, N. Y.

For the last seven years we have been in search of a needle and a method of collecting blood for serologic purposes, a needle that would be practical for private physicians, hospitals and laboratories. The needle here described is simple in construction, inexpensive, and durable enough to be used repeatedly.

The construction of the needle is shown in the accompanying illustrations:

Figure 1: *a*, a hollow nickel-plated steel needle, 3 inches (75 mm.) long, of an ordinary caliber from 19 to 25 gage; a slightly concave clip, 1¼ inches (32 mm.) long, ¼ inch (6 mm.) wide and ⅛ inch (0.4 mm.) in thickness; *b*, the upper end is fastened to the needle about 1½ inches (38 mm.) from the blunt end. The clip runs approximately parallel to the needle, the distance from the upper end being ⅓ inch (3 mm.) and the lower end about ⅛ inch (1.5 mm.); *c*, the lower end of the clip is turned upward so as to provide a rest for the index finger.

Figure 2: After the needle is cleaned and sharpened, a wire may be run into the needle from the sharp end. The needle is then inverted into a round-bottomed centrifuge tube



Needle for collecting blood for serologic tests.

with the clip toward the mouth of the tube, corked and sterilized in a dry air sterilizer at 150 C. for half an hour.

Figure 3: The needle is so constructed that it may be attached easily and very firmly to a straight-mouthed centrifuge (test) tube, with the clip (*b*) outside and the lower half of the needle (*a*) inside.

Figure 4: When ready to use the needle, one should remove the cork very carefully, tip the tube in the palm of the left hand, draw out the needle without touching the mouth of the tube, and attach to the tube as previously described. Apply a tourniquet above the elbow (bent) and introduce the needle into the median basilic vein. No suction is necessary.

The advantages of this needle are: (*a*) its simplicity; (*b*) The ease with which it may be sterilized and kept in a sterile condition until used; (*c*) the convenience of drawing the blood into a tube which may be used also for centrifuging, so that it is not necessary to transfer the blood after coagulation into another tube; (*d*) the ease and firmness with which the needle may be attached to the test tube while in operation, and (*e*) durability.

Normal Living.—The parents who appreciate and keep a comfortable, orderly home often have a narrow vision, yet it may be the result of lack of opportunity or proper guidance, and not of dogged, ignorant self-assurance; and while even the latter may unbend and accept a new gospel, the former constitute fertile soil in which to plant and train up ideas of normal healthy living and thinking.—M. Webb, *Hospital Social Service* 4:139 (Sept.) 1921.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, NOVEMBER 5, 1921

THE BEHAVIOR OF PHOSPHATES IN THE BODY

The behavior of phosphates in the organism is far from being clearly understood. The conditions which determine their rôle in metabolism are unusually complex. In part, phosphates arise from the disintegration of organic phosphorus-containing compounds, such as the casein of milk, the vitellin of egg yolk, the nucleoproteins, the phosphatids and phytin, which liberate the element as phosphoric acid in the body; another part of the phosphates is ingested as such. Phosphates may be eliminated from the body through the bowel as well as in the urine; furthermore, they may be deposited in the formation or restitution of bone structures, or may experience synthetic disposal in the production of milk.

To what extent the therapeutic regulation of some of these factors may be important, it is too early to prophesy with any finality. When calcium is abundant in the diet or is secreted into the bowel, there may be opportunity for the formation of the insoluble calcium phosphate which is a component of the feces. Under normal conditions of health and diet, nine tenths of the calcium in the stools may be combined as insoluble phosphate. Obviously, if phosphates are then diverted away from the circulation, conditions may arise wherein they cannot participate in the formation of bone. The problem of rickets and osteoporosis is thus approached. Again, the failure of the kidneys to excrete acid phosphates adequately may lead to a type of acidosis;¹ for the renal elimination of phosphates represents one of the most important normal mechanisms for maintaining the neutrality of the blood. High phosphatemia is said to bring about a reduction in the calcium content of the blood with a possible unfavorable influence on the irritability of the nervous tissues.² Finally, the occurrence of phosphaturia, often baffling and difficult to manage with its incidence of undesirable calculi, represents a still different phase of the varied problems represented by the phosphates.

Despite the conflicting opinions, there is at present sufficient evidence to make it probable that the calcium factor in the food plays an important part in determining to what extent phosphates can be absorbed. When there is a great abundance of calcium and magnesium in the intake, earthy phosphates are most likely to appear in abundance in the excrement. Recently, Telfer³ has shown at the Royal Hospital for Sick Children in Glasgow that under conditions in which other compounds than phosphates reacting with calcium arise in the intestine the release, so to speak, of phosphoric acid for absorption may become quite noteworthy. He has studied the metabolism of infants in whom the existence of congenital atresia of the bile ducts has resulted in the failure of absorption of the fatty acids arising in the digestion of fats in the alimentary tract. A similar effect can be observed in obstructive jaundice. The nonabsorption and persistence of an excess of fatty acids in the intestine are associated with a modification of the normal excretion of calcium and phosphorus. The calcium is found in the feces as soaps in large excess over the normal. The phosphorus, which normally is excreted by the bowel as tricalcium phosphate, is liberated from combination with calcium and is absorbed and eliminated by the urine. The degree to which the normal excretion of calcium and phosphorus can thus be varied is shown to depend on the concentration of the free fatty acids in the intestinal contents. This is evidently one of many ways in which the perplexing interrelations between two elements essential for the organism can be influenced, as several investigators have previously pointed out.

UREA AND UREMIA

Uremia is the name that has been given to disturbances in cases of renal disease which appear to be of a toxic character and which not infrequently prove fatal. The designation, as it is still employed, undoubtedly includes a group of symptoms—nervous, alimentary, circulatory and respiratory—having a varied origin. As Garrod pointed out, the boundaries of the syndrome are somewhat ill defined, and whereas some authorities would limit the application of the term uremia to functional disturbances which appear to have a toxic origin, others would extend its significance so as to include a number of anatomic lesions, such as ulceration of the stomach and intestine, stomatitis and pericarditis, while others again regard as minor uremic phenomena the cardiovascular changes which play so conspicuous a part in chronic renal disease.

Even the more obviously toxic manifestations in nephritis need not be, and probably are not, due to a single cause. Foremost among the different theories of uremia is the retention hypothesis, which assumes that the symptoms are the outcome of a failure in the

1. Marriott, W. M., and Howland, John: Phosphate Retention as a Factor in the Production of Acidosis in Nephritis, *Arch. Int. Med.* **18**: 708 (Nov.) 1916.

2. Wells, H. G.: *Chemical Pathology*, 1920, p. 656.

3. Telfer, S. V.: The Influence of Free Fatty Acids in the Intestinal Contents on the Excretion of Calcium and Phosphorus, *Biochem. J.* **15**: 347, 1921.

excretion of substances which should normally be eliminated by the kidney. This is the so-called uremia vera.¹ The manifestations have also been attributed, by some writers, not to a retention of substances formed in normal metabolism but to abnormal toxic substances arising as a result of perverted metabolism during kidney disease.² There are undoubtedly occasional patients manifesting uremic symptoms without any unusual accumulation of nonprotein nitrogen—an index of insufficient renal function—in the blood. To ascribe these to the presence of some unusual toxic substances liberated in the organism is little more than an interesting guess.

In the majority of the cases, uremic manifestations are actually associated with a decided rise in the non-protein nitrogen of the blood, that is, with real retention of nitrogenous catabolites. Whereas the blood of healthy persons shows a nonprotein nitrogen content of between 25 and 40 mg. per hundred cubic centimeters, approximately 50 per cent. being in the form of urea, in uremia the figures may increase to more than 400 mg., with a urea content of 70 per cent. or more. It does not follow that urea is the most toxic of the retained catabolites, for the modern analytic studies in blood chemistry have clearly demonstrated that uric acid, creatinin, indican, and doubtless other compounds ordinarily excreted with readiness, may be among the retention products. It is conceivable, indeed, that the clinical picture might vary with variations in the comparative retention of the different known nitrogenous constituents. Nevertheless, urea is so conspicuous in relative quantity that attention almost inevitably becomes focused upon it.

So far as judgment could be based on experimental evidence, urea has generally been regarded as a relatively nontoxic substance. Very large doses, equivalent to 1 per cent. of the body weight, are required to produce severe manifestations in acute experiments. Urea is always distributed freely throughout the tissues to a certain extent, even in perfect health. However, Hewlett³ and his co-workers observed that when sufficient urea is ingested to raise the content in the blood above 150 mg. per hundred cubic centimeters, disagreeable symptoms were invariably encountered. As the result of recent experimental investigations undertaken in the Department of Pathology at the University of Chicago, Leiter⁴ has come to the conclusion that chronic uremia in man, ending ultimately in convulsions and coma, may be accounted for by urea intoxication, if we assume that the time element in the clinical cases is as important as the high concentration of urea in the animals, when injected. In Leiter's studies the injection of urea, intravenously, in dogs produced a

train of symptoms entirely analogous to that found in the convulsive or true uremia in man. In the alimentary mucosa lesions were produced that may be related to uremic colitis. According to Leiter, there seems to be a rather definite correlation between the severity of the symptoms and the concentration of urea in the blood. One cannot study the new data presented without agreeing with their author that the retention of urea must play a much more important part than of an inert, harmless, waste product. Additional factors are doubtless often involved in retention uremia; but under certain conditions urea itself can doubtless produce untoward effects independent of the alleged presence of hypothetic uremic poisons as yet unidentified.

TULAREMIA

The name tularemia has recently been proposed by members of the United States Public Health Service¹ to designate a specific infectious disease now recognized as due to *Bacterium tularensis* and transmitted from rodents to man by the bite of an infected blood-sucking insect or by the handling of infected rodents. The disease, which is essentially confined to rural populations, is characterized by a fever of septic type, lasting from three to six weeks, followed by a slow convalescence. A number of cases have been reported from the Western states, the first one with fatal termination having been described as deer-fly fever by Francis² in 1919.

How widespread and serious this malady may prove to be remains to be seen. As has happened with some of the other insect-borne diseases, its importance as a cause of human disability may not be appreciated until the recognition of its characteristics becomes more widespread. Publicity has always been a potent factor in bringing to light forms of disease or an incidence not realized until attention to their possibilities was widespread. Thanks to the investigations of Francis³ and his collaborators in the Public Health Service, much has been added to our knowledge of the means by which infection with *Bacterium tularensis* may be brought about. It has seemed likely, at least for certain regions and months, that the disease is initiated by the bite of an insect, most probably the blood-sucking horsefly *Chrysops discalis*, which previously has bitten a jack rabbit infected with *Bacterium tularensis*.

This micro-organism has been isolated during the same period from both jack rabbits and human cases in Utah, thus proving its coexistence in man and animals in one locality. Popular belief has connected human cases of the tularemia fever with the bites of a

1. Francis, E.: Tularemia Francis, 1921, Pub. Health Rep. **36**: 1731 (July 29) 1921.

2. Francis, E.: Deer-Fly Fever: A Disease of Man of Hitherto Unknown Etiology, Pub. Health Rep. **34**: 2061 (Sept. 12) 1919.

3. Francis, E.: Tularemia Francis 1921, I, The Occurrence of Tularemia in Nature as a Disease of Man, Pub. Health Rep. **36**: 1731 (July 29) 1921. Francis, E., and Mayne B.: II, Experimental Transmission of Tularemia by Flies of the Species *Chrysops discalis*, *ibid.*, p. 1738. Francis, E., and Lake, G. C.: III, Experimental Transmission of Tularemia in Rabbits by the Rabbit Louse, *Haemodipsus ventricosus* (Denny), *ibid.*, p. 1747.

1. Strauss, H.: Die Nephritiden, Berlin, 1920, p. 139.

2. Hewlett, A. W.: Pathological Physiology of Internal Diseases, New York, 1916, p. 443.

3. Hewlett, A. W.; Gilbert, Q. O., and Wickett, A. D.: Toxic Effects of Urea, Arch. Int. Med. **18**: 636 (Nov.) 1916.

4. Leiter, Louis: Observations on the Relation of Urea to Uremia, Arch. Int. Med. **28**: 331 (Sept.) 1921.

blood-sucking horsefly *Chrysops discalis* which seemed to be more prevalent in the infected than noninfected localities. Francis and Mayne³ have given experimental substantiation to the supposition by the laboratory demonstration that this insect can actually transmit the infection with *Bacterium tularensis* from animal to animal. Furthermore, the new experiments of Francis and Lake³ have shown that the common rabbit louse *Haemodipsus ventricosus*, when taken from rabbits which have died with the typical lesions of tularemia and placed in the hair of healthy rabbits, causes the death of the latter with typical tularemia. The government experts see in this a practical importance in that it offers an explanation of the means by which the infection is kept alive throughout the year in the jack rabbits of Western states.

Although a few years ago the detection of the bacterial agents immediately responsible for diseases of an infectious nature was considered the foremost if not the sole problem of pathologic investigation, today we know that the identification of the microbic organism is usually only the beginning of the solution of a series of associated questions. The mode of transfer from one host to another must also be explained. Tularemia seems to offer an added instance to the increasing number of diseases in which entomology has furnished an essential key to the understanding of disease transmission.

THE ELECTIVE LOCALIZATION OF BACTERIA IN MUSCLE

So long as the cause of the symptoms commonly classed under the name of rheumatic myositis remains obscure, it cannot be amiss to present facts which may point to some tenable explanation of this group of maladies. In the end, therapy can never reach anything approaching an ideal stage until it is put on that rational basis which an understanding of etiology and function permits. There seems to be a growing belief not only that a microbic agent is primarily responsible for the manifestations of acute muscular rheumatism but also that the myalgias and milder forms of myositis have an analogous etiology. For the foci of the harmful bacterial activities, writers turn to the tonsils and teeth, partly, no doubt, in harmony with the current diagnostic customs. Rosenow and Ashby¹ of the Mayo Foundation have recently furnished new evidence to support the assumption that such chronic localized infections may actually play an important part in the production of both pronounced and mild forms of myositis. In many patients, improvement followed the removal of demonstrable foci.

But in addition to this indirect indication, streptococci removed from the foci in selected cases have shown a tendency to localize and produce lesions in the muscles when these micro-organisms were introduced

into experimental animals. The location of the lesions in Rosenow and Ashby's experiments often approximated that noted in the corresponding patient. The streptococci from myositis do not differ greatly in morphology, cultural character, and staining reactions from those isolated in other diseases studied; and since even killed streptococci from myositis localized in muscles as did the live organisms, one must assume that some chemical property of the bacterial cells determines their elective localization. The Rochester bacteriologists thus indicate how bacteria having specific affinity for muscles have been demonstrated regularly in the foci of infection and, in some instances, on the free surface of mucous membranes and in excised muscles in cases of myositis in man. With these organisms the disease has been reproduced, the organisms isolated from the experimental lesions, and demonstrated in them, and myositis again produced on reinjection. The lesions in animals, in general, they add, corresponded in their severity and distribution to those present in the patient from whom the strains were isolated, and in that they were usually nonsuppurative in character. The number of lesions was often in proportion to the size of the dose. The conclusion, therefore, is drawn that myositis, including even the mild transient affections of muscles, is caused in the main by lodgment and growth of bacteria, usually streptococci, which have elective affinity for muscle tissue.

Evidence has also been secured as to why cure in these conditions is so difficult and why massage and applications of heat are such valuable agents in their treatment. The reaction in these very chronic conditions is not leukocytic, but mainly mononuclear and endothelial. The endothelial cells lining the small blood vessels become extremely swollen and proliferate; in consequence, the lumen of vessels, including arterioles, becomes partially or completely obstructed. Heat affects the vascular conditions so as to bring more oxygen, which is favorable to the nutrition of the muscular tissue and unfavorable to the growth of the streptococci.

CLINICAL LABORATORY SERVICE FOR PHYSICIANS

Laboratory methods now play a large part in the daily work of physicians. Chemical, morphologic, bacteriologic and serologic methods, as well as the roentgen ray, are in daily use everywhere, and new methods, for example, the electrocardiographic determinations and tests of metabolism, are being introduced. To meet the constantly growing needs for such methods, there have come into existence laboratories of health departments and of hospitals, with more or less differentiation into separate departments; also wholly private laboratories. The latter group includes those frequently referred to as commercial, because dependent on fees, and the individual establishments of physicians working alone or associated in groups. The old time pathol-

1. Rosenow, E. C., and Ashby, Winifred: Focal Infection and Elective Localization in the Etiology of Myositis, Arch. Int. Med. 28: 274 (Sept.) 1921.

ogist, the prototype of the modern laboratory physician, whose function in clinical diagnosis was to determine the nature of lesions from gross and microscopic examination of tissues, has undergone differentiation into clinical chemist, clinical bacteriologist, clinical serologist, clinical microscopist, and roentgenologist, and there has come forth a formerly unknown adjunct to medical practice, the laboratory technician. So rapid has been the evolution of the clinical laboratory and the extension of laboratory methods in all fields of medicine, that frequently fear is voiced lest much work that should be done by physicians is being entrusted to incompetent substitutes.

Analyzing the situation, we must reckon first with the fact that the great majority of private practitioners for various reasons, lack of time being an important one, are prevented from making any but the simplest routine tests themselves. Therefore they must turn to some one for help, and the privately owned laboratories offer their services. That there has been an increasing demand for this form of laboratory service is evident from the number of laboratories that have sprung up and developed in recent years. Secondly, it appears that we shall be dependent on this kind of laboratory service for some time at least.

The laboratory features of the proposed health centers or of institutions financed and controlled by the community are attractive to many physicians and are idealistic. They represent a condition in which the same type of service would be rendered to all of the physicians in the community, the cost being reasonable and equally distributed. It might, however, be subject to the charge of representing a further intrusion by the state into medical activities. In any case, the commercial laboratory is an actual fact in our medical practice today. This being the case, the organization, methods and control of such laboratories should receive serious consideration. Physicians are responsible to their patients, i. e., the public, for the character of laboratory service supplied. The results of tests and examinations must be accurate; the fees for such tests must be equable. The conditions in some of these laboratories are such that thoroughly competent and well-trained physicians have been attracted by the work. It is desirable that similar conditions develop in all laboratories so that well-trained physicians, and not incompetent technicians, become responsible for laboratory service. These things can be achieved only by satisfactory control. Through this control the laboratories will be capable of rendering services of great value to the medical profession, and those institutions not rendering such service may be suppressed. Any effort whereby clinical laboratories are brought up to reasonable and fair standards is to be commended. As to the ideal method of control, there can be no difference of opinion; it should be the function of the organized medical profession.

Current Comment

THE MAGNETIC FIELD IS NOT A HEALTH HAZARD

Magnetism is a word before which the untutored stand aghast and with which the faker may conjure. Among the growing number of therapeutic projects constantly being brought to the attention of the American practitioner, "magnetotherapy" has not acquired any recognition, although it has actually received mention in medical literature. There are industries in which workmen may be exposed to magnetic fields of considerable strength in the course of the operations in which they are engaged; hence the problem of possible physiologic effects cannot be lightly brushed aside. Drinker and Thomson¹ of the Laboratory of Applied Physiology at the Harvard Medical School have recently conducted tests which, although the results are entirely negative in character, may serve to allay any fears about the intangible menace of large magnets to human welfare. None of their experiments on sensitive surviving tissues like muscles and nerves, on blood, or on intact animals gave the slightest evidence of physiologic effects from the magnetic field. Hence it should not be included among the health hazards.

ENDOCRINOLOGY AND PSEUDO- ENDOCRINOLOGY

Some of the current trends in endocrinology are discussed by Hoskins elsewhere² in this issue. He pleads for a greater degree of discrimination on the part of physicians in evaluating not only proffered data but also the various agencies either seeking support in, or exploiting, this field. The latter aspect of the situation deserves special emphasis. Those who purpose acting as purveyors to the medical profession must accept the status of purveyors. The only legitimate means by which they properly can aspire to success are skill in production and acumen in marketing. Equally well established is the principle that the physician or laboratory investigator in the medical sciences shall not exploit for commercial gain the results of his studies. These principles have long been maintained by the medical profession as a matter of good faith with their patients, to whom they owe protection from exploitation. THE JOURNAL is receiving from various parts of the United States letters commenting caustically on methods employed in a commercial campaign now being carried on by a "laboratory" purporting to specialize in endocrine products. The mail of physicians is flooded with a series of postcards, each card recommending and suggesting the use of the proprietary products of this self-styled laboratory for conditions ranging from eczema to epilepsy, and from obesity to tuberculosis. This gratuitous postal-card advice to physicians is reenforced by reference to "monographs" and a trade journal in which scientific medicine is systematically belittled as unpractical. Stripped of their pseudoscientific protective coloration, the "sug-

1. Drinker, C. K., and Thomson, R. M.: Does the Magnetic Field Constitute an Industrial Hazard? *J. Indust. Hyg.* 3: 117 (Aug.) 1921.

2. Hoskins, R. G.: Some Current Trends in Endocrinology, page 1459.

gestions" are essentially pleas for gross commercial empiricism. The advertising campaign is ostensibly under the direction of the enterprising Mr. Hyde, the merchant of the firm. Mr. Hyde is a profound admirer of the eminent Dr. Jekyll, the medical director. Dr. Jekyll's principles of physiology are constantly extolled, though professional physiologists remain in ignorance of them. Dr. Jekyll, the pathologist, is cited as one speaking with authority, though one seeks in vain his name in the accepted literature of pathology. Dr. Jekyll, the pharmacologist and therapist, is much to the fore, though his work so far fails to appear in the reliable monographs and textbooks on these subjects. Reciprocating, Dr. Jekyll misses no opportunity to say a favorable word for the commercial products of Mr. Hyde. Unfortunately, the relation of endocrinology to sound therapeutics is still largely undetermined. The obligation that rests on competent therapeutic specialists to further work in this field is obvious. But until the truth is determined, common honesty as well as prudence demands circumspect discrimination.

PLACENTAL FUNCTIONS

The placenta evidently forms a mechanical barrier in the path of substances traveling between the parent and her offspring. Since the days of John and William Hunter it has been realized that the mother's blood never enters the fetus and also that the reverse phenomenon is impossible. Nevertheless, there is a fairly free exchange of certain products between the maternal and fetal organisms. Amino-acids, glucose and inorganic salts, as well as fetal waste products, penetrate the placental partition, which seems to behave like a semipermeable membrane toward them,¹ while such particulate forms of matter as the fats and lipoids are held in check by the placenta, so that there seems to be no direct interchange of such insoluble compounds. In view of the recent observations that various types of body cells seem, at least at times, to have the capacity to phagocytize minute particles, Wislocki² of the Johns Hopkins Medical School has reinvestigated the behavior of the placenta toward such forms of matter circulating in the blood stream. Certain so-called "vital dyes" like trypan blue can actually be retained by the cells of the placenta and fetal membranes; but the latter are incapable of absorbing and phagocytizing coarse, foreign particulate matter afloat in the blood stream. The limit of the size of particles which they are capable of accepting must lie somewhere between that of a coarse suspension, such as India ink, and an ultramicroscopic dispersion, such as trypan blue. Trypan blue, in turn, although absorbed by the chorionic epithelium and fetal membranes, is incapable of entering the fetal circulation as true solutions have been shown readily to do. In these experiments, then, the mechanistic hypothesis, according to which the placental partition assumes a purely passive rôle and behaves like a diffusion membrane, receives further support.

1. Slemons, J. M.: The Nutrition of the Fetus, Yale University Press, 1919.

2. Wislocki, G. B.: Observations on the Behavior of Carbon Granules Injected into Pregnant Animals, Anat. Rec. 21: 29 (April 20) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Charles H. Savage, Lieut., M. C., U. S. Army, has been transferred to the recruiting office, Birmingham, for the examination of navy recruits from Alabama.

ARKANSAS

Personal.—Dr. Aaron A. McKelvey, Fort Smith, has resigned as acting district health officer, and will be succeeded by Dr. Rufus L. Parks, Bonanza.

CALIFORNIA

Beauty Doctor Convicted.—Harriet Gunn, "beauty doctor" of San Francisco, was convicted, October 11, of violating the medical practice act.

Personal.—Dr. John C. Yates, San Diego, will succeed Dr. Alfred J. Scott, recently deceased, as a member of the state board of medical examiners.—Dr. Grundy E. McDonald, Long Beach, has been appointed city health officer to succeed Dr. Ralph L. Taylor.

Chiropractor Goes to Prison.—Mrs. C. L. Norval, a chiropractor of Red Bluff, was recently sentenced to pay a fine of \$500 or spend 150 days in the county jail, following conviction on a charge of violating the medical practice act. She chose the jail sentence.

Physician Guilty of Failure to Report Case.—Dr. Edward C. Manning of Los Angeles is reported as having been found guilty of failure to report a case of diphtheria. October 8, he was fined \$100 with the alternative of 100 days in jail. Sentence was suspended for two years.

Fined for Violation of Practice Act.—A report states that C. J. Mulkey was recently fined \$500 in the superior court, Los Angeles County, for violation of the medical practice act. W. C. Cardew of San Jose, and J. F. Hayes and Wah Quack of Los Angeles are reported also to have been fined \$100 each, following conviction on similar charges.

Health Survey of Stanford Students.—With the hope of bettering the health of students through a study of individual needs and the application of such exercises as should strengthen the weaknesses of each one, all students of Leland Stanford Jr. University, San Francisco, are being required to submit to examinations by the physicians of the physical department.

Hospital News.—Work is now being completed on the first two units of the Highland Hospital, the new Alameda County Hospital, Oakland, which has been delayed on account of labor trouble. The work represents an investment of \$1,000,000. The hospital will ultimately cost between \$2,500,000 and \$3,000,000, and will have a capacity of 500 beds.—St. Luke's Hospital, San Francisco, recently celebrated its fiftieth anniversary.

COLORADO

State Medical School and Hospital.—A campaign has been launched to raise \$200,000 for the new state medical school and hospital. The plan is to get 200,000 people in the state to donate one dollar each to the fund.

Colorado Association Formed.—The Colorado Hospital Association was recently formed with the following officers: president, Dr. Richard W. Corwin, chief surgeon, Minnequa Hospital, Pueblo, and vice president, Dr. George W. Holden, Denver. Three meetings will be held annually, with 226 hospitals eligible for membership.

CONNECTICUT

Personal.—Dr. Gilbert T. Smith, Mansfield Depot, has been appointed chief surgeon of the steamship *Mount Carroll*, United American Lines, Inc., New York.

DISTRICT OF COLUMBIA

Housing Legislation.—A bill introduced by Senator Ball in the Senate is designed to prevent the construction of dwellings or homes in the alleys of the District of Columbia. Investigation shows that the total number of alley dwellings in Washington is 2,828. The measure is being urged in the interest of public health, comfort, morals and safety of the people.

Condemnation of Insanitary Homes.—According to a statement issued by the board for the condemnation of insanitary buildings, October 14, more than 100 residents of the district have been compelled to find other living quarters, owing to the fact that forty-three buildings in streets and forty-nine in alleys have been condemned and demolished. Seventy thousand dollars was expended in the clean-up campaign.

Act Incorporating Medical Society Amended.—An amendment to an act incorporating the Medical Society of the District of Columbia has been favorably reported to the Senate by the Senate Judiciary Committee. Under its former incorporation the medical society was restricted to an annual income of \$6,000. The proposed amendment increases this income because the society has recently constructed a \$125,000 building in Washington and needs more funds in order to operate it.

Personal.—Dr. August Pacini, Washington, was awarded the prize of \$1,000 for research work in roentgen-ray experimentation by the American Roentgen Ray Society at their annual convention, held September 27-30, at Washington. — Dr. Ervin A. Peterson, director of the health service, American Red Cross, has resigned, his resignation taking effect October 15. He will take the position of director of the Cuyahoga County Public Health Association, Cleveland. — Dr. W. Cooke Lewis, comptroller of the American Red Cross, has resigned, his resignation taking effect October 1. — Dr. Henry Beeuwkes has been appointed director of medical relief for Russia. He will have charge of the distribution of supplies contributed by the American Red Cross.

GEORGIA

Personal.—Dr. Elmore C. Thrash, Atlanta, has been elected president of the Georgia Tuberculosis Association. — Dr. Elizabeth Bass Reed, U. S. Public Health Service, has been assigned to lecture to the women throughout the state of Georgia. Dr. Reed has recently returned from lecturing in Palestine.

HAWAII

Chaulmoogra Plantation.—To meet the demand for chaulmoogra oil the plantation in Honolulu has been enlarged by 4,000 trees so that an adequate supply may be furnished to be used in the treatment of leprosy in accordance with the method evolved by Dr. Arthur L. Dean, president of the University of Hawaii.

ILLINOIS

Better Community Conference.—The sixth annual Better Community meeting was held, October 13-16, at the University of Illinois, Urbana.

Public Health Exhibits.—The director of public health announces that, since July 1, more than 2,000,000 people have viewed the health exhibits of the state department of public health. The exhibit equipment is maintained in the loan service of the department and may be obtained by any community in Illinois without cost other than transportation charges one way and the local expenses. The material consists of models, motion picture films, posters, wall panels and special charts.

Personal.—Dr. Don B. Stewart, Chicago, has been appointed superintendent of the Ziegler Hospital, Ziegler, to succeed Dr. Leo V. Gates, who resigned, effective November 1, to accept the position of surgeon at the new Browning Hospital, DuQuoin. — The director of health has appointed Dr. Robert C. Bradley, Peoria, as district health officer in the division of communicable diseases. — At the twelfth annual meeting of the Illinois Tuberculosis Association, held, October 15-18, at Champaign, Dr. George Thomas Palmer, Springfield, was elected president of the association for the tenth consecutive time.

Chicago

Personal.—Dr. Leo Steiner, chief medical examiner of the Chicago Civil Service, has been appointed superintendent of the Illinois Charitable Eye and Ear Infirmary, to succeed Dr. Hiram J. Smith.

INDIANA

Hospital News.—It is announced that a new hospital for the treatment of disabled soldiers will be erected at Washington, at a cost of approximately \$5,000,000.

Refusal of Gift for Tuberculosis Hospital.—The offer of Mr. and Mrs. David Esteb, Richmond, to give \$50,000 toward a county tuberculosis hospital if the county would appropriate an equal sum, has been refused by the board of county commissioners.

IOWA

Clinical Meeting.—The Iowa State Clinical Medical Society held a meeting, October 14, at Cedar Rapids, under the presidency of Dr. Frank M. Fuller, Keokuk.

Personal.—Dr. John P. Savage, Sioux City, has been appointed chief of the medical service of the training center of the Bureau of Vocational Education at Silver Springs, N. D. — Dr. Thomas Bess has been appointed surgeon of the Iowa State Prison, Fort Madison, to succeed Dr. Austin Philpott who resigned after twenty years' service, owing to ill health, effective October 6.

KENTUCKY

Hospital News.—A new wing will be added to St. Antony's Hospital, Louisville, at a cost of between \$150,000 and \$175,000. — The Universal Mine Workers will erect a hospital at Madisonville at a cost of \$1,000,000.

LOUISIANA

Personal.—Dr. George Walter has been appointed pathologist and roentgenologist at the St. Francis Sanatorium, Monroe, to succeed Dr. John Beals.

Campaign to Exterminate Ants.—A plan to destroy the Argentine ant in New Orleans, by placing cans of poisoned syrup at each city block, is now in progress. The work is under the direction of Ernest R. Barber, government entomologist, and will cost the city \$25,000.

Health in Public Schools.—The New Orleans Council of Parents and Teachers held a meeting, October 20, in that city. Health problems in public schools were discussed by Dr. E. Moss, in charge of the department of hygiene and physical education, who spoke on how parents could cooperate in this.

MARYLAND

Personal.—Dr. Emil Heller Henning has been appointed health officer in the public school division of the Baltimore city health department, to succeed Dr. Ferdinand Reinhard, who resigned to take up Red Cross work in Czechoslovakia.

MASSACHUSETTS

Clinics for Mental Diseases.—At the second annual meeting of the Massachusetts Society for Mental Hygiene, held, October 20, at Boston, under the presidency of Dr. Charles Macfie Campbell, resolutions were made for a campaign against mental diseases on the same scale as tuberculosis and cancer is being fought, and that one clinic at least in each county should be established for the treatment of incipient mental disorders. Among the speakers were: Dr. S. Austin Fox Riggs, Stockbridge; Dr. Charles W. Eliot, president emeritus, Harvard University, and Dr. Frankwood E. Williams of the National Committee on Mental Hygiene, New York.

MICHIGAN

Hospital News.—It is announced that a hospital will be erected in Detroit at a cost of \$193,000.

Laymen Told of Medical Achievements.—The first meeting of the publicity campaign organized by the medical men of Wayne County with a view to letting the laymen know what the profession is doing and has accomplished was held, October 13, at Detroit. Dr. Johnston B. Kennedy addressed the meeting and spoke of the serum treatment for rabies, tetanus and diphtheria.

Warning on Use of Roentgen-Ray Machines.—The manager of the David Whitney Building, Detroit, has issued the following notice to tenants owning roentgen-ray machines: "You are hereby requested to check up your roentgen-ray equipment and make certain that all dangerous rays cannot enter rooms of other tenants. We suggest that sheet lead one-eighth inch thick or its equivalent be used to confine the rays and protect other tenants from any possible injurious effects of rays penetrating to their offices."

MINNESOTA

Personal.—Dr. Harold Diehl has been appointed head of the health service of the University of Minnesota, Minneapolis, to succeed Dr. John Sundwall.—Dr. Arthur T. Caine, Anoka, has been appointed superintendent of the Anoka State Hospital.—Dr. Howard Weireck, Hibbing, has been appointed a member of the state board of health to succeed F. W. Cappelen.

MISSOURI

Hospital News.—The Sisters of St. Mary, St. Louis, plan to erect a seven-story hospital at Richmond Heights at a cost of \$1,000,000.—The management of St. John's Hospital, Joplin, announces the purchase of 100 mg. of radium. St. John's has recently installed both pathologic and roentgen-ray laboratories and made extensive improvements in fireproofing the building.

Personal.—Dr. Andrew R. Snyder, Joplin, met with a serious accident on the evening of October 3. Dr. Snyder had just left St. John's Hospital following a dinner given to the staff, and attempted to crank his car. The car had been left in gear and started forward knocking the doctor down, dragging him about 30 feet, and coming to a stop only when it collided with another car that was passing. It was necessary to jack up Dr. Snyder's car in order to extricate him. His right arm and three ribs were fractured.

Appointments to State Institutions.—The nonpartisan board of control, in charge of the state eleemosynary institutions, has appointed the following: Dr. Marion O. Biggs, superintendent of the State Hospital No. 1, Fulton, reappointed; Dr. Porter E. Williams, superintendent at State Hospital No. 2, St. Joseph, reappointed; Dr. Ethan E. Brunner, Carrollton, superintendent at State Hospital No. 4, Framington; Dr. Moses H. Topping, Flat River, superintendent of the Colony for the Feeble-Minded and Epileptic, Marshall; Dr. James W. Bruton, Ozark, superintendent of Mount Vernon Sanatorium for Incipient Tuberculosis. Some of the appointees are Democrats and some of them are Republicans.

Chiropractors Convicted.—L. H. Schwenker and Edward A. Voight, two chiropractors at St. Louis, were convicted by juries for practicing medicine without a license, October 17, and fined \$50 each. The St. Louis health department has begun an active campaign against these violators of the medical laws, and expects to arrest and prosecute many more of them. It is said that Voight is a registered dentist, but practices as a chiropractor. According to the testimony, he treated a boy for deafness and collected \$63.75 for services, but refunded the money when the father of the boy declared there had been no improvement in the hearing. Schwenker admitted that he practiced as a chiropractor and exhibited a diploma from a chiropractic school.

NEW JERSEY

Questionnaires for Legislators.—The Medical Society of New Jersey is submitting questionnaires to legislative candidates, at the same time setting forth the contention "We have no propaganda and no selfish scheme." Among the questions are: "Will you favor the principle of uniform requirements for the license to practice healing from all who assume thereby uniform responsibilities in prevention, diagnosis and treatment of disease?" and "Do you favor the principle of publicity before enactment of all proposed health legislation, so as to afford equal opportunity for display of all facts, as well as opinions?"

NEW YORK

Personal.—Dr. Robert N. Halsey, New York, gave an address on "Heart Disease in Children and Its Treatment," at a meeting of the Wayne County Medical Society, held, October 18, at Detroit.—Dr. Charles H. Cole, Troy, has been appointed superintendent of the Broome County Tuberculosis Hospital, Chenango Bridge, effective October 1.—Dr. Charles W. Pilgrim, chairman of the state hospital commission, has handed his resignation to Governor Miller. The resignation will become effective, December 12.

New York City

Personal.—Dr. James Ramsay Hunt has been appointed consultant in neurology to the New York State Psychiatric Institute, Ward's Island.

Hospital News.—The New York Hospital Society, which received its charter from King George III, celebrated its

one hundred and fiftieth anniversary, October 26.—Ground was broken, October 9, for the new Beth Israel Hospital. The hospital will be nonsectarian, with a capacity for 500 patients, and will be erected at a cost of \$3,000,000.

Birth Control Conference.—A conference will be held, November 11-13, in New York, which will be the first American birth control conference. The discussions announced are to be on: (1) the question of population and its social aspect and (2) medical aspect, and practical methods to be discussed by authorized delegates. There will be a mass meeting, and organization of the American Birth Control League is proposed.

Scholarships at New York Post-Graduate Medical School.—The New York Post-Graduate Medical School and Hospital announces that there are now available several scholarships under the terms of the Oliver-Rea endowment. The purpose of the endowment is to further graduate medical education by awarding scholarships to practicing physicians of the United States. The scholarships vary in amount but are sufficient to defray in full or in part the tuition fees of the Post-Graduate Medical School for the courses offered. According to the wish of the donor, physicians in the state of Pennsylvania will receive preference in the award of these scholarships. Applications may be sent to the dean of the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue.

Pay Clinic Opens.—A pay clinic has been opened at Cornell Medical College under the direction of the faculty of that institution. The clinic is designed to meet the needs of that large class of people who are unable to pay the regular fees of specialists and who are not objects of charity deserving of treatment in the free dispensaries. It is estimated that there are 2,000,000 such persons in the city. According to the announcement of the new clinic, the minimum fee will be \$1 a visit. A diagnosis requiring laboratory investigation and group consultation will cost \$10. A physical examination to find if any physical defects are present together with advice as to hygienic living will be given for \$2.50. Prominent specialists are at the heads of the several departments. The physicians doing the work will receive compensation for their services.

NORTH CAROLINA

Personal.—Dr. Raymond V. Yokeley, Denton, has resigned as full-time health officer of Davidson County, and will be succeeded by Dr. David Russell Perry.

OHIO

Medical Meeting.—The one hundred and eighth semi-annual meeting of the Union District Medical Association was held, October 27, at Oxford. Dr. Clarence J. Broeman, Cincinnati, gave an address on "Radium."

Physicians Oppose State Aid.—At the meeting of the Allen County Medical Society, held, October 19, at Lima, 150 physicians voted unanimously against the state medical aid plan which will be submitted to the voters in Ohio.

Physician Appointed to Diplomatic Corps.—Dr. J. M. Howell, Dayton, has been appointed diplomatic representative and consul general of the United States in Egypt. He has discontinued his practice of medicine and surgery after a duration of thirty-five years.

Distinguished Foreigner to Speak.—At the meeting of the Summit County Medical Society which will be held, November 8, at Akron, William A. Cochrane, M.B., F.R.C.S., Edinburgh, Scotland, Capt. R. A. M. A., will give an illustrated lecture on "The Treatment of Injuries of the Hand and Wrist."

Tuberculosis Clinics.—Tuberculosis clinics will be held in forty counties in the state under the auspices of the state health bureau in cooperation with the city health commissioners and specialists in chest diseases. Dr. Kennon Dunham, Cincinnati, Dr. Charles W. Waggoner and Dr. Louis A. Levison, Toledo, will be the diagnosticians and will give their reports to the local health officer who will be in charge of the clinic in each county.

Personal.—Col. Henry L. Gilchrist, M. C., U. S. Army, spoke, October 24, at the health exposition, Cincinnati. Dr. Gilchrist was sent to Poland in 1919 with 500 men and forty officers, with \$5,000,000 worth of supplies to fight typhoid.—Dr. Harry H. Hines, Cincinnati, has resigned as professor of surgery at the University of Cincinnati, College of Medi-

cinic, and from the staff of the General Hospital, after sixteen years of service.—Dr. Clement L. Bell, Norwalk, has been appointed county physician of Huron.

PENNSYLVANIA

The Mütter Lecture.—At the meeting of the College of Physicians of Philadelphia, held, November 2, the Mütter Lecture on surgical pathology was delivered by Prof. H. C. Jacobaeus, Stockholm, Sweden, on "The Surgical Treatment of Tuberculosis of the Lungs."

New Alumni Association.—An alumni association, including the graduates of the University of Pittsburgh School of Medicine, was organized, September 26. More than 100 members were present at the meeting. The following officers were elected for the ensuing year: president, Dr. Richard J. Behan; vice president, Dr. Calvin C. Marshall; secretary, Dr. Henry J. Benz, and treasurer, Dr. Hugh E. McGuire.

Hospital News.—Plans have been completed for the erection of an addition to the Wilkes-Barre Hospital, at a cost of \$125,000.—A new hospital will be built at Phillipsburg.—The Knights of Malta will erect a home and hospital at Granville, at a cost of \$1,000,000.—A new hospital for nervous diseases will be constructed in Philadelphia at a cost of approximately \$2,000,000.

Philadelphia

Plan Hospital Addition.—F. L. Hoover & Sons have been awarded a contract by the Pennsylvania Hospital for an addition, at an estimated cost of \$38,000.

Seek Fund for Hospital.—A campaign to raise \$125,000 in one week for new buildings to double the capacity of the American Hospital for Diseases of the Stomach has been launched by friends of the hospital. The campaign is under the direction of an executive committee. Headquarters have been established at the Bellevue-Stratford.

Pennsylvania Leads in Hospital Service.—According to a report submitted to the convention of the Clinical Congress of the American College of Surgeons, Pennsylvania led the country in the improvement of its hospital service in 1921. The report, prepared by Dr. Franklin H. Martin, secretary-general, was said to have been based on a survey of every hospital of 100 or more beds in the United States and Canada.

TENNESSEE

New Hospital Superintendent.—Dr. Paul H. Dietrich has recently been appointed superintendent of the George W. Hubbard Hospital at Nashville. Dr. Dietrich was previously superintendent of the Red Bank Sanatorium, Thorofare, N. J., and has served as resident physician in other hospitals in New York City and in Michigan.

TEXAS

Hospital News.—It is announced that a Methodist hospital will be built at Oak Cliff at a cost of \$1,000,000.

Public Health Meeting.—A public health institute will be conducted, January 6-16, at Dallas, under the auspices of the U. S. Public Health Service, Texas State Board of Health and the American Public Health Association, with the cooperation of seventy-five medical organizations. Eighteen thousand invitations have been issued, and more than 2,000 physicians are expected to attend the session, under the direction of Dr. Manton M. Carrick, Texas state health officer. Among the speakers will be: Drs. William Charles White, Pittsburgh; Lieut.-Col. Edward B. Vedder, M. C., U. S. Army; Frederick R. Green, secretary of the Council on Education, American Medical Association, Chicago; Gen. Allan J. McLaughlin, U. S. P. H. S., Washington, D. C.; Joseph Goldberger, Washington, D. C.; Clyde E. Ford, New York; John Dill Robertson, commissioner of health, Chicago; James J. Terrill, Dallas, and Dr. Valeria Parker, secretary of the Interdepartmental Hygiene Board, Washington, D. C.

VERMONT

State Medical Meeting.—The one hundred and eighth annual convention of the Vermont State Medical Society was held, October 13-14, at St. Albans, under the presidency of Dr. Schuyler W. Hammond, Rutland. The following officers were elected for the ensuing year: vice president, Dr. Lucretius H. Ross, Bennington; secretary, Dr. William G. Ricker, St. Johnsbury, and treasurer, Dr. David Marvin, Essex Junction.

VIRGINIA

Personal.—Dr. Horace G. Longaker, Newport News, has been appointed assistant health officer to succeed Dr. Marshall W. Sinclair, who resigned recently.—Dr. Junius F. Lynch, Norfolk, has been elected department commander of the American Legion.—Dr. George A. L. Kolmer has been appointed professor of educational hygiene, Roanoke College, Salem.

WEST VIRGINIA

Personal.—The governor has appointed Dr. Dennis McClung, Ruppert, as superintendent of the State Hospital for the Insane, Spencer, to succeed Dr. Samuel R. Holroyd.

WISCONSIN

Health Work Among the Indians.—At the meeting of the Wisconsin Anti-Tuberculosis Association, held, October 20-22, at Milwaukee, plans were made to aid the Indians of the state, owing to the prevalence of disease among the children and the numerous deaths from tuberculosis.

CANADA

Radium Lost.—Recently at the Hamilton City Hospital, Hamilton, Ont., \$10,000 worth of radium was mislaid. It is believed that a careless patient threw the radium down a sewer. So far efforts on the part of experts have been unsuccessful in recovering the radium.

Cancer Campaign.—The Canadian committee of the American Association for the Control of Cancer participated in the latter's cancer campaign, by holding a meeting at the Academy of Medicine, Toronto, where addresses were given by Dr. Harvey R. Gaylord and Dr. Eli Shriver of Buffalo.

Hospital News.—The new St. Joseph's Hospital, Toronto, which was converted from the building occupied by the Sacred Heart Orphanage, opened its doors this week, when eight Toronto patients received treatment.—Plans for the new Reception Hospital, Toronto, have been completed, and tenders will be asked for shortly. The cost of the new building will be \$400,000.

Personal.—Dr. Louis G. Pinault, Campbellton, N. B., was elected president of the New Brunswick Medical Society at its forty-first annual meeting, held recently.—Dr. Alexander Primrose, Toronto, was recently elected to the board of regents of the American College of Surgeons, at the annual meeting at Philadelphia.—At a banquet tendered to Dr. Abraham Groves, pioneer surgeon, who has practiced in the vicinity of Fergus, Ont., for fifty years, a number of prominent Canadian and American physicians were present. Dr. David Jamieson, Durham, Ont., former speaker of the Ontario legislature, was the toastmaster.

GENERAL

Belgians Study Hospitals.—Three Belgian architects are in the United States for the purpose of studying hospital construction and administration in connection with the building of the medical school, consisting of 400 beds, to be erected at the University of Brussels. Dr. Louis Christophe, University of Liège, is also in this country studying American hospital standards.

Graduate Medical Education in London and Paris.—Those seeking graduate medical courses in either London or Paris would do well to correspond with the American University Union in Europe at 50 Russell Square W. C. 1 London, or at 1 Rue de Fleurus, Paris, where definite information in regard to courses available in those cities can be obtained. Letters have been received from Americans in Europe commenting on the excellence of the service rendered.

American Academy of Ophthalmology and Oto-Laryngology.—At the annual convention, held, October 17-22, at Philadelphia, the following officers were elected for the ensuing year: president, Dr. Walter R. Parker, Detroit; treasurer, Dr. S. H. Large, Cleveland; secretary, Dr. Luther C. Peter, Philadelphia, and editor of transactions, Dr. Clarence Loeb, Chicago. Prof. I. Van der Hoeve, Leiden, Holland, gave an address, and papers were read by Drs. Edward B. Heckel and William B. Clark, Pittsburgh.

Joint Electrotherapeutic Meeting.—The American Electrotherapeutic Association and the New York Electrotherapeutic Society will hold a joint midwinter clinical session, December 28-30, at the U. S. Public Health Service Hospital No. 61, Fox Hills, Staten Island, N. Y. The purpose of this

session is the demonstration of apparatus of its actual application and of the results obtained by all physical modalities. Time will be given for questions after each demonstration, and all physicians are cordially invited to attend. The program committee will be pleased to receive suggestions and questions from members of both societies.

American Association of Railway Surgeons.—At the annual convention of the association, held, October 18-20, at Chicago, under the presidency of Dr. Clarence W. Hopkins, the following officers were elected for the ensuing year: president, Dr. Paul E. Gardner, New Hampton, Iowa; first vice president, Dr. Karl F. Snyder, Freeport, Ill.; second vice president, Dr. Arthur C. Stokes, Omaha; third vice president, Dr. James R. Garner, Atlanta, Ga.; treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa (reelected); secretary-editor, Dr. Louis J. Mitchell, Chicago (reelected); members of the executive board, Dr. William H. Bohart and Dr. Clarence W. Hopkins, both of Chicago (reelected).

Pharmaceutical Research Grant Fund.—At its 1921 meeting in New Orleans, the American Pharmaceutical Association awarded the 1921-1922 grant from its research fund to Dr. David I. Macht, Johns Hopkins University, for pharmacological work on the benzyl compounds found in certain galenicals. The first grant made in 1919 was awarded to Dr. George D. Beal, University of Illinois for work on alkaloidal assays, while the 1920 award was made jointly to Dr. Heber W. Youngken, Philadelphia College of Pharmacy and Sciences for work on aconite varieties, and Dr. E. Kremers and Miss Lila Winkelblech of the School of Pharmacy, University of Wisconsin for work on derivatives of guaiacol.

Bequests and Donations.—The following bequests and donations have been announced:

New York University, \$25,000, for the establishment of a fund for laboratory and surgical research, by the will of Mary Ann Palmer Draper.

Kings Daughters' Hospital, Perry, Iowa, \$10,000, by the will of John B. Gilbert, Coon Rapids, Iowa.

Murphy Memorial Hall, Chicago, \$1,000, by Dr. Franklin H. Martin, Chicago.

Home for Incurables, Philadelphia, \$1,000, by the will of Juliet K. Hood.

Pottsville Hospital, Pa., \$1,000, by Mr. Arthur Sheaffer, Pottsville; \$500, by J. B. Jones, president of the hospital, and \$500 by Dr. Hamilton C. Wallace, on the staff of the hospital.

Medical Department of the St. Joseph (Mo.) Public Library, the medical library of the late Dr. Pierre I. Leonard, amounting to 1,200 volumes.

Virginia Tuberculosis Association, \$1,000, by Horace Carter, Richmond.

Regulations on Medicinal Beer.—Internal Revenue Commissioner Blair is proceeding with dispatch to issue permits to brewers for the manufacture of medicinal beer throughout the country in compliance with the regulations recently issued by the Secretary of the Treasury. Red tape will be eliminated, it was stated by Commissioner Blair, in the operation of the regulations, and applicants may apply to state prohibition directors in order to obtain the necessary permits. Brewers who have violated the prohibition law will be refused permits, but this number is limited and insignificant. Senator Wadsworth of New York has introduced an amendment to the revenue bill now before the senate levying a tax of 60 cents a gallon on beer, \$1.20 a gallon on wine, and \$6.40 a gallon on distilled spirit. The New York senator takes the stand that, since the sale of these beverages for medicinal purposes is to be permitted under the law, the government should be able to derive income in the way of taxes on them.

Committee to Push Sheppard-Towner Bill.—Advocates of the Sheppard-Towner maternity and infancy measure have organized a regular propaganda to secure the final passage of this proposed act before Congress. Headquarters are maintained and publicity is being circulated. The organization is known as the Sheppard-Towner Emergency Committee. The executive secretary of this committee is Arnold W. Rosenthal. In a recent statement distributed to the press by Rosenthal, it is declared that President Harding is in favor of early enactment of maternity and infancy legislation, and a letter from George B. Christian, Jr., is quoted as evidence that the White House stands behind this program. The other officers of the Sheppard-Towner Emergency Committee are C. H. Hathaway, chairman; committee members, Dr. Royal S. Copeland, health commissioner of New York; Dr. Richard Bolt, general director, American Child Hygiene Association; Prof. Irving Fisher, and Nathan Strauss, Jr.

Mortality Statistics.—The department of commerce announces that the Census Bureau's annual report on mortality statistics shows 1,142,578 deaths as having occurred in 1920 within the death registration area of continental United

States, representing a death rate of 13.1 per thousand population as compared with 12.9 in 1919, which was the lowest rate recorded in any year since the registration area was established in 1900. The death registration area (exclusive of the territory of Hawaii) in 1920 comprised thirty-four states, the District of Columbia and sixteen registration cities in nonregistration states, with a total estimated population, July 1, of 87,486,713, or 82.2 per cent. of the estimated population of the United States. The death rate from pneumonia increased from 123.5 per hundred thousand in 1919 to 137.3 in 1920. For chronic diseases of the heart the rate increased from 131 to 141.9; for cancer, from 80.5 to 83. Some of the other diseases for which the rate increased are whooping cough, measles, cerebral hemorrhage, congenital debility and malformations, puerperal fever, scarlet fever and appendicitis. The fatalities caused by automobile accidents and injuries show an increase from 9.4 per hundred thousand in 1919 to 10.4 in 1920. A marked decrease is shown in the death rate from tuberculosis. The death rate from suicide declined from 11.4 in 1919 to 10.2 in 1920.

Report of Committee on Drug Addiction.—There are 1,000,000 addicts to the drug habit in the United States, according to the estimates prepared by a committee appointed by the Secretary of the Treasury to investigate the use of drugs in the country. The committee's report also gives figures on the amount of drugs supplied to the public under the law, with other information showing that a great deal is being imported through underground channels. The report in part says:

Quantities of opium and cocoa leaves, in their crude state and in the form of manufactured products, were supplied to the public through a total of 233,491 individuals and institutions registered under the Harrison Narcotic Law. The minimum value of these drugs, computed on the basis of the retail price of the crude material, would be something over \$20,000,000. The actual cost to the consumer, while it greatly exceeds this amount, cannot be estimated at the present time. When we take into consideration that the various investigators have stated that only from 10 to 25 per cent. of the quantities of drugs imported is actually needed to supply the demands of legitimate medical purposes, we can arrive at some idea of the quantities of these drugs consumed by addicts and the amount of money expended to satisfy the addiction. In recent years, especially since the enactment of the Harrison law, the traffic by "underground" channels has increased enormously, and at the present time it is believed to be equally as extensive as that carried on in a legitimate manner. This traffic is chiefly in the hands of the so-called "dope pedlers" who obtain their supplies by smuggling from Canada, Mexico and along the Atlantic and Pacific coasts. Information in the hands of the committee indicates that drug addiction is less prevalent in the rural communities than in cities or congested centers. It would, therefore, be unfair to estimate the number of addicts of the entire country on the basis of the figures obtained for New York City. Furthermore, it is the opinion of the committee that an estimate based on the number of addicts in a small city like Jacksonville, Fla., would not be representative for the entire country. Taking these facts into consideration, the committee is of the opinion that the total number of addicts in this country probably exceeds 1,000,000 at the present time.

Congress of the American College of Surgeons.—The congress of the American College of Surgeons was held in Philadelphia, October 24-28. Among those from abroad were: Drs. H. C. Jacobaeus, Stockholm, J. Schoemaker of The Hague and Dr. F. de Quervain, Berne. Hospital Day, October 24, the morning session was given over to a discussion of hospital standardization. Dr. John B. Deaver was inaugurated as president, and an address was made by the retiring president, Dr. George E. Armstrong. A \$500,000 research academy as a monument to American surgery, a tribute to the late Dr. John B. Murphy, it was stated, will be built by the college, in conjunction with the citizens of Chicago, on a site adjoining the present home of the college. At a meeting, October 27, the college pledged to raise \$150,000 within the next year, and \$30,000 in individual pledges of \$1,000 down to \$250 was raised within a half hour. Dr. George W. Crile, Cleveland, presided at the meeting, which resolved itself into a spontaneous tribute to Dr. Murphy. Officers elected for the year 1922-1923 were Drs. Harvey Cushing, Boston, president; Henry Sherck, Pasadena, Calif., first vice president, and George P. Miller, Philadelphia, second vice president. One new member of the board of regents was chosen, and four reelected: Daniel F. Jones, Boston, new member; George W. Crile; Alexander Primrose, Toronto; Albert J. Ochsner, Chicago, and George E. de Schweinitz, Philadelphia. The next meeting will be held in Boston. The closing session, "The Convocation," was held, Friday evening, October 28. After the procession of regents and honorary guests and the invocation by Cardinal Dougherty, Archbishop of Philadelphia, Prof. Harvey Cushing, Harvard Medical School, introduced the delegation from the Royal College of Surgeons of Ireland, who attended the congress in order to confer honor-

ary degrees on Drs. George E. Brewer, New York; W. J. Mayo and C. H. Mayo, Rochester, Minn.; A. J. Ochsner, Chicago; W. W. Keen and Richard Harte, Philadelphia; George W. Crile, Cleveland, and John M. T. Finney, Baltimore. Seven hundred and nineteen surgeons from all parts of the country were inducted into the college by the president.

LATIN AMERICA

Memorial to Carvalho.—The death of Prof. C. T. Carvalho, called the leading surgeon and the founder of gynecology in Peru, was mentioned in *THE JOURNAL*, May 22, 1920. A memorial meeting was recently organized at Lima, and a portrait unveiled in the hall where he taught.

Tribute to Figueira.—Recently, when the number of children inscribed in the Children's Policlinic at Rio de Janeiro reached 100,000, the personnel of the clinic installed a bronze tablet in the reception hall of the establishment in honor of the chief, Prof. Fernandes Figueira. His publications on pediatric themes are well known, especially his study of the cephaloplegic syndrome, the transient paralysis of the neck in young children.

Training School for Nurses in Rio.—The *Brazil-Medico* states that the Rockefeller Foundation is to found at Rio de Janeiro, in accord with the National Public Health Service, a training school for nurses modeled on those of the United States. Two trained nurses have already arrived and been in conference with Dr. Carlos Chagas, chief of the public health service, to discuss ways and means for organization of the training school.

More Brazilian Notes.—On the occasion of the anniversary of Dr. Luiz Barboza's appointment as director of the municipal department of public assistance of Rio de Janeiro, the employees of the department presented him with a special copy of the department regulations, beautifully printed and bound, and an artistic card reading, "To Dr. Luiz Barboza, creator of the Municipal Department of Public Assistance."—Dr. B. Valverde, a well known leprologist of Brazil, has been granted, by the National Academy of Medicine, the prize "Souza Araujo" for his paper on "Leprosy in Brazil."—At the Polyclinic of Botafogo a first aid course has been started for public assistance employees, under the direction of J. B. Canto.—New officers have been elected for the Brazilian Society of Neurology, Psychiatry and Legal Medicine, as follows: vice president, Dr. R. Caldas; secretary-general, Dr. U. Vianna; first secretary, Dr. H. Carrilho; second secretaries, Drs. A. Botelho and Odilon Gallotti; treasurer, Dr. W. de Almeida. Prof. J. Moreira is the perpetual president of the society.—A new medical society has been founded at Campos. The officers are: president, Dr. I. de Moura; vice president, Dr. B. G. Pereira Nunes; first secretary, Dr. O. Cardoso de Mello; second secretary, Dr. J. Garcia Junior; treasurer, Dr. A. Bastos Tavares; librarian, Dr. O. de Brito. The bulletin of the society is entitled *Bolctim da Sociedade Fluminense de Medicina e Cirurgia*.

Personal.—Dr. J. A. López Antongiorgi has returned to his home at Porto Rico from New York, where he spent several weeks.—Dr. Aaron Renchetril, a prominent physician of Caracas, Venezuela, has arrived at New York, on his way to Honolulu, H. I., where he is planning to conduct some scientific research.—Dr. Julio Senior, an ophthalmologist of San Domingo, has returned to his country after spending some time in the United States.—The congress of the American College of Surgeons at Philadelphia was attended by Dr. J. de Mendoca, Rio de Janeiro; Dr. A. de Lima, São Paulo, Brazil; Dr. M. H. Alcívar, Guayaquil, Ecuador, and Dr. G. Gastañeta, Lima, Peru. Surgeon-General Ireland of the U. S. Army gave a dinner in Washington, D. C., in honor of the two Brazilian surgeons.—Dr. L. Aybar and his wife have returned to their country after spending some time in New York.—Dr. R. Nogueira, Cuban delegate to the medical week congresses at Strasbourg, is now in New York on his way home.—Drs. F. and S. Loredo, the director and assistant director, respectively, of the municipal hospital Freyre Andrade of Havana, have left New York on their way to Cuba, via Key West.—Dr. E. R. Hildreth, former surgeon of the Presbyterian Hospital of San Juan, Porto Rico, has returned to New York after spending five years on the island.—Dr. J. del Toro Cuevas, prominent surgeon of Porto Rico and former president of the Medical Society of Porto Rico, is spending some time in New York.—Dr. F. Peña Trejo is acting as consul of El Salvador in New York City.—The professor of hygiene at S. Paulo, Dr. W. Smillie, is to take the sixth year students of S. Paulo medical school to Rio for study of the institutions there and of the Oswaldo

Cruz Institute.—Dr. Carmo Lordy is filling the chair of microbiology at S. Paulo during the temporary absence of Prof. A. Pedroso.

FOREIGN

Health in England.—It has been announced by the chief officer of the ministry of health that in 1920 no epidemic of any kind occurred in England, and out of the population of 13,873,000 only 60 per cent. received treatment.

Tribute to Darier.—As Prof. J. Darier leaves the Saint-Louis Hospital soon, his students and other friends are to present him with a bust and medal. All subscribing 60 francs or over will be given a replica of the medal which is to be engraved by Dr. Paul Richer.

Fortress Transformed to a Sanatorium.—The *Policlinico* congratulates the Venetian organization for the aid of the war disabled on the new sanatorium into which the old fort at Malamocco has been transformed. The royal family has recently donated to the Red Cross the large castle and grounds near Palermo that were used for a temporary hospital, and they are to be arranged for a sanatorium.

The Oldest Medical Faculty in the World.—Great preparations are under way for the celebration of the seven hundredth centennial of the official foundation of the medical faculty of the University of Montpellier. The *Paris Médical* says that there was a medical school there as early as the tenth century, but it was not officially recognized until the thirteenth. A monument to Rabelais, one of its most brilliant alumni, will be unveiled on the occasion as already mentioned.

The Italian War Museum.—During the war, Prof. G. Salvi was placed in charge of the collecting of specimens for a war museum, and delegates from the Anatomy Institute of the University of Parma visited the front daily to collect specimens, and the more important ones were systematically preserved. There are now 1,000 specimens listed and they have been donated to the Scuola di Applicazione di Sanita Militare at Florence, where they are now being installed and catalogued. The collecting was done under the auspices of the Italian Red Cross.

Medical Education in China.—Mr. Edwin R. Embree, secretary of the Rockefeller Foundation, has been in the Orient for four months, perfecting the organization and program of the new Peking Union Medical College which has been erected and is being maintained by the Rockefeller Foundation at the capital of the Chinese republic. Regarding medical education and conditions generally in China, Mr. Embree reports that the new medical school in Peking, which has been established by the Rockefeller Foundation, is designed to be a demonstration in medical education and scientific approach to problems of health and disease for the entire Far East. Its results will be measured not so much by the number of medical practitioners it turns out as by the standards it sets and the quality of the leaders and teachers which it trains for service in other institutions throughout China. The faculty of the college and the staff of the hospital have been assembled from America, Canada, and England and from the increasing number of promising Chinese scientists. The buildings, begun in 1917 and completed this summer, are sixteen in number, including in the principal group laboratories, hospital wards, an outpatient department, classrooms, an auditorium, a nurses' home, a power plant and accessory structures. These buildings, erected on the palace grounds of an old Manchu prince, are in the classic Chinese architecture, brilliant with symbolic painting on woodwork and porches and protected by great green roofs with broad, overhanging eaves. The interiors, however, of both laboratories and wards represent the most modern development in Western building and equipment. Medical science in Japan, he says, has made remarkable progress during recent decades. Such institutions as Kitasato Institute, and the medical schools of the four imperial universities would be a credit to any country. But while medical science and education have made great progress in Japan, the hospitals still present a pitiable appearance. This is largely due to the total lack of well trained nurses, a lack which degrades hospital care in many nations of the West as well as the East. In addition to the maintenance of the college and hospital in Peking, Mr. Embree pointed out that the Rockefeller Foundation is assisting thirty-one hospitals and medical institutions throughout Eastern and Central China and is furnishing fellowships for advanced study in America and England to fifty Chinese and foreign physicians and nurses who are to return for institutional and teaching service in China.

Deaths in Other Countries

E. M. Wilson, Lieut.-Col., R. A. M. C., president of the West London Medico-Chirurgical Society.—Col. Sir William R. Hooper, honorary surgeon to King George V, September 29, aged 84.—Dr. R. Virel, Capt., R. A. M. C., of Citadel and Nazerieh hospitals, Cairo, Egypt.—Dr. D. L. Robert, obstetric physician, Manchester Royal Infirmary, England.—Dr. E. Bamberger, physician to the Rudolfs-Spital at Vienna.—Dr. Ramón A. de Torres of San Juan, Porto Rico, a graduate of the University of Brussels.—Dr. G. Fiorentino, physician to the Italian Hospital at Tunis.—Dr. A. Oliven, founder of a sanatorium for nervous patients at Lankwitz, and instrumental in the organization of the annual medical excursions to study watering places.—Dr. Kubes, chief of the Prague Pasteur Institute, a victim to typhus.—The *Dermatologische Wochenschrift* mentions the death of Dr. O. W. von Petersen, professor emeritus of dermatology at St. Petersburg.—Dr. C. H. Vogler, president for twenty years of the Schaffhausen Canton Medical Society, Switzerland, aged 87.—Dr. J. Vieira Marcondes of Rio de Janeiro.—Dr. B. Fromm of Schöneberg, aged 88. He was cited frequently during the illness of the German emperor, Frederick III, as testifying to the fact that life and speech are possible after unilateral laryngectomy.—The *Paris Médical* mentions the death of Dr. P. H. Soulier, professor emeritus of the Lyons medical faculty, aged 88.—Dr. A. H. Soulié, professor of anatomy of the University of Toulouse, author of important works on anatomy and embryology, aged 54.—Dr. A. de Parrel, surgeon to the Dieppe hospital.—Dr. G. Gonçalves of the medical school of Bello Horizonte, Brazil.

Government Services

Work of Veterans' Bureau

In a comprehensive statement, Charles R. Forbes, director of the U. S. Veterans' Bureau, announced that a new system of activities had been adopted with many beneficial features to the ex-service men. The main plan is the discontinuance of the use of contract hospitals altogether, and the maintenance of all hospitals for the care of disabled war veterans under the direct control of the government and government physicians. Another provision is the proposition of seeing that every man in need of hospitalization, because of injuries received or diseases contracted in line of duty during the World War, is placed in a hospital under government supervision as soon as it is physically possible. The maintenance of an effective follow-up system of convalescents and those discharged from the hospitals is another principal feature of the new plan.

Course for Medical Reserve Officers

Surgeon-General Ireland of the Army gave out information this week that only one course will be conducted for National Guard and Reserve Officers of the Medical Corps during the present fiscal year at the field service school at Carlisle, Pa. The original plans of the Medical Department were to have a series of courses but, owing to the limited appropriations made by Congress, it has been necessary to reduce the number to one. This course will be the regular short basic course of six weeks, to be conducted in March and April, 1922. About eight medical officers from the National Guard and eight from the Reserve Corps will be selected to attend.

Course at Army Medical School

Beginning Jan. 1, 1922, the class of officers of the Medical Corps of the Army attending the Field Service School at Carlisle, Pa., will be transferred to Washington to take the basic course in the Army Medical School. It is also announced that the course at the Army Medical School will continue until June 30, 1922. The present class at Carlisle that will be transferred consists of fifty medical officers and nineteen dental surgeons. The next course at Medical Field Service School will open in August.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 10, 1921.

Sunlight and Health

In a letter to the *Times*, Prof. Leonard Hill returns to the subject of sunlight and health, which has been discussed in a previous letter (*THE JOURNAL*, July 9, p. 135). The department of applied physiology of the Medical Research Council is finding that the metabolism of children exposed to the sun and air at the Treloar Hospital is nearly 40 per cent. above that of children resting in a chamber. At the seaside the department is finding that body heat production is increased five times by paddling along the shore, and from eight to ten times by swimming in the present beautiful October weather.

The Freudian Doctrine

On presenting the prizes to successful students at Charing Cross Hospital, Sir Frederick Mott said that if he had the opportunity of again teaching physiology he would, in the light of experience gained in the last eight years, give special attention to the influence of the mind on the body and the body on the mind. Physicians seemed to have neglected this branch of medicine too much, and the consequence had been Christian science, faith-healing, neuro-induction and other forms of inspiring faith. Before the war it was thought that the neuropathic tendency occurred seldom in men as compared with women, but the formation of a conscript army, in which only physical disabilities were recognized as causes of unfitness, had showed that a large percentage of men were neuropathic and liable to neurosis, hysteria and neurasthenia, provided stress was sufficient. With a few notable exceptions, physiologists had ignored psychology, and psychologists had ignored physiology because academic psychology was mainly introspective and metaphysical. The Freudian school asserted that all psychic energy had its roots in the sexual instinct, and maintained that the sexual life began development at or even before birth. The energy of the sex instinct might undergo sublimation or diversion into other channels. He agreed entirely with McDougall in the acceptance of the general truth of the Freudian doctrine, without, however, committal to the acceptance of all or even, indeed, any of the other doctrines of sex instinct of Freud. He was of the opinion that the sex instinct, serving as the great source of psychic energy, was a fundamental principle of psychology. The researches he had been carrying on for many years on the reproductive organs in normal and insane persons supported this conclusion and explained why the biogenic psychoses came on in adolescence and at the climacteric.

British Health Officer on Prohibition in America

Sir Arthur Newsholme, late principal medical officer to the Local Government Board, has been in America for the last two years. At the Royal Society of Medicine he has given the results of his study of the prohibition law. The results of the first year of prohibition, he said, were only partial; but although it was still easy for the millionaire visitor to the United States to get intoxicating drink, it was still the fact that for the vast majority of the population alcoholic drinks had become unobtainable or were too expensive for frequent indulgence. There were 150,000 physicians in the United States, and every one of them had to take out a permit to enable him to prescribe alcohol. Four out of every five had not taken out a permit, and in twenty-four out of the forty-eight states not a single physician had taken out

one. As the results of prohibition, there was evidence of increased prosperity and of the diversion of large sums to the purchase of better clothing, etc. Rescue work in the large cities had largely been replaced by preventive work. Drunkenness and admissions to hospitals for acute alcoholism showed remarkable declines, and although alcoholism was often but one part of a mesh of evil circumstances, the short cut toward the removal of the evil which prohibition provided promised to be successful in diminishing not only disease, but also poverty and crime. He regarded as fantastic the fears that prohibition would lead to a similar ban on smoking. A country would never give a majority vote for the abolition of a personal habit unless that was associated with serious national evils. The case for compulsion was that moral suasion acted slowly, and meanwhile the multitudes of innocent people continued to suffer, and the community suffered in pocket and efficiency. Whether prohibition would endure the test of enforcement in America remained to be seen, but his view was that the American public will endorse the action taken and will insist on its continuance and extension. Sir Alfred Pearce Gould, who presided, speaking as surgeon, said the one thing which lay at the root of the justification of prohibition was the great physiologic fact of the influence of alcohol on the human body. He believed that anything which thwarted or lessened the power and development of the body could be rightfully prohibited.

Sir Peter Johnston Freyer

Sir Peter Johnston Freyer has died in his seventieth year. Born in Galway, he was educated in that city and at Dublin and Paris. He entered the Indian Medical Service and in it established a great reputation as an operator. He was specially interested in two widely different branches of operative surgery—cataract, and stone in the bladder, both very common in India. He performed an enormous number of operations. He and another Irishman in the service, also a great genito-urinary surgeon, Keegan, were among the first to adopt Bigelow's operation of lithotripsy. Their success in a large series of cases established the operation at a time when it was not well received in America. On retiring from the Indian Medical Service, Freyer was appointed surgeon to St. Peter's Hospital for Stone in London. Here he introduced his suprapubic operation for enucleation of the enlarged prostate, one of the greatest advances in operative surgery. At first it was not well received by the surgeons of this country, and a stormy controversy, not without acrimony, was aroused. His claims were disputed on two grounds. Elaborate and abstruse anatomic arguments were brought forward to show that he did not remove the entire prostate. It was also alleged that the operation was not new and had been performed before by McGill of Leeds and others. Priority for the operation has also been claimed for Belfield of Chicago, who performed suprapubic prostatectomy in 1886. But Freyer always asserted that none of his predecessors performed the complete operation which he did. McGill's operation, he said, was attended by high mortality and a failure of the bladder to recover power of expelling urine, because only the prominent portions of the prostate were removed. The controversy has been again revived in the *British Medical Journal* by Sir Clifford Allbutt and Mr. Littlewood, who were colleagues of McGill at Leeds. They claim that McGill did anticipate Freyer. Be that as it may, it is certain that it was Freyer's work and his fight against much opposition which caused the surgical world to adopt the operation. As a writer, Freyer was clear and incisive. He was a keen controversialist, at times virulent and sarcastic. The following story illustrates the latter quality: In his early days in London, an editor of one of

the great medical weeklies, noticing that he could write, invited him to contribute to the editorial columns, proffering the remuneration current in those days, \$3.75 a column. Freyer replied that he found that in the same time as it would take to write a column he could perform an operation for which he would receive \$200. He therefore must decline the offer, munificent as it might appear.

The Remuneration of Insurance Physicians

The proposal of the government to reduce the capitation fee of insurance (panel) physicians from \$2.75 to \$2.25 (described in my last letter to *THE JOURNAL*, September 26, p. 1349) has naturally aroused great opposition in the profession. A deputation of the Insurance Acts Committee of the British Medical Association has been received on the subject by Sir Alfred Mond, minister of health. The minister pointed out that the government had to undertake a severe revision of expenditure throughout all its services. He considered that the national health insurance act had been on the whole a great success. The medical service had been bitterly attacked in the press; but, having gone into the matter to a considerable extent, he believed that the panel system, though, like all human institutions, imperfect, and having indeed obvious imperfections, had worked successfully in comparison with what existed before it came into operation. Physicians were performing their difficult and arduous task with zeal and conscientiousness, and although here and there criticisms were made of the way in which one man or another dealt with his patients, it could not be said that on the whole the medical profession had not done its best with the panel system. But in a great financial crisis he had to appeal to physicians to make some sacrifice for the common good, as all were compelled to make. When the panel system was adopted, the capitation fee was \$1.75; by the last negotiations it was fixed at \$2.75. The ministry thought it too high and the medical profession thought it too low. He had no doubt that both sides could make out a fine argumentative case. At any rate, the fact remained that an independent body arrived at \$2.75 when asked to arbitrate on the question, last March. Since that time the cost of living had fallen and he had no doubt that it would continue to fall at a fairly steep rate. Having regard to the economy which was being carried right through the remuneration of government servants, he considered that the fee should be reduced to \$2.25. If the proposal was not accepted, he had to consider the alternatives. One was reverting to the control of the physicians by the friendly societies. The profession did not desire this, and for good reasons. But considerable pressure was brought to bear by the societies for that end, and it still existed. The other alternative was to abolish medical benefit, giving insured persons the amount of money they were entitled to and letting them go to the physician or pharmacist for a bottle of medicine as they felt inclined or trusting to the powers of Nature. That would be unsatisfactory, but it would relieve the state of responsibility. Replying for the deputation, Dr. Brackenbury said that in response to the appeal on patriotic grounds they approached the matter with a desire to do whatever they could to meet the position. They did not want to cavil or haggle at all. The committee, which was only the executive committee of a representative conference, would like to go to it and to the profession and say: "We are asked to give up a certain sum on the grounds of pure patriotism, although the justice of the case does not necessarily demand that we give it up." But they were faced with another alternative than those mentioned by the minister: None of them felt called on by patriotism to take part in a service which was not good and effective. A considerable number of physicians were in the

service for the sake of making it a good service, and would feel that it was no longer worth while for them to remain, and their absence would lower the service. Then another layer of men would leave, and stability would be arrived at only when men by sheer economic pressure were compelled to cling to the service. Honestly they felt that the fee of \$2.75 was on the verge of that situation.

Replying to Dr. Brackenbury, the minister said that as to a certain top layer in the service coming to the conclusion that the sum named was not satisfactory, and therefore leaving the panel system, it was obvious that the process must and could take place at all times regarding any figure except one which was impossible. Just as there were now a certain number of physicians who were not in the panel service, so there would always be a certain number coming out and a certain number going in—good young men, he imagined. He could not imagine this question being so greatly affected by a little more or a little less. He was not going to haggle over his offer, which he regarded as reasonable, and under the circumstances as generous. If the figure was not accepted, the ministry would reserve full liberty to consider any other proposal that might be made, but he wanted to avoid that. If the whole thing was thrown back into the melting pot, the final result might be not better than the first, but worse.

PARIS

(From Our Regular Correspondent)

Oct. 7, 1921.

The Four Medical Congresses Held in Strasbourg

Bordeaux was to have been the meeting place this year for the Congress of Medicine, but Bordeaux took on itself to suggest Strasbourg as the place of the first gathering on French soil since the liberation of Alsace-Lorraine. The Congress of Surgery had already chosen the famous Alsatian city for its 1921 session. The associations of urology and orthopedia also decided to follow this example, and thus Strasbourg, this year, became the place of meeting of four medical congresses, besides a reunion of the physicians and surgeons of the hospitals of France. The opening session common to the four congresses took place, October 3, in the auditorium of the University of Strasbourg. Monsieur Alapetite, general commissioner of the French Republic, delivered the opening address, in which he recalled that Alsace constitutes a center of intellectual activity of the highest order, where science, associated with such names as Wurtz and Pasteur, still retains its honorable rôle. Professor Boeckel, president of the Congress of Surgery, outlined the history of surgery in Alsace, emphasizing the rôle played by the medical profession of that province in the advancement of science during the last four or five centuries. Dr. Bard, professor of clinical medicine in the medical department of the University of Strasbourg and president of the Congress of Medicine, observed in his presidential address that the University of Strasbourg must be not only the outpost of French thought, but also the "listening post," with the duty of closely observing the affairs and the people of central Europe. He remarked further that for a few obdurate idealists the University of Strasbourg is called on to serve as a connecting link between German and Latin culture. Immediately after the opening session of the four congresses, the exposition organized by the army medical corps threw open its doors. It comprised a historical section, which called up memories of the old military medical school of Strasbourg, and a contemporaneous section, which illustrated in a graphic manner all the present organizations pertaining to the army medical service. To signalize the event of the holding of these four congresses, the *Presse médicale* dedicated a number published two days before the opening to "the medical

week in Strasbourg." This number, in which is found, among other subjects, an interesting historical sketch of the school of medicine of Strasbourg, from its origin until 1870, is embellished with illustrations showing several views of Strasbourg hospitals. In the United States, THE JOURNAL publishes every year an illustrated number dedicated to the city in which is held the annual convention of the American Medical Association, but in France this was an innovation, and the initiative taken by the *Presse médicale* deserves special mention.

Medical Lectures in French to Be Given in Holland

Acting on the suggestion of Dr. Scheltema, professor of clinical pediatrics in the University of Groningen, the Holland association for child welfare has organized a series of lectures to be delivered by Dr. Nobécourt, professor of pediatrics in the medical department of the University of Paris, at Groningen, Utrecht, Amsterdam, Leyden, Rotterdam and The Hague, from October 23 to 30. They are intended, on the one hand, for members of the association and its invited guests, and, on the other hand, for university authorities and for the medical students of the four universities of Holland. The aim of the association is to direct the attention of students and physicians to the importance of social hygiene as applied to children and to promote, among the general public, a sentiment in its favor.

Courses for Foreign Students

It is interesting to note, at the opening of the academic year, the various bureaus that have been organized to aid foreign students in selecting courses of study. There is in Paris: (1) a Bureau de renseignements (bureau of information) at the Sorbonne, which answers either verbally or in writing all questions asked by students concerning studies and living quarters in Paris; (2) the Office national des universités et écoles françaises, 96 boulevard Raspail, founded for the purpose of aiding in the development of university and intellectual relations between France and other countries, and which is at the disposal of all professors and students whose special studies or the desire of being in direct contact with French teachers have brought them to France; (3) the Comité de patronage des étudiants étrangers, at the Sorbonne, having for its purpose the rendering to foreign students the material and moral assistance that they may need. Comités de patronage des étudiants étrangers exist also in Bordeaux, Lille, Lyons, Montpellier, Nancy and Toulouse.

BELGIUM

(From Our Regular Correspondent)

LIÉGE, Oct. 4, 1921.

Meeting of Brussels Physicians

The editorial department of the *Bruxelles médical* has organized a meeting of Brussels physicians, to be held from November 13-15 and presided over by the most competent medical authorities in the city. Nine essayists who are particularly well qualified to expound the principal innovations within the domain of their respective specialties have been chosen: Professors J. L. Faure (Paris), Henrijean (Liège) and Bordet, Broden, J. Demoor, Philippson, Sand and L. Stiénon (Brussels). Independent of these addresses, visits will be organized to the Institut Vaccinogène de l'état, the Laboratoire central des denrées alimentaires, the Ecole de médecine tropicale, to the Instituts universitaires, etc. Aside from this, scientific and clinical demonstrations, operative séances and exhibitions of cinematographic films will be given in the principal services of the Hôpital St. Pierre, the Hôpital St. Jean, the Hôpital Ixelles, the Polyclinique universitaire, and the Polyclinique de Bruxelles; also in the

various private clinics and the various laboratories for biologic research.

Belgian Sanitary Mission in Poland

Nearly a year ago, I mentioned the departure of a Belgian sanitary mission for Poland, sent out by a committee that, under the chairmanship of Minister Carton de Wiart, was authorized to collect funds to be used in aid of that sorely stricken country. The medical mission was composed of five physicians, one pharmacist-bacteriologist, twenty-four nurses, one roentgenologist, and the necessary assistant personnel such as stretcher bearers, cooks, chauffeurs, etc. The mission left Brussels the end of September, 1920, and returned the end of April, 1921, after a sojourn of seven months in Poland. At Brest-on-the-Bug, the mission established an epidemic hospital, for it seemed as if in this region all the epidemics known today had established a trysting-place: cholera, diphtheria, dysentery, typhus fever, typhoid fever and malaria. Three of the nurses, while nursing patients, contracted typhus fever, and a chauffeur typhoid fever. The Red Cross of Belgium, as evidence of its sympathy for Poland, presented to the Polish Red Cross the hospital complete, including all installations: furnishings, linen, operating rooms, dressing rooms, as well as a large quantity of provisions.

BERLIN

(From Our Regular Correspondent)

Oct. 7, 1921.

The Psychologic Selective Test as Applied to Schoolchildren

In Berlin and certain other cities of Germany special schools for unusually endowed pupils have recently been established. In these schools the pupils receive better instruction than is given in the average public school. In order to select these more highly gifted children, a special "psychologic selective procedure" has been inaugurated. For the purpose of testing the intelligence on an experimental psychologic basis, a carefully planned system of examination of the analytic and synthetic, and of the simple and compound chief functions of consciousness has been drawn up, which I wish to discuss briefly. Attention and power of concentration are tested from the standpoint of continued tension, diversion of attention and ability to attend to several things at once. The memory is tested by giving new material to memorize and with reference to the present memory store at the disposal of the candidate, including the degree of readiness and the orderly manner in which it is presented or developed. A further task of the investigating committee is the examination of the power of association. The so-called linked (*gebundene*) and free association are tested. The power of linked association is determined by the Ebbinghaus method by filling out gaps in a given text. In the testing of the powers of free association the person being examined must, within a given time, state all the possible reasonable connections between three given ideas or notions, to mention the well known example: *murderer—mirror—rescue*. The range of comprehension of new ideas is also established experimentally; likewise the range of the subject's stock of ideas and the degree of readiness in calling them to mind; also the formation of new relations between ideas, the selection of the essential among given elements, the finding of what is common in given members of a series, and, finally, the grasp of the functional relations between several series of observations. Furthermore, the subjects are tested with regard to their power of judgment. This special gift of judgment is divided into various groups: (1) general power of judgment, and (2) the judging of special cases. Under (1) belong: essential evaluation of the conditions, psychologic

insight into the realities of a situation as presented by pictures and oral description, and psychologic evaluation of the essential facts thereof. Under (2) is tested the grasp of probabilities under given conditions, the finding of the most practicable solution in a given situation and the capacity for critical differentiation. The last main heading in this system of examination concerns the determination of the power of perception and the capacity for observation. Subdivisions under this head deal with the power of perception in actual experiments, combined with oral demonstration; the keenness of observation and the yield in observations in connection with classification according to categories; verbal statements in regard to objects and their characteristics in oral demonstrations, and the grasp of relationships in the perception of the basis of analyses and syntheses in actual experiments.

The results of the several tests are entered on a suitable individual record sheet, and the general average grade is calculated.

Effectual Serum Prophylaxis of Measles

Dr. Degkwitz, assistant attending physician at the Munich University Children's Hospital, recently published his observations on 172 children who were given injections of the serum of measles convalescents. All the children who received the prophylactic injections of serum between the second and sixth day after the infection proved immune to the disease. The serum was obtained by vein puncture, from seven to fourteen days after convalescence, from children who had gone through with uncomplicated measles and were free from tuberculosis and syphilis. Mixed serums were prepared and such quantities of serum (usually from 3.5 to 4 cu. mm.) as will protect a child of $3\frac{1}{2}$ years against the disease, up to the fourth day of incubation, are designated a protective unit (*Schutzseinheit*). If insufficient quantities of serum are given at the right time during incubation, the appearance of the disease is delayed and the symptoms are attenuated. The serum of adults, in large doses, does not delay the onset of the disease but does attenuate it. Utilizing the results of Degkwitz' experiments, it is said to be possible, by this method, to prevent the spread of measles in foundling asylums, day nurseries, hospitals, etc. According to an article published by Professor Kleinschmidt, these observations have been confirmed by experiments conducted in Hamburg. Out of a total of sixty children given injections of serum on ten different occasions, according to Degkwitz' method, one child came down, on the twentieth day of incubation, with abortive measles, and one with measles of an incomplete, questionable type. In the case of the first child the quantity of serum employed was too small. The eruption may occasionally occur on the fifth day of incubation; for reliable observations on the infection were made five days before the appearance of the exanthema. A heavier dose must therefore be given on this day in order to be safe. In six children there was a fever of one day's duration and pains at the site of the injections; in eight infants given injections of the same fluid mixed serum there occurred likewise immediate fever, paleness, cyanosis (in some), restlessness, anorexia, and (in two patients) vomiting and diarrhea. Probably we have here a primary toxic effect of a homogenous serum, as was occasionally observed by Bode in dealing with the serum of scarlet fever convalescents. Von Pfaundler states that in Munich more than 1,000 children were given injections without the occurrence of any such secondary manifestations. In the department of pediatrics of the Berlin Verein für innere Medizin, Dr. Kulter reported, from the Emperor and Empress Frederick Children's Hospital, that in 107 subjects, who were given the injections at the proper time during the incubation period—between the second and sixth day—perfect success was attained. In seven cases there was an apparent

failure, because the serum was used too late. In four other cases failures were recorded. The serum of adults yielded two failures in nine cases. He reports, after one observation, on the duration of the protection (immunity). It was the case of a severely tuberculous child, in whom the protection did not extend beyond three and a one-half months. L. F. Meyer, the director of the municipal orphan asylum in Berlin, also confirms the great practical importance of the Degkwitz' procedure. With respect to certain failures, it seemed to be a question of children with subnormal capacity for formation of antibodies in febrile and wasting diseases. Very favorable results were secured also with the injection of the serum of adults. However, the prophylactic injection of the serum of the new-born afforded no protection. In the Rumelsburg orphan asylum in Berlin, on one occasion, six and, on another occasion, four children were given injections of serum; of the first group three were protected, one ran a mild course of the disease and one failed to receive protection. Of the four children of the second group two ran a mild course, while two presented typical cases of the disease. Possibly, as regards the last mentioned cases, the explanation lies in the fact that the serum employed was five and one-half months old. According to the opinion of the pediatrician, Professor Finkelstein, the problem of prophylaxis against measles has been solved in principle by Degkwitz. Failures appear to occur only because of delayed injections, inadequate doses or too old and therefore ineffective serum. It remains to be established how long the protection afforded by the inoculation continues. Of especial interest, although requiring confirmation, is Degkwitz' statement that the serum taken from children protected by injections, provided they presented no clinical symptoms of the disease, will protect other children. New-born and young infants are only immune to measles in case they are the offspring of mothers who present the disease.

BUDAPEST

(From Our Regular Correspondent)

Oct. 7, 1921.

Poisonous Milk from Cows Fed on Beets

At a meeting of the Interhospital Association, held, September 23, Dr. Szana mentioned that an epidemic of acute enteritis had broken out among the children of a village near Szolnok. No obvious cause appeared for this, as all the milk had been sterilized in the usual way. Inquiry eventually showed that, owing to the lack of ordinary forage, the cows had been fed on beet leaves and red cabbage, vegetables which are well known to give both milk and butter a particular flavor. Dr. Szana added that he had noticed a similar epidemic about five years ago. In this case it was due to the cows' having been fed on beets which had been kept in silos during the summer and which had fermented. The enteritis due to this cause presents the same features as that caused by microbe-infected milk, but feeding by skim milk, which has a favorable effect on microbial enteritis, has no effect on toxic enteritis.

Trypanosomiasis in Roumania

At the meeting of the Bucharest Hospitals Medical Society, held, September 10, Dr. Constantinescu showed a man who had been attacked with trypanosomiasis, the diagnosis of which had been confirmed by the finding of trypanosomes. After coming from Siberia the man went to Odessa; therefrom he came aboard a ship to Roumania. The ship was crowded with passengers who came from Turkey, Egypt and other southern countries. The patient had probably been infected aboard ship. After he arrived in Roumania, paralysis with atrophy of the arm supervened, the characteristics

being similar to those observed in syphilitic paraplegia. The groups of muscles especially affected were those of the thenar and hypothenar eminences. There were also present affections of sensation, an exaggerated patellar reflex, Babinski's sign on the left side, and some modifications of the electrical reactions. All of the symptoms disappeared after treatment with atoxyl and neo-arsphenamin. The presence of the trypanosomes in this case made it easy to eliminate all the other causes to which the symptoms might have been due. The atoxyl was administered in 0.5 and 1 gm. doses, the neo-arsphenamin in doses of 0.30, 0.45, 0.60 and 0.75 gm.

Mortality from Syphilis in Budapest in 1919

At a meeting of the Hungarian Dermatological Society, Dr. Pór stated that he had attempted to calculate the mortality occasioned by syphilis in Budapest by taking into account various factors, of which the chief was the frequency of the Wassermann reaction in various affections. Besides the sixty-one cases assigned to syphilis in the official statistics, the ninety-four cases of general paralysis and the thirty-six of locomotor ataxia, there may be attributed to a syphilitic origin one third of the deaths from cerebral hemorrhage, apoplexy and softening, from paralysis of undetermined causation, affections of the spinal cord, and various diseases of the nervous system; one tenth of the deaths due to encephalitis, nontuberculous meningitis and epilepsy; one third of those from organic heart disease; three fourths of those due to angina pectoris; one half of those from aneurysm, atheroma and affections of the arteries, and one fifth of those from hepatic cirrhosis and chronic nephritis (as compiled by Leredde in Paris). A total figure of 1,817 deaths due to syphilis in 1919 is thus arrived at, excluding such diseases as pulmonary affections, icterus gravis, gastric ulcer, and especially congenital debility, and icterus and sclerema of the newly born, which kill 1,268 children each year. A large number of the deaths in early infancy are certainly due to syphilis. On the other hand, it must be remembered that municipal statistics show that 2,006 stillbirths were notified in 1919.

The Increase of Suicide

Statistics of the cases of suicide which occurred in the course of 1920 in Budapest show that 789 persons killed themselves here, as compared with 607 during the previous year. It is worthy of note that the increase was mainly among women, 305 of whom took their own lives as compared with 251 during the previous year, while the corresponding increase among men was only 14. This makes it seem that women are less able to resist bodily and mental troubles and the strain of daily life, but a sad feature of these statistics is the constant increase of suicides of children. The ages at which persons committed suicide varied within wide limits, the oldest of the victims being 56 years of age and the youngest only 10 years. The unstable condition of the mind which brings about such sad results must be caused by some fault of modern education and general mode of living, although it is to be admitted that the wretched material and spiritual conditions add greatly to the discontentedness of people. Bread-winning is exceedingly hard. The war has caused immense sorrow, and thus it is not surprising that those of lighter specific gravity—women—fall victims to the lure of ending life by suicide. It is a curious fact that the bright summer months are apparently more conducive to suicide than the gloomy winter days. Thus June, July and August head the list, while the lowest number of suicides occurred in December and January. The modes of death most frequently selected were hanging, shooting and poisoning with potassium hydroxid, sulphuric acid and oxalic acid. The most frequently assigned motives were inability to earn bread, ill health, disappointment in love, and want of food.

Marriages

STEPHEN HARRISON SMITH, Major, M. C., U. S. Army, March Field, Calif., to Mrs. Pamela King of Riverside, Calif., October 3.

DWIGHT H. MURRAY, Lieut., M. C., U. S. Navy, Mare Island, Calif., to Miss Genevieve Collins of Vallejo, Calif., October 5.

WILLIAM HERBERT BAHLKE, Baltimore, to Miss Agnes Louise Bitter of Roland Park, Md., at Baltimore, October 18.

JAMES EDGE FARIS, Fort Monroe, Va., to Miss Elizabeth Margaret Sheldon of Lowville, N. Y., October 22.

IRVING MEDBURY ADDLEMAN, Wausau, Wis., to Miss Katharyn Simons of Yorkville, Ill., September 13.

DOUGLAS McENERY, Major, M. C., U. S. Army, to Miss Katherine Winn, at Fort Riley, Kan., October 12.

HESSELL STUART YNTEMA, Chicago, to Miss Jean Bazan of Holland, Mich., at Chicago, September 17.

LAURENCE G. ALEXANDER, Hopkinsville, Ky., to Miss Grace E. Padgett of Carterville, Ill., August 16.

JAMES LYMAN LOVEJOY, Weston, Vt., to Miss Barbara Newton Fox of Norwich, Conn., October 18.

WILLIAM F. ELY, Lansford, Pa., to Miss Bella May Kleckner of Tamaqua, Pa., October 12.

ALFRED ANTHONY HOFFMANN to Miss Marie Bartlett, both of Waterloo, Iowa, August 9.

WILLIAM H. VON DER WEYER to Miss Mildred M. Esswein, both of St. Paul, in October.

HERBERT HENRY THOMPSON to Miss Alice J. Lawrence, both of Minneapolis, October 1.

ROBERT W. GREGG, Tipton, Iowa, to Miss Mae G. Nelson of Iowa City, recently.

CLARENCE OLSON, Dows, Iowa, to Miss Faith Weldon of Iowa Falls, August 3.

Deaths

Dwight H. Murray ☉ Syracuse, N. Y.; Syracuse University College of Medicine, 1884; died suddenly from valvular heart disease on October 21, aged 60. Dr. Murray was born Aug. 31, 1861, at Altmar, N. Y. Subsequent to taking his degree in medicine at Syracuse, he was a student at the New York City Postgraduate Hospital and also at the clinics at Berlin and Vienna. He spent his entire professional life in Syracuse and at the time of his death was professor of clinical proctology at his alma mater and clinical proctologist at the Syracuse Memorial Hospital for Women and Children and at the Hospital of the Good Shepherd; he was also on the staff of the Syracuse Free Dispensary and a member of the board of managers of the Onondaga Sanatorium. He was a member and past president of the American Proctological Society, a member of the New York Academy of Medicine, and of the Syracuse Academy of Medicine, a member and former president of the Onondaga County Medical Society, a member of the Medical Society of the State of New York, and at the time of his death the vice speaker of its house of delegates. He represented the Medical Society of the State of New York in the House of Delegates of the American Medical Association continuously from 1910 to 1920, when he was elected Speaker of the House of Delegates, in which latter position he served at the time of his death. He was first chairman of the Section on Gastro-Enterology and Proctology, which was organized in 1917. He will be remembered by those who attended the numerous meetings at which he presided as a man of genial personality.

Alfred Alexander Woodhull, Brig.-Gen. U. S. Army (retired) ☉ Princeton, N. J.; University of Pennsylvania, Philadelphia, 1869; member of the Colorado State Medical Society; died, October 18, aged 84. Dr. Woodhull represented the medical department of the U. S. Army at the Eighth International Congress of Hygiene and Demography, London, 1891; was instructor in military hygiene at the Infantry and Cavalry School, Fort Leavenworth, 1886-1890; command-

ing officer of the Army and Navy Hospital, Hot Springs, Ark., 1892-1895; chief surgeon, Department of the Pacific (Philippines), 1899; retired, April 13, 1901; lecturer on hygiene and sanitation, Princeton University, 1902-1907; gold medalist, Military Service Institute, 1885. Dr. Woodhull was a Civil War veteran and the last surviving officer present at the surrender of General Lee. He was a member of the Association of Military Surgeons of the United States, and the American Public Health Association.

Charles North Smith, Toledo, Ohio; Bellevue Hospital Medical College, New York, 1882; member of the Ohio State Medical Association and formerly president of the American Association of Obstetricians and Gynecologists; secretary of the advisory board, St. Vincent's Hospital for twelve years; on the staff of the Flower Hospital; at one time president of the Toledo Academy of Medicine; Toledo representative on Council of National Defense; died, October 25, from cerebral endarteritis, aged 61.

Fred Cole Purcell, Jamestown, N. Y.; University of Buffalo Department of Medicine, 1903; member of the Medical Society of the State of New York; at one time president of the Jamestown Medical Society; was killed with his wife, October 12, in an automobile collision, near Blaisdell, N. Y., aged 44.

Hamilton Fisk Biggar, Jr., Cleveland; Cleveland College of Physicians and Surgeons, 1896; formerly on the staff of the Huron Road Hospital; during the late war served in the British marine service as transport surgeon; died, October 21, following an operation on the throat, in London, England, aged 48.

James Patterson Graham, Portland, Ore.; University of Oregon, Portland, 1909; veteran of the Spanish-American War; during the World War served as major, M. C., U. S. Army, in France; died, October 12, from injuries received in a motor accident in September, and terminal pneumonia, aged 43.

Victor Piolette Chaapel ☉ Williamsport, Pa.; College of Physicians and Surgeons, Baltimore, 1892; president of the Lycoming Medical Society, 1920; member of the house of delegates and second vice president of the Medical Society of the State of Pennsylvania; died, October 16, aged 56.

Rev. Jacob Franklin Spaulding, Salisbury, Mass. (years of practice); member of the Newburyport Medical Society; had practiced medicine and preached the gospel for over forty years; died, October 17, at the Anna Jacques Hospital, Newburyport, aged 79.

Charles Stephen St. John, Bowling Green, Ohio; Medical Department of the University of Wooster, Cleveland, 1886; member of the Ohio State Medical Association; died, October 12, from cerebral hemorrhage, aged 67.

David E. Ruff, Junction City, Ore.; University of Louisiana, New Orleans, 1867; veteran of the Civil War, member of the school board and city council; served eight years as city recorder; died, October 13, aged 81.

Henry J. Stalker, Kenosha, Wis.; Chicago Medical College, 1874; member of the State Medical Society of Wisconsin; died suddenly, October 13, from cerebral hemorrhage, while attending a patient in his office, aged 83.

Thomas B. Heimstreet, Cropseyville, N. Y.; Bellevue Hospital Medical College, New York, 1867; member of the Medical Society of the State of New York; naturalist and taxidermist; died, October 18, aged 79.

Plummer D. Russell, Pueblo, Colo.; Cleveland Homeopathic Medical College, Cleveland, 1904; inventor of several medical appliances; was found dead in his automobile, October 15, from cerebral hemorrhage, aged 50.

Alfred James Scott ☉ Los Angeles; University of Michigan, Ann Arbor, 1882; member of the state board of medical examiners since 1919; died suddenly in the street at Sacramento, Calif., October 16, aged 63.

Clarence Alanson Palmer, Brooklyn; Baltimore Medical College, Baltimore, 1895; served as surgeon in the U. S. Army Transport Service during the World War; died, October 17, from pericarditis, aged 50.

Isaac Berton Wilson, La Pine, Ore.; College of Physicians and Surgeons of San Francisco, 1910; lieutenant, M. C., U. S. Army, during the World War; died, October 11, in a hospital at Bend, Ore., aged 38.

Mark Ferdinand Toner, Berkeley, Calif.; Jefferson Medical College, Philadelphia, 1893; member of the Medical Society of the State of California; was found dead in bed, October 17, from heart disease, aged 53.

☉ Indicates "Fellow" of the American Medical Association.

Eugene Edward Williams, Enterprise, Ala.; Medical College of Alabama, Mobile, 1904; member of the Medical Association of the State of Alabama; died, August 26, from cerebral hemorrhage, aged 42.

Alexander M. Herron, Charlotte, N. C.; Medical College of South Carolina, Charleston, 1882; member of the South Carolina Medical Association; died suddenly, October 15, from heart disease, aged 61.

Isaac Edward Darr, Morley, Mich.; Medical College of Fort Wayne, Ind., 1882; member of the Michigan State Medical Society; died suddenly, October 17, when returning from a professional call, aged 67.

William A. Lincoln Cossey, Prague, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1900; lieutenant, M. C., U. S. Army, during the late war; died, October 7, from pneumonia, aged 54.

George Edward Washburn ♂ Augusta, Me.; Bowdoin Medical School (Medical Department of Bowdoin College), Brunswick and Portland, 1898; died, October 14, from pneumonia, aged 46.

Robert H. Van Cleave ♂ Farmersburg, Ind.; Medical College of Evansville, 1879; was instantly killed, October 15, when the automobile in which he was riding was struck by a train, aged 68.

Manchie E. Howard, Perryville, Ark.; Eclectic Medical College, Cincinnati, 1880; member of the Arkansas Medical Society; died from poison, self-administered, October 1, aged 60.

Chester Arthur Eversole, Hazard, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1906; died, October 9, from pneumonia, aged 40.

John T. Sparkman ♂ Alvord, Texas; University of Louisiana (Tulane University), New Orleans, 1881; organized the North Texas Medical Association; died, September 4, aged 58.

John Francis Crowley ♂ La Salle, Ill.; College of Physicians and Surgeons (University of Illinois), Chicago, 1900; died, October 22, from acute endocarditis, in Chicago, aged 55.

Raymond Laurence Wall, Yorkville, Ill.; University of Illinois, Chicago, 1913; member of the Illinois State Medical Society; died, October 12, from acute endocarditis, aged 33.

John Milholland, Inglewood, Calif.; Cincinnati College of Medicine and Surgery, 1874; veteran of the Civil War; formerly a practitioner in Iowa; died, September 28, aged 77.

Charles L. McCann, Brooklyn; University of the City of New York (University Medical College), 1871; practitioner in Brooklyn for half a century; died, October 19, aged 74.

Row O. Woodruff ♂ Waterford, Pa.; University of Vermont, College of Medicine, Burlington, 1899; specialized in laryngology and rhinology; died, August 28, aged 49.

John Dixon Kellis, Shuqualak, Miss.; Hospital College of Medicine, Central University of Kentucky, Louisville, Ky., 1882; died, October 6, from arteriosclerosis, aged 64.

Ramon A. de Torres, San Juan, P. R.; University of Brussels, Belgium, 1884; University of Havana, Cuba, 1897; died, October 16, from diabetes mellitus, aged 70.

Ellis Brooks Sayre, Canandaigua, N. Y. (license, New York, 1877); veteran of the Civil War; practitioner for nearly half a century; died, October 13, aged 73.

Edgar William Amman, St. Louis; St. Louis University School of Medicine, 1904; was shot through the head and killed, near Cairo, Ill., October 22, aged 41.

Harry A. Bond, Dillon, Mont.; College of Physicians and Surgeons, Keokuk, Iowa, 1889; died, October 15, from carcinoma, at the home of his sister, aged 62.

Samuel B. Robinson, Warsaw, Ky.; Pulte Medical College, Cincinnati, 1881; member of the Kentucky State Medical Association; died, October 11, aged 64.

William H. Burt, Atlanta, Ga.; Atlanta Medical College, 1880; former member of the state legislature; died, October 16, following a long illness, aged 63.

Thomas Lee Chambliss, Hugo, Okla.; Fort Worth (Texas) School of Medicine, 1907; died, recently, from complications resulting from influenza, aged 41.

Reuben B. Rhoads, Boyertown, Pa.; Jefferson Medical College, Philadelphia, 1857; veteran of the Civil war; died, October 7, from senility, aged 90.

John F. Harris, La Crosse, Wash., American Medical College, St. Louis, 1882; died, October 6, at the St. Ignatius Hospital, Colfax, Wash., aged 68.

Clayton M. Paschal, Bedford, Iowa; College of Physicians and Surgeons, Keokuk, 1875; twice member of the state legislature; died recently, aged 67.

Charles Edward Crandall, Schuylerville, N. Y.; Albany Medical College, Albany, N. Y., 1873; died, October 12, from cerebral hemorrhage, aged 73.

Annie F. Norton Moore, Clarkdale, Ariz.; Detroit Homeopathic Medical College, 1872; died, October 16, from carcinoma of the breast, aged 75.

Andros W. Hoyt, Collegeview, Neb.; Drake University College of Medicine, Des Moines, Iowa, 1892; died, August 14, at Davenport, Iowa, aged 66.

William A. Barclay, Chicago; Chicago Physiomedical Institute, 1897; formerly a newspaper man; died, October 24, from heart disease, aged 64.

William H. Hedrick, Wheatland, Ind. (license, Indiana, 1897); veteran of the Civil war; died, October 13, from chronic nephritis; aged 82.

Wilbur F. Buren, Princeton, Mo.; Medical Department University of Iowa, Keokuk, 1867; died, August 22, from chronic nephritis, aged 80.

Edward Gerald Sepple, Chicago; Dearborn Medical College, Chicago, 1904; University of Illinois, Chicago, 1906; died, October 19, aged 47.

John Anthony Colbourne, Braidwood, Ill.; Northwestern University Medical School, Chicago, 1894; died, October 16, at Los Angeles, aged 59.

Joseph S. Stewart, Homestead, Pa.; Jefferson Medical College, Philadelphia, 1877; former Burgess of Homestead; died, October 18, aged 72.

Frank L. Bradley, St. Louis Park, Minn.; Rush Medical College, Chicago, 1869; practitioner for over fifty years; died, October 12, aged 77.

Oregon C. Blaney, Portland, Ore.; Willamette University Medical Department, Salem, 1880; died, October 9, after a long illness, aged 70.

Harry W. Patrick ♂ Lakewood, Ohio; Baltimore Medical College, Baltimore, 1893; died, September 6, from cerebral hemorrhage, aged 55.

Joseph Weyerhorst, Great Falls, Mont. (years of practice); owner of the Weyerhorst Hospital, Great Falls; died, October 10, aged 50.

Simeon Nicholas Andre, Petrolia, Pa.; Jefferson Medical College, Philadelphia, 1893; died, August 19, near Buena Vista, aged 52.

McKendree Green, Pleasant Lake, Ind. (license, Indiana, 1897); died, October 15, at the Odd Fellows' Home, Greensburg, aged 78.

John Henry Murphy, Boston; Medical School of Harvard University, Boston, 1893; died, October 6, from pneumonia, aged 78.

Charles B. Masser, Fruita, Colo. (license, Colorado, 1890; years of practice); died, October 5, in a hospital at Pueblo, aged 82.

Hudson G. Willse, North Bay, Wis.; University of Buffalo, N. Y., 1883; died, October 18, from a complication of diseases, aged 70.

John A. Schmidt, Brooklyn; Long Island College Hospital, Brooklyn, 1892; also a dentist; died, October 19, aged 57.

William Penn Buck, Elizabethtown, Pa.; University of Pennsylvania, Philadelphia, 1869; died recently, aged 75.

Daniel S. Grossman, Leighton, Pa.; University of Pennsylvania, Philadelphia, 1877; died, October 8, aged 72.

Frank Jackson George ♂ Okeana, Ohio; Medical College of Ohio, Cincinnati, 1894; died, October 12, aged 55.

Daniel George Weymouth, Spencer, Ind.; Bennett Medical College, Chicago, 1913; died, September 26, aged 34.

Thomas Hallanan, Barboursville, W. Va.; Cincinnati College of Medicine, 1852; died, October 15, aged 55.

John Thomas Bell, Walnut Ridge, Ark.; University of Nashville, Tenn., 1874; died, October 16, aged 72.

Peter R. Hatch, Youngsville, N. C.; College of Physicians and Surgeons, Baltimore, 1883; died recently.

Patrick Henry Manion, Egota, Minn.; Rush Medical College, Chicago, 1890; died recently, aged 57.

W. J. Redditt, Carrollton, Miss.; Louisville (Ky.) Medical College, 1872; died, August 13, aged 72.

Melville R. Shepherd, Sublime, Texas (years of practice); died, October 15, aged 58.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Salt-Sulphur Water.—The Salt-Sulphur Water Co., Excelsior Springs, Mo., in August, 1920, shipped five barrels of Salt-Sulphur Water which were declared adulterated and misbranded under the Food and Drugs Act. It was declared adulterated for the reason that "it consisted wholly or in part of a filthy, decomposed, and putrid animal or vegetable substance." It was declared misbranded because of the following statements regarding the alleged curative effect of the preparation:

"This Water Is A Recognized Remedy . . . Invaluable In The Treatment Of Inflammatory And Catarrhal Conditions Of The Stomach And Intestines As Well As Diseases Of The Liver. Its Continued Use Stimulates To Health Action The Stomach, Liver and Kidneys."

These statements were declared false and fraudulent and "intended to be of such a character as to mislead the purchaser." In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9333; issued Sept. 24, 1921.]

Pildoras Uriseptic.—A quantity of this product, shipped by Davis & Lawrence Co., New York City, and the France and New York Medicine Co., New York City, respectively, from New York State to Porto Rico, was declared misbranded. Government chemists reported that analysis showed the pills to consist essentially of cubebs, methylene blue, salol, and kava kava. Some of the claims made for these pills were:

"Anti-Gonorrheal, Diuretic, Antiseptic, Resolvent."

"Cannot be surpassed by any other for the treatment of Gonorrhea, or in the treatment of chronic or acute inflammations of the Bladder or urethra and other forms of secondary diseases which generally result from blenorragic infection."

These and similar claims were declared false and fraudulent and in March, 1921, the Davis & Lawrence Co. entered an appearance as claimant but failed to deny the allegations contained in the libels. Judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the claimant on the payment of the cost and the execution of a bond.—[Notice of Judgment No. 9348; issued Sept. 24, 1921.]

Boquette's Family Remedy.—The Boquette Remedy Co., Council Bluffs, Iowa, shipped a quantity of "Boquette's Family Remedy" which the federal authorities declared was misbranded. The article was labeled in part:

"For Chills and Fever, external and internal. For Rheumatism, Neuralgia, Lumbago, Heart Trouble . . . Indigestion, Catarrh, Kidney Trouble, Stomach Trouble, Headache, Grippe or Blood Diseases."

"It is a fine purifier and Nerve Tonic."

"For Female Complaints, Stomach Trouble, Bladder Troubles, Sore Throat, Kidney Troubles, Nervous Prostration, Headaches, Lame Back, Hay Fever."

"For Goitre . . . Coughs, Tuberculosis, Liver, Piles."

In addition, the stuff was said to be a "Compound of Roots, Herbs, Leaves, Barks and Berries." When analyzed by the federal authorities the preparation was found to consist essentially of a solution of Epsom salt and saltpeter in water. The therapeutic claims were declared false and fraudulent and the claim relative to its alleged vegetable origin was declared false and misleading. In May, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9386; issued Oct. 15, 1921.]

Volta Powder.—Charles A. and Alfred N. Gianelli, trading as the Volta Co., Buffalo, N. Y., shipped in May and June, 1918, a quantity of "Volta Powder" which was misbranded. The federal chemists reported that analysis showed the powder to be essentially a mixture of free sulphur, impure iron (ferric) oxid, and a trace of essential oil. The preparation was sold as an effective treatment, remedy and cure for acute, inflammatory and chronic rheumatism, sciatica, gout, all forms of neuralgia, cold feet, insomnia, general debility, la grippe, and malarial fever. It was also said to improve the complexion! These claims were declared false and fraudulent and in May, 1921, the defendants pleaded guilty and a fine of \$25 was imposed.—[Notice of Judgment No. 9380; issued Oct. 15, 1921.]

Carey's Marsh Root.—A quantity of "Dr. Carey's Marsh Root" was shipped by the Carey Medical Corporation, Rochester, N. Y., in July, 1920. Analysis of a sample by the Bureau of Chemistry showed the product to consist essentially of plant extractives, including alkaloidal material, sodium and potassium salts, salicylates, aromatic oils, sugar,

**Clean Up Poison
Soaked Kidneys,
Advises Dr. Carey**

Thousands Die Every Year Because
They Allow Poisonous Deposits
To Accumulate in Kidneys

Don't flush your kidneys with harsh
makeshifts, says Dr. Carey; they are too
frail and delicately constructed to treat
them rough.

For 40 years I have been prescribing
Marshroot for kidney and bladder sickness,
and now that I have retired from active
practice I have made arrangements with
leading druggists to dispense this wonder-
ful prescription at a moderate price.

Beware of kidney disease—thousands die
of it every year who ought to be enjoy-
ing the blessings of life and health
and your kidneys.

glycerin, water and alcohol. The presence of juniper, saw palmetto, buchu, uva ursi, and belladonna was indicated. Some of the claims made for the preparation were:

"Restores impoverished blood to the rich, red condition of perfect health."

"Marsh Root removes the cause."

"This splendid remedy has proven itself of great value in the treatment of Bright's disease, diabetes, all urinary troubles, retention, scanty, stoppage, too frequent and brickdust."

"Catarrh of the bladder, gravel and gall stones are positively relieved by this treatment."

"There are thousands alive today who would be in their graves, caused by the awful effect of kidney and bladder trouble, if they had not used this wonderful medicine, Marsh Root."

Many other claims of the same character were made in or on the trade package, all of which were declared false and fraudulent. In March, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9334; issued Sept. 24, 1921.]

Sterling Injection.—A quantity of "Sterling Injection," shipped in March, 1920, by the Western Wholesale Drug Co., Los Angeles, Calif., was declared misbranded by the federal authorities. When analyzed by the Bureau of Chemistry, it was shown to consist of a water-solution containing opium, borax, and a trace of sulphate. It was falsely and fraudulently recommended as a treatment for gonorrhea. In February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[Notice of Judgment No. 9352; issued Oct. 15, 1921.]

Correspondence

"USE OF HOLLOW TUBE FOLLOWING SUB-MUCOUS RESECTION OF NASAL SEPTUM"

To the Editor:—The suggestion of Dr. H. M. Goodyear (*THE JOURNAL*, Oct. 1, 1921, p. 1103), of inserting a piece of rubber tubing along the floor of the nose after the submucous resection of the nasal septum, is a good one for the comfort of the patient so far as breathing is concerned, if one insists on packing the nose after the operation. It will not, however, prevent the extreme headache that many patients suffer, as a result of the pressure of the pack. I do not agree that packing the nose after the operation is at all necessary. I also take exception to the statement that, on the whole, the end-results are better after packing than after not packing. My experience has been just the contrary. To believe that packing the nose will prevent the formation of a hematoma is a fallacy. It will form notwithstanding the pack, or soon after the pack is removed at the end of twenty-four hours. Most men pack (1) to prevent bleeding, and (2) to keep the mucous membranes in apposition. The fact of the matter is that patients not packed do not bleed unless the mucous membrane has been badly torn, and the parts remain in apposition just as well as in the packed cases. Furthermore, it often occurs that, after the packing is removed, so severe a hemorrhage follows that repacking is absolutely urgent. In my experience without packing, not only has the bleeding been practically nil but such an indication for urgent packing has never happened. My practice has been to place one or two silk sutures in the line of incision, but this procedure is not necessary to insure an ideal result. There is no comparison in the general comfort of the patient with packing or without it.

PHILIP FRANK, M.D., St. Louis.

[NOTE.—The foregoing letter was referred to Dr. Goodyear, author of the article criticized. He replies:

"Dr. Frank states that the tube will not prevent headaches following submucous resection. This is true, and I made no statement to the contrary. Most patients have a headache following complete cocaineization of the nose, whether packing is used or not.

"The formation of a hematoma while the packing is in situ does not occur unless the packing is carelessly inserted, leaving a considerable area of septum uncovered on one side or the other. A hematoma can form, no doubt, after the packing is removed but, fortunately, this rarely happens.

"Petrolatum gauze (heavily saturated) is used for packing; thus, at the end of twenty-four hours it is easily removed, and I have never had sufficient bleeding follow to require repacking.

"Most septums requiring operation have a deviation high in the region of the middle turbinates and, almost without exception, these cases have a spur or thickened ridge down very near the floor. I find it is the removal of this lower portion of the septum that causes most of the bleeding. If the lower portion of the septum is not completely removed, the indication for packing is greatly reduced, but the operation is incomplete."—Ed.]

DANGERS OF PHOSPHORUS IN FIREWORKS

To the Editor:—Last July some fireworks manufactured by the Essex Specialty Company, Newark, N. J., found their way into the hands of my oldest child. An unburned portion was picked up by my youngest child, aged 15 months. He ate it and died from the effects four days later. The particular piece is called "Devil on the Walk," and is apparently made mostly of phosphorus. I am informed that there is a federal law prohibiting the sale of phosphorus matches. If there is no law prohibiting poisons in playthings it would seem that

there should be. I understand that one of your activities is to become interested in such matters. It occurs to me that you would be doing a good service to use your influence in establishing a law which would prevent the sale of such materials, and if such a law already exists to see that it is more rigidly enforced.

W. C. STACY, M.D., Avery, Idaho.

[COMMENT.—In order to secure more definite information relative to this case, *THE JOURNAL* suggested that the physicians in attendance on the child make a brief report. Dr. C. Busey, Avery, Idaho, states: "E. B. S., aged 15 months, while playing at his home, July 1, found fragments of previously exploded fireworks, sold under the name of 'Devil on the Walk.' The child's mother noticed red stains about the mouth and on the fingers, and gave it an emetic. When I saw the patient about four hours later he was playing and apparently well. During the following four days he ran the usual course of phosphorus poisoning, dying on the evening of the fourth day."

Dr. P. D. McCornack, Spokane, Wash., reports: "I saw the Stacy baby, who was suffering from an acute phosphorus poisoning. He gave a typical history of poisoning, and the course was extremely typical. He was much stimulated the day after he had taken the poison, but soon became ill, gradually became comatose, and died. The appearance of the mouth, vomitus, etc., were characteristic. Postmortem examination was not made, so we do not have any pathologic findings to report. I think it would be wise to prohibit the manufacture of such fireworks when they are dangerous to the lives of children."—Ed.]

ARGYRIA FROM ARGYROL

To the Editor:—Last summer Mr. T. R. consulted me as to his general physical condition. He appeared cyanotic, his face, lips and hands being of a peculiar slate-blue color. A faint systolic murmur was heard at the apex of the heart after exercise; otherwise the general physical examination was entirely negative. His previous history revealed nothing especially relating to such a condition except the fact that nine years before this consultation he had had a sore throat, and was advised by his physician to use argyrol locally. He had continued the use of this preparation twice daily for a year. He then noticed that he was turning blue and discontinued its use. He has, however, retained this appearance.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

POLYMORPHISM AMONG BACTERIA

To the Editor:—Your editorial (October 8) on "Pleomorphism Among Bacteria" I believe is not in accord with modern observations. Monomorphism of the tubercle bacillus was taught soon after its discovery, but for the last thirty years all investigators speak absolutely of pleomorphism. As early as 1884, Petrone observed branching forms, as did Nocard, Roux, Kline, Dixon and a host of others later. I refer here only to the tubercle bacillus, because you make special reference to Robert Koch. Koch, then the foremost bacteriologist of his time (1882), was a discoverer and not a follower. Though at the beginning of his investigations he believed firmly in the monomorphism of the bacillus, yet for many years before his death he was thoroughly conversant with the various changes that the bacillus may assume under different cultural environments. "Until recently there were few American textbooks that did not adhere to the rigid monomorphism that had been taught in Germany." This is the closing statement in your first paragraph. No! No! Not American textbooks on tuberculosis! In 1909 (some twelve years ago) Dr. Arnold C. Klebs compiled a textbook on tuberculosis, the first chapter of which was by Prof. M. P. Ravenel, at that time a teacher at the Washington Univer-

sity, St. Louis. On page 15 he writes: "Longer forms are sometimes met with. The rods are straight or curved and occur single, in pairs or in small bundles. In old cultures, filamentous clubbed and branching forms are not infrequently seen (see morphology of the tubercle bacillus)." This undoubtedly bespeaks the recognition of the polymorphism of the tubercle bacillus in this country for more than twelve years. We have taught for many years in this country that the tubercle bacillus is a parasite midway between bacteria and streptothrices and that, judging from its pleomorphism, it is undergoing a cycle to a higher development, a tuberculomyces, approaching the ray fungus.

JOHN RITTER, M.D., Chicago.

Instructor in Tuberculosis,
Rush Medical College.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEDICAL EDUCATION—"STATE MEDICINE"—COMPULSORY HEALTH INSURANCE

To the Editor:—1. How many physicians in the United States are now engaged in private practice as independent practitioners, and how many are full-time employees of organizations? My reason for asking this question is this: In this city there was but one physician fifteen years ago who was in the employ of a firm, while today there are about fifteen physicians who are full-time employees. I was wondering if this tendency is more or less general. Is the "private physician" gradually disappearing?

2. Suppose a young man, a graduate of the high school, determines to study medicine. What will be the approximate cost from the time he leaves high school until he is finally enabled to enter upon practice?

3. Compared with ten years ago, are there fewer medical students: if so, what is the percentage of decrease?

4. What is the present attitude of the American Medical Association on the question of state medicine, or compulsory health insurance?

CHARLES S. BOSENBURY, M.D., South Bend, Ind.

ANSWER.—1. It is impossible to state the relative number of physicians engaged in general practice as compared with those holding full-time employment with industrial organizations.

2. The approximate cost per year in premedical colleges for board and room, laboratory and other fees, textbooks, laundry, etc., but exclusive of any tuition fees—not charged in state universities—varies from \$435, the lowest estimate, to \$645, a generous allowance. The total for the two years, therefore, will range from \$870 to \$1,290. For the medical course, including tuition fees, the expenses range each year from \$550 to \$700, or, for the four years, the total would be from \$2,200 to \$2,800. In the hospital intern year the students' expenses are invariably paid, and in many instances salaries in varying amounts are paid. There is, therefore, no financial expense for this year. The total cost, for the seven years varies from \$3,070 to \$5,000. The minimum figures given can be still further reduced by students who work for all or part of their way, and many are doing this, particularly in the premedical college course. The figures, also, do not make allowance for the approximately 500 scholarships now available in the better medical schools, which usually cover the students' tuition and, in some instances, their other expenses also.

3. Figures showing the students enrolled in medical colleges each year since 1900 are given in Table 4, page 527, of THE JOURNAL, Aug. 13, 1921. It will be noted that from 1904 to 1919 there was a decrease from 28,142 to 13,052, or a decrease of 53.6 per cent. At the same time, however, the number of students in the better grade medical colleges increased from 1,761, or 6.2 per cent. of all students enrolled, to 14,319, or 96.1 per cent. of all students enrolled. The decrease, therefore, was in the number of students enrolled in the lowest grade medical schools. It will be noted, also, that the annual enrolment since 1919 is again on the increase, and reports in regard to premedical classes indicate that the increase is to be continued.

4. Our correspondent apparently regards "state medicine" and "compulsory health insurance" as synonymous terms. "State medicine" as it is used at present is a vague term and may have any meaning which one chooses to give it. Until it is defined and the definition generally accepted, any intelligent discussion involving the use of this term is impossible.

At the Boston session, June, 1921, a number of resolutions on various phases of "state medicine" were introduced and referred to the Reference Committee on Legislation and Public Relations. The report of this committee was considered by the House of Delegates in committee of the whole, and the following resolution was finally adopted as a substitute for all the resolutions introduced.

Resolved, By the House of Delegates of the American Medical Association, that it approves and endorses all proper activities and policies of state and federal governments directed to the prevention of disease and the preservation of the public health.

Compulsory health insurance is a definite proposition. The attitude of the American Medical Association on it is also definite. At the New Orleans session in 1920, the following resolution was adopted by the House of Delegates.

Resolved, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled or regulated by any state or the federal government.

CRITICISM OF REMEDY FOR WORMS

To the Editor:—Please comment on the following prescription, particularly as to its safety. Kindly omit my name and address.

	Gm. or Cc.	
R. Male fern, oleoresin.....	7	3ij
Chloroform	5	m ^{xx} c
Croton oil.....	25	m ^{iv}
Castor oil.....to make	60	3ij

M. Sig.: Adult dose: after a light or no supper the night before, give one half or two thirds of entire amount. Give remainder after two hours unless there is marked cathartic effect. Children from 10 to 14, one-half adult dose. Children under 10, one-fourth adult dose.

P. S. C., Vt.

ANSWER.—This is an efficient and rather heroic, though safe combination. The maximum safe dose of oleoresin of aspidium is 8 gm., or 2 drams, which, it will be seen, is not exceeded. Chloroform has been used as a tapeworm remedy in doses of 4 c.c. (60 minims), a quantity contained in two thirds of the entire amount. The use of another 2 c.c., or 30 minims, two hours later would be unobjectionable, as most of the first dose would have been eliminated. The dose of croton oil is somewhat excessive though by no means dangerous, as 20 minims constitute a fatal dose. The caution not to use the balance of the dose if there is marked catharsis would prevent extreme and exhaustive purgation. The warning against male fern with castor oil, contained in some textbooks, is based on theoretical rather than practical considerations. Clinicians of great experience, such as H. Lenhardt and Penzoldt, employ it by preference in connection with male fern.

It is probable that the remedy would be improved if the cathartic were given one or two hours after the anthelmintic and the chloroform were omitted. Direct combination of the anthelmintic with the cathartic is somewhat irrational, as the evacuant would, by hurrying along the contents of the bowel, tend to shorten the period of exposure of the tiny head of the worm, to the poison, and might thus actually protect the worm against the remedy. However, if the chloroform is employed, combination with oil would be required to protect the stomach against excessive irritation.

COSMOPOLITAN CANCER RESEARCH SOCIETY

To the Editor:—In connection with the Cosmopolitan Cancer Research Society propaganda I send you a clipping taken from the New Orleans Times-Picayune, Oct. 4, 1921. This does not appear as a paid advertisement, but is run as a "reader."

RALPH B. RANEY, M.D., Crowley, La.

ANSWER.—The clipping sent in by Dr. Raney is a news item entitled "Prize of \$100,000 Offered for Medical Cancer Cure." The item, apparently, was sent out by a news agency, as it appeared in newspapers fairly well scattered over the country. This would seem to indicate that the press agent of the Cosmopolitan Cancer Research Society (discussed in the Propaganda department of THE JOURNAL, Sept. 3, 1921) is earning his salary.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, 1551 Canal St., New Orleans.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

PROVINCIAL REPORT IN BRITISH COLUMBIA ON DRUGLESS HEALERS

Legislative Assembly of British Columbia by Select
Committee Investigates Application of Drugless
Healers to Secure Unrestricted Practice

The recent attempt of the chiropractors, drugless healers and optometrists to secure special legislation for the unrestricted practice of their respective arts in British Columbia was opposed by a committee consisting of representatives of the Council of the College of Physicians and Surgeons of British Columbia, the British Columbia Medical Society and the Vancouver and Victoria Medical Societies. This representative committee determined that it was obviously their duty to protect the public and to demand from any cult practicing medicine that its members should show some familiarity with the systematized knowledge of the human body in health and disease. During the revision of the medical act, in 1909, the osteopaths secured recognition, but only by conforming to the provisions of the act and by qualifying in the canonical subjects, as well as in passing examinations in their own peculiar practice. The precedent seemed adequate for the present case, satisfying the demands of the profession. Apparently the committee of the legislature which considered the question was of the same opinion, as the following unanimous report will show.

The Report

Legislative Committee Room,
March 29, 1921.

Mr. Speaker:

Your committee appointed to inquire and report in respect to the proposed drugless healing bill, being No. 23, and the proposed chiropractic bill, No. 24, begs to submit as its final report the following—

As on the inquiry into the proposed optometry bill, exhaustive evidence was also presented to the committee, for and against these proposed bills. The committee had the views, apparently, of the most prominent representatives of the drugless healing art and of the best practitioners in chiropractic, in support of these measures, while the Medical Council, represented by prominent and reputable members of the medical profession, opposed both bills.

EVIDENCE CAREFULLY CONSIDERED

Your committee have taken great pains to consider with the utmost care the evidence adduced and the representations made, particularly as a great many estimable citizens have

apparently received benefit from the chiropractors. Whether these alleged results are more imaginary than real or whether they have yet been sufficiently tested over a long enough period of time probably remains to be seen.

As in the consideration of the optometry bill—so in respect of these two bills—your committee had the benefit of the exhaustive report of Mr. Justice Hodgins, referred to in the previous report of this committee. His report is voluminous and is quite applicable to the principles under consideration.

SCIENTIFIC BASIS OF CLAIMS QUESTIONED

The general education obtained in Canada through the medical faculties of the universities is, your committee believes, well abreast of the times. The course has been gradually enlarged to keep pace with expanding medical knowledge, and research institutions in different parts of the world are engaged in enlarging the boundaries of medical knowledge, with an open mind to new discoveries possessing merit. On the other hand, it is difficult, from the evidence submitted, oral and documentary, to ascertain the educational standards or scientific knowledge of those who profess to find in the practice of chiropractic and drugless healing a cure for a great many, if not all ills.

EQUIPMENT AND TIME FOR STUDY INADEQUATE

From the curriculums before us of several American institutions and the statements made it would appear that the standards required and the length of time required for study vary, and on the whole are not long enough to afford sufficient training. It would appear, too, that these schools are without the necessary equipment. It is therefore not possible to say that the medical attainments of those now asking for a change in the law are sufficiently high.

The question to be decided by the committee is this: Have the chiropractors and the drugless healers made out a case for an alteration of the present law, so that without hindrance they may be permitted to practice the healing art?

CLAIM HISTORIES AND DIAGNOSIS VALUELESS

One of the leading chiropractic colleges in the United States is the "Palmer Institute." Dr. B. J. Palmer, the head of this institution, in giving evidence in the case of the State vs. Jansheski, in December, 1910, when asked whether when a patient came to a chiropractor, he was asked the history of the case, answered: "No, because it be of no value;" and in answer to why that was so, he said: "A person comes to us without telling us what the trouble is; it makes no difference whether a physician has already diagnosed it as insanity, appendicitis, indigestion, or anything they call it. The chiropractor needs to know nothing about that case from a physician's standpoint; it is immaterial, yet he can take that same case, put it down on his benches and analyze that spine just as accurately without knowing those things; in fact, sometimes, I think better. . . . It is not essential the chiropractor should know what the patient said he had, but you can adjust the current for it running into the organ, and the patient is well. That is where chiropractics becomes purely a mechanical proposition, a mechanical and electrical-making circuit proposition in a man."

The definition of this treatment in technical terms was given by McNamara, of the Universal Chiropractic College, Davenport, Iowa, as follows: "The theory sustaining this system presumes that in consequence of displaced vertebra the intervertebral foramina (openings) are occluded (closed), through which the spinal nerves pass. . . . In this way the nerves are pinched and chiropractors assume that such pinching is responsible for 95 per cent. of all diseases. Chiropractic concerns itself with an adjustment of the subluxations, thus removing the pressure on the nerves."

CLAIM SUBLUXATIONS OF SPINE CAUSE OF ALL DISEASES

Reducing it to simple language, the chiropractors affect to find traces of practically all diseases in subluxations of the spine, and their treatment is confined to the manipulation of the spine by hand. It is rather a shock to even the superficial knowledge of the laymen, to be told that 95 per cent. of all diseases finds a manifestation in the spinal column. The assertion is emphatically disputed by members of the medical profession, and if knowledge, training, and research is necessary to arrive at a conclusion on such a question then certainly the medical fraternity are better able to give an opinion than the followers of these cults.

One of the chiropractors examined claimed to have cured such a wide variety of diseases as chronic colitis, kidney stone, dropsy, chronic biliousness, rheumatism, chronic ulcer, ulcerated stomach, tubercular spine, rickets, etc. These dis-

eases, they say, manifest themselves by a displacement of the spine. The spread of disease by germs would appear to be of secondary consideration. In fact, one chiropractor stated that, granted the lung was normal, one could swallow tubercular germs by the million and never take the disease. The same witness, speaking of kidney stone, averred that a man's vertebrae must show a subluxation, otherwise he would not have a stone in the kidney.

MUST MAINTAIN HIGH STANDARD OF KNOWLEDGE

It would seem apparent that the health and safety of the public is involved in the indiscriminate application of theories such as these to the cure of disease. Public safety is indebted to medical science for the prevention of the spread of contagious diseases; for sanitary regulations and hygienic precautions, the failure to observe which would be disastrous. The standard of knowledge must be maintained at a high point and there must be some recognized body who from training and experience are competent to fix these standards. That recognized body hitherto has been the Medical Council, and your committee can see no reason from the evidence adduced why it should not continue the exercise of these functions in the future.

DIAGNOSIS A FIRST ESSENTIAL

The fundamental requirement in the treatment of disease is ability to make a diagnosis. It is essential to first know what the trouble is before attempting to cure it. That involves a knowledge of and study of certain standard subjects. Your committee do not believe for a moment, from the evidence, that the only diagnosis necessary is to feel for certain alleged displacements in the spinal column.

We concur with the statement of Mr. Justice Hodgins, whose investigations occupied many months, involving personal examinations of these chiropractic institutions, that: "I cannot bring myself to the point of accepting, as part of our legalized medical provision for the sick, a system which denies the need of diagnosis, refers 95 per cent. of disease to one and the same cause, and turns its back resolutely on all modern medical scientific methods as being founded on nothing, and unworthy even to be discussed."

Your committee do not doubt that beneficial results have been obtained from the treatment of chiropractors. They have no reason to doubt the word of estimable people who say so. It must be borne in mind, however, that the most of these are chronic cases, and it sometimes happens that by the power of suggestion good results are obtained, particularly in neurotic cases. The committee were given instances of marvelous cures of shell shock cases during the war as a result of mental suggestion. No doubt new discoveries have been made, and will continue to be made, in medical science; but it is hardly likely that any discovery will enable us to safely dispense with the elementary requirement of diagnosis in the treatment of diseases, and to diagnose it is necessary to have a wider knowledge of the anatomy and of fundamental subjects than simply a certain familiarity with the spinal column.

ALL HEALERS MUST QUALIFY UNDER MEDICAL ACT

The chiropractors object to the drugless healers bill, and the latter object to the proposed legislation of the former on the ground that their bill is all-inclusive. It is sufficient to say, in reference to the drugless healing bill, that the various branches of study pursued by them are simply special courses which are recognized in medical work. This is true of all the branches of treatment referred to in this bill, except chiropractic. These different types of treatment are carried on by the drugless healers at present really as laymen without sufficient qualifications for the work. They should qualify under the "Medical Act," and then if they so desire specialize in these particular branches.

Notwithstanding the foregoing views, the committee do not feel that chiropractors or drugless healers should be prevented from practicing. We only say that they should first be qualified. They should, before being permitted to practice within the province, pass an examination satisfactory to the Medical Council, on the following primary subjects: Anatomy, physiology, chemistry, toxicology, pathology, bacteriology, histology, neurology, physical diagnosis, obstetrics, gynecology, minor surgery, hygiene, and the principles and practice of chiropractic. Before taking this examination they should be graduates of a recognized school or college of chiropractic which at least teaches a residence course of three years of six months each year. The Medical Council in prescribing examinations for applicants for registration as chiropractors should appoint at least one of their number to

set the examination in the principles and practice of chiropractic. After passing the examination outlined above they should be registered as a member of the college.

NO DISCRIMINATION IN EXAMINATION

The suggestion that chiropractors would be discriminated against in examinations is not based on fact, as the method of conducting examinations by the Council, by number rather than by name, makes this impossible.

Your committee, therefore, recommends that the "Medical Act" be amended to include these provisions. It would be a guarantee to the public that all practitioners were qualified practitioners—a most desirable thing. The chiropractors would prefer to set their own standards and have a statute providing for a governing body of its own. This would not be safe, or in the public interest. They are doing medical work, curing or attempting to cure disease. It is the accredited representatives of the medical profession—if they are honest and fair, and there has been no suggestion to the contrary—who are best fitted to prescribe the necessary standards.

This report represents the unanimous views of the committee.

M. A. McDONALD, Chairman.

Countersigned: A. M. MANSON, Speaker.

Book Notices

ARABIAN MEDICINE. Being the Fitzpatrick Lectures Delivered at the College of Physicians in November, 1919, and November, 1920. By Edward G. Browne, M.B., F.R.C.P., Sir Thomas Adams' Professor of Arabic in the University of Cambridge. Cloth. Price, \$4.50. Pp. 138, with 1 illustration. New York: The Macmillan Company, 1921.

These lectures, which appear simultaneously with Allbutt's Fitzpatrick lectures on Greek Medicine in Rome (delivered in 1909-1910), illustrate a striking phase of modern medicine, namely, the accomplishment of important research work by specialists outside the medical profession. In the past, physicians, beginning with Hippocrates, were the earliest workers in pure science, did most of the botany and zoology, and even made the first school arithmetics. But from the time of Pasteur on, a vast amount of original work in the fundamental sciences—anatomy, physiology, metabolism, bacteriology—has been done by the nonmedical, and such names as Valentin Rose, Steinschneider, Rhode, Ilberg and Max Wellmann, recently appointed to the chair of medical history in Berlin, suggest how much has been accomplished in this field by the classical philologists alone.

Although an M.B. and F.R.C.P., the author of these lectures has been for twenty years professor of Arabic in the University of Cambridge. Their interest, what lifts the book immeasurably above the usual perfunctory presentations of Mohammedan medicine, is that, for the first time since the days of Leclerc and Wüstenfeld, the subject has been handled by a trained Orientalist, of the quality and erudition of Burton or Gibb, Steinschneider or Nöldeke. Shunning the beaten paths, worn trite by constant repetition, our author strikes into new lines of approach which give an astonishing freshness to his theme, usually accounted one of the dulllest conceivable. In four lectures of pleasantly forward gait, he contrives not only to cover his subject well, but brings out important data hitherto unnoticed by the orthodox historians. Refreshingly new are his sections on the folk medicine of the primitive period anterior to the Abbasid Caliphate, on the Prophet's medicine, on the history of the great medical school at Jundi-Shapur, on the methods of the medieval translators, on Persian medicine, as also on the many strange anecdotes and case histories showing just how the Moslem physicians practiced medicine. This, along with the fresh biographic data about Rhazes, Avicenna and other great physicians, is all original material, gathered in the author's private studies, and translated from the manuscripts by himself. Medicine is here illustrated by Arabic verses as curious and entertaining as those in Burton's Arabian Nights. In accordance with the author's preference, the book should have been entitled "Islamic" or "Mohammedan Medicine," for this strain of medicine was mainly developed by Persians and Hebrews and is "Arabic" only in relation to the language employed

in its texts. The major writers are illustrated by the analysis of only one work each, since their main achievements and the contents of their opera omnia are given in minute detail in Newberger's History of Medicine. While the bulk of the narrative is confined to the Abbasid period (750-1258) and little is said of Albucasis, Maimonides and other great figures of the Cordovan Caliphate, the book is otherwise replete with learning and well up to the mark of the best continental scholarship. Professor Browne has set a new standard by his success in rejuvenating an almost sterile theme, in an engaging narrative which can be read at one sitting. A pleasant book for an autumn or winter evening, worthy of recommendation to any physician interested in the subject.

SURGERY. ITS PRINCIPLES AND PRACTICE. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of the Principles of Surgery, Jefferson Medical College, Philadelphia. Volume VII. Cloth. Price, Volumes VII and VIII, \$25 per set. Pp. 855, with 359 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The first six volumes of this work were published in 1913 before the beginning of the war. The enormous progress made in surgery since then has prompted the editor to issue these two volumes so as to place on record the practical lessons learned by the profession during the war and to collect and present in concrete form the progress made in every division of surgery during the last eight years. Among the contributors are many well known Americans and Britishers, such as John F. Binnie, Joseph A. Blake, Hugh Cabot, John B. Deaver, Charles H. Frazier, M. L. Harris, Sir Robert Jones, the Mayos, R. Tait McKenzie, G. E. de Schweinitz, Sir Cuthbert Wallace and Sir William Thornburn. Skin conditions are discussed by dermatologists; physiologic problems by physiologists; neurologic conditions by neurologists; purely pathologic questions by pathologists. The chapter on inflammation is contributed by Adami; that on syphilis by Schamberg; that on traumatic shock by Cannon; that on traumatic hysteria by Dercum. Robert W. Lovett contributes the chapter on orthopedic surgery in civil life. Sir Robert Jones and Ernest W. Hey Groves write on military orthopedic surgery. A full discussion is presented of the organization and administration of the medical departments of the United States Army and Navy during the war by members of these services. The second volume is devoted almost entirely to surgery and measures used in connection with surgery, such as physiotherapy, radium, roentgen ray and electricity. Almost fifty pages are given over to anesthesia, local anesthesia being discussed by M. L. Harris, a well known exponent of this method. Chapters on the legal relations of the surgeon and the American Red Cross in war and peace conclude the work. Aside from the assured value of the text, one should note the many excellent illustrations, the extensive bibliography appended to each chapter, the good mechanical work, and last, but by no means least, the complete and exhaustive index.

BLIND. A Story of These Times. By Ernest Poole. Cloth. Price, \$2.50. Pp. 416. New York: The Macmillan Company, 1921.

Those who have read "The Harbor" and "His Family" know that Mr. Poole is a novelist with a social mind. The present novel continues the earlier manner of the author with even greater emphasis on the social view of life; it is reviewed here primarily because of its medical and social interest. Next to the blind central figure of the story, who writes autobiographically, the most important character is a physician, Steve McCrea, one of the finest medical figures painted in modern fiction. We read of his youth, of his medical training, of his development into a surgeon, of his loss to surgical science through an infection sustained during an operation, and of his transformation into a psychotherapist. Medical incidents are abundant throughout the novel. Early in his career McCrea is called on for an emergency obstetric case; he succeeds. Later the famous New York specialist arrives. "With an expression of grave concern, he prescribed a course of treatment to repair the 'damage done.'" Steve, he ignored completely. The next chapter describes the life of the young medical man in a great New York hospital, and case after case is followed into the home for the social atmosphere. The beginnings of a reaction of the poor to their miserable surroundings are traced, and we come eventually

to a meeting of the physicians in one section of New York to discuss some social question affecting the medical profession. A Russian physician feels that the state should support the physicians in order that they be not compelled to violate the ethics of their profession. "The city should pay us for our work," he says, "so we can get out of the rush for the dollar and give our whole lives to science; to study and keep ourselves up to date—and for any patient, rich or poor, give the best treatment to be had." And in the uproar that follows McCrea replies:

How much does the mass of the people really care for their government? What have they made it? Is there such honor and wisdom in the gang at the City Hall that we doctors want to place ourselves and all our patients, rich and poor, entirely under their tender care, their wise and intelligent control? If we give the Health Department \$100,000,000 to be paid in doctors' salaries, how long do you think the politicians will leave the Health Department alone?

Medical aphorisms of this character abound in the book:

In these days if a surgeon reaches the top, he does it only by work so hard that he has not the stuff left in him to stay there more than twenty years.

We propose not only to heal them after they are sick, but to keep the damn fools healthy.

When the war comes, the two chief characters go to Germany to establish a Red Cross station, and we are given an accurate picture of life in Germany during the first two years of the war. The description of the place in Germany, formerly the War Academy, where civilians came to learn of the dead and wounded, is a grim picture of Germany in wartime. Then the Americans return home and, when our country enters the war, we find them enlisted, one in France and the other for service in Russia. The description of Russia during the early days of the revolution appears to be an accurate, first hand account. The analysis of American life during the first days of the war with the boundless enthusiasm, the conscription and the drives is a penetrating psychologic study. "The whole nation," says Mr. Poole, "was unconsciously taking Christian science, treating itself in great warm waves of optimism and faith." From this point we are led onward to the making of peace and the author's belief in the slow gradual revolution which is now changing the world. He has no belief in a league of nations, in democracies or in soviets, for each is right and each is wrong, but he has real belief in the faith of humanity. The novel is one which will be read with pleasure and profit by both the public and the physician and with particular interest by the latter.

Medicolegal

Boards of Health Required to Abate Nuisances

(*State ex rel. Glatfelter et al. v. Hart et al. (Neb.), 182 N. W. R. 567*)

The Supreme Court of Nebraska, in holding that the relators were entitled on the pleadings to a peremptory writ of mandamus to compel the defendants constituting the board of health of Central City to abate, or cause to be abated, a nuisance, says that the ordinances of the city provided that the board of health should have full power, among other things, to abate nuisances of every description and should cause all nuisances to be abated with reasonable promptness. It was set forth that there was a pond of stagnant water near the residences of the relators which was being used as a dump for refuse which, in the process of decomposition created a breeding-place for flies, disease germs and mosquitoes, produced an offensive odor, and contaminated the water in the pond which percolated through the soil and rendered unfit for use the water in the wells of the relators, greatly endangering the health and lives of the citizens and creating a nuisance.

The court does not consider that it was necessary to make the owners of the property on which the pond was situated parties defendant. It was true that a writ of mandamus issued against the board of health would not be binding on the owners of the property, nor would the order protect the members of the board of health in their actions in abating

the nuisance, should their actions, as to property owners, later be determined to be unlawful. If the nuisance, however, actually existed, the court fails to see how the board of health would need any judgment to protect it in its actions to abate, or cause to be abated, the nuisance. It is only where it is doubtful whether a nuisance, in fact, does exist that the board of health, for its own protection, need proceed by some legal action. Here it was left entirely with the option of the board as to the manner in which the nuisance should be abated.

It was objected that the facts alleged were insufficient to show a cause of action, since the matter of determining whether or not a nuisance existed was a matter left to the sound discretion of the board, and that the court could not intervene to direct or control the exercise of that discretion. Had it appeared from the allegations that an investigation was necessary, or that the exercise of judgment would be required, in order to determine whether or not a nuisance did, in fact, exist, or had it appeared that the board had exercised its judgment and had determined that a nuisance did not exist, the objection might have been well taken; but, where the board admits a nuisance exists, and admits that by the ordinances of the city it is peremptorily commanded to abate such nuisance, and where it is not denied that its duty to do so under the law is clear, it is quite apparent that a writ of mandamus would not interfere with nor control the exercise of the board's discretion, but such a writ would simply compel the performance of a duty which the board, itself, admits devolves on it. The manner in which the nuisance shall be abated, or be caused to be abated, is within the discretion of the board, and that discretion the court cannot usurp. Nevertheless the court may order that the board act and exercise its judgment and choice of the means and manner to be adopted for the abatement of the nuisance.

It was suggested that no affirmative allegation disclosed that the board was furnished with sufficient moneys to abate the nuisance. But the board was left to decide whether it should proceed directly or should bring an action to compel the owners of the properties to abate the nuisance at their own expense, which action it no doubt had sufficient delegated authority to institute. Moreover, where the city has ordered certain things to be done and constituted the board its agent, with full power to take all measures necessary, it is to be presumed that the city has provided, or is ready to provide, for the necessary expenses for the carrying out of such measures. If the board in this instance was without funds, or the ability to procure them, that was a matter for affirmative defense.

For the same reasons, the court holds to the same effect in the companion case of *State ex rel. Glatfelter et al. v. Clark et al., County Board of Health*, 182 N. W. R., 569, in which, because a pond extended beyond the city limits, such part as was outside of the city was within the jurisdiction of the county board, which was required to obey a regulation of the state board of health which made it the duty of the county board to formulate rules to protect the people against communicable diseases, nuisances and the exposing of offensive matter, nuisances to be abated according to the law, and according to rules and regulations.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
American Public Health Association, New York, Nov. 14-18.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

October, 1921, 28, No. 4

- *Studies in Oxygen Therapy with Determinations of Blood Gases. I. In Cardiac Insufficiency and Related Conditions. A. L. Barach and M. N. Woodwell, Boston.—p. 367.
- *Id. II. In Pneumonia and Its Complications. A. L. Barach and M. N. Woodwell, Boston.—p. 394.
- *Id. III. In an Extreme Type of Shallow Breathing Occurring in Lethargic Encephalitis. A. L. Barach and M. N. Woodwell, Boston.—p. 421.
- *Total Nonprotein Nitrogen Constituents of Blood in Chronic Nephritis with Hypertension. J. L. Williams, Chicago.—p. 426.
- *Tumors from Primitive Notochord. N. D. C. Lewis, Washington, D. C.—p. 434.
- *Experimental Lesions of Branches of Auriculoventricular Bundle of Dog. F. M. Smith, Chicago.—p. 453.
- *Primary Hemangiolymphoma of Hemal Nodes: An Unusual Variety of Malignant Tumor. D. Symmers, New York.—p. 467.
- Chemistry and Clinical Significance of Urobilin. L. Bauman, New York.—p. 475.
- Study of S-T Interval in One Thousand and Twenty-Eight Electrocardiograms. J. A. Buchanan, Rochester, Minn.—p. 484.
- *Perforation of Interventricular Septum of Heart. Report of Case. J. B. Youmans, Boston.—p. 495.

Oxygen Therapy in Cardiac Insufficiency.—The harmful effects produced by an insufficient oxygen supply were studied by Barach and Woodwell and evidence was obtained that an insufficient oxygen supply exists in clinical disease. In a normal man, the inhalation of oxygen for one-half hour caused an increase in the oxygen saturation of the arterial and venous blood. In a second normal individual, the inhalation of oxygen for the same period caused a very slight rise in the venous saturation, the arterial saturation not being tested. The pulse was slowed in both cases. No significant changes occurred in the blood pressure, vital capacity, electrocardiogram, venous carbon dioxide content, or rate of respiration. In seven cases of cardiac insufficiency, an anoxic (arterial) anoxemia was present in all, a stagnant (venous) anoxemia in all except one. Oxygen inhalation regularly increased the arterial saturation and also the venous saturation in all except one case of auricular fibrillation. The arterial anoxemia of acute and chronic bronchitis, and emphysema, occurring in cardiac insufficiency, was fully relieved by oxygen inhalation. The relief of the cyanosis and the slowing of the pulse were the outstanding objective changes. The blood pressure, vital capacity, arterial and venous carbon dioxide content, urinary excretion, and rate of respiration showed no definite changes from short periods of oxygen inhalation. The electrocardiogram showed consistent changes in two cases of right bundle branch block, no change in one uncomplicated case of auricular fibrillation. Subjectively, the patients usually said they felt more comfortable or that their breathing was better, but they were rarely enthusiastic.

Oxygen Therapy in Pneumonia.—Studies in oxygen therapy were made by Barach and Woodwell in ten cases of lobar pneumonia and two cases of bronchopneumonia. All had an arterial anoxemia at some stage of the disease, except one of the cases of bronchopneumonia. The patients were treated by the inhalation of oxygen. A true stagnant anoxemia was demonstrated in one of ten cases of lobar pneumonia. The difference between the arterial and venous saturation was generally normal or less than normal, indicating that a normal or increased blood flow is usually present in uncomplicated pneumonia. The most consistent changes in the clinical condition of the patient were the clearing of the cyanosis and slowing of the pulse. The respiratory rate was sometimes slowed; the mental condition of the patient was frequently improved; the dyspnea was not usually relieved. Oxygen inhalation for one-half hour was sufficient in the mild or moderate cases of anoxemia to elevate the arterial saturation and cause clinical improvement. In the severe cases, one to two hours was necessary. The effect of a single administration was, in the main, temporary. The effect of repeated and prolonged administration produced

persistent beneficial changes in the oxygen saturation of the blood, the pulse, breathing, color, comfort, and mental condition of the patient. In three patients in whom a condition of acute oxygen want followed the development of pulmonary edema, the prolonged administration of oxygen resulted in striking clinical improvement, and seemed to avert a fatal outcome. A convenient effective method of giving oxygen has been developed by the authors which does not cause discomfort to the patient.

Oxygen Therapy in Lethargic Encephalitis.—In two patients with lethargic encephalitis observed by Barach and Woodwell the development of an extreme type of shallow breathing was attended with deep cyanosis and coma. The arterial blood was markedly deficient in oxygen and contained an excess of carbon dioxid. Inhalation of oxygen greatly relieved the arterial anoxemia but was without effect on the steady accumulation of carbon dioxid. The circulation was strikingly improved in the beginning as a result of the relief of the anoxemia. Later, progressive cardiac failure occurred, apparently related to the carbon dioxid retention. It is evident that shallow respiration, if extreme, interferes not only with oxygen absorption but with carbon dioxid elimination. The probability that a terminal involvement of the respiratory center in lethargic encephalitis is at times the cause of death is suggested.

Nonprotein Blood Nitrogen in Chronic Nephritis.—Eighty-eight patients with chronic nephritis and hypertension or with myocardial decompensation were the subjects of Williams' study. Chronic nephritis with hypertension and uremia is characterized by a marked increase in the amount of the non-protein nitrogen substances in the blood and a low phthalein excretion. Chronic nephritis of moderate degree with hypertension is associated with a moderate increase in the amount of waste nitrogen in the blood and a lessened kidney function. Cardiac inefficiency without nephritis is associated with a moderate retention of the nonprotein nitrogen substances in the blood, more particularly the uric acid. In chronic nephritis with clinical and anatomic evidence of disease there is nitrogen retention and renal inefficiency. The presence of albumin and casts in the urine is not necessarily diagnostic of nephritis nor is their absence necessarily indicative of the nonexistence of such disease. Improvement of the circulatory disturbances is accompanied by a decrease in the various nitrogenous extractives of the blood, more particularly the uric acid and this may suggest that, at least, a part of the damage done the kidneys is a sequence of the alterations in its nutrition brought about by passive hyperemia.

Tumors from Primitive Notochord.—Four cases of malignant chordoma growing from the sacrococcygeal site were studied by Lewis. In three cases there was no suggestion as to the etiology. In one case there was a strong probability of injury. Judging from the variety of diagnosis made in these cases by as many competent pathologists and surgeons, Lewis believes that these tumors are much more frequent than was formerly supposed, and they have undoubtedly occasionally been classified among the other forms of malignancy. Malignant chordoma may be considered as causing 100 per cent. mortality. Because of the extensive infiltration of the regional fascias, and the difficulty of early diagnosis, operative treatment probably rarely effects a cure, but excisions of the principal tumor mass, and intestinal resections have been beneficial in the removal of pressure and pain phenomena.

Electrocardiograms from Complete Bundle Branch Block.—Complete bundle branch block in the dog Smith asserts produces characteristic electrocardiograms that are diagnostic of the lesion. The division of the smaller subdivisions or even one or more of the main subdivisions did not change the form of the Q R S group. In some instances, however, these waves were changed to the atypical form after the cutting of subdivisions, by dilatation of the left ventricle, produced by ligating branches of the coronary arteries. This would indicate that functional change in the myocardium may influence the conduction of the impulse within the ventricles.

Hemangiolymphoma of Hemal Nodes.—Symmers has studied two malignant tumors composed of groups of lymphoid cells associated with vast numbers of blood channels, the structure of the growths, as a whole, presenting a

histologic picture that suggests derivation from the hemal nodes. One of the tumors was encountered as an accidental finding at necropsy in an adult male who had met death as a result of cyanid poisoning. The growth lay in the concavity of the left side of the pelvis and was about the size of an apple and reddish gray in color, while in the immediate vicinity and extending upward to the level of the first lumbar vertebra were a score or more of enlarged nodes of the same general description. The second case was that of a child, 3 years of age, and was marked by a huge collection of reddish tumor masses in the abdomen and by an extraordinary display of metastases distributed exclusively under the periosteum of various bones. The variety of tumor described is apparently satisfactorily provided for under the appellation of malignant hemangiolymphoma or as hemangiolymphosarcoma. Among 7,000 postmortem records at Bellevue Hospital, Symmers found only these two cases.

Perforation of Intraventricular Septum of Heart.—A case is reported by Youmans presenting an interesting example of perforation of the interventricular septum of the heart in an unusual location; the heart was normal except for a limited area of sclerosis. The patient also showed slight general arteriosclerosis and diabetes mellitus.

Boston Medical and Surgical Journal

Oct. 13, 1921, 185, No. 15

- Interest of Public in Medical Education. C. F. Painter, Boston.—p. 427.
- Report on Recent "Schick Test" Campaign. J. Garland, Boston.—p. 432.
- Mortality in Placenta Praevia for Last Twenty-Five Years at Boston Lying-In Hospital. F. S. Kellogg, Boston.—p. 435.
- Operation for Prolapsus Uteri. W. Van Hook, Chicago.—p. 438.
- Procidencia Recti. T. C. Hill, Boston.—p. 440.
- Pituitrin in Third Stage of Labor. R. J. Heffernan, Boston.—p. 443.
- Sarcoma of Bone. T. W. Harmer, Boston.—p. 446.

Oct. 20, 1921, 185, No. 16

- Etiology and Pathology of Loss of Vision from Accessory Sinuses. L. E. White, Boston.—p. 457.
- Modern Methods in Treatment of Fractures. E. A. McCarthy, Fall River.—p. 469.
- *Overweight in Children. W. R. P. Emerson, Boston.—p. 475.
- Hyperemotivity: Its Causes: Their Permanent Removal. T. A. Williams, Washington, D. C.—p. 477.
- Motives and Emotions. W. G. Webber, Boston.—p. 478.

Overweight in Children.—While the natural tendency to excess of fatty tissue in certain children must be admitted, and this often appears as a family characteristic, Emerson asserts that overweight is far more frequently caused by habit than by heredity. Many children are allowed to indulge themselves in overeating on the ground that they were born to be fat, and that nothing can save them from this condition. A similar condition in one of the child's parents may be the direct result of like habits uncorrected in youth. Every child should be considered as an individual, and be given all possible aid to a normal and healthy development.

Canadian Medical Association Journal, Montreal

September, 1921, 11, No. 9

- *Doctrine of Prepared Soil: Neglected Factor in Surgical Infections. H. Cabot, Ann Arbor, Mich.—p. 610.
- *Prenatal Negligence and Loss of Population. H. W. Hill, London, Canada.—p. 615.
- Danger Signs in Diseases of Gastro-Intestinal Tract and Differential Tests. J. W. Dewis, Boston.—p. 619.
- Rational Empiricism. R. D. Rudolph, Toronto.—p. 622.
- Sarcomatous Abdominal Testicle in Hermaphrodite. J. Halpenny and G. Kinneard, Winnipeg.—p. 632.
- Modern Medicine and General Practitioner. F. Billings, Chicago.—p. 634.
- *Basal Metabolism as Guide in Surgical Treatment of Goiter with Hyperthyroidism. E. M. Eberts, Montreal.—p. 641.
- Function of Infectious Disease Hospital. D. L. Richardson, Providence, R. I.—p. 652.
- Detection of Lamblia (Giardia) Intestinalis by Means of Duodenal Tube. W. Boyd, Winnipeg.—p. 658.
- Nature of Roentgen Rays and Some of Their Applications. L. Gilchrist.—p. 660.
- Unsuspected Syphilis of Nervous System; Its Laboratory Diagnosis. H. B. Maitland, Toronto.—p. 664.
- Clinical Aspect of Subacute Bacterial Endocarditis. L. W. Murray and G. W. Lougheed, Toronto.—p. 666.
- Treatment of Carcinoma of Anus and Rectum. A. S. Moorhead, Toronto.—p. 673.
- Chronic Pain in Right Iliac Fossa. R. R. Graham, Toronto.—p. 676.
- Treatment of Psychoneuroses. G. F. Boyer.—p. 678.

Doctrine of Prepared Soil in Infections.—In the consideration of wound infection and allied conditions, Cabot says, too

much attention has been paid to the bacteria themselves and too little to the conditions which favor bacterial growth. Complete sterilization of operative fields may be judged impossible; bacteria circulate in the blood, and will find their way to those portions of the body where conditions are favorable to their growth.

Prenatal Care of Women.—Because two thirds of the total loss of infant life (including miscarriages and stillbirths) is due to prenatal or natal causes (the former greatly preponderating), Hill urges that the medical profession, as a whole, all interested citizens, and the public generally should direct their attention especially to the physical condition of women preceding the prospective births of their children—particularly with regard to disease, nutrition and heredity in the broadest senses of those terms. Because at least two thirds of the recorded loss of infants born alive at full term are due to nutritional diseases, or to infectious diseases, the former largely dependent on artificial feeding as against proper nursing with human milk, the attention of all concerned should be concentrated on securing to the young infant (a) human milk, (b) protection from infectious diseases. To secure these ends, systematic prenatal care for prospective mothers, and systematic infant feeding for young babies, should receive every encouragement from the medical profession, citizens and the general public. Boards of health should receive the hearty support and intelligent cooperation of the same groups in every effort at minimizing infections of every kind. The proper legislative and sociologic methods for prevention of the marriage of the unfit should be studied with the object of preventing the reproduction of the unfit, especially of the feeble-minded. The proper training and instruction of the fit should be provided by courses in housewifery in the public schools designed for girls from the age of 12 upward, following the extremely successful plan initiated in New Zealand.

Basal Metabolism Guide in Treatment of Goiter.—Eberts reports twelve cases, seven of exophthalmic goiter and five of toxic edema in which the treatment was controlled by basal metabolic determinations.

Iowa State Medical Society Journal, Des Moines

September, 1921, 11, No. 9

- Special Field of Neurologic Surgery After Another Interval. II. Cushing, Boston.—p. 337.
Melanosarcoma of Choroid. W. H. Johnston, Muscatine.—p. 342.
Epilepsy a Symptom of Splanchnoptosis. C. A. L. Reed, Cincinnati.—p. 344.
Traumatic Pulsating Exophthalmos. G. A. May, Des Moines.—p. 346.
Torsion of Intra-abdominal Membranous Folds. J. F. Studebaker, Fort Dodge.—p. 350.
Principles of Basal Metabolism Determinations. W. H. Rendleman and J. I. Marker, Davenport.—p. 352.
Case of Lethargic Encephalitis. M. B. Call, Greene.—p. 355.
Diffuse Subepithelial Infiltration of Upper Air Passages. H. E. Thompson, Dubuque.—p. 356.
Late Development of Fusion Sense, Case Report. G. F. Harkness, Davenport.—p. 357.

Journal of Orthopaedic Surgery, Lincoln, Nebr.

October, 1921, 3, No. 10

- Osteochondritis of Upper Extremity of Femur. J. Calve, Berck-Plage, France.—p. 489.
Operation for Stabilizing Paralytic Feet. M. Hoke, Atlanta.—p. 494.
Report of Commission Appointed to Investigate Results of Ankylosing Operations of Spine. E. G. Brackett, W. S. Baer and J. T. Rugh.—p. 507.
Fractures of Femur. End Results. M. S. Henderson, Rochester, Minn.—p. 520.
Treatment of Fractures of Femur. F. E. Peckham, Providence, R. I.—p. 529.
End Results in Fractures of Knee and Ankle. G. W. Hawley, Bridgeport, Conn.—p. 542.
Treatment of Sprain Fracture of Tubercle of Tibia in Adolescence (Osgood-Schlatter Disease). R. E. Soule, Newark, N. J.—p. 550.
Analysis of Seventeen Fractures of Neck of Femur. Z. B. Adams, Boston.—p. 555.

Results of Ankylosing Operations of Spine.—The conclusions reached by this committee are: The ankylosing operations alone, by either method, cannot be depended on to prevent the increase of destruction or deformity. Apparently, the deformity does increase equally with the operative and with the mechanical, as ordinarily employed in this country. Too much dependency cannot be placed on operation, either by fusion or inlay, to protect the spine against further

development of deformity, or to prevent strain of the back in the ordinary course of daily life of the patient. So far as this fact is concerned, operative interference must be looked on as an incident in the course of treatment, and the protective and supportive treatment in children must be continued almost as long as in the cases in which operative method is not used. Not only can the inlay bend with increasing curve of the spine, and yet remain in position, but also, the inlay may break even after a considerable period. Too much dependence must not be put on the protection afforded by the inlay itself. Ankylosing operations have had apparently little effect on the production of ankylosis of the bodies of the vertebrae. Although the successful ankylosing of the posterior part of the spine by either method may not seem to arrest the development of deformity, it undoubtedly does exert a favorable influence on the acute symptoms.

Kansas Medical Society Journal, Topeka

September, 1921, 21, No. 9

- Gonorrhea of Lower Genito-Urinary Tract in Women, with Special Reference to Its Treatment. M. O. Nyberg, Wichita.—p. 281.
Carcinoma of Uterus. R. C. Lowman, Kansas City.—p. 286.
Very Early Case of Gonorrheal Arthritis. F. A. Trump, Ottawa.—p. 288.
Doctor and So-Called Cults. C. C. Goddard, Leavenworth.—p. 289.
Law for Doctor. Right of Physician Selling Location and Practice to Resume Practice in Immediate Vicinity. L. Childs.—p. 292.

Medical Record, New York

Oct. 15, 1921, 100, No. 16

- Surgery in Advanced Cancer. W. S. Bainbridge, New York.—p. 663.
Another Case of Ulcerative Colitis Successfully Treated by Colonic Irrigations from Above. M. Einhorn, New York.—p. 668.
Clinical Calorimetry. C. F. Morsman, Spokane, Wash.—p. 670.
Action of Radium on Tumors of Bone. I. Levin, New York.—p. 673.
Rectal Cancer; Operative Methods. H. O. Sommer, Washington, D. C.—p. 675.
Roentgen-Ray Diagnosis of Pathologic Appendix. C. Eastmond, Brooklyn.—p. 677.
Treatment of Football Injuries. H. E. Stewart, New Haven, Conn.—p. 679.
Indican and High Specific Gravity of Urine. J. C. Warbrnick, Chicago.—p. 680.

Oct. 22, 1921, 100, No. 17

- Shock and Fatigue with Acute and Chronic (Cytost-Anticytost) Reaction. F. B. Turck, New York.—p. 705.
Surgical Treatment of Selected Cases of Purulent Meningitis. W. Sharpe, New York.—p. 709.
Speech. E. D. Fisher, New York.—p. 713.
*Treatment of Epilepsy. Based on Records of Fifty-Eight Cases. I. S. Wechsler, New York.—p. 714.
Specific Treatment of Dermatitis Venenata (Rhus Toxicodendron). A. Sayer, New York.—p. 717.
Adenoidectomy in Acute Ear Conditions of Children. J. A. Glassburg, New York.—p. 720.
Ulcers of Rectum. A. A. Landsman, New York.—p. 722.

Treatment of Epilepsy.—Whereas there are treatments for epilepsy, Wechsler says there is no real treatment. No drug can be said to be specific if for no other reason than that essential epilepsy is not a disease, but a symptom complex of possibly numerous unknown underlying conditions. So too, it may be observed that any one of the well known methods of treatment, however empiric, may at first help to reduce the number of seizures. Sometimes a drug will act beneficially for a time, then cease to have an effect; the substitution of another drug may then bring about renewed amelioration. Success in treatment frequently results only from persistent effort, and if one drug after another does not help it may be wise to combine several of them to obtain desired results. In some cases at times, gradually increasing doses of the same drug may control the seizures when the smaller doses do not. This is particularly true of luminal, which frequently fails if administered in small quantities and succeeds in larger ones. Finally, there are numerous patients who do not respond to any treatment or combination of treatments even if fortified by rigid dietetic and hygienic regulations.

Missouri State Medical Association Journal, St. Louis

October, 1921, 18, No. 10

- Application of Wassermann Report. G. Doek, St. Louis.—p. 339.
Working Knowledge of Modern Anatomy. M. Pitzman, St. Louis.—p. 341.
Toxemia of Pregnancy. G. C. Mosher, Kansas City, Mo.—p. 346.
Modern Methods of Conducting Labor. A. L. Gray, St. Joseph.—p. 348.

- Two Cases of Carcinoma of Bladder in Relatively Young Adults. N. Moore, St. Louis.—p. 352.
Present Conception of Tuberculosis. B. S. Veeder, St. Louis.—p. 356.
Radium Therapy in Diseases of Women. P. F. Cole, Springfield, Mo.—p. 363.

New York Medical Journal

Oct. 5, 1921, 114, No. 7

- Etiology and Treatment of Eclampsia. B. C. Hirst, Philadelphia.—p. 377.
Surgical Endothermy in Malignancy and Precancerous Conditions. G. A. Wyeth, New York.—p. 379.
Treatment of Carcinoma of Cervix and Uterus by Radium Supplemented by Deep Roentgen-Ray Therapy. R. H. Boggs, Pittsburgh.—p. 381.
Prophylaxis in Carcinoma of Cervix. I. Smiley, New York.—p. 384.
Obstetric End Results of Tracheloplastic Operation. M. O. Magid, New York.—p. 387.
Drainage in Pelvic Abdominal Surgery. H. Kelly, Baltimore.—p. 390.
Comparative Value of Whole Ovarian Extract, Corpus Luteum Extract, and Ovarian Residue in Menstrual Disorders. J. C. Hirst, Philadelphia.—p. 391.
Dysmenorrhea. J. V. D. Young, New York.—p. 395.
Two Cases of Acute Inversion of Uterus. W. P. Manton, Detroit.—p. 397.
Present Status of Treatment of Uterine Fibroids. S. Wiener, New York.—p. 400.
Unilateral Twin Tubal Pregnancy. M. Thorek, Chicago.—p. 403.
Review of Recent Obstetric Progress. J. O. Arnold, Philadelphia.—p. 405.
Practical Prenatal Care. P. Oginsz, Brooklyn.—p. 408.
Accidents During Delivery. C. M. Stimson, Philadelphia.—p. 410.
Difficulties Encountered in Pregnancy. Labor and Lactation in Working Class Mothers and Those of the Educated Classes. G. Ley, London.—p. 412.
Antenatal Factors of Life and Death: Genetic, Toxigenetic, Gestational and Obstetric. C. W. Saleeby, London.—p. 413.
Dangers and Treatment of Antenatal Syphilitic Environment. J. H. Sequeira.—p. 415.
Congenital Abdominal Ascites with Other Abnormalities. Report of Case. L. Blumenfeld, Brooklyn.—p. 416.

Oct. 19, 1921, 114, No. 8

- *Treatment of Premature Loss of Hair. G. M. MacKee and G. C. Andrews, New York.—p. 437.
Tooth Infection. O. T. Osborne, New Haven, Conn.—p. 442.
Moving Bucky Diaphragm. S. Tousey, New York.—p. 444.
Elimination of Secondary Radiation in Radiography. M. V. Abrams, Brooklyn.—p. 447.
Roentgen-Ray Therapy in Chronic Diseases of Bones, Joints and Tendons. H. B. Philips and H. Finkelstein, New York.—p. 448.
*Operation for Femoral Hernia with a Suprapubic Incision. C. Savini, New York.—p. 451.
Biology of Bone Development in Its Relation to Bone Transplantation. P. W. Nathan, New York.—p. 454.
Rectovaginal Septum in Proctology. D. C. McKenney, Buffalo.—p. 456.
Static Influence of Shortened Pelvic Muscles. J. J. Nutt, New York.—p. 459.
Abdominal Drainage. F. L. Hupp, Wheeling, W. Va.—p. 460.
Immature Cataractous Lens. H. E. Smith, New York.—p. 462.
Simulation of Epidemic Encephalitis by Drug Poisoning. G. Wilson, Philadelphia.—p. 467.
Simple Anorectal Fistula Simulating the Tuberculous Variety. A. A. Landsman, New York.—p. 468.
Local Anesthesia in Dental, Oral, Nose and Throat Surgery. H. E. Tompkins, New York.—p. 469.
Hepatic Fever Due to Gumma of Liver. G. A. Friedman, New York.—p. 475.
Economic Fallacy of Fitting Glasses in Hospitals. A. Brav, Philadelphia.—p. 477.

Treatment of Premature Loss of Hair.—MacKee and Andrews advocate daily brushing of the hair as being in most cases beneficial. If the hair is very dry, brittle, and breaks readily brushing is perhaps harmful. The hair and scalp should be kept clean. The frequency with which these parts should be washed will depend on conditions. As a general rule, a shampoo should be given once weekly. Castile soap will answer most of the requirements. Because seborrhea of the scalp is contagious patients should be instructed to avoid any but their own tonsorial articles and to keep such articles in a sanitary condition. Susceptibility and reinfection may be the cause of many failures in cases of seborrheic alopecia. Certain it is that most patients who have once had seborrheic alopecia will have repeated attacks throughout their lives. Such people should keep an antiseptic and stimulating hair lotion on their dresser and at the slightest evidence of trouble begin to use it. People who have trouble with their hair must take good care of both hair and scalp all their lives. Such prophylactic treatment consists of keeping the scalp and hair clean with castile soap, avoiding reinfection as far as possible, keeping the scalp loose from the skull, avoiding excessive dryness by applying oil, and using an antiseptic lotion once or twice weekly. Physicians should watch for congestion of the scalp.

If the congestion is not the effect of treatment, it will usually disappear as a result of treatment. If, however, it is due to overtreatment, all stimulating treatment should be discontinued until the congestion disappears. If the scalp is bald there is no use in attempting to restore the hair. In early cases massage, sun bathing, high frequency treatment, and ultraviolet therapy will help to delay the process. The authors furnish prescriptions for twenty preparations which they have found useful in these cases.

Operation for Femoral Hernia.—Savini's operation is a modification of the Ruggi method first described in 1893. He opens the abdomen in the midline above the pubis with a vertical incision. The two recti muscles are separated and the rectus of the side of the hernia is retracted with a strong retractor. The peritoneum is separated from the abdominal walls and the femoral ring is exposed. The sac is separated from the femoral ring with blunt dissection and is pulled out intact from the femoral canal with the aid of a small spongeholder. The sac has now the appearance of a diverticulum of the peritoneum and can be easily opened and when empty of its contents can be ligated and excised at the level of the peritoneum. Two or three stitches will now bring the Poupart ligament nearer to the Cooper ligament to reduce the diameters of the orifice. In this modification the operation is practically identical with the operation of Ruggi, the only difference being that the inguinal canal is not opened.

Rhode Island Medical Journal, Providence

October, 1921, 4, No. 10

- State Hospital for Mental Diseases. A. H. Harrington, Howard.—p. 127.
Psychoses Following Head Injury. A. H. Harrington.—p. 129.
Whom Should We Commit? G. B. Coon, Howard.—p. 131.
Case of Torsion of Omentum and Double Femoral Hernia. C. O. Cooke, Providence.—p. 135.

Southern Medical Journal, Birmingham, Ala.

September, 1921, 14, No. 9

- Diagnostic Study of One Thousand Cases Seen in Southeast. S. R. Roberts, R. N. Holland and L. B. Robinson, Atlanta, Ga.—p. 665.
Fractional Analysis of Gastric Contents. J. Friedenwald and Z. R. Morgan, Baltimore.—p. 671.
Pellagra. J. L. Jelks, Memphis.—p. 678.
Proposed Standard Treatment for Early Syphilis. G. Walker, Baltimore.—p. 683.
Rational Method of Producing Antihuman Amboceptor in Rabbits. G. F. Klugh, Atlanta, Ga.—p. 684.
Malnutrition in Children of Well-to-Do. C. G. Kerley, E. J. Lorenze, Jr., and R. H. DuBose, New York.—p. 685.
Endocrine System in Infancy and Early Childhood. O. W. Hill, Knoxville, Tenn.—p. 689.
Roentgen-Ray and Radium as an Aid to Surgery in Deep Seated Malignancies. W. O. Floyd, Nashville.—p. 697.
Radium Therapy in Fibroid and Other Benign Conditions of Uterus. W. Kohlmann and E. C. Samuel, New Orleans.—p. 703.
Extension Treatment of Fractures. T. H. Ingram, Memphis.—p. 710.
Factors That Lower Mortality Rate of Suprapubic Prostatectomy. G. R. Livermore, Memphis.—p. 713.
Combined Examination of Urinary Tract by Urologist and Roentgenologist. H. E. Ashbury and A. E. Goldstein, Baltimore.—p. 719.
Nausea and Vomiting of Pregnancy. J. R. Garber, Birmingham.—p. 726.
Eliminative Subjective Testing for Glasses. C. A. Bahn, New Orleans.—p. 732.
Antrum Operation with Demonstration of New Instruments. E. L. Roberts, Nashville.—p. 742.

Surgery, Gynecology and Obstetrics, Chicago

October, 1921, 33, No. 4

- *Radical Abdominal Hysterectomy for Cancer of Cervix Uteri. H. Okabayashi, Kyoto, Japan.—p. 335.
*Tendon Transplant for Intrinsic Hand Muscle Paralysis. K. W. Noy, New York.—p. 342.
*Indications for Surgical Treatment in Different Types of Goiter. W. E. Sistrunk, Rochester, Minn.—p. 348.
Relaxation of Vaginal Outlet. L. E. Burch, Nashville, Tenn.—p. 353.
*Clinical and Experimental Observations in Use of Saline Irrigation in Treatment of Diffuse Peritonitis. A. M. Willis, Richmond, Va.—p. 355.
*Papillary Cystadenoma of Ovary. J. F. Erdmann and H. V. Spaulding, New York.—p. 362.
*Splenectomy in Third Stage, Banti's Disease. H. B. Sweetser, Minneapolis.—p. 376.
Results of Alkalization of Operative Cases. E. Cary, Chicago.—p. 381.
*Embolism and Thrombosis of Superior Mesenteric Artery. E. Klein, New York.—p. 385.
Is Surgeon of Experience Ever Justified in Violating Recognized Surgical Technic in Dealing with Malignant Neoplasms? L. L. McArthur, Chicago.—p. 406.

- *Report of Cases Treated with Radium in Gynecologic Service at St. Luke's Hospital. H. O. Jones, Chicago.—p. 409.
- Esophageal Stricture Following Vomiting of Pregnancy; Six Cases. P. P. Vinson, Rochester, Minn.—p. 412.
- *Complement Fixation in Diagnosis of Gonorrhea in Women. W. W. Lailey and H. C. Cruikshank, Toronto.—p. 414.
- *New and Advanced Surgical Treatment for Breast Cancer: The Cautery Knife. J. F. Percy, San Diego, Calif.—p. 417.
- Section of Sensory Root of Fifth Cranial Nerve Under Local Anesthesia. W. T. Coughlin, St. Louis.—p. 424.
- Final Report on Case of Radical Operation for Cure of Double Obturator Hernia; Failure. C. Van Zwalenburg, Riverside, Calif.—p. 429.
- Improved Rubber Covered Rectal Tampon. J. R. Pennington, Chicago.—p. 430.
- Knife for Cervical Caesarean Section. J. B. DeLee, Chicago.—p. 431.

Radical Abdominal Hysterectomy for Cervix Cancer.—Okabayaski has modified Takayama's operation so that in his opinion any case of cancer of the uterus, whether in a very advanced stage or in a primary stage, is operable. The method is said to render extirpation easy and bloodless, even though the parametrium is extensively infiltrated with cancer and though one excises the tissue near the pelvic floor.

Tendon Transplantation for Hand Paralysis.—In the operation described by Ney the short extensor tendon of the thumb is passed through a tunnel under the anterior annular ligament and transplanted into the tendon of the palmaris longus, or that muscle being absent (about 20 per cent. of cases) into the flexor carpi radialis.

Surgical Treatment of Goiter.—Sistrunk states that colloid goiters occurring in young persons, are not surgical, and respond to treatment with iodine and thyroxine. Adenomatous goiters usually appear in young persons. Twenty-three per cent. of the patients with adenomatous goiters seen in the Mayo Clinic show symptoms of hyperthyroidism, but these symptoms do not develop until the goiter has been present for an average of about sixteen years. In young persons, unless the goiters attain considerable size or produce symptoms of pressure, they are not considered surgical. In the majority of instances after patients with adenomatous goiter have attained the age of 25 or 30, surgery is advocated. All adenomatous goiters associated with hyperthyroidism are considered surgical if the condition of the patient will permit an operation. Exophthalmic goiter is best treated surgically, and the best results are obtained in patients operated on early in the course of the disease before marked damage has been done to the vital organs. Many patients require one or two ligations of the superior thyroid vessels preliminary to thyroidectomy in order to make thyroidectomy a safer procedure. If care is exercised in selecting the type of operation which should be performed in a given case, the mortality following operations is low.

Irrigation Treatment of Peritonitis.—Clinical experience and animal experimentation indicate to Willis strongly that saline irrigations are of value in the treatment of progressive diffuse peritonitis, and he is convinced that it has enabled him to save patients who would otherwise have succumbed. In fourteen cases gastric lavage, opiates, and the free use of salt solution by rectum and subcutaneously were used. Seven patients succumbed. Of nineteen patients, eighteen were treated by free incision, the opening of all pockets, and combined irrigation with physiologic sodium chlorid solution and a water or electric suction apparatus was used. The technic did not cause unnecessary trauma to the peritoneum, and with the use of the suction apparatus, it was little more time consuming than the operation where irrigation was omitted. Of the nineteen patients seen, three died.

Cystic Disease of Ovary.—In a review of 5,000 consecutive pathologic sections cystic disease of the ovary constituted 200, or 4 per cent., and of the 200, thirty-six, or 18 per cent., were papillary. Erdmann and Spaulding believe that the most probable development is from a cellular perversion of the germinal epithelium. There is a strong tendency to bilateralism (22.2 per cent.) and local metastasis. General metastasis is not rare. Microscopically 66.6 per cent. of papillary cystadenomas were cancerous or precancerous.

Splenectomy in Banti's Disease.—Sweetser analyzes forty-two cases recorded in the literature and reports a case of his own in which fifteen months after removal of the spleen the patient, a man, aged 37, was apparently in perfect health. A relative lymphocytosis has recurred, and the normal relationship of neutrophils to lymphocytes is even more markedly

disturbed than prior to the splenectomy; in other words, that the blood findings, as concerns the leukocytes, have reverted to the infantile type. A plea is made for detailed histories of all cases of this type, subjected to splenectomy, and also for subsequent reports of progress at sufficiently late date after operation to determine the ultimate result as regards permanency of cure.

Occlusion of Superior Mesenteric Vessels.—A clinical picture of an acute intestinal obstruction lasting many hours, with bloody vomitus, and after that profuse and watery bowel movements also containing blood Klein says suggests the diagnosis of occlusion of the superior mesenteric artery or vein. The violent colic, the distention, the presence of a palpable coil, and the absence of temperature, all tend to confirm that view. He reviews the literature and adds one case.

Radium in Gynecologic Cases.—Jones reports on more than 500 cases in which radium was used: fibroids, 120 cases; hemorrhage, 129 cases; carcinoma, 100 cases; leukorrhea, 60 cases; miscellaneous, 100 cases. These cases run the pathologic gamut from superficial skin lesions to inoperable carcinoma of the bowel, including various benign and malignant tumors.

Gonorrhea Complement Fixation Test in Women.—The results from 217 serums from women tested by the method described by Lailey and Cruikshank gave 116 positive reactions and ninety-six negative reactions. In the cases with positive reactions smears were positive for gonococcus in 92 and smears were negative in 12. Of six with doubtful gonococcus smears all had profuse vaginal discharges. Of the twelve showing negative smears, seven had pelvic inflammatory masses and the husband of one had chronic gonorrhea. The cases with negative reactions covered all stages of infection from fresh infections to chronic conditions of years' duration.

Cautery Knife in Breast Cancer Operation.—The condition of the inoperable case of cancer is so desperate that its consideration from the standpoint of treatment places it outside the realm where ordinary surgical judgment can rule or guide. It is in this class of cases that Percy uses the cautery knife. The unheated knife does not devitalize any of the malignancy it does not remove. The hot knife does. The cold knife does not spoil the soil for the further development of cancer. The hot knife does. The knife unfortified with heat, if it touches cancer, vaccinates it into new area. The hot knife does not. The cold knife stimulates the growth of the unremoved cancer cells. With the hot knife this is impossible. The actual technic of the use of the hot knife in cancer has for its main purpose the wide removal of the proximate lymphatics with their load of malignant cells, and the destruction of the distant ones by the dissemination of the heat as far as it is possible to make it go through the apparently uninvolved tissue. This method of dissection with the hot knife is described fully.

Virginia Medical Monthly, Richmond

October, 1921, 48, No. 7

- *Rupture of Heart. J. S. Davis, University.—p. 361.
- Present Status of Intravenous Therapy. A. F. Robertson, Jr., Staunton.—p. 364.
- Measuring Intelligence. E. P. Tompkins, Roanoke.—p. 367.
- Etiology, Pathology and Diagnosis of Surgical Diseases Under Symposium of "Diseases of Kidneys, Ureters and Bladder." L. T. Price, Richmond.—p. 371.
- Case of Chronic Nephrosis as Classified by Epstein. C. E. Conrad, Harrisonburg.—p. 375.
- Nasal (Sphenopalatine Meckel's) Ganglion Neurosis and Hyperplastic Sphenoiditis. H. R. Etheridge, Norfolk.—p. 377.
- Results of Operation on Eleven Hundred Women for Disease of Pelvic Organs and Outlet. C. P. LaRoque, Richmond.—p. 384.
- *Drug Therapy in Epilepsy. V. R. Small, Raleigh, N. C.—p. 386.
- Constipation. G. P. Hamner, Lynchburg.—p. 390.
- Perforating Ulcer of Lesser Curvature, Obstructing Ulcer at Pylorus, Hydrops of Gallbladder. Report of Case. J. R. Verbrycke, Washington, D. C.—p. 392.
- Acute Osteomyelitis. J. W. Gibbon, Charlotte, N. C.—p. 394.
- Acute Mastoiditis. J. E. Diehl, Norfolk.—p. 399.
- Hysterical Amblyopia. Report of Case. C. Edmond, Clifton Forge.—p. 401.
- Importance of Early Recognition and Treatment of Prostatic Hypertrophy. W. C. Stirling, Jr., Winston-Salem, N. C.—p. 402.
- Foreign Body in Postnasal Space. Report of Case. E. R. Miller, Harrisonburg.—p. 404.

Use of Glucose Intravenously in Certain Postoperative Conditions. A. De T. Valk, Winston-Salem, N. C.—p. 405.
Conservative Treatment of Eclampsia. J. A. Lipnick, Norfolk.—p. 407.
Lest We Forget: Memorial to the Late Joseph Price. J. W. Kennedy, Philadelphia.—p. 409.
Gunshot Wound. R. H. Pretlow, Suffolk.—p. 413.

Rupture of Heart.—The striking features of Davis' case are the advanced age (66), male sex, moderate blood pressure and digestive symptoms with scarcely any cardiac difficulty, and no apparently adequate exciting cause for the fatality. On the posterior aspect of the heart, a longitudinal rupture from one-half to three-fourths of an inch long was found in the left ventricle very close to the septum and about the middle third of the posterior aspect. Examination from the inside revealed in the corresponding place a defect in the endocardium, which was probably one inch by half an inch in dimensions. Under this there was an opening in the myocardium through which the dull end of the dissecting forceps passed quite readily, though the orifice became distinctly smaller as the epicardium was approached. There were no blood clots or thrombi connected with it, and it had evidently not originated beneath a mural thrombus. The wall looked healthy and did not feel particularly soft to the finger or forceps. This was the only area of the kind, and there were no evidences of gumma, tubercle, or tumor formation anywhere.

Luminal in Epilepsy.—In Small's series of fifty cases, 80 per cent. responded well to luminal treatment.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 8, 1921, 2, No. 3171

- *Some Common, but Often Unrecognized, Obstetrical Difficulties. W. B. Bell.—p. 545.
- *Experimental Rickets in Rats. V. Korenchevsky.—p. 547.
- Site of Operation for Empyema. D. C. L. Fitzwilliams.—p. 550.
- Intravenous Injection of Antimony Tartrate in Japanese Bilharzia Disease. J. B. Christopherson.—p. 551.
- *Association of Skin Tuberculosis with Visceral and Other Tuberculous Manifestations. G. H. Lancashire.—p. 551.
- Cutaneous Sensitization and Focal Sepsis in Etiology of Certain Skin Affections. H. W. Barber.—p. 554.
- Cutaneous Sensitization. R. C. Low.—p. 559.
- Skin Diseases in Pensioners. H. MacCormac.—p. 561.
- Treatment of Narcomania. S. Park.—p. 563.
- Case of Fibrosis of Lung. T. M. Allison.—p. 563.
- *Self-Inflicted Rupture of Small Intestine Caused by Reduction of Non-strangulated Inguinal Hernia. P. J. Moir.—p. 563.

Cause of Uterine Inertia.—Bell discusses occipitoposterior presentations; postmaturity; certain pelvic deformities—non-rachitic flat pelvis; generally contracted pelvis; funnel-shaped pelvis—and that form of primary uterine inertia in which the normal pressor substances that stimulate uterine contractions in parturition are insufficient. He claims that it is possible to discover this condition before the onset of labor, and without difficulty to prevent it. During the last two or three weeks of gestation, the uterus is very sensitive and the muscle contracts readily on simple stimulation, such as that produced by gentle kneading with the hand. If the uterus remains flaccid and tends to sag at the sides without proper central protuberance, there is every likelihood that, unless the condition be remedied, labor will be inert. Confirmation of the conditions of primary inertia may be obtained by an estimation of the systolic blood pressure, which should be higher than normal during the last weeks of pregnancy. Usually the pressure at this time is equal to that of 140 mm. Hg. If the blood pressure be found to register 110 mm. Hg or less, there is almost certainly some insufficiency of pressor substances. Normally, the amount of the ionized calcium in the blood tends to rise at the end of pregnancy, owing to the lessened demands of the fetus, and these salts greatly influence the tone of involuntary muscle fibers. It is necessary, therefore, in the cases to supply calcium in an absorbable form. Bell used a preparation known as *mistura calcii lactatis recentis*—pure concentrated lactic acid (200 grains), precipitated calcium carbonate (75 grains), and chloroform water 8 ounces. About 2 ounces of the mixture should be given every night.

Experimental Rickets.—The results obtained by Korenchevsky agree, in general, with the results of the experiments of Mellanby, McCollum, Simmonds, Parsons, Shipley and Park.

Association of Skin and Visceral Tuberculosis.—Lancashire refers to a series of lupus cases taken in the order of their notification about 1913 showing by 1921 visceral tuberculous disease in 11 per cent., with a fatal issue in about 4 or 5 per cent. Of fifty patients with lupus vulgaris examined for signs of visceral tuberculosis, one had active phthisis. In this case the lupus had succeeded the lung disease. Two cases had the appearance of chronic phthisis, but cough was the only definite symptom, and there were no other signs of activity. No tubercle bacilli were found in the sputum. Two cases presented evidence of old and apparently arrested phthisis. In the remaining forty-five cases there were no physical signs distinctive of recent or old phthisis. Twenty-four of these were beyond suspicion, but in the remaining twenty-one, the physical condition, build, and poor percussion resonance over the apices, allowed suspicion of tuberculous predisposition. Lancashire says that whereas the causal relationship of primary visceral with secondary cutaneous tuberculosis is already established, the contrary causal relationship is not yet definitely proved. Probably infection of the viscera from the skin does occasionally occur, but the majority of cases of cutaneous tuberculosis in this respect remain "good lives."

Self-Inflicted Rupture of Intestine.—Moir's patient sustained a rupture of the small intestine when he attempted to reduce an inguinal hernia by using considerable force.

Japan Medical World, Tokyo

Sept. 15, 1921, 1, No. 5

- Studies on Vasomotor Nerves of Lung of Toads. T. Mashima.—p. 1.
- Blood Changes Following Injection of Splenic Fluid and Influence of Spleen on Blood Coagulation. H. Ohara.—p. 5.
- Aggressive Action of Filtrates of Bacterial Cultural Mediums. I. Otsubo.—p. 7.
- Catalytic Action of Components of Hemolytic Complement. I. Uyeno.—p. 11.

Lancet, London

Oct. 8, 1921, 2, No. 5119

- *Respiratory Efficiency in Relation to Health and Disease. M. Flack.—p. 741.
- Mucocele and Pyocele of Nasal Accessory Sinuses. W. G. Howarth.—p. 744.
- *Nutrition. II. M. R. Gribbon and D. N. Paton.—p. 747.
- *Prognosis in Patients Presenting Rapid Heart Action. J. Hay.—p. 750.
- Vitamin: Content of Oils. S. S. Zilva and J. C. Drummond.—p. 753.
- *Case of Gangrene Following Measles. E. Thorpe.—p. 754.
- Case of Multiple Sarcoma. J. A. C. Macewan.—p. 754.
- *Case of Intraperitoneal Rupture of Bladder. D. Chattaway.—p. 754.
- Combined Extradural and Intradural Hemorrhage; Recovery. M. L. Treston.—p. 755.
- *Two Unusual Gynecologic Cases. J. C. H. Leicester.—p. 755.

Exercises for Establishing Respiratory Efficiency.—A system of ten exercises has been elaborated by Flack which take about ten minutes daily to perform and incorporating so far as possible, natural movements. They will be found useful in preserving the physical efficiency of those engaged in sedentary occupations and will enable them to indulge in open air exercise without undue fatigue. They are in no way designed to supplant recreational exercise nor to replace more elaborate systems of physical training.

Nutrition of Viennese Children.—The general conclusion reached by Gribbon and Paton is that a state of undernutrition affecting the growth of the children has existed in Vienna and the adjoining country. No evidence is afforded that this has been associated with any marked increase in the incidence of rickets. Life and a certain amount of activity have been sustained on a gross energy intake of little over 2,000 calories per man per day, which must be explained in the light of Benedict's finding that undernutrition markedly decreases the basal metabolism.

Prognosis in Rapid Heart Action.—Rapid heart action Hay says may be a symptom and nothing more; the manner of systole is normal, the rhythm is physiologic. The element of danger is not in the rapid action but in the reason for its presence. The prognosis will depend on an accurate understanding of the primary cause and the possibility or other-

wise of remedying it. In a second group the rapid action is fundamentally different. It originates in the heart itself. It is a disease rather than a symptom. The actual contraction of the heart is abnormal and less efficient. In some patients the auricles and ventricles contract simultaneously, and in the majority the auricles have ceased to take any share in the circulation. The presence of tachycardia and irregularity is evidence of the existence of a pathologic rhythm. The immediate danger to the patient results from the exhausting effect of the rapid and relatively inefficient action of the heart. The faster the rate, the greater the danger. The prognosis improves as treatment is effectual in slowing the heart. Rate for rate the prognosis is graver if the action is irregular. Irregularity results in inadequate filling of the heart during diastole. In every case the immediate prognosis depends on the manner in which the heart has responded to the extra strain entailed by the sudden change in the rhythm. The accuracy of the more remote prognosis will depend on an acquaintance with the usual course, followed by the various forms of rapid action under differing conditions.

Gangrene Following Measles.—Thorpe cites the case of a child, aged 4½ years, suffering from measles which on the eleventh day of the disease developed gangrene of the toes of the left foot and rapidly spread up the leg to the region of the knee joint, a well marked line of demarcation forming at the level of the junction of the upper and middle thirds of the tibia; at the latter part of this period of twenty-four hours a patch of dry gangrene was observed on the great toe of the right foot. The condition of the child was such that it was thought advisable to operate and it died on the fifteenth day of the disease.

Intraperitoneal Rupture of Bladder.—The interesting features of Chattaway's case are its great rarity and the fact that a patient was able to make an uninterrupted recovery after having a large amount of foul urine in the peritoneal cavity for thirty hours. The diagnosis was obvious and the treatment easy, although when first seen the patient appeared moribund. However, an operation was her only chance, and she made a remarkable recovery.

Carcinoma of Cervix: Ruptured Tubal Pregnancy.—Leicester reports a case of columnar carcinoma occurring in the cervix left after a subtotal hysterectomy and a case of rupture of a tubal gestation in the third week of pregnancy.

Oct. 15, 1921, 2, No. 5120

Crime and Mental Deficiency. W. C. Sullivan.—p. 787.

*Hair-Balls or Hair-Casts of Stomach and Gastro-Intestinal Tract. I. J. Davies.—p. 791.

*Treatment of Syphilis by Intravenous Injections of Mercury. J. E. Lane.—p. 796.

*Four Genito-Urinary Cases. J. W. G. Grant.—p. 797.

*Cultivation of Spirochetes. F. W. Twort.—p. 798.

Accuracy of Formalin and Sachs-Georgi Tests for Syphilis. W. N. Kingsbury.—p. 799.

Case of Dermatitis Herpetiformis. A. R. Fraser.—p. 801.

Intravaginal Treatment for Chronic Cervicitis and Endometritis. G. W. Rundle.—p. 802.

Hair Ball in Stomach.—Two cases of hair-cast of the stomach are reported by Davies and 108 cases from the literature are abstracted.

Mercuric Cyanid Intravenously in Syphilis.—Lane endorses the value of intravenous injections of cyanid of mercury, given concurrently with one of the arsphenamin substitutes, and for the prophylaxis of syphilis considers it to be infinitely superior to any other routine of treatment. The routine adopted is one injection of one of the arsphenamin substitutes and five injections of the cyanid solution per week; the doses of the latter varied with the tolerance of the patient, and it was found that many patients could stand a dosage of from 40 to 50 minims, so that they received from 200 to 250 minims in the course of a week. The maximum number of cyanid injections given was 110, in a case of very severe and disfiguring framboesiform syphilid of the nose and face; in sixteen cases more than fifty injections were given, and in thirteen cases, forty or more injections were given; the average number given came out a little under forty; the total number amounted to considerably over 5,000. The strictest attention was paid to the hygiene of the mouth, and the occurrence of severe gingivitis or other manifestations of mercurialism was rare, so that under appropriate treatment

the injections had seldom to be interrupted for more than a few days; in two cases phlebitis and occlusion of the veins occurred, and necessitated the recourse to other forms of mercurial treatment.

Tuberculous Kidney; Ureter Stone.—The cases reported by Grant are: tuberculous kidney with blocked ureter; stone in ureter simulating acute appendicitis; pain after gastrojejunostomy; renal stone, and accessory renal artery with intermittent hydronephrosis.

Cultivation of Spirochetes.—The "essential substance" used by Twort for the cultivation of bacteria difficult to cultivate, especially spirochetes is stored up in the bodies of allied bacteria such as the tubercle bacilli and *Bacillus phlei*. The growth of *B. phlei* is collected, killed by steaming, and dried. One gram of the dried bacillus is ground up with 12 c.c. glycerin and 22 c.c. of physiologic sodium chlorid solution. The emulsion so obtained is autoclaved, and when cool is added to 66 c.c. of mixed yolk and white of new laid eggs. The medium was then placed into tubes, sterilized at 61 C. on three successive days, and inspissated in slopes.

Annales de Médecine, Paris

August, 1921, 10, No. 2

*Glandular Dystrophia. V. Hutinel and M. Maillet.—p. 89.

The Undifferentiated Blood Cell of Acute Leukemia. N. Fiessinger and J. Broussolle.—p. 115.

*Old Syphilitic Myocarditis. E. Lenoble.—p. 125.

*The Pneumococcus and Pneumococcus Infections. J. Paraf.—p. 144.

Dystrophia of Endocrine Glands.—Hutinel and Maillet comment on the new orientation impressed on medicine in late years by the conception of internal secretions, and especially by monosymptomatic dystrophia of the various endocrine glands. They review in detail the whole field, emphasizing the influence of deranged endocrine functioning on skin, skeleton, and circulation. The digestive apparatus seems to feel the influence less than others. In girls, the thyroid and ovary and in boys, the pituitary and testicles are responsible for certain symptoms, usually associated with their dystrophia. Certain endocrine insufficiencies are evidently responsible for certain features of the so-called diatheses, but the food, the mode of life, muscular exercise, etc., evidently cooperate so we must not ascribe too much importance to the endocrine system in the arthritic and lymphatic diatheses, for example.

Old Syphilitic Myocarditis.—Lenoble refers to myocarditis which he calls *déshabitées*; that is, the spirochetes have long moved out. He gives details of ten cases; the aorta is usually involved at the same time as the myocardium. These cases are distinguished by the sudden and brutal onset of the heart disturbances; the fleeting and transient periods of improvement and the exacerbations. The latter may be preceded by violent pain in the precordial region, resembling that of angina pectoris, and sudden death is relatively frequent. The spirochetes seem to linger in the myocardium only a short time, and probably cannot be found in it except for a brief period at first, but the lesions entailed are irreparable. It is still a question whether the lesions found at necropsy are the work of the spirochetes or of their toxins.

Pneumococcus Infection.—Paraf draws up the balance sheet of pneumococcus infection and its treatment, presenting evidence to establish anew the share of healthy carriers in contagion. Fomites and the air are also liable to transmit the infection. His experience testifies to the advantage of preventive vaccination when there is danger of the spread of pneumococcus infections in institutions. He advises three injections at seven days interval. In treatment, the subcutaneous injection of the antiserum in influenzal bronchopneumonia gave very inconstant results in France. The results were much better when given by the vein. The experiences in America are compared with those in other countries. Intravenous plus intrapulmonary injection of the antiserum in some desperate cases of influenzal pneumonia resulted in some cures beyond all anticipations.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 29, 1921, 45, No. 27. Only first half reviewed.

*Schick Reaction in Measles. Lereboullet, Marie and Brizard.—p. 1210.

*Mediastinal Lymphocytoma. Babonneix, Denoyelle and Poliet.—p. 1212.

- *Syphilitic Cranial Osteitis. P. Merklen and L. Desclaux.—p. 1216.
 *Syphilitic Origin of Deforming Rheumatism. H. Dufour and A. Ravina.—p. 1219.
 *Sodium Thiosulphate in Therapeutics. R. Mathieu.—p. 1223.
 *Familial Pleonosteosis. A. Léri.—p. 1228.
 *Tertiary Syphilitic Fever. Edhem (Saloniki).—p. 1231.
 *Autovaccine Therapy in Typhoid. D'Oelsnitz.—p. 1234.
 *Sensitization to Antipyrin. M. Labbé and J. Haguénau.—p. 1237.
 *Sacralization of Lumbar Vertebra. A. Léri.—p. 1241.
 *Action of Potassium Chlorid in Renal Dropsy. L. Blum, E. Aubel and R. Hansknecht.—p. 1244.
 *Horse Asthma. P. Vallery-Radot and J. Haguénau.—p. 1251.
 Stenosis of Duodenal Bulb. F. Ramond, Vincent and Clément.—p. 1260.

The Schick Reaction in Measles.—The proportion giving a positive reaction among 110 children with measles was about 60 per cent. of those from 6 months to 5 years old, and 40 per cent. of those older than this. The proportions were thus the same as in children free from measles. The conclusion seems evident that measles does not affect the reaction. The latter thus seems to be totally different from other biologic reactions.

Lymphocytoma in Mediastinum.—The diagnosis had been first acute pericarditis with effusion in the boy of 12; tuberculous symphysis then became more probable. The liver was pushed down, but it seemed merely to be abnormally large, and the testicle seemed to be the seat of a tuberculous process when in reality there was a metastatic tumor in it. The hemorrhagic pleurisy and the cyanosis of the face might have warned of a mediastinal tumor, with the precordial bulging. Necropsy disclosed a large lymphocytoma filling the mediastinum, with metastasis in kidneys and testicle.

Syphilitic Osteitis of Skull.—The rectangular ulceration in the left parietal bone was followed by the casting off of a sequester 6 by 10 cm., showing the sound dura beneath, toward the close of a course of arsenical treatment. The patient was a female convict.

Syphilitic Origin of Deforming Rheumatism.—Dufour has previously reported nine cases of chronic arthritis deformans in syphilitics, and here reports another case. The syphilis is of a latent, torpid type, like that of syphilis inherited or acquired at conception. Treatment usually comes too late, but even then surprising benefit may sometimes be realized. In this latest case the man of 23 had attacks of pains in the joints, with fever, confining him to bed for ten months. Then his fingers became stiff and deformed, and the arms and shoulder are atrophied, with some atrophy of the legs now, five years after the first symptoms. In the discussion that followed, Merklen related some additional typical cases of the kind.

Treatment of Circumscribed Edema and Chorea.—Mathieu reports encouraging success in a case of circumscribed edema in a woman of 37 and in three cases of chronic chorea under treatment with 4 gm. or 2 gm. of sodium thiosulphate taken, fractioned, in a capsule in the middle of the meals. No benefit was noted in some epileptics. In all the cases all previous measures had failed, including peptone and anti-anaphylaxis.

Familial Disease of Ossification.—Léri relates that a man of 35, his daughter of 4, and a recently born son all present a special malformation of the hands, the second phalanges of all the fingers bent at a right angle, stiff, and abnormally large.

Syphilitic Fever in Tabes.—In the case reported by Edhem in a man of 65, attacks of high fever, gastralgia and vomiting returned once to three times a year for ten years, lasting each time for four or six weeks. The attacks had been ascribed to acute dyspepsia, although the man was known to be syphilitic, and symptoms of tabes had developed. Recently the suggestion that the febrile attacks might be a manifestation of syphilis led to specific treatment as a severe attack developed abruptly, and this cured it at once. The liver seemed to be normal in this man.

Vaccine Therapy of Typhoid.—D'Oelsnitz reports experiments with autogenous vaccines made exclusively from the stools.

Sensitization and Desensitization to Antipyrin.—This same article appeared elsewhere and was reviewed as follows in THE JOURNAL on page 1451, October 29, but was translated wrong. We reproduce it corrected as follows:

Labbé and Haguénau here report another case of sensitization to antipyrin which they conquered by desensitization methods. Widal and Vallery-Radot's report of their 'first case of the kind was summarized in these columns, April 10, 1920, p. 1055. The anaphylaxis to this drug had been noted for nine years in their case. In the case here reported by Labbé and Haguénau the drug had been taken only two or three times, and the anaphylaxis seems to be a kind of crossed sensitization, possibly from articles of food. They have encountered a case of this latter kind, anaphylaxis to strawberries having developed in consequence, apparently, of an injection of diphtheria antitoxin. Severe anaphylaxis phenomena followed the eating of strawberries afterward. The young woman was desensitized to antipyrin by the usual method of repeated small doses, but this desensitization did not last very long, the anaphylaxis developing anew although she had not taken any of the drug in the interim. The anti-anaphylaxis method, on the other hand, proved invariably successful, that is, giving a small dose of the drug one hour before the full dose. The colloidoclastic nature of the phenomena observed was confirmed by the leukocyte count at intervals. One remarkable fact brought out by their research is that the most intense upset in the leukocytes occurs almost instantaneously, and hence it escapes detection unless the blood count is made at once and repeatedly. This instantaneous reaction seems to be peculiar to this drug, probably on account of its rapid diffusion; it is sometimes refound in the urine in two minutes.

Sacralization of Vertebra.—Léri remarks that sacralization is the fashion; there is scarcely any obscure sciatica nowadays for which some roentgenologist does not suggest the broadening out of the fifth lumbar vertebra as a possible cause. In fifty-three of 100 roentgenograms of the region, the shadow of this vertebra impinged more or less on the ilium or sacrum or both, and in only twenty-three were the outlines in accordance with the accepted norm. However, there was no evidence that this sacralization could be responsible for the pains in more than 6 or 7 per cent. There do not seem to be any symptoms pathognomonic of this, and the diagnosis can be only by exclusion.

Action of Potassium Chlorid in Nephritic Edema.—Blum and his co-workers report research on the action and elimination of sodium chlorid and potassium chlorid in nephritis with a tendency to dropsy. Among the practical points thus brought out is that the potassium displaces the sodium in the tissues. As the retention of sodium chlorid is what entails the dropsy, by displacing the sodium with potassium, the water is released and can be voided. This is the explanation of the diuretic action of potassium chlorid, which has been neglected hitherto because we did not know how to use this drug.

Treatment of Horse Asthma.—Asthma of nineteen years' standing has been cured in the case described by a few weeks of repeated application of the sensitizing substance, horse hairs, laid on a small scarified area (Walker). This adds another method to the numerous ones already in use for conquering anaphylactic conditions—methods which fail sometimes, and sometimes are surprisingly successful.

Médecine, Paris

September, 1921, 2, No. 12

- *Progress in General Biology in 1921. J. Gautrelet.—p. 901.
 The Second Wind. J. P. Langlois.—p. 915.
 *Internal Secretion of the Nuclei. Doyon.—p. 918.
 *The Balance Between the Bases and Acids of the Organism. L. S. Henderson (Harvard).—p. 923.
 *The Nature of Spirochetes. F. Mesnil.—p. 930.
 *The Thresholds in Kidney Secretion. L. Ambard.—p. 936.
 *Rôle of Liver in Nutrition. P. Brodin.—p. 945.
 *Physiopathology of Cerebrospinal Fluid. W. Mestrezat.—p. 948.
 *The Leukocyte. P. Mauriac.—p. 954.
 Therapeutic Application of Dyes. H. Agulhon.—p. 959.
 *Study of Movements. L. Binet.—p. 964.
 *Quantitative Test for Amino-Acids in Urine. W. Mestrezat.—p. 970.

Recent Progress in Biology.—Gautrelet declares that the last year has demonstrated that traumatic shock, anaphylactic shock, peptone shock and protein shock are all one and the same, namely, an upset in the colloidal balance of the body fluids. This entails flocculation and hence liability to mechanical obstruction of the capillaries. This colloidoclasia, of

which the hemoclastic crisis is the criterion, may be induced by drugs, by food, by simple chilling (as in paroxysmal hemoglobinuria), by absorption of the products from traumatized tissues, etc. The clinical manifestation of the colloidoclasia may assume the form of urticaria, asthma, migraine, etc. To ward off the colloidoclasia Brodin injects sodium chlorid; Kopaczewski, sodium bicarbonate and sodium oleate; Sicard and Paraf, sodium carbonate; C. Richet, Jr., injects peptone; Lumière, sodium thiosulphate. Gautrelet reviews the numerous results of the recent incessant research on protein therapy, anaphylaxis, lipoids, ferments, vitamins, glycemia, and the endocrine secretions, mentioning in particular Bierry and Rathery's findings in the liver in regard to what they call the "liberation of sugar from the proteins in the plasma." They have demonstrated this by comparison of the plasma entering and leaving the liver, and say that this "proteidic sugar" represents a hitherto undescribed function of the liver.

Regulation of the Fluidity of the Blood.—Doyon explains that the antithrombin produced by the nuclei of organs is one of the factors which keep the blood fluid.

The Balance Between the Bases and Acids of the Organism.—Henderson expatiates on the remarkable constancy of this balance from the very first, and he explains the various factors responsible for the constancy of the hydrogen ions in the blood.

Nature of Spirochetes.—Mesnil presents evidence that the spirochetes are more closely akin to bacteria than to protozoa. Nothing but their flexibility, he says, distinguishes them from bacteria, and intermediate forms have been described.

The Thresholds in Kidney Secretion.—Ambard protests that the idea of the threshold is not paid due attention, and that those who do heed it are obsessed by the erroneous notion of the fixity of the threshold. In reality the threshold varies, so that the tolerance for carbohydrates in diabetes, for example, is explained to some extent at least by the play of the threshold. Increased tolerance is generally ascribed to an improvement in the basal disturbance in the metabolism of carbohydrates, when in fact it is merely the result of a rising threshold. His research has demonstrated the extreme slowness of these variations of the threshold in some conditions, while in others they proceed rapidly. The Ambard index and the concentration of the urine may be normal in diabetes insipidus, the whole trouble being an abnormally low threshold for water. He recalls that if a normal person drinks 6 or 7 liters of water for several days in succession, and then stops and takes merely the ordinary amount, he will suffer from thirst and present all the other symptoms of diabetes insipidus for a time, the threshold for water having been thus artificially reduced temporarily.

Recent Data on the Rôle of the Liver in Nutrition.—Brodin summarizes recent research which has magnified the capital rôle of the liver in digestion. Before the food that has passed through the first phase of digestion can be assimilated, it has to pass through and be transformed by the liver. Sugar, fat, more or less disintegrated albumins, uric compounds—the liver intervenes to fasten and transform all these elements brought to it in the portal circulation. There can be no assimilation of the food digested elsewhere, unless the liver is doing its work. The liver may be able to take care of all but some one substance, and the defective functioning in respect to this one substance may be the cause of certain nutritional diseases: gout, diabetes or lithiasis. Any substance that passes through the liver without undergoing the normal transformations emerges to circulate as an abnormal, even toxic element, liable to entail severe damage in time. The blood entering and the blood leaving the liver shows remarkable difference. A dog injected by the vein with blood from the portal vein of a fasting dog bears it without harm, but it shows signs of toxic action when the blood is taken from a digesting dog, that is, taken before imperfectly digested protein or other substances in the portal vein have had a chance to be arrested and transformed by the liver. Chauffard and Brodin have had analogous experiences with uric compounds. The phosphotungstic reagent applied to blood from the portal vein and from the hepatic vein shows a notable difference between the amount of uric compounds found in the two.

The Cerebrospinal Fluid.—Mestrezat marshals the evidence in favor of the choroid plexus being the source of the cerebrospinal fluid, and declares that the testimony to date is not very convincing. More probably the pia modifies the composition of the cerebrospinal fluid like any other serous membrane. The connection is so close between this fluid and the venous circulation that he thinks we can assume that the cerebrospinal pressure conforms to the venous pressure. There does not seem to be any independent circulation of the cerebrospinal fluid, and the composition of this fluid can be calculated solely from the dialyzable elements of the blood plasma. It does not have the characteristics of a secretion. Horse serum dialyzed through collodion yields a fluid exactly like cerebrospinal fluid, as also the contents that accumulate in a collodion sac in a dog's abdomen, and the white bile found in a totally obstructed gallbladder. In short, the cerebrospinal fluid is a natural dialysate, neither a secretion nor an ordinary transudate.

The Leukocyte.—Mauriac exclaims that the blood is so sensitive to all changes, without and within, that its formula varies with every instant. Only by series of blood counts can we obtain oversight of conditions. The leukocyte, in fact, is an actual circulating gland, a secreter and carrier of ferments. Alive, it protects by its phagocytosis; dead, it protects by the ferments that escape from it. He adds that because the number of leukocytes normally fluctuate so widely during digestion and from other causes, certain research workers have been misled to ascribe pathologic importance to what are merely physiologic oscillations of the leukocyte curve. Among the numerous ferments secreted by the leukocyte, besides a lipase, protease and peroxidase, there is a glycolytic ferment which Mauriac and Chelle believe is secreted by the elements of the myeloid series. They found it abundant when there were polynuclears present while it could not be detected when there were only lymphocytes in the fluid. This glycolytic power is normal in lymphoid leukemia while it is exaggerated with myeloid leukemia. Mauriac suggests that a lack of this normal glycolytic ferment on the part of the leukocytes may be a factor in certain cases of diabetes. The therapeutic utilization of the leukocytes aims to stimulate their production, to bring vigorous young ones into the circulation, and then by killing them off to open up a source of defensive ferments.

Tests of Movement.—Binet describes the methods and findings with the ergograph and recording apparatus.

Amino-Acids in the Urine.—Mestrezat has materially simplified Sorensen's technic, without apparently detracting from its dependability.

Paris Médical

Sept. 17, 1921, 11, No. 38

*Chronic Impetigo. F. Balzer.—p. 221.

*Posthemorrhagic Amaurosis. F. Terrien.—p. 229.

Dislocation of Shoulder with Partial Separation of Greater Tuberosity in Boy of 13½. G. Ill.—p. 231.

Chronic Impetigo.—Balzer describes some typical cases of streptococcus dermatosis and gives a long list of local measures that can be applied. Autogenous vaccines, yeast, horse serum, etc., may prove useful adjuvants, but they must be used with caution not to induce too strong a reaction.

Posthemorrhagic Amaurosis.—Terrien comments on the rarity of amaurosis consecutive to the hemorrhages of war wounds. No instance was ever reported in the war of 1871, and only extremely few in the recent war. He encountered only one such case himself, and one other case after an ordinary accident with hemorrhage. The amaurosis developed during the hemorrhage or immediately afterward only in about 10 per cent. each. There was an interval up to forty-eight hours in 20 per cent. and the amaurosis did not develop until after from three to ten days in 40 per cent. Edema of the papilla was noted in some of the cases; the pupils were moderately dilated, with sluggish reactions, and the restriction of the visual field was in the lower half in both his cases. The disturbance is evidently in the retina, from the drop in the blood pressure and the weakness of the heart action, the effect of which is felt in the smallest and most peripheral arteries. The effect is enhanced by the contraction of the small vessels under the action of the vasoconstrictors suffer-

ing from the lack of oxygen. The optic nerve becomes irritated likewise, which is the last straw that breaks down vision. As the quantity of blood is abnormally small, the toxins in it do not get diluted. This explains why traumatic hemorrhage is less liable to be followed by the toxic action than hemorrhages from constitutional causes, with their long continued toxic action. Another factor is suggested by the location of the retinal arteries and the position of the head. This causes the ischemia to be more pronounced in the higher arteries, and this explains the cutting off of the lower half of the visual field.

Presse Médicale, Paris

Sept. 28, 1921, 29, No. 78

*The Colloidal Benzoin Reaction. G. Guillain, G. Laroche and P. Lechelle.—p. 773.

*Sterilization of Needles for Venesection. P. P. Lévy.—p. 777.
Arsenicals in Certain Lung Diseases. F. Nidergang.—p. 778.

Colloidal Benzoin Reaction.—Guillain, Laroche and Lechelle state that further experience has confirmed the advantages of their colloidal benzoin technic as simpler than the colloidal gold test, while the findings are dependable and constant. They parallel the Wassermann reaction in neurosyphilis, as a rule, and seem to be particularly instructive in the acute and subacute cases. When the findings varied from those with the Wassermann test in nonsyphilitic diseases, if there was any discrepancy it was always the Wassermann that was at fault. The reagent is a suspension of 1 gm. of benzoin resin in 10 c.c. of alcohol, set aside for two days, using only the decanted fluid. They bring the whole subject of colloidal hemolytic tests down to date.

Sterilization of Puncture Needles.—Lévy advises to use for venesection a steel needle sterilized by leaving it for an hour in chloroform containing 3 per cent. paraffin. He says that the paraffin keeps the blood from sticking and the needle from rusting, while the chloroform sterilizes it effectually without affecting the temper, so that very fine needles can be used.

Progrès Médical, Paris

July 30, 1921, 36, No. 31

*Meningitis in Adults. L. Lortat-Jacob and R. Turpin.—p. 357.
Traumatic Brachial Paralysis. A. Barbé.—p. 357.

*Noninflammatory Adnexitis. Dalché.—p. 359.
Present Status of Pancreas Organotherapy. G. Faroy.—p. 361.

Tuberculous Meningitis in Adults.—A case is described with puzzling symptoms from a focus of softening in the brain, evidently from thrombosis from tuberculous endarteritis. Such lesions frequently modify the clinical picture of tuberculous meningitis in adults.

Noninflammatory Ovarian and Tubal Disturbances.—Dalché discusses what he calls noninflammatory adnexitis. Salpingitis seems unmistakable when the tube enlarges and there are pains in the region, but the complete recovery in two or three weeks under repose, moist heat and sedatives by the rectum, proves that the process was not of infectious origin. The onset is generally abrupt and the subject of the nervous type. This adnexitis may occur on alternate sides; it is usually connected with a menstrual period. Lesage has reported a case in which it developed as the menstrual discharge was arrested by the woman holding her hands in cold water. The tube on palpation felt larger than an egg, but under wet cups all returned to normal in three weeks. In another case a vaginal douche with icy water during a menstrual period was followed by great enlargement of one tube for two weeks. The action of cold on hands or feet or a general chilling may entail this noninflammatory adnexitis, with or without arrest of the menstrual discharge, in the nervously predisposed, the emotionally unstable, the intoxicated. Dalché warns that application of ice to the abdomen may be dangerous during a menstrual period and for five or six days beforehand. It is liable to derange ovulation, and may entail disturbances, ranging from follicular hemorrhage to "ovarian apoplexy." Trauma, even remote from the abdomen, may by reflex action induce this congestion in the tubes, as also disease in the viscera or elsewhere. He warns further that this noninflammatory adnexitis may develop during the honeymoon; a nuptial adnexitis is not always of infectious origin. This adnexitis differs from an infectious process in that the small mass is movable and can

be separated from the uterus as long as there is no infection. Evidences of ovarian insufficiency become apparent, and if the congestion is very intense, hematosalpinx may develop. Hot sitz baths may be useful, and other measures to relieve congestion and soothe the nervous system. Dalché keeps the patient absolutely quiet in bed, as long as possible, and warns against cold, fatigue and constipation.

Aug. 6, 1921, 36, No. 32

The Physiologic Post Partum. H. Vignes.—p. 369.

*Spread to Medulla of Toxins and Ferments in Stomach. M. Loeper, M. Debray and J. Forestier.—p. 372.

General Principles of Prophylaxis of Syphilis. Queyrat.—p. 373.

Case of Homicidal Oniric Alcoholism. H. Damaye.—p. 375.

Spread to the Medulla of Toxins in the Stomach.—Loeper and his co-workers established that certain toxins and ferments in the stomach spread by way of the pneumogastric nerve, and they here present evidence that they can thus find their way up into the medulla oblongata. Experiments on dogs with tetanus toxin and formaldehyd gave positive results when the pylorus was tied off and the gastric mucosa eroded; otherwise not. But pepsin ascended in the nerve and tissues to the medulla when the stomach was normal as well as when it was eroded.

Schweizerische medizinische Wochenschrift, Basel

Sept. 1, 1921, 51, No. 35

*Workmen's Compensation for Loss of One Eye. Siegrist.—p. 801.

Apparatus to Induce Pneumothorax. H. Frey.—p. 806.

Mechanism of Oniric Delirium. A. Schlesinger.—p. 809.

*Congenital Hyperplasia of Thymus Metamere. IV. M. E. Settelen.—p. 811.

Sept. 15, 1921, 51, No. 37

Kidney Disease in the Pregnant. P. Hüssy.—p. 845. Cont'd.

Spontaneous Obstetric Laceration of Perineum. D. Eberle.—p. 852.

Asphyxia from Aspiration of Scrap of Placenta. J. Nadler.—p. 854.

Prolapse of Placenta Praevia. J. Nadler.—p. 854.

Spontaneous Sudden Death. J. Thorner.—p. 855. Conc'n.

Workmen's Compensation for Loss of One Eye.—The Swiss social insurance has been in the habit of allowing 10 per cent. compensation for the loss of an eye for the mutilation, with an additional 10 to 23½ per cent. for the incapacity, and nothing more. This has lately been changed to 10 per cent. for the mutilation and nothing more unless vision is lost in the other eye. If this occurs from an insured mishap, the workman receives 100 per cent.; if from sickness or an uninsured accident, he receives 50 per cent. If vision is not totally lost, the percentage is modified to correspond. Siegrist discusses these regulations. The Swiss Ophthalmologic Society appointed a committee to study the matter, and adopted resolutions approving the new regulations but demanding a higher rate for the mutilation, 20 or 25 per cent. according as the eye had been enucleated or not. The society also urged that opportunity for revision be allowed at any time.

Congenital Hyperplasia of Fourth Thymus Metamere.—Settelen found in two cadavers of new-born infants two oval bodies on the back of the thyroid which resembled parathyroids. The microscope revealed that they were exceptionally large thymus metameres. They were the only cases of the kind ever found at Basel although special attention is paid there to the thyroid and thymus.

Pediatrics, Naples

Sept. 1, 1921, 29, No. 17

*Mechanism of Vaccine Therapy. L. Auricchio and G. Jemma.—p. 777.

Blue Spot in Children of Messina. F. Lo Presti Seminerio.—p. 789.

*Shoulder Sign of Tuberculous Meningitis. S. Tronconi.—p. 802.

Mechanism of Action of Vaccines.—Auricchio and Jemma were not satisfied with any of the theories advanced to explain the action of vaccines, and have been studying the behavior of the blood during the shock from injection of antityphoid vaccine. The subjects were five children at the tenth to fifteenth day of typhoid fever. During the first phase of the reaction the temperature drops and the pulse becomes more rapid, while the leukolytic power of the serum increases, and the number of both red and white corpuscles declines. This phase is followed by hyperpyrexia, and with this the number of blood corpuscles rapidly increases, surpassing the previous figure, with numerous young forms of

both red and white corpuscles while the leukolytic power of the serum declines. After subsidence of the vaccine reaction, these changes in the leukocyte formula persist.

The Binda Shoulder Sign of Tuberculous Meningitis.—Tronconi's experience has confirmed the value of Binda's sign for the early diagnosis of tuberculous meningitis, as he shows by a number of case histories from extensive application of the test to sick and well. The sign is the sudden movement of the shoulder when the head is passively turned toward the other side. He places his hand on the patient's head and turns it slowly and gradually from side to side to relax the muscles of the neck. When well relaxed, he twists the head suddenly and abruptly to bring the chin as near as possible to the other shoulder. As this is done, the first shoulder makes a sudden upward and forward movement and persists in this position, resisting attempts to reduce it, until the head is released. In the seven cases of tuberculous meningitis described this sign was constantly positive, and always before a positive response was obtainable with the Kernig, Lasègue, Nizzoli, Oppenheim or contralateral signs. It appeared contemporaneously with the Brudzinski sign. It can scarcely be pathognomonic of tuberculous meningitis, but in his experience it was positive only in the seven tuberculous cases, and was negative in two cases of hydrocephalus and one of cerebellar tumor, in some cases of Weichselbaum bacillus or pneumococcus meningitis, and in a case of serous meningitis with recovery after presenting the Kernig, Oppenheim and Babinski phenomena.

Policlinico, Rome

Sept. 26, 1921, 28, No. 39

*Syphilitic Disease of Liver. R. Carnelli.—p. 1291.

Present Status of Treatment of Diphtheria. A. Montefusco.—p. 1297.

Differential Diagnosis of Syphilitic Disease of Liver.—Carnelli comments on the difficulty in distinguishing between a syphilitic and malignant process in the liver, hydatid cyst or tumor in the gallbladder or kidney region. The Wassermann reaction may be negative, and even when the abdomen is opened up the diagnosis is not certain. In a case described, the liver tumor had been developing for two years in the man, now 22, without pain or fever, and he denied venereal disease emphatically. There were no symptoms except the mechanical ones from the size of the tumor, and general weakness and worry about his tumor. By exclusion, the diagnosis of sarcoma was made and Carnelli was surprised to find the young man alive a year later. At this time there were processes in some of the long bones and a suppurating lesion in the shoulder. Carnelli then started mercurial treatment as the Wassermann test was positive, and great improvement followed. The case was evidently a congenital syphilitic disease of the liver, developing late. The multiple bone lesions were of the tardy congenital syphilis type. Such have been known to develop as late as the age of 28. The syphilitic disease may affect a liver already pathologic from other causes, and treatment of the syphilis factor may induce marked improvement even though the other factors may continue to operate.

Sept. 1, 1921, 28, Medical Section No. 9

*The So-Called Cytotoxic Serums. F. Marcora.—p. 365.

*Influence of Pressure on Ferment Action. G. Meldolesi.—p. 390.

Cytotoxic Serums.—After comparing the work of others in this line, Marcora gives the details of experiments on twenty-two dogs besides a number of guinea-pigs. He experimented with a cytotoxic serum obtained from guinea-pigs inoculated in the peritoneum with a suspension of dog brain, liver or kidney substance. The fresh neurotoxic serum did not lose its toxicity when heated to 55 C. for half an hour, but lost it on standing a few days even when kept on ice. No evidence of an anaphylatoxin nor of antibodies for the organs involved could be discovered with precipitation or fixation of complement tests.

Influence of Pressure on Ferment Action.—Meldolesi's research has apparently established that the speed of an enzyme reaction depends on the pressure of the medium in which the action is taking place. The pressure in the living organism is higher than outside, and hence this favors ferment action.

Riforma Medica, Naples

Sept. 3, 1921, 37, No. 36

Projectile in Bladder; Recovery After Epicystotomy. Aloï.—p. 841.

*Chronic Unilateral Pyelonephritis. G. Cavina.—p. 843.

Pigmented Dermofibromatosis. A. Angeli.—p. 845.

*Extrarenal Factors in Picture of Nephritis. A. Ferrannini.—p. 853.

Unilateral Chronic Pyelonephritis.—Sudden and profuse hematuria in Cavina's patient, a woman of 71, was traced to the right kidney, and as the hematuria continued, the kidney was removed on the assumption of cancer. Recovery was prompt and complete. The absence of casts and cells in the urine, of pain, and of any signs of renal insufficiency or of a calculus apparently excluded nephritis, but no trace of a tumor was found. The kidney seemed macroscopically sound but the microscope revealed pronounced and diffuse sclerosis of the glomeruli.

Extrarenal Factors in Clinical Picture of Nephritis.—Ferrannini has long insisted that the elimination of chlorids depends on the interchanges in the tissues of the chlorids as well as on the eliminating power of the kidneys. The chlorids may have a toxic action when retained in that way. In chronic nephritis, the prognosis is graver when the urea nitrogen predominates markedly over the residual nitrogen in the urine, while the proportion keeps within normal range in the blood. The kidneys do not determine this so much as the conditions of osmosis and dialysis throughout the entire organism, and these are liable to be abnormal under the influence of the chronic kidney disease, or as a cause of the latter. Even phlorizin glycosuria does not depend exclusively on the eliminating power of the kidney, but is modified by the conditions of the nutritional exchanges. Test elimination of substances like methylene blue and sodium salicylate that are not constituents of the organism merely lengthen the list of functional tests, already too long. With chronic nephritis, the functioning of other organs should be investigated with special care, the liver, the blood producing system, the nervous system, and the endocrine glands, instead of putting the patient at once on a milk and salt-poor diet. These are liable to entail acid intoxication from undernourishment, and diuretic drugs are liable to tax the already overburdened kidneys.

Brazil-Medico, Rio de Janeiro

Aug. 27, 1921, 2, No. 7

*Foreign Body in Bronchus. F. Castilho Marcondes.—p. 81.

Chronic Posttraumatic Brain Injuries. W. Sharpe (New York).—p. 84.

Foreign Body in Bronchus.—Castilho succeeded in extracting the seed from the right bronchus of the child of 5 by the natural route, the seed being withdrawn with the tube. It had caused some irritation in the month it had been in the bronchus, and the child's thorax was wrapped in a mustard cataplasm for twenty-four hours after extraction of the foreign body. When this was removed, all traces of the bronchitis had disappeared. The seed did not cast any shadow in roentgen-examination. He is convinced that some unsuspected foreign body is responsible for many cases of chronic disease in the lower air passages, and advises exploratory bronchoscopy in puzzling cases even when there is no known history of a foreign body. If the anesthesia is complete, it is a simple maneuver, harder for the operator than for the patient. The latter does not object to a repetition of it. The child in the case reported went to the "movies" at once afterward, while waiting for the train. The foreign body was in the lung proper in 2 of Seno's cases in S. Paulo and was successfully removed by a transpulmonary operation, as also in O. Meiro's case in Rio. Tuffier had 4 deaths in 11 such cases and was unable to find the foreign body in 10; Karewsky in 14 cases found the foreign body only in 2.

Revista de la Asoc. Méd. Argentina, Buenos Aires

July, 1921, 34, No. 201

*Susceptibility of Thyroidectomized Animals. B. A. Houssay and A. Sordelli.—p. 435.

*Influence of Thyroid on Antibody Formation. Idem.—p. 438.

*Pituitary Treatment of Polyuria. B. A. Houssay and E. Hug.—p. 443.

*Experimental Sensitization to Pleural Exudates. A. Bergman.—p. 448.

*Action of Quinidin on the Heart. F. Arrillaga, J. Guglielmotti and C. Waldorp.—p. 454.

*Jaundice in Heart Disease. M. R. Castex and H. D. González.—p. 459.

*Syphilitic Pleuritis and Mastitis. M. R. Castex, R. Pradere and N. Romano.—p. 464.

*Management of Profuse Hematemesis. O. Copello.—p. 471.

*Subacute Venous Septicemia. J. J. Spangenberg.—p. 486.

*Technic for Colectomy. Delfor Del Valle and R. E. Donovan.—p. 499.
Factors Modifying Tuberculosis Mortality in Buenos Aires. C. Alvarez.
—p. 514.

Susceptibility to Infection and Intoxication After Thyroidectomy.—The findings were conflicting in the research on rabbits and guinea-pigs reported.

Influence of the Thyroid on Antibody Formation.—Most of the research on rabbits, horses and dogs was inconclusive, but the difference in production of hemolysins and agglutinins between horses before and after thyroidectomy was all in favor of the thyroidectomized animals. The advantage was on the side of the normal controls in the test production of diphtheria antitoxin; the two thyroidectomized horses could not bear the diphtheria toxin.

Action of Pituitary Extract on Cerebral Polyuria.—It was found that injection of pituitary extract increased diuresis in dogs, normal or with cerebral polyuria, while it reduced diuresis in rabbits; did not modify diuresis in normal human subjects, and reduced it in the polyuric. Houssay and Hug recall that true endocrine action is universal; removal of the thyroid reduces metabolism, and removal of the pancreas induces glycosuria in all species. The facts related demonstrate anew the folly of attempting to deduce the function of an organ from the pharmacodynamic action of its extract.

Action of Quinidin on the Heart.—The pharmacologic study of quinidin here reported has confirmed its sedative action on the myocardium, reducing its excitability to a point below that at which auricular fibrillation or extrasystolic arrhythmia is possible. It also inhibits the excitability of the vagus nerve, and checks the heart rate. These three forms of action explain its efficacy in arresting auricular fibrillation, and suggest a possible beneficial action in treatment of vagotonia.

Jaundice in Heart Disease.—Castex and González present evidence that both a mechanical and toxic factor intervene in the production of jaundice with cardiac insufficiency. The defective circulation through the liver soon impairs its functioning, and a vicious circle of mechanical and toxic factors implies a fatal prognosis when frank jaundice develops in the course of heart disease with lost compensation.

Syphilitic Pleurisy.—A case is described of bilateral hemorrhagic pleurisy developing after four years of a mastitis which had entailed a fistula. The discovery of the hemorrhagic nature of the pleural effusion led to suspicion of syphilis, and under specific treatment the chronic mastitis partially retrogressed, and the conditions in the thorax returned to clinically normal. The woman of 43 had alcoholic polyneuritis; the liver was enlarged, and thyroid functioning evidently subnormal.

Hematemesis.—Copello comments on the frequent inability to find the cause of the hemorrhage even when the stomach is opened, and the inefficacy of gastro-enterostomy, or of other minor intervention on the bleeding point, while the shock from the hemorrhage interferes with a radical operation, and the figures show a higher mortality—35 per cent.—from operative intervention. On the other hand, more than 90, per cent. of the hemorrhages become spontaneously arrested, while only from 5 to 10 per cent. succumb under medical treatment alone. With the first hematemesis, the gastric past should be investigated; the stomach kept in absolute repose, and nourishment given in a way not to disturb or distend the stomach, waiting for a day or two before allowing anything by the mouth; ice bag to the epigastrium, proctocleisis at intervals, not enough to raise the blood pressure; 40 c.c. three times a day of a 10 per cent. gelatin serum, and horse serum for its hemostatic action. He adds that emetin has been recently commended as an adjuvant for its hemostatic action, but ergot, epinephrin, morphin and much infusion of saline must be avoided as they raise the blood pressure. Lavage of the stomach with ice water or with hot water has been recommended by some, but he thinks this conflicts with the principle of keeping the stomach in complete repose. Only when the hemorrhage keeps recurring, should operative treatment be considered, ligating or resecting the bleeding vessel, with or without gastro-enterostomy. In the discussion that followed, Pasman emphasized that as the wall of the stomach with an acute

ulcer is still sound elsewhere, healing is easier than with chronic ulcer, so that operative treatment is not indicated with an acute ulcer. A posterior gastro-enterostomy is the simplest means to relieve the tension in the stomach. In one case the bleeding was from the coronary. Escudro urged to consider syphilis as the main if not the sole cause of profuse hematemesis. He protests against emetin, saying that its action on the heart might be dangerous; he prefers calcium chlorid, 5 c.c. of a 5 per cent. solution by the vein several times a day.

Subacute Venous Septicemia.—The painter of 44 complained of pains in various joints for two months; this was followed by thrombophlebitis in arms and legs and a hemolytic streptococcus was cultivated from the blood. Aside from the veins, there were no symptoms. The venous system seemed the exclusive seat of the process, but it assumed the phlegmasia form, the hemoptysis and the quadriplegia form in turn.

Technic for Anastomosis After Colectomy.—Del Valle and Donovan give several illustrations showing how best to expose the terminal blood vessels to the segment to be resected, so that injury to them can be avoided, while bringing extensive areas of the serosa safely into contact. They accomplish this by working a grooved sound perpendicularly down to the bowel between the layers of the mesentery, and slitting the upper layer of the mesentery on top of the sound to avoid injury of the vessels. The sound is then worked into the mesentery parallel to and close to the bowel, thus at right angles to its first position, and the upper layer is slit along it here. This leaves a triangular flap on each side, and these are turned back, opening up the network of blood vessels in plain sight. This procedure is repeated on the back of the mesentery, and the four triangular flaps thus formed are utilized to wrap up the suture, thus providing a double reenforcing layer of peritoneum.

Semana Médica, Buenos Aires

Aug. 11, 1921, 28, No. 32

*Teaching of Obstetrics. J. B. González.—p. 161.

Treatment of Pulmonary Tuberculosis. J. S. Picado.—p. 169.

Monster from Inherited Syphilis. J. R. Rios and L. Martinez Bisso.—p. 175.

Influenza in Villa Urquiza. C. Rossi Belgrano.—p. 183.

Tachycardia and Low Pressure in Influenza. R. Rivas Jordán.—p. 185.

The Teaching of Obstetrics.—González criticizes the present system of the course in obstetrics, and outlines what it should be.

Aug. 25, 1921, 28, No. 34

*Experimental Emotion. A. M. Sierra.—p. 225.

Case of Lethargic Encephalitis. G. Segura.—p. 232.

*Abdominal Sympathetic Syndromes. C. A. Castaño.—p. 235.

*Deep Roentgen Ray Therapy. R. Espinola.—p. 240.

The Right of Application of Treatment on Scientific Basis in Hospitals. R. A. Bruno and G. F. Lucas.—p. 246.

Physical Training in Colleges and the Army. C. Trejo.—p. 247.

Experimental Emotion.—Sierra comments on the instructive phenomena that follow injection of epinephrin in certain persons. Not only the physical phenomena of intense emotion may follow, the subject growing pale and trembling, panting, the pulse becoming accelerated and the pupils dilated, the blood pressure dropping, with albumin in the urine, and the mucous membranes feeling dry—not only this train of physical phenomena follow, but Marañón has noted the psychic phenomena of emotion accompanying the positive response to the epinephrin test. We thus have a means of inducing experimental emotion in certain subjects, and Sierra has obtained a positive response in many persons inclined to asthma, in others with manic-depressive psychosis or essential melancholia; in the catatonic form of dementia praecox; in persons with even latent hyperthyroidism, and in those giving a positive response to the oculocardiac, Goetsch and dermatographic tests. Sierra describes three cases to illustrate the principal types, and demonstrate how the peripheral, somatic element blends with the psychic element to form the emotion. It may start either at the periphery or in the cortex. He obtained a positive response to this experimental emotion in 6 of 18 women tested but only in 8 of 75 men.

Abdominal Phenomena from Sympatheticotonia.—Castaño discusses the abdominal sympathetic syndromes in relation to gynecology. His address was delivered as an interchange

lecture at Montevideo, and merely the bare outline of it is given here.

Deep Roentgen-Ray Treatment.—Espínola gives an illustrated description of two particularly striking cases of multiple tumors in the neck causing suffocation. Both cases were evidently sarcomatous, but the tumors retrogressed in the first after a single deep irradiation; by the eleventh day the woman of 54 considered herself completely cured and has been in good health since. The roentgen treatment had been applied merely for its moral effect, the case having been considered absolutely hopeless. In the second case the multiple sarcomatous bunches covered the area from chin to low on the sternum, and nearly from ear to ear. Three operations had been performed on the mass from time to time without more than transient relief. The structure was that of an alveolar sarcoma, and by the end of the second week after the deep irradiation with ultra-hard rays, the neoplasm had subsided to such an extent that all symptoms had been relieved and there was no further suffocation or pain; morphin was no longer needed, and the aspect of the neck was improved immeasurably.

Deutsche medizinische Wochenschrift, Berlin

Aug. 18, 1921, 47, No. 33

- *Effect of Environment on Disease in Children. Friedjung.—p. 949.
- Plaut-Vincent Angina; Incidence Compared with Diphtheria. Gärtner. p. 950.
- Combination Sachs-Georgi and Wassermann Test. Rothmann.—p. 952.
- Sensitiveness of the Human Organism to Epinephrin. Csépai.—p. 953.
- Therapeutics of Epidemic Meningitis. H. Brütt.—p. 954.
- Effect of Calcium Chlorid Plus Acacia on Hemorrhage. H. Götting.—p. 955.
- Old Tuberculin in Epilepsy. F. Koester.—p. 956.
- Dangers of Conduction Anesthesia. L. Drüner.—p. 957.
- Diagnosis of Disease of Accessory Sinuses. H. Vogel.—p. 958.
- The Universal Emphysema Question. E. Wentzler.—p. 959.
- *Size of Heart in Infants. R. Lange and H. Feldmann.—p. 960.
- Factor of Emanation in Radioactive Baths. W. Mittenzwey.—p. 961.
- Thermopenetration in Gonorrhea. Kyaw.—p. 962.
- Pathogenesis of Worm Infection in Man. W. Fischer.—p. 963.
- Treatment of Abortion. L. Blumreich.—p. 964.
- The International Reciprocity Question. C. Schilling.—p. 965.

Effect of Environment on Disease in Children.—Friedjung emphasizes the importance of the general practitioner who treats children making himself thoroughly familiar with a child's environment, as many pathologic conditions, both physical and mental, are either induced or aggravated by a child's particular surroundings. A better knowledge of the situation—whether the child is an "only child" and therefore overindulged, or is neglected or treated too sternly by one or both parents and therefore morose and depressed—will often open up the way to do some good prophylactic work. A knowledge of the harmful conditions that have led to the pathologic manifestations is often a prerequisite for successful treatment. To be sure, the physician is not usually called until the damage is done. It is quite within the province of physicians to give advice as to a child's mental development.

Size of Heart in Healthy and Ill Infants as Revealed by Fluoroscopy.—Lange and Feldmann examined, by the Altstaedt method, the hearts of 150 infants in the Lübeck Hospital. Their observations led them to the conclusion that every wasting disease in infancy always brought about a diminution, even though only temporary, in the size of the heart.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, 1921, 165, No. 5-6

- *Chyle Cysts. M. Grauhan.—p. 293.
- *Fractures That Will Not Heal. M. Kappis.—p. 304.
- *Genesis of Sound in Scapula. M. Jastram.—p. 309.
- *Goiter Operations. M. Jastram.—p. 320.
- *Perineal Testicle. E. Dangschat.—p. 351.
- *Simple Ulcer in the Colon. A. Levy.—p. 366.
- *Snapping Knee. M. Budde.—p. 376.
- *Direct Vein-to-Vein Transfusion. F. Oehlecker.—p. 397.
- *Abscess with Carcinoma of Large Intestine. W. Goldschmidt.—p. 419.
- *Etiology of Hirschsprung's Disease. F. Goebel.—p. 428.

Chyle Cysts.—An otherwise healthy woman of 36 developed a tumor in the right supraclavicular fossa, with fluctuation. It was movable, and puncture brought a milky fluid which could be only chyle. The cyst was as large as a goose egg, and was easily shelled out except where it was adherent to the jugular vein. The vein was opened and had to be sutured. The woman bore a healthy child five months later, and there

has been no sign of recurrence of the cyst since. At the second and third puncture the fluid showed admixture of blood, another argument in favor of operative removal of such cysts without delay. Grauhan theorizes to explain the origin of chyle cysts in general.

Delayed Healing of Fractures.—Kappis expatiates on the difficulty of determining when delayed healing ends and pseudarthrosis begins; the latter requires operative measures which the former does not. In eighteen such cases he immobilized the bone in plaster after it had apparently refused to heal under extension. The repose and relief in the plaster cast allowed healing to proceed smoothly if there was any possibility of healing. In six or eight weeks this can be determined, and the operation for pseudarthrosis done at once if found necessary. With fracture of the humerus, he warns that the weight of the forearm must be taken off from the fractured bone, and a well fitting plaster cast applied in abduction. Splints and bandages are not strong enough to insure immobilization. The plaster cast is advisable also after the pseudarthrosis operation. By giving up a few weeks to this observation in plaster, many an operation for pseudarthrosis can be avoided.

Cracking Sound in Scapular Region.—Jastram found microscopic lesions in the deeper muscles in two operative cases of this kind in which the pains had compelled intervention. The noise was traced in both cases to a small bony prominence at the angle of the scapula. Rubbing against this was evidently the cause of the degenerative process in the adjacent muscles responsible for the pains.

Goiter Operations.—Jastram reviews the experiences with 234 operations for goiter. The mortality was 4.7 per cent. Death was due to pneumonia, tetany, peritonitis or embolism, or to degeneration of the heart. The myodegeneration was in old cases of exophthalmic goiter, and warns that operation should not be deferred in such cases until the heart is injured beyond repair. The experiences related demonstrate further that scopolamin is dangerous in such cases. There was one "thymus death" in the list; if the persisting thymus and root of the tongue had been examined more carefully this might have shown that the goiter was not exclusively responsible for all the symptoms observed. The thymic-lymphatic status contraindicates the goiter operation except in case of vital necessity.

Perineal Displacement of Testicles.—Dangschat reports a case, and recalls a family in which grandfather, father and son all presented this anomaly. The ectopic testicle always seemed to be normal in structure and functioning, and caused no disturbance. His patient had healthy children. No instance of cancer in a perineal testicle is known.

Simple Ulcer of the Colon.—Levy knows of only 30 cases of this kind in German literature and adds another to the list. His patient was a young woman in florid health, and no signs of tuberculosis, dysentery or typhoid were found at the operation. It consisted merely of suturing in the ulcer.

Snapping Knee.—A case of loud snapping is described and the cause and remedy discussed.

Technic for Vein-to-Vein Transfusion of Blood.—Oehlecker gives an illustrated description of his method which has never failed him in the 200 cases in which he has applied it.

Abscess Complicating Cancer of Large Intestine.—Goldschmidt shows how the limits of operability can be extended. In 3 cases described the whole mass was resected into sound tissue without opening the complicating abscess.

Origin of Hirschsprung's Disease.—Goebel urges that search should be made for anomalies in the mesentery as the cause of this disease.

Jahrbuch für Kinderheilkunde, Berlin

1921, 95, No. 5-6

- *Exercises in Treatment of Chronic Chorea. P. Karger.—p. 261.
- *The Heart in Children. L. Doxiades and R. Hamburger.—p. 276.
- *The Hemoclastic Crisis in Infants. E. Schiff and E. Stransky.—p. 286.
- *Fermentation in Intestines. II. E. Freudenberg and O. Heller.—p. 314.
- *Streptococcus Viridans Endocarditis in Children. J. C. Schippers and C. de Lange (Amsterdam).—p. 332.
- *Zinc Chlorid Poisoning. T. v. Csányi (Budapest).—p. 339.

Exercises in Treatment of Chorea.—Karger ascribes the benefit from isolation of a child with severe chorea to the

avoidance by this means of the depression which the child experiences when it realizes its inability to do properly the things which others are doing. It reacts to this depression by crying. This burst of tears, on what seem to be such slight causes, reveals the emotional instability which is one of the features of chorea. The muscles can be trained to normal functioning by special movements, as he describes. The principle is the same as with Frenkel's exercise treatment of tabes, but this principle has to be applied very differently to children and to adults. With a child, the aim is to exercise a certain muscle, while excluding others, and keep the child's interest aroused and stop at the first sign of incipient fatigue. The movements have to be made into a kind of game. Disturbances in speech are sometimes due to incoordination in the movement of the tongue; a good exercise to combat this is to let the child suck on a piece of candy held in front of its face and moved about. This "game" is great sport for the child and is excellent exercise for the tongue. If due to disturbance in respiration, this can be combated by speaking short syllables slowly, drawing breath between the syllables, and getting the child to imitate this. In exercising the hand, he lets the upper arm lie on the bed and raises the forearm passively, holding it by the wrist, and then has the child squeeze his other hand. By this means the only part exercised is the fingers. At the same time, spontaneous and associated movements in other parts of the body are mechanically suppressed without calling the child's attention to this. Special stress must be laid in doing everything very slowly; this warning, "Slowly" is a very important factor in the treatment. He gave no drugs during this exercise treatment of chorea. Among the cases thus treated were three of recurring chorea; it was the third recurrence in one case and it yielded promptly to this treatment. In another case the chorea was of three years' standing and was cured in three weeks with this treatment. It takes from three to five weeks. Three of the children came as out-patients for treatment, and isolation was not possible; the treatment failed in two of the cases. The parents of the other child carried on the course of exercises at home in the intervals, and the child was cured in three weeks.

The Heart in Children.—Doxiades and Hamburger found in the course of research for another purpose that the electrocardiogram in infants differs materially in a special way from that in adults, as they show by typical examples. They noted also a tendency to bradycardia during nutritional upset, and they think this is probably an economical device to spare the system unnecessary demands. They were impressed with the frequency of a constitutional anomaly of the autonomic nervous system, congenital or acquired, an instability of the vagus innervation. The autonomic system is overexcitable, and such children respond with chemical, nervous and mechanical reactions to ordinary happenings which do not affect children with a stable vagus system. It is possible that these vagolabile children may be candidates for vegetative neuroses in later life, but they did not all present symptoms although they responded with a pronounced reaction to the Czermak, Erben and Aschner tests, with slowing of the pulse on pressure of the vagus in the neck, on pressure of the eyeballs, and on squatting down. In a typical case described, the girl of 12 had been a bed wetter for the last four years, but had no other complaints. In this and other cases administration of atropin cured all the disturbances at once. Calcium was effectual also but not so promptly or so pronounced. Whether the vagus system alone or the whole of the vegetative nervous system is abnormally irritable is still a question. In the girl mentioned, pressure on the eyeballs arrested the heart action completely for six or eight seconds, as can be seen in the electrocardiogram they reproduce. Another phenomenon to which they call attention is the ventricular extrasystoles in children of about 12 which they ascribe to an overexcitability of the myocardium in neuropathic conditions. It is not the expression of organic disease in these cases, and hence the aim should be to strengthen the heart, not to spare it effort. If a child with these extrasystoles is regarded as having actual heart disease, and the physician orders him to keep quiet and avoid exercise, the extrasystoles are liable to persist indefinitely. In such cases the child should be given physical training and gymnastic exercises, with calcium chlorid. Under this the

extrasystoles will vanish in a week or two. Repeated reexamination of the children later confirmed the benefit from the recalling of the prohibition of physical exercise.

The Hemoclastic Crisis in Infants.—Schiff and Stransky applied to infants Widal's test hemoclastic crisis, that is, the leukopenia alleged to follow ingestion of milk when the liver is substandard. They obtained the surprising results of a positive response in all the infants, both the healthy and those with possible liver derangement. The only exceptions were in three prematurely born infants in whom the leukocyte count rose instead of dropping. They repeated the tests, using various other substances instead of milk. By this means they determined that the amino-acids and products of digestion of albumin by trypsin always induced leukocytosis, while urea, glycerin and saline had no effect either way. Leukopenia followed ingestion of human or cow's milk, meat, pure peptone, carbohydrates, cod liver oil, and horse serum subcutaneously. The hemoclastic crisis is thus not specific for albumin, and the liver is not exclusively responsible for it. It seems to be in infants the physiologic reaction to ingestion of food, in direct contrast to the physiologic reaction in adults. They are now testing older children, trying to determine at what age the reaction veers to the opposite, if Widal's statements are confirmed by others.

Fermentation in the Intestines.—In this second communication research is reported on the influence of albumin and calcium on fermentation in infants.

Endocarditis in Children.—Schippers and De Lange report two cases in which *Streptococcus viridans* was cultivated from the blood of two young children. The clinical picture was that of slow endocarditis in the boy and of malignant endocarditis in the girl, fatal in three months. There was a history of acute rheumatism in the boy, over a year before.

Zinc Chlorid Poisoning.—The girl of 2 drank a spoonful (5 gm.) of a 50 per cent. solution of zinc chlorid ordered for the mother's endometritis. The stomach was found shrunken, shriveled, and its walls like leather, but the child has been rosy and in good condition during the four months since the gastro-enterostomy. The poison had been taken just after a meal, with the stomach full, and the child vomited at once, which explained the comparatively favorable outcome.

Medizinische Klinik, Berlin

July 31, 1921, 17, No. 31

*Regulation of Sugar Content of the Blood. L. Pollak.—p. 925.

*Auto-Urine Test for Tuberculosis. M. Weisz.—p. 930.

*Functioning of Cystic Kidneys. H. Zondek.—p. 931.

*Enterostomy in Ileus and Peritonitis. W. Wortmann.—p. 932.

Half Whey-Buttermilk for Infant Feeding. Landau.—p. 938.

*Helminthiasis. R. Glock.—p. 938.

Alveolar Atrophy and Alveolar Pyorrhea. B. Gottlieb.—p. 939.

*Simplified Serologic Test for Syphilis. H. Dold.—p. 940.

Treatment of Leukorrhea. Benthin.—p. 942. Conc'n No. 32, p. 971.

Regulation of the Sugar Content of the Blood.—Pollak gives a comprehensive summary of all that we know at present in regard to the apparatus which regulates and keeps the sugar content of the blood at such a constant level. It does not seem to be dependent altogether on the nervous system, as the sugar content of the blood tends to return to normal even after the nerves have been disconnected from the organs involved. He argues that pancreas diabetes is not the result of disturbance in carbohydrate metabolism so much as of disturbance in the functioning of the apparatus regulating the sugar content of the blood. This can be objectively demonstrated by the accelerated mobilization of glycogen in the liver. The sugar-producing process in the liver proceeds unchecked by the normal inhibiting influence of the physiologic blood sugar-regulating mechanism, as he explains.

The Auto-Urine Test.—Weisz applied to tuberculosis the method of fractional analysis which he has worked out on urine, precipitating with lead acetate and then following with sodium phosphate. His tests failed to disclose any specific antigen in tuberculous urine corresponding to the antigen like that in tuberculin. Hence he concludes that the Wildbolz auto-urine reaction cannot serve to distinguish between active and latent tuberculous processes.

Cystic Kidney.—Zondek describes a case of cystic kidney in a woman of 45 in which the function of the kidney was suffer-

ing as with pronounced contracted kidney. Although the blood pressure was very high, the heart showed only slight dilatation. As the condition was of several years' standing, the case testifies that a high blood pressure is not enough, alone, to induce extreme hypertrophy of the heart. This close resemblance if not identity between the clinical pictures of cystic kidney and contracted kidney shows that a mechanical restriction of the kidney tissue is enough for each, without any infectious element. The patient's father had had kidney disease, and had died after voiding black urine for a week, and one brother has had the left cystic kidney removed.

Enterostomy in Treatment of Ileus and Peritonitis.—Wortmann reports a death rate of 33.3 per cent. in 135 cases of mechanical obstruction of the small intestine, and of 27 per cent. in 37 cases of obstruction from inflammatory processes. In 35 of the very gravest cases enterostomy was done and only 34.3 per cent. died, while 36.4 succumbed of 11 treated with puncture alone. Nineteen years of experience have convinced him of the importance of enterostomy in mechanical obstruction of the bowel, especially early in peritonitis as the paralyzed and adherent loops get kinked. The normal bowel would soon straighten out the kink, and this was accomplished in five cases by several days of high enemas, lavage of the stomach, changes of position, superheated air, physostigmin, etc. But if these fail, enterostomy should follow at once. A laparotomy makes too much demand on the weakened system, and kinks may form again when corrected, or the peritonitis may flare up anew. By relieving the bowel of gases and feces, the circulation gets a chance to improve and the bowel to regain tone. An upper loop of the ileum is best for the purpose; he inserts a catheter through an opening barely large enough to hold it. The catheter or tube is sutured to the bowel, the point where the opening has been made is pushed in, and Lembert sutures applied to make a kind of Witzel fistula. The loop is then reduced and four threads are passed through bowel and peritoneum close to the enterostomy, the ends left long. The peritoneum and fascia are then sutured, after which the long threads are tied. In this way there is no danger of the threads pulling through. A lumen of 1 or 2 mm. is ample to release the thin feces.

Helminthiasis Inducing Colic.—The sudden colic in the woman of 45 in the midst of health, with pain on pressure of the sternum, was accepted as gallstone colic or possibly tabetic crises. Morphine was given and vomiting followed. An ascaris was found in the vomit, and under chenopodium over 36 ascarids were passed at once. There were no further disturbances. Glock assumes that one of the helminths must have got into a bile duct, thus setting up the clinical picture of gallstone colic.

Simplified Test for Syphilis.—Dold does not wait for flocculation to occur, as in the Sachs-Georgi and Meinicke tests, but gages the reaction by the turbid aspect of the fluid. This can be estimated in an hour or two, but he waits for four hours. The response harmonized remarkably with the Sachs-Georgi reaction in his 400 tests. He uses 2 c.c. of the usual syphilitic extracts (cholesterinized), diluted 1:10, and adds 0.4 c.c. of the serum to be tested; with alternating control tubes with known positive and known negative serum reactions for two thirds of the set, as he describes.

Münchener medizinische Wochenschrift, Munich

Aug. 12, 1921, 68, No. 32

- Effects of Postoperative Irradiation of Carcinoma of Breast. Anschütz and Hellmann.—p. 1005.
Colorimetric Tests for Epinephrin in Suprarenal Gland and Uric Acid in the Blood. W. Autenrieth and H. Quantmeyer.—p. 1007.
High Blood Pressure. H. Full.—p. 1009.
Formation of Types of Pneumococci. Hintze and Peter.—p. 1011.
Terminology with Respect to Arch of the Aorta. Kreuzfuchs.—p. 1011.
*Predisposition to Disease. A. Theilhaber.—p. 1013.
Evaluation of the Pandy Test. E. Aschenheim.—p. 1015.
Rhythmic Twitching of Muscles During Sleep, Following Epidemic Encephalitis. Thomas.—p. 1015.
*Bretschneider's Alternating Respiration Procedure. Koch.—p. 1016.
Remarks on Familial Syphilis. G. Stümpke.—p. 1016.
Establishment of Arsphenamin Dosage. W. Brock.—p. 1017.
Useful Plaster-of-Paris Splints. O. Rochelt.—p. 1018.
Operations to Correct Rachitic Leg Curvature. Stracker.—p. 1020.
Index for Height and Weight in Age Groups. J. Kaup.—p. 1021.
Begun No. 31, p. 976.
Remarks on the After-Care of Wounds. A. Krecke.—p. 1024.

The Predisposition to Disease.—Theilhaber in this preliminary communication calls attention to the extreme importance of the conditions in the region which invite disease to settle there. Long before cancer or other disease locates at a given point there must have been the development of predisposing conditions. In healthy pieces of tissue taken from organs that had been removed on account of cancer, he found regularly, not only in these pieces of tissue but also in the connective tissue in the vicinity of these organs, a marked decrease of round cells and of fixed cells in the connective tissue; in addition, extensive endarteritic processes, stenosis and obliteration of blood vessels at numerous points; frequently also "benign" misplaced epithelium. Study of these changes shows always impairment of the blood supply as the main primary local disturbance, but this may be secondary to atrophic conditions in the spleen, thymus, lymph glands, or blood producing apparatus. His research has been devoted in particular to tuberculosis, atheromatosis, chronic joint disease and cancer, and he has been applying treatment in all on this basis of transforming the predisposition in the region, regardless of the disease itself.

He thinks the normal connective tissue has a more important share in protecting against disease than has been realized hitherto, and he aims to promote production of normal connective tissue in the region. Nothing facilitates so rapidly the production of new cells and of new blood vessels as an acute inflammation with its superabundant blood supply. This should be our aim in prevention of recurrence after cancer; he strives to accomplish it by diathermia applied after resection of the cancer. His experimental research shows that diathermia induces inflammation as well as hyperemia. Liebesny has cured a number of cases of cancer in animals by diathermia alone, and Theilhaber has found that it destroys scraps of cancer tissue left after the operation. It is safer than radiotherapy, and larger areas can be exposed. To induce the curative acute inflammation in the lungs, he has started to have silica dust inhaled, in addition to diathermia applied locally and to the spleen and blood producing apparatus. The diathermia has also been applied in this way in treatment of chronic joint disease, also the mercury vapor light, and other means to stimulate blood production. As adjuvant he gives organotherapy (spleen, thymus and lymph glands). In all the above he also applied venesection to stimulate the blood producing organs, not hesitating to draw large amounts, up to 1,200 c.c. Every particle of dust inhaled must induce a little focus of irritation and this strengthens the protecting wall in the lungs; to this he ascribes the different behavior of the child and the adult lung in regard to tuberculous infection. In conclusion he reiterates that not a few of his cancer patients treated on these principles have been free from recurrence for from seven to ten years, including three in whom macroscopic scraps of cancer were left behind in the parametrium. Biologic laws, microscopic research and clinical observation all combine, he says, to confirm that the measures he advises reduce the predisposition to many diseases, reenforce the cellular immunity of the diseased and the threatened tissues, and strengthen the constitution as a whole. But he warns never to forget the principle that while small doses have a stimulating, large doses have a destructive action.

Bretschneider's Alternating Hot and Cold Respiration Procedure.—The procedure consists in allowing the patient alternately to breathe warm, damp air (50 C.) and cold, dry air (5 C.), under low overpressure. This is accomplished by means of a simple apparatus. The principle of the alternating application of heat and cold is not new. We have an analogy in the Scotch douche. Koch has thus treated forty patients in the second or third stage of tuberculosis; there were some critical cases, open and closed tuberculosis, and patients with mild or severe tuberculosis of the larynx. Most of the patients had, in addition to pulmonary tuberculosis, recent or chronic bronchial catarrh and many were suffering from dyspnea. By the alternating respiration procedure marked improvement was brought about in almost all cases. Acute catarrhal manifestations were nearly always favorably influenced, and previously intractable chronic bronchitis cases, that had existed for months and had defied all treatment, were completely cured. The favorable effect

on the dyspnea was often surprising, and in several cases the symptoms were permanently relieved. All this exerted a favorable influence on the tuberculosis. That the results were due solely to the respiration procedure is shown by the fact that during a period in which the apparatus was out of order the respiratory troubles reappeared in certain cases. The procedure is absolutely harmless and patients can be instructed to use the apparatus without assistance.

Wiener klinische Wochenschrift, Vienna

Aug. 11, 1921, 34, No. 32

Interim Treatment of Sanatorium Candidates. Ladek.—p. 387. Cont'd.
Graduate Lecture on Gall-Stone Surgery. H. Lorenz.—p. 389.
*Sequels of Epidemic Encephalitis. W. Spät.—p. 390.
Cases of Suicide with Several Fatal Gunshot Injuries. W. Schwarzscher.—p. 391. Begun No. 31, p. 375.

Sequels to Epidemic Encephalitis.—Spät reports from the industrial hospital of the Prager Eisenindustrie Gesellschaft in Kladno observations on 22 cases of epidemic encephalitis. There were only 3 deaths. The low mortality he explains in part by the mild form, and methods of treatment employed (hypnosis on appearance of motor excitement; systematic lumbar puncture during the lethargic stage). The patients were workmen in the plant, and in many of the mild cases the later developments have been disappointing. In 4 patients, especially, the relapses presented severe complications; one who, the first time, was admitted to the hospital in a raving condition but was quieted by hypnosis and dismissed in fourteen days completely cured, was readmitted a few weeks later in the same raving condition. Under hypnotic influence he soon became quiet and slept quietly the night through. He was found to be suffering from a unilateral paralysis, which gradually receded, partly spontaneously, and partly as the result of electric treatment. In the other 3 cases the sequels did not develop for several months. A boy who after a two-week lethargic stage with high fever, convalesced rapidly, returned to the hospital, several months later, with paralysis of the facial nerve, which after several months' treatment gradually receded but did not disappear entirely. His drowsiness has finally disappeared. When first taken ill, 2 patients presented choreic jerks and a moderate fever. The motor excitement was promptly relieved by hypnosis. Several months later these 2 patients presented the facial expression, body attitude and gait of paralysis agitans, but without the tremor. Headache and weakness in the legs are also complained of. A number of other patients are unable to work on account of persistent headache and sleeplessness. Spät regards these postencephalitic manifestations as partly the result of organic changes in the brain, and partly as of a functional, psychic nature. In many cases all therapeutic measures have proved unavailing.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 2, 1921, 2, No. 1

*Radiotherapy for Cancer. C. Orbaan.—p. 3.
*Glycolytic Property of the Blood. J. Wittop Koning.—p. 19.
*Cancer in the Tropics. C. D. de Langen.—p. 24.
Prevalence of Appendicitis. A. Verschoor.—p. 28.
Uremic Attacks or What? G. F. G. Meerburg.—p. 29.
*Spontaneous Evacuation of Kidney Stones. J. A. H. Hermans.—p. 30.
Girdle of Prominent Blood Vessels on Chest Wall from Coughing. H. Koch.—p. 31.
Historical Exposition at Amsterdam. G. van Rijnberk.—p. 32.
*Van Swieten's Diary. J. J. van der Kleij.—p. 33.
*History of Discovery of Osmosis. F. M. G. de Feyfer.—p. 40.
*Verbrugge's Thesis, 1773. J. van der Hoeven.—p. 47.
Folklore Charms and Formulas. C. Bakker.—p. 52.

Radiotherapy for Cancer of Tonsils.—Orbaan found inoperable cancer in the tonsil in 2.34 per cent. of 725 female patients at the Cancer Research Institute, and in 5.78 per cent. of 565 male patients, during 1915 to 1920. There were thus 44 cases among the 1,290 patients; the ages ranged from 21 to 81. Carcinomas were more frequent in the men and sarcomas in the women. The tonsils were the seat of the carcinoma or sarcoma in 4 and 8 per cent. of the men and in 0.17 and 16 per cent. of the women. In 18 of the 44 cases of carcinoma treated by crossfire roentgen and radium treatment, 11 were more or less improved, and the success was striking in some. One seems to be still clinically cured after an interval of three years. In 4 others no benefit was evident, and one died. Of the total 44, 5 are still living; one

over three years later has a suspicion of metastasis in a lung. No benefit was apparent in 10 cases, all men but one. The average minimum survival was for the men 12 and 9 months; for the women 22 and 17 months—a total average of 14 months, but some succumbed to intercurrent disease.

The Glycolytic Power of the Blood.—Koning found a regular decline in the sugar content of specimens of the blood set aside for up to twenty-four hours, and then it began to increase again, the sugar content by the forty-eighth hour sometimes surpassing that of fresh blood. This can only indicate, he says, that two processes are occurring at the same time, one destroying sugar, and the other forming some other substance that reduces copper although it is not split by the glycolytic ferment. The ferment of each process seems to be connected with the blood corpuscles. Koning has had no opportunity to study the blood of diabetics in this respect.

Cancer in the Tropics.—De Langen has compiled the data in regard to cancer at all the Java hospitals for the ten years ending with 1916. They form about 1 per thousand of the total 422,943 persons given hospital treatment. At the central hospital, with 48,834 patients, there were forty-four cancer cases but none in the stomach. Cancer of the mamma is also extremely rare, and no instance was known involving the bile ducts or gallbladder. Primary malignant disease of the liver, cervix, penis and tongue formed the main contingent.

Large Kidney Stones.—Hermans reports the case of the mother of five children who has had three attacks of severe kidney colic followed by spontaneous expulsion by the natural routes of a stone weighing 2,350 mg. with a circumference of 5 cm. and later of one measuring 6.5 cm. and weighing 4,900 mg., all in the course of five days.

Van Swieten's Diary.—Van der Kleij gives a number of extracts from van Swieten's "Constitutiones Epidemicæ," published in 1783, which is much like a diary and throws light on medical practice in those days. He relates that Boerhaave always gave a purge after recovery from measles "to clear out the last trace of the enemy." Van Swieten began to use the Fahrenheit thermometer at the bedside in 1728, showing that he kept up well with the procession. Kleij quotes some interesting cases of syphilis, hysteria, puerperal fever, etc., from his records.

The History of Osmosis.—De Feyfer remarks in the course of this historical sketch that Swammerdam (1668) gave the first description of the blood corpuscles as such. He regards William Hewson as the pioneer in osmosis, not J. Müller as is asserted in Neuburger and Pagel's "History of Medicine." Hewson wrote in 1768, "As both a strong solution of neutral salts and a very diluted one alter the shape of the vessels, it is probable that nature has limited the proportions of the water and salts in our blood."

Verbrugge's "De Aneurysmate."—Hoeven describes this thesis, dated June 8, 1773, with which Jacobus Verbrugge obtained his degree at Leiden. It is said to be handsomely illustrated but none of the illustrations are reproduced.

Hospitaltidende, Copenhagen

Aug. 31, 1921, 64, No. 35

*Otogenous Encephalitis. G. V. T. Borries.—p. 545.

Otogenous Encephalitis.—Borries refers to uncomplicated encephalitis without abscess formation—a rare affection. He has compiled five certain cases, including two in his own experience. The symptoms are those of a brain abscess, but the negative local findings and the unexpectedly favorable course correct the diagnosis. Treatment can be only that for a brain abscess in general, except that no operation on the brain should be attempted. His two cases show how an apparently hopeless case of brain abscess can turn out to be a spontaneously curable encephalitis of this kind. If pus is not found on puncture of the brain, the case need not be regarded as inevitably doomed.

Correction.—In THE JOURNAL, Oct. 29, 1921, page 1451, first column, the article by Labbé and Haguénau should read "Sensitization to Antipyrin," not "Acetylsalicylic Acid." The same correction should be made for the similar abstract on page 1055, April 10, 1920.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 20

CHICAGO, ILLINOIS

NOVEMBER 12, 1921

PROTEIN HYPERSENSITIVENESS AND ITS IMPORTANCE IN THE ETI- OLOGY OF DISEASE

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Anaphylaxis has for many years received study by those who have investigated the problems of immunity, but only within recent years has it attracted the attention of clinicians. For the problem of anaphylaxis, developed first purely by reason of its great scientific interest, has come to have, through its analogies at least, an important bearing on clinical medicine, and thus it is that considerable attention has been directed of late to the so-called idiosyncrasies or states of hypersensitiveness in man while a still more recent problem has to do with the serious effects that follow intoxication by the derivatives of native proteins.

The first serious consideration of the subject of hypersensitiveness in man really began in 1873, with the interesting observations of Blackley,¹ who studied the effect of pollens on hay-fever sufferers. He showed quite conclusively that the application of grass pollens to the nasal mucous membrane or the conjunctivae caused an attack of hay-fever in persons subject to this disease, even though the application was made in midwinter, and he demonstrated further that when the pollen was rubbed into the scarified skin, a large urticarial wheal formed at the site of inoculation. Evidence was at hand, therefore, to show that hay-fever patients possessed an unusual susceptibility to pollens that for most people were harmless.

With the introduction of diphtheria antitoxin, in 1894, opportunities were afforded to observe the effect of the introduction of foreign protein in man, and the studies of von Pirquet and Schick² on serum disease, which indeed antedated much of the earlier work on experimental anaphylaxis, threw considerable light on this subject. One point to which von Pirquet and Schick called attention was the lasting alteration of the tissues, which follows the first parenteral introduction of horse serum in man. This showed itself in an altered reaction of the tissues to a second injection of horse serum, which might call forth one of the two types of response, either the so-called accelerated reaction or the immediate reaction. Of particular interest to us is the immediate local reaction at the site of inoculation, which is characterized by the formation of

an urticarial wheal. Bearing on the same point are the early observations of Lucas and Gay,³ who described a local reaction, not unlike that which had been noted by Arthus in rabbits, following successive subcutaneous injections of horse serum in the skin of children receiving prophylactic doses of horse serum at three-week intervals. Finally, Moss,⁴ in 1910, drew attention to the value of the immediate cutaneous reaction in determining the presence of sensitiveness to horse serum in persons who had previously been injected; and since then there have developed the various methods, now so widely employed, of applying cutaneously or intracutaneously proteins or extracts of various substances, such as foods, pollens and animal hairs, to determine the presence or absence of a local skin reaction in patients who are suspected of being hypersensitive to such substances.

Indeed, for many years, so-called personal idiosyncrasies toward foods, odors and drugs have been widely recognized, though until recently they often have been looked on merely as medical curiosities. It has now been found however, largely through the work of Cooke, Schloss, Talbot, Koessler, Rackemann and others, that these idiosyncrasies have a basis in fact and that they may often be explained as an immediate reaction toward some substance to which the individual has, in some way, become hypersensitive.

HAY-FEVER

The simplest and clearest cut form of this type of idiosyncrasy or hypersensitiveness is encountered in hay-fever; for it has now been fully demonstrated that when certain pollens touch the conjunctivae or the mucous membranes of the nose or throat of these individuals, sneezing, lacrimation, and suffusion of the conjunctivae and mucous membrane of the eye and nose take place, so that an attack of hay-fever is perfectly reproduced. Moreover, the subcutaneous injection of minute quantities of extracts of the specific pollen may cause the same symptoms, while the application of extracts of the pollen to the skin will cause a reaction characterized by the formation of an urticarial wheal.

In the East, autumnal hay-fever, the commonest form, is caused most often, as is well known, by ragweed (*Ambrosia artemisiifolia* and *trifida*); and while the spring hay-fevers are due usually to the grasses (*Gramineae*), such as timothy (*Phleum pratense*), red top (*Agrostis alba*) and June grass (*Poa*

1. Blackley: Hay-Fever, Its Causes, Treatment and Effective Prevention, Experimental Researches, London, 1873.

2. Von Pirquet and Schick: Die Serumkrankheiten, 1905.

3. Lucas and Gay: J. M. Res. 20: 251, 1909.

4. Moss, W. L.: A Cutaneous Anaphylactic Reaction as a Contradiction to the Administration of Antitoxin, J. A. M. A. 55: 776 (Aug. 27) 1910.

pratensis), in rare instances the pollen of flowering shrubs and trees may be responsible for the symptoms. According to Selfridge,⁵ who with Professor Hale has made an extensive study of the plants producing wind-borne pollen from Mexico to Canada, and from the Pacific to Colorado, the majority of cases of hay-fever in this region are due to *Gramineae*, or grasses, and they occur in the spring. These grasses, such as the broncho grass and canary grass, belong to quite different species from the hay-fever grasses of the East.

In the case of true hay-fever, the occurrence is seasonal and is associated with the pollination of plants; but there is another and very interesting condition presenting the same symptoms, as hay-fever, but without seasonal variation. We have seen a number of patients who have been afflicted with what they term continuous "rose cold," or with attacks of periodic sneezing, lacrimation and coryza. It is perhaps most frequently encountered in women, and in some instances has been shown to be caused by the powder or sachet which they have used and that has usually contained orris or corn starch, to either one of which hypersensitiveness may be shown. When the patients ceased using the powder, the symptoms disappeared immediately.

ASTHMA

The next group of patients that has perhaps been most carefully studied is that of the asthmatics, and it will be remembered that the incentive for these investigations came from the early experiments of Auer and Lewis, in 1910, who showed that bronchospasm was one of the characteristic results of anaphylactic shock in the guinea-pig. The analogy to an asthmatic condition was striking, and suggested to Meltzer an explanation for the origin of the disease in man. Studies made on large groups of such patients have now disclosed the fact that about 50 per cent. are indeed hypersensitive to some protein substance and give definite skin reactions to the hairs of animals, the feathers of birds, the pollens, foodstuffs or grains, or to bacteria. Thus, Walker,⁶ in a group of 400 patients, found that 48 per cent. showed such hypersensitiveness. At the Presbyterian Hospital, where Dr. Mackenzie, Dr. Leake and I have been studying cases of asthma and hay-fever, an analysis of one series of 127 patients has shown that seventy-five, or 59 per cent., have given skin reactions to one or the other or a combination of extracts of these substances.⁷ The rather high incidence of positive reactions in this series may depend on the fact that a fair proportion of these patients suffered from a combination of asthma and hay-fever. Of fifty-nine patients giving positive reactions, twenty-five gave reactions to pollen extracts, fourteen to epidermal extracts, twenty to food extracts and twenty-eight to bacterial extracts.

In many patients, the history, the skin reaction and the subsequent course of the disease after treatment all point to the fact that the material giving the skin reaction is the specific cause of the disease. A single instance will illustrate this:

A Bohemian woman, aged 49, had been under treatment at the dispensary of the Presbyterian Hospital during five years,

for asthma. Many remedies had been tried without noticeable effect. In April, 1919, she was made the subject of special study by Dr. Mackenzie.

There was no history of asthma, urticaria, angioneurotic edema or eczema in the members of the family. She had never had hay-fever or any of these diseases herself. Her asthma had started nineteen and one-half years ago. Since that time she had had almost continuous asthma. The attacks were more severe and frequent during the winter, but she had never been entirely free from symptoms. Between attacks, she had cough and expectoration. She thought the attacks were brought on by dry weather, dust and exertion. She had noticed that whenever she cleaned a chicken, itching of the hands followed. When she ate eggs, she had a tingling sensation in the mouth. Her husband had three canaries, and whenever she cleaned the cage, an attack of asthma followed. The patient's home was half a block from a chicken market, and she noticed that every time she went there, or even passed by, an attack of asthma came on. She had never associated attacks with any article of her diet. No joint pains or gastro-intestinal symptoms had accompanied any of the paroxysms of asthma.

Except for hyperresonance over the chest, prolonged expiration and scattered musical râles, there was little to be found on general examination. Skin tests were made with a number of substances, and it was found that she gave marked reactions to extracts of chicken feathers and chicken meat, to goosefeathers, and to both egg white and egg yolk.

All pillows and mattresses containing feathers were removed from her room, and a course of injections of chicken feather extract was instituted. After eight injections, the patient was free from asthma. In all, she received twenty-one injections, the largest dose being 0.5 c.c. of a 1:500 dilution. It is now ten months since she has had asthma, even though her pillows and feather bed have been returned to her.

In other instances, the etiologic connection between the substance producing the skin reaction and the attacks of asthma is not, at first sight, so apparent. Undoubtedly, this is sometimes due to the fact that the skin reacts to several substances, any one of which may be the cause of the asthma; and without some clue in the history, it is often difficult to determine which of the reactions is the important one or whether any of them have been produced by the actual cause of the disease.

In one of our asthmatics, a boy, aged 6, violent cutaneous reactions were obtained to the serums of many domestic animals. It was thought therefore, that his asthma was probably caused by inhalation of the hairs and epidermal dust from dogs and cats. Even though he was treated most carefully from this point of view, the asthma was not relieved. A further study showed that he gave a skin reaction, though only after intradermal injections, to egg white. Eggs were therefore eliminated from his diet, and the asthma ceased immediately. He was then treated by Dr. Rackemann, by the feeding of dried egg white in capsules, beginning with 1 mg. and increasing gradually until he took one cooked egg daily. He has been able now to eat this amount of egg for four years without the reappearance of asthma.

It is, therefore, difficult at times to determine in any given case which of the skin reactions that have been obtained are or are not important in determining the etiology of the condition.

POSSIBLE ETIOLOGIC FACTORS

In patients who do not react to extract of pollens, animal hairs or food, infections must always be taken into account. The association of asthma with infections of the accessory nasal sinuses is not uncommon, and we have seen several patients in whom drainage of a chronic sinusitis was followed by great relief of the asthma. The same is probably true of cases of bronchiectasis, and possibly chronic bronchitis.

5. Selfridge, G.: California State J. Med. **16**:164 (April) 1918.

6. Walker, I. C.: Studies of the Cause and the Treatment of Bronchial Asthma, J. A. M. A. **69**:363 (Aug. 4) 1917; J. M. Res. **36**:423 (July) 1917; M. Clin. N. America **1**:1177 (Jan.) 1918; Oxford Medicine **2**:115; Am. J. M. Sc. **157**:409 (March) 1919.

7. Mackenzie, G. M., and Leake, W. H.: J. Exper. Med. **33**:601 (May) 1921.

Unfortunately, there is not time to discuss the interesting idiosyncrasies which result in attacks of urticaria, eczema, various forms of dermatitis, occasionally in angioneurotic edema, and the gastro-intestinal disturbances that are particularly common in children, and that are so often brought on by taking eggs, milk, cereals and other varieties of food. Many of these diseases are combined in the same individual.

It is very common to learn that the patient as a child had eczema, possibly combined with attacks of urticaria, and that at the age of 15 or 16 hay-fever had appeared for the first time, and had been continuous, becoming a little worse each year, until one year the patient suddenly had had, during the hay-fever season an attack of asthma, which repeated itself year after year. Or, in another type, the patient as an infant may have vomited the first time it was given egg. A second and similar experience convinced the parents that the egg was poison to the child, and this food was therefore eliminated from the diet. A few years later, eczema or urticaria developed, and it persisted as a recurring and chronic affection for years. In such instances, it may be found that, though eggs themselves are eliminated from the diet, the patient eats many foods of which eggs form an ingredient. In a third group, urticaria, eczema and asthma may alternate through childhood and terminate in persistent asthma during middle life. The very frequent association of these diseases was well illustrated in our series of cases in which 30 per cent. of the asthmatics and hay-fever patients gave a history of eczema, urticaria or angioneurotic edema.

Though the symptoms of these different patients may vary according to whether they inhale, ingest or rub the substance to which they are hypersensitive on their skins, there are certain general principles that hold for the entire group, and to some of these it is necessary to draw attention.

If one measures the intensity of the skin reaction, it can be determined that some of these patients react more violently and to greater dilutions of the proteins than do others. As a rule, it is asthmatics and hay-fever patients that give the most pronounced and violent cutaneous reactions. It is also in the cases of horse asthma that injections of antiserums, such as diphtheria antitoxin, have occasionally caused alarming symptoms and, in a few unfortunate cases, death. In cases of eczema, occasionally fairly well-marked cutaneous reactions may be obtained, but very rarely can one detect any definite reaction by this method in the patients suffering with urticaria. Indeed, in the latter group, skin reactions are much less frequently obtained than in the asthmatics and hay-fever patients, and often only by using the intracutaneous method of performing the test.

Another variation is observed in the time interval between the application of the substance to the skin and the appearance of the wheal and erythema. In most instances this is very prompt, and the reaction commences within from ten to fifteen minutes after the test is made, reaching its height within one-half hour. Occasionally, however, delayed reactions are encountered, appearing first from two to six or even twelve hours after the test is made. These delayed reactions we have found to be most common in the patients with urticaria.

Indeed, the intensity of the reaction may vary on different occasions, Schloss⁸ has seen positive skin reactions appear immediately before the onset of symptoms and disappear shortly thereafter. It has likewise been noted that the intensity of the reaction may diminish after treatment and recovery, though we have not found this by any means constant. And, finally, attention must be drawn to the fact that occasionally, in making skin tests on long series of normal persons, an individual who is perfectly well, and gives no history of any of the diseases to which we have referred, will show a definite and repeated though perhaps delayed reaction to one or several protein substances. We have found this most frequently when animal serums were employed, though Cooke and Vander Veer⁹ have noted the same thing with pollen extracts and Baker¹⁰ with food proteins in children. It is thus highly probable that in a very large group of people, one might discover individuals representing all degrees of hypersensitiveness or intensity of idiosyncrasy. In the upper portions of the scale are the exquisitely hypersensitive persons who, for instance, may have hay-fever from the pollen of ragweed even though they remain in the heart of the city, or those who may suffer from violent gastro-intestinal disturbances and urticaria after eating a spoonful of ice cream to which egg white has been added; next lower in the scale would come the patients who develop symptoms only after close contact with the protein; still lower, are the patients such as some having urticaria, who develop symptoms only after receiving large or perhaps repeated doses of the protein to which they are hypersensitive; and finally come those individuals who possess a latent hypersensitiveness, as indicated by the skin reaction, but who under ordinary circumstances present no symptoms of the diseases under discussion.

One factor that is of much practical importance and that enhances the difficulty of making an accurate diagnosis in many instances is the multiplicity of reactions that may be obtained. These multiple reactions have been noted by all who have worked on this subject, and they occur with considerable frequency. They were observed by Cooke in 42.3 per cent. of his hay-fever patients, and in 70 per cent. of the patients that Dr. Mackenzie and I have studied. Walker and Rackemann¹¹ call particular attention to this point. In spite of these multiple sensitizations, it can frequently be demonstrated that only one of the substances to which the patient reacts is important in producing the symptoms of his disease. For instance, in cases of typical ragweed hay-fever the patient may react not only to extracts of ragweed pollen but also to several of the pollens of the other compositae, even though they never have hay-fever at the time of their flowering (Goodale¹²). The same thing is true of the asthmatics, and reference has already been made to the boy who had egg asthma and yet gave intense skin reactions to the serums of many animals. Indeed, some patients give reactions to such a variety of sub-

8. Schloss, O. M.: Allergy in Infants and Children, *Am. J. Dis. Child.* **19**: 433 (June) 1920.

9. Cooke, R. A., and Vander Veer, A., Jr.: *J. Immunol.* **1**: 201 (June) 1916.

10. Baker, H. M.: Incidence of Protein Sensitization in the Normal Child, *Am. J. Dis. Child.* **19**: 114 (Feb.) 1920.

11. Rackemann, F. M.: *Boston M. & S. J.* **182**: 295 (March 18) 1920.

12. Goodale, J. L.: *Boston M. & S. J.* **171**: 695, 1914; **175**: 181 (Aug. 10) 1916.

stances that it is almost impossible to determine which, if any, have an important bearing on the condition.

These multiple reactions, however, do not seem to represent a group sensitization, for in many instances they are apparently highly specific. Thus, reactions may be obtained, as has been shown by Walker,¹³ to extracts of horsehair, or even to the individual proteins of horsehair, but not to horse serum; to the protein of the beef muscle, but not to beef serum, as we have found; to lactalbumin, but not to casein. That skin reactions may be obtained with chemically pure proteins has been repeatedly shown, and it would be of great interest to determine whether the inter-anaphylactic reactions found by Wells and Osborne¹⁴ for proteins, from different sources, such as the chemically pure gliadin from wheat and hordein from barley, obtained for these hypersensitive individuals. According to the recent work of Dale and Dakin,¹⁵ the specificity of the anaphylactic reaction, as determined for the proteins of the eggs of ducks and hens, depends on the chemical pattern, so to speak, of the protein molecule, and it would undoubtedly be important to know whether the same held true for the skin reactions.

NONPROTEIN SUBSTANCES

So far we have discussed only the idiosyncrasies toward substances that are formed largely of proteins, and are thus theoretically antigenic. But the problem is complicated by the fact that substances other than proteins may cause at times practically all the symptoms and skin reactions that have been described. Idiosyncrasies characterized by all forms of skin eruptions, by gastro-intestinal disturbances, acute collapse, and violent asthmatic dyspnea have been observed to such metals as mercury and arsenic, to the halogens, such as the iodids, the alkaloids, such as quinin, and to the benzene derivatives, such as salicylic acid and acetylsalicylic acid. As in the cases of protein hypersensitiveness, the idiosyncrasy may show itself the first time the patient takes the drug, or it may appear later during treatment. Immediate skin reactions exactly like those obtained with the proteins may be produced by these chemicals. Occasionally, however, the delayed form of reaction is encountered.

Two striking examples of this delayed form of reaction in cases of acquired arsenic idiosyncrasy were studied by Drs. Stuart and Maynard¹⁶ in my clinic the last year. Both patients, suffering from cerebrospinal syphilis, had been treated by repeated injections of arsphenamin, and both developed during treatment an extensive dermatitis exfoliativa. After their recovery from the dermatitis, it was found that the skin of these patients was exquisitely sensitive to injections of the minutest quantities of arsphenamin and neo-arsphenamin, so that 0.02 c.c. of dilutions of 1:125,000 of the drug would produce an elevated and itching swelling that reached several centimeters in diameter and persisted for several days. Arsenic in other forms, such as cacodylate, as well as various control substances, gave no such reaction. No similar reaction could be obtained in normal individuals, in untreated syphilitics, or in syphilitics who were receiving arsphenamin but who had not shown untoward symptoms.

The experiments of Friedberger and Ito,¹⁷ of Swift¹⁸ and of Obermeyer and Pick¹⁹ have shown that guinea-pigs may be sensitized actively against a combination of their own serum, and such drugs as the iodids and arsphenamin; and it may be that a similar explanation will hold for the drug idiosyncrasies in man, and thus place them in the same category as the cases of pollen or food hypersensitiveness.

OTHER FACTORS

There are still other factors, however, that must be considered and that distinguish the individuals who are naturally hypersensitive from the sensitized animal, or even from the normal individual who has received horse serum.

In the first place, the condition of hypersensitiveness is seen in its most extreme form in the naturally hypersensitive, such as asthmatics and hay-fever patients. Subcutaneous injections of such minute quantities as 0.1 c.c. of a 1:10,000 dilution of extracts of pollens and animal hairs may produce definite or even alarming symptoms in persons who are sensitive to these substances, while cutaneous reactions may be obtained with even smaller amounts.

Secondly, the familial occurrence of this hypersensitiveness is a feature of extraordinary interest. It has been recognized for many years that both hay-fever and asthma may occur in families, and now a close analysis of long series of cases, such as those published by Cooke and Vander Veer, and by Atkinson²⁰ and Rackemann, show that from 48 to 58 per cent. of their patients give a family history of some form of idiosyncrasy. In our own cases, the family history was positive in 31 per cent. Perhaps the most striking example is that described by Laroche, Richet and St. Girons,²¹ in which idiosyncrasy to eggs ran in the male line through four generations.

These observations suggest very strongly that true inheritance plays an important part in the origin of the idiosyncrasies; and, indeed, Cooke and Vander Veer have calculated that the tendency toward hay-fever descends from generation to generation, according to the mendelian law. Should this prove true on further study of the other forms of idiosyncrasy, and should this tendency be an inherited characteristic, it would separate this group of patients definitely from the animal rendered anaphylactic experimentally; for, in the latter instance, though specific sensitiveness may be transferred to the offspring, it descends only from the mother, and is not a true inheritance but merely a passive transfer.

And, thirdly, one may point out another difference which may be quantitative rather than qualitative, and which consists in the rarity with which antibodies to the specific protein are found in the serum of hypersensitive individuals, as compared with the ease with which they are demonstrated in the sensitized guinea-pig or rabbit or in the human being that has been injected with foreign serum (Schloss,²² Walker,²³ Clowes²⁴ and Bruck²⁵). Indeed, it is quite noteworthy

13. Walker, I. C.: *J. M. Res.* **35**:497, 509, (Jan.) 1917.

14. Wells and Osborne: *J. Infect. Dis.* **12**:341, 1913.

15. Dale and Dakin: *Biochem. J.* **13**:248, 1919.

16. Stuart, H. C., and Maynard, E. P., Jr.: *Hypersensitiveness to Arsphenamin Following Exfoliative Dermatitis*, *Arch. Int. Med.* **26**:511 (Nov.) 1920.

17. Friedberger and Ito: *Ztschr. f. Immunitätsforsch.* **12**:241, 1912.
18. Swift, H. F.: *Anaphylaxis to Salvarsan*, *J. A. M. A.* **59**:1236 (Oct. 9) 1912.

19. Obermeyer and Pick: *Wien. klin. Wchnschr.*, 1906, p. 327.

20. Atkinson, J.: *Genetics* **5**:363, 1920.

21. Laroche, Richet and St. Girons: *Gaz. d'hôp.* **85**:1969, 1912.

22. Schloss, O. M.: *A Case of Allergy to Common Foods*, *Am. J. Dis. Child.* **3**:342 (June) 1912.

23. Walker, I. C.: *J. M. Res.* **36**:243 (May) 1917.

24. Clowes: *Proc. Soc. Exper. Biol. & Med.*, 1910, p. 69.

25. Bruck: *Arch. f. Dermat.* **96**:241, 1909.

that Cooke, Floyd and Coca²⁶ were unable to sensitize guinea-pigs actively to extracts of ragweed pollen, though more recently Miss Parker,²⁷ working in Dr. Zinsser's laboratory, has been able to accomplish this. These factors are such that, without further study and experiment, one is not justified in assuming that the state of hypersensitiveness occurring, certainly at times, spontaneously both in children and in adults, is the same as anaphylaxis produced experimentally in animals, nor can one conclude that intoxication is dependent on the same mechanism in both cases, even though the symptoms produced may be analogous.

VARIATIONS IN OCCURRENCE AND TIME

Idiosyncrasy or spontaneous hypersitiveness to horse serum seems to occur more frequently and is certainly recorded more often in human beings than in such animals as the rabbit and guinea-pig, in which it is practically unknown. On the other hand, artificial sensitization by means of injections of horse serum can be attained with much greater regularity and to a much higher degree in guinea-pigs and rabbits than in man. Indeed, if one studies a series of patients who, for therapeutic purposes, have received subcutaneous or intravenous injections of horse serum, considerable variations are to be found in the occurrence and time of onset of serum disease, in the appearance of skin hypersensitiveness following the serum disease, and in the susceptibility of these individuals to subsequent injections of horse serum. Even when large doses of horse serum are given intravenously, only about 90 per cent. of the patients develop serum sickness, though all may eventually develop later some degree of hypersensitiveness of the skin.

We have been much interested in these variations and have now studied a number of patients who have received horse serum intravenously, to determine, if possible, why such variations occur. By following the fate of the horse serum in the body of these patients, as well as the formation of antibodies to horse serum, it has, I think, been possible to throw some light on this important question.

According to our present conceptions, horse serum itself is not toxic for the normal human being, and becomes so only when the cells of the body produce antibodies which unite with the horse serum to form substances injurious to the tissue cells.

Though there has been much discussion as to whether the formation of this toxic substance takes place in the circulation or in the tissue cells, it seems clear now, from the experiments of Schultz²⁸ and of Dale²⁹ and of Laidlaw³⁰ and of Weil,³¹ that the intracellular formation of toxins is by far the most important factor in the production of the symptoms characterizing anaphylactic shock. If, therefore, after the injection of horse serum, the formation of antibodies were in any way inhibited, one might expect that the symptoms characteristic of serum disease might be lacking. It is known that, by the method of specific precipitation, a reaction for horse serum may be obtained in the blood, both of animals and of man, for

many days following the injection; and, since reactions for horse serum cannot be obtained in the urine during this period, it is improbable that horse serum is excreted as such by the kidneys. It has been shown, too, especially through the work of Weil and of Bayne-Jones,³² that antigen and precipitin may be present at the same time in the circulation without uniting.

By means of specific precipitin reactions, therefore, Dr. Mackenzie and I have attempted to find out how long horse serum may remain in the circulation, whether or not the duration of its stay is connected with precipitin formation, and what factors determine its disappearance. Preliminary observations in the rabbit demonstrated that when 5 c.c. of horse serum per kilogram of body weight was injected in a single dose intravenously, the horse serum disappeared quite regularly in from one to three weeks. Preceding the disappearance of horse serum, precipitins were formed in considerable concentration.

The conditions in a group of human beings who had received from 34 to 630 c.c. of therapeutic horse serum intraspinaly or intravenously proved to be quite variable and of much interest.

CASE GROUPS

These patients could be divided quite sharply into three groups: (1) those who developed typical serum disease following the injection of horse serum (eleven cases); (2) those who showed no sign of serum disease at all, or who showed only the most trifling symptoms (four cases), and (3) those who developed mild and short attacks of serum disease (four cases).

In the first group, comprising eleven cases, the curve for the disappearance of horse serum and the formation of precipitins was similar to that in the rabbit. In these patients the precipitins appeared toward the end of the serum disease, and the horse serum disappeared from the circulation shortly thereafter. It seems probable, therefore, that in patients who have typical serum disease the horse serum unites with the tissue cells to form antibodies, and a reaction which causes the symptoms of serum sickness takes place within the cell. During this period, there is an excessive formation of antibody, which finally appears in great concentration in the circulation, and in the process the horse serum is, so to speak, used up and disappears.

In the second group of cases that did not develop serum disease, the fate of the horse serum was entirely different. In these patients there was practically no formation of antibodies, and the horse serum persisted in almost even concentration in the circulation, sometimes for months. In this group of patients, reactions for horse serum were present for from forty-nine to sixty-seven days and, in most instances, the patients were lost sight of before negative reactions could be obtained.

Besides the two sharply defined groups, there was a third comprising four patients in which serum disease occurred, though it was mild. Precipitins were formed, though in slight concentrations, and the reactions for horse serum persisted over a considerable period of time. The reactions of the patient toward the introduction of horse serum in this group partook of a character that was intermediate between the characteristic reactions observed in the first and the second groups.

26. Cooke, Floyd and Coca: *J. Immunol.* **2**: 217 (Feb.) 1917.

27. Parker, J. A.: *Proc. Soc. Exp. Biol. & Med.* **18**: 237, 1921.

28. Schultz, W. M.: *J. Pharmacol. & Exper. Therap.* **1**: 549, 1910; **3**: 299, 1912.

29. Dale, H. H.: *J. Pharmacol. & Exper. Therap.* **4**: 167, 1913; *Proc. Roy. Soc.* **91**: 126, 1920.

30. Laidlaw: *J. Physiol.* **41**: 318, 1910-1911.

31. Weil, R.: *J. M. Res.* **30**: 87, 299, 1914; *J. Immunol.* **1**: 47, 1916.

32. Bayne-Jones, S.: *J. Exper. Med.* **25**: 837 (June) 1917.

COMMENT

These observations suggest very strongly that the susceptibility of certain individuals to serum disease depends on the readiness with which the cells of the body unite with the circulating horse serum to form antibodies. Should this preliminary union be interfered with, the subsequent reaction is very slight, and if the union of the circulating horse serum and the cells of the body is by any means completely prevented, there will be no formation of antibodies. The reaction which manifests itself as serum disease will be absent, while the horse serum will continue to circulate as an innocuous substance until it is gradually destroyed by some other means.

It is impossible to say at present whether this protection against the foreign protein is due to some quality of the serum which stands as a barrier, so to speak, between the cells of the body and the foreign protein, or whether the protective mechanism resides in the cell itself, which for some reason is impermeable to the horse serum. But, in view of these observations, it seems possible that sensitization of the human being might very well depend on two factors: first, the permeability of the tissue cell to the foreign protein and, second, the formation of antibodies within the cells.

The insusceptibility of the patients in Group 2 to serum disease is analogous in mechanism to the immunity which certain cold-blooded animals, such as green lizards and marsh turtles, possess toward tetanus toxin. This was described by Metchnikoff³³ many years ago. These animals, as well as the fowl, which is relatively immune toward tetanus toxin, show no antitoxin in their circulation. On the other hand, it was found that the tetanus toxin is not rapidly destroyed in the cold-blooded animals, but can be demonstrated in the circulation for weeks or even months, where it persists as an innocuous substance.

Not only are these observations of interest in offering an explanation for the difference in susceptibility of individuals toward serum disease, but they may have some bearing on the important problem of individual difference in susceptibility to infection. Investigators in the field of natural immunity have been occupied chiefly in studying different degrees or forms of susceptibility characterizing races or species. It is clear, however, that within any given species there are wide variations in susceptibility to infection, for which at present there is no adequate explanation.

POSSIBLE ORIGIN OF HYPERSENSITIVENESS

The reactions which take place in man during serum disease, and the subsequent hypersensitiveness to the foreign serum, simulate the experimental conditions in animals much more closely than do the other forms of hypersensitiveness, such as occur in hay-fever and asthma: but the experiments described make one ask whether in the latter group the trouble does not lie in some fundamental defect in the cell or in the fluids of the body rather than in a type of artificial sensitization such as is produced experimentally in the guinea-pig. Schloss and Worthen³⁴ and Bonar and Grulee,³⁵ have shown that infants suffering from gastro-

intestinal disorders may absorb egg albumin from the gastro-intestinal tract, when it may be demonstrated as such in the blood serum and be excreted through the kidneys, and it would be important to know whether these children, in whom the factors would be ideal for the production of hypersensitiveness, later become sensitive to egg white. Undoubtedly, minute quantities of native foreign protein enter our bodies from time to time without obviously sensitizing us, and it is necessary to discover some other factor besides the simple introduction into the body of foreign native protein that will determine the origin of this hypersensitiveness in man or that will explain the occurrence of idiosyncrasies in families or in the new-born child.

That many of the characteristics of the symptoms and reactions that occur in the hypersensitive patient may be produced in normal individuals by chemical substances is well known. Eppinger and Guttman³⁶ have shown that histamin, and Sollmann and Pilcher³⁷ that other amines, when applied to the skin will cause an urticarial wheal, while Sieburg³⁸ has observed generalized urticaria after injections of histamin subcutaneously. Though the reactions caused by these substances may have the same relative significance to the question of specific hypersensitiveness in man as have the symptoms caused in animals by various forms of split proteins, or to "anaphylatoxins" produced from blood serum by various methods to anaphylaxis, still the possibility of such forms of protein intoxication must be considered in clinical medicine. I shall not here attempt to discuss this difficult phase of the subject in detail, but I should like to point out one feature of these intoxications that has been of particular interest to us.

Some time ago, Dr. Rackemann and I³⁹ observed two cases of severe urticaria, in which, during the attacks, rather profound changes took place, both in the urea content of the blood and in the functional activities of the kidneys:

A man, aged 45, who was subject to attacks of severe urticaria, preceded by itching and swelling of the tongue and lips, and who was sensitive to beef and sheep proteins, showed in one such attack a temporary rise in blood urea to 98 mg. per hundred cubic centimeters, and in another a rise from 13.3 to 40 mg., together with a diminished salt and water excretion.

A woman, aged 58, was admitted to the Presbyterian Hospital with a diagnosis of uremia. There was a history of recent diarrhea, headaches and great prostration. The blood urea on admission was 300 mg. per hundred cubic centimeters. The phenolsulphonephthalein output was 38 per cent. There were very small quantities of urine, which showed much albumin and many casts, and a marked suppression of chlorid excretion. The blood pressure, however, was only 130 systolic, and 60 diastolic. Eleven days after the onset of the disease, she developed a profuse, generalized urticaria, which persisted for six days. Following the illness, the blood urea fell rapidly to 20 mg., the phenolsulphonephthalein rose to normal, and there was diuresis with excessive excretion of chlorids in the urine.

One actual case of chronic nephritis has been observed, during the course of which an attack of urticaria and erythema was accompanied by an alarming but temporary rise in blood urea, with suppression of chlorid and water excretion. The condition in

33. Metchnikoff: *Immunity in Infectious Diseases*, Cambridge, 1905.

34. Schloss, O. M., and Thacher, W. W.: The Permeability of the Gastro-Enteric Tract of Infants to Undigested Protein, *Am. J. Dis. Child.* **11**: 342 (May) 1916.

35. Bonar, B. E., and Grulee, C. G.: Precipitins to Egg White in the Urine of New-Born Infants, *Am. J. Dis. Child.* **21**: 89 (Jan.) 1921.

36. Eppinger and Guttman: *Ztschr. f. klin. Med.* **78**: 399, 1913.

37. Sollmann and Pilcher: *J. Pharmacol. & Exper. Therap.* **9**: 209 (March), 391 (April) 1917.

38. Sieburg, E.: *Deutsch. med. Wchnschr.* **40**: 2038, 1914.

39. Rackemann and Longcope: *J. Urol.* **1**: 351 (Aug.) 1917.

these patients simulates closely many of the characteristic features of the experimental intestinal obstruction, ascribed to proteose intoxication, so carefully studied by Whipple and his associates;⁴⁰ for one finds not only an increase in the nonprotein nitrogen content of the blood, but a temporary depression of the renal functions as well. Indeed, quite recently in four cases of intestinal obstruction in man, Dr. Louria⁴¹ has been able to confirm not only the findings of Tileston and Comfort,⁴² who reported a high nonprotein blood nitrogen content in three cases of intestinal obstruction, but the experiments and observations of Whipple, Cooke, Rodenbough and McQuarries.⁴³

In the first patient, a woman, aged 32 paralytic ileus followed an operation on the gallbladder. During the period in which she was suffering from symptoms of intestinal obstruction, the blood urea, April 3, was 294 mg. per hundred cubic centimeters; two day later it was 264 mg. per hundred cubic centimeters, and after relief of the ileus, April 8, it was 101 mg. per hundred cubic centimeters. April 6, a generalized erythema and urticaria appeared, which persisted for two days.

In the other three cases, the blood urea varied from 109 to 294 mg. per hundred cubic centimeters during the period of obstruction. Three patients died, and at necropsy, made by Dr. Meleney, the kidneys were found to be normal, both grossly and microscopically.

In this group of cases, it seems highly probable, from all the evidence that can be collected, that proteoses or the toxic amines, such as histamin, may be absorbed from the intestine and cause disturbances not only of nitrogenous catabolism, but also, temporarily, of renal functions, but without anatomic lesions in the kidneys that can be demonstrated by our present methods.

To explain satisfactorily the clinical manifestations of the idiosyncrasies and allied disturbances, one must, therefore, consider two factors: first, the possibility of a specific hypersensitiveness toward some protein or indeed chemical substance; and, secondly, the possibility of a direct intoxication by some poisonous derivative of the protein molecule. How nearly related these are and what part the second plays in causing symptoms in the hypersensitive individual, it is impossible to state at the present time.

CONCLUSION

A certain proportion of individuals possess a peculiar idiosyncrasy to some substance or substances that usually are proteins, or that contain proteins, but that may be of nonprotein nature. Contact with these substances under certain conditions may cause hay-fever, asthma, gastro-intestinal disturbances, eczema, urticaria, or other cutaneous manifestations. As a rule, the symptoms of these diseases appear early in life and may be observed the first time the patient comes in contact with the substance to which he is hypersensitive. There is undoubtedly a definite tendency toward the inheritance, not of a specific hypersensitiveness, but of a quality of tissue that allows of the development of idiosyncrasies; and this may be dependent on a condition of the body fluids or of the cells which permits of a ready union of foreign protein with them.

The peculiarity of the patients is that the skin reacts by the formation of an urticarial wheal to the application of the substance or substances to which they are hypersensitive. Though these reactions are highly specific, they may be multiple and produced by a large variety of proteins.

Normal individuals who have had subcutaneous or intravenous injections of horse serum show a measurable difference in their susceptibility to serum disease. This does not depend on the amount of serum, but on the condition of the tissue cells and fluids of the body which, in the susceptible individual, allows of the rapid union of the foreign serum with the cells of the body. In the small percentage of insusceptibles, the condition of the cells and body fluids is such that the union is inhibited or takes place so slowly that serum disease does not occur.

In contrast to these highly specific reactions are the disturbances, very similar in nature, that may be brought about in any normal person by the injection or absorption of some of the poisonous derivatives of the protein molecule, such as histamin.

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THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS *

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SAN FRANCISCO

Most of the criticisms in America of this system are leveled at the fact that the calory, which is well established in this country as the unit of feeding, is replaced by the "nem." It is unfortunate that the term "nem system" is used in describing it, as the "nem" is the least part of the philosophy. The term "Pirquet system" is a far better one, as it epitomizes all the essential facts—the nutritional estimations as well as the feeding methods. The system includes a host of details, singular in their simplicity, yet representing all the accepted principles of nutrition, based on strict mathematical formulas.

HISTORICAL

In order to keep the war spirit up to the highest point, the governments of the Central powers, Austria in particular, told their people that the conflict would end in their victory in a few months. This assurance brought a sense of false security to the people, so that conservation of food was little practiced during the first years of the war. As a result, there was widespread malnutrition, the most outstanding evidence of which was rickets. It was estimated that upward of 90 per cent. among the younger groups of children showed rachitic changes in some degree.

Pirquet and his staff, as well as other informed medical men, recognizing the true situation, voiced their convictions, but were little heeded amid the wild business of war. Pirquet, going quietly to work, developed a system, based on scientific principles, yet so simple that it could be applied to feeding on a large scale. The signing of the armistice, which brought Mr. Hoover, director general of relief of the Supreme Economic Council, to the assistance of the distressed population, was Pirquet's opportunity. The Austrian government

40. Whipple et al.: Jour. Exper. Med. **17**: 717, 1913; **19**: 166, 1914.

41. Louria, H. W.: Blood Urea Nitrogen in Acute Intestinal Obstruction, Arch. Int. Med. **27**: 620 (May) 1921.

42. Tileston, Wilder, and Comfort, C. W., Jr.: The Total Nonprotein Nitrogen and the Urea of the Blood in Health and in Disease, as Estimated by Folin's Methods, Arch. Int. Med. **14**: 620 (Nov.) 1914.

43. Whipple et al.: J. Exper. Med. **23**: 717 (June) 1916; **29**: 397 (April) 1919.

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named him commissioner general for Austria, and in May, 1919, because of the cooperation of the American Relief Administration, he was able to put his new system into effect. In Austria alone, a maximum of 300,000 children were fed daily, and nearly 1,500,000 children in central Europe ultimately received rations from this source. The governments of the various countries wherein feeding is carried on were anxious to cooperate. The Austrian government, for example, gives the commodities that the country is able to produce, such as flour and vegetables, and it also provides the machinery for the distribution. The American Relief Administration gives such food as the countries in question cannot produce and are too poor to buy (sugar, cocoa, milk, fats and the like). So it actually works out that about two thirds of the cost of feeding is defrayed by the recipient government, and one third

ladles are standardized in size and so labeled that it becomes an easy matter to dispense any given number of "nem" of food. Each child brings his own container and spoon. This is required in order to prevent cross infection as well as to eliminate dishwashing. After his ration is given him, the child sits at a table and eats his meal. He may stay in the dining room as long as he desires, but he is not permitted to leave the room until his plate is emptied. This rule is insisted on and unless a child is obviously ill, he is compelled to eat his entire prescribed ration. This eliminates the appetite as the index of nutritional needs. It so works out that little trouble is experienced in this respect. The "psychology of the crowd," so dominant in youth, enters and solves the problem, much to the benefit of the child. At stated intervals the children are reexamined, and as soon as their nutritional index reaches a

TABLE 1.—PELIDSI CHART (FOR SCHOOLCHILDREN)

Sitting Height in Cm.	Percentage (Pelidisi)																							
	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
55	10.0	10.4	10.7	11.1	11.5	11.9	12.3	12.7	13.1	13.6	14.0	14.4	14.9	15.4	15.8	16.4	16.9	17.4	17.9	18.4	19.0	19.6	20.1	20.7
56	10.6	10.9	11.4	11.7	12.2	12.6	13.0	13.4	13.9	14.3	14.8	15.3	15.7	16.2	16.8	17.3	17.9	18.4	18.9	19.5	20.1	20.6	21.2	21.8
57	11.1	11.5	11.9	12.4	12.8	13.2	13.7	14.2	13.6	15.1	15.6	16.1	16.6	17.1	17.7	18.2	18.8	19.4	20.0	20.6	21.2	21.8	22.4	23.0
58	11.7	12.1	12.6	13.0	13.5	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.5	18.0	18.6	19.2	19.8	20.4	21.0	21.6	22.3	22.9	23.6	24.2
59	12.4	12.8	13.2	13.7	14.2	14.7	15.2	15.7	16.2	16.7	17.3	17.8	18.4	19.0	19.6	20.2	20.9	21.5	22.2	22.8	23.5	24.1	24.8	25.6
60	13.0	13.4	13.9	14.4	14.9	15.4	15.9	16.5	17.1	17.6	18.2	18.8	19.3	20.0	20.6	21.2	22.0	22.6	23.3	24.0	24.6	25.4	26.1	26.8
61	13.7	14.1	14.6	15.2	15.7	16.2	16.8	17.3	17.9	18.5	19.1	19.7	20.3	21.0	21.7	22.4	23.1	23.7	24.4	25.2	25.9	26.6	27.4	28.2
62	14.3	14.8	15.4	15.9	16.5	17.1	17.6	18.2	18.8	19.4	20.0	20.7	21.4	22.1	22.8	23.4	24.2	24.9	25.7	26.4	27.2	28.0	28.8	29.6
63	15.0	15.6	16.1	16.7	17.3	17.9	18.5	19.1	19.7	20.4	21.0	21.7	22.4	23.2	23.8	24.6	25.4	26.2	27.0	27.8	28.6	29.4	30.2	31.1
64	15.8	16.3	16.9	17.5	18.1	18.8	19.4	20.0	20.7	21.4	22.1	22.8	23.5	24.3	25.0	25.8	26.6	27.4	28.2	29.1	30.0	30.8	31.6	32.6
65	16.5	17.1	17.7	18.3	19.0	19.7	20.3	21.0	21.7	22.4	23.1	23.9	24.6	25.5	26.2	27.0	27.9	28.8	29.6	30.5	31.4	32.2	33.2	34.2
66	17.3	17.9	18.5	19.2	19.9	20.6	21.2	21.9	22.7	23.4	24.2	25.0	25.7	26.6	27.4	28.2	29.2	30.0	31.0	31.9	32.8	33.8	34.8	35.8
67	18.7	18.7	19.4	20.1	20.8	21.5	22.2	23.0	23.7	24.5	25.3	26.1	26.9	27.8	28.6	29.5	30.6	31.4	32.4	33.4	34.3	35.4	36.3	37.4
68	18.9	19.6	20.3	21.0	21.7	22.5	23.2	24.0	24.8	25.6	26.4	27.3	28.2	29.1	30.0	30.9	32.0	32.9	33.8	34.9	35.9	36.9	38.0	39.1
69	19.8	20.5	21.2	22.0	22.7	23.5	24.2	25.0	25.9	26.7	27.6	28.5	29.7	30.4	31.3	32.3	33.4	34.4	35.4	36.4	37.5	38.6	39.7	40.9
70	20.6	21.4	22.1	22.9	23.7	24.5	25.3	26.2	27.0	27.9	28.8	29.8	30.7	31.6	32.7	33.8	34.8	35.8	37.0	38.1	39.1	40.3	41.5	42.6
71	21.5	22.3	23.1	23.9	24.7	25.6	26.4	27.3	28.2	29.1	30.1	31.3	32.1	33.1	34.1	35.2	36.4	37.4	38.6	39.7	40.9	42.0	43.2	44.5
72	22.4	23.2	24.1	25.0	25.8	26.6	27.6	28.5	29.4	30.4	31.4	32.4	33.5	34.5	35.6	36.7	38.0	39.0	40.3	41.5	42.6	43.9	45.1	46.8
73	23.4	24.3	25.1	26.0	26.9	27.8	28.8	29.8	30.7	31.7	32.8	33.8	34.9	36.0	37.0	38.2	39.5	40.7	42.0	43.2	44.5	45.7	47.1	48.4
74	24.4	25.3	26.2	27.1	28.0	29.0	30.0	31.0	32.0	33.0	34.1	35.2	36.3	37.4	38.6	39.8	41.1	42.4	43.7	45.0	46.4	47.6	49.0	50.4
75	25.4	26.3	27.2	28.2	29.2	30.2	31.2	32.3	33.2	34.3	35.5	36.6	37.8	39.0	40.1	41.4	42.8	44.1	45.4	46.9	48.3	49.5	50.9	52.5
76	26.4	27.4	28.4	29.4	30.3	31.3	32.7	33.5	34.6	35.7	36.9	38.2	39.3	40.5	41.7	43.1	44.5	45.9	47.3	48.7	50.3	51.5	53.0	54.5
77	27.5	28.4	29.5	30.6	31.6	32.6	33.8	34.8	36.0	37.2	38.4	39.6	40.9	42.7	43.5	44.8	46.4	47.7	49.2	50.7	52.3	53.6	55.2	56.8
78	28.6	29.6	30.7	31.8	32.8	33.9	35.0	36.2	37.4	38.6	40.0	41.1	42.5	43.9	45.2	46.6	48.2	49.6	51.0	52.6	54.3	55.7	57.3	58.9
79	29.7	30.8	31.8	33.0	34.0	35.2	36.4	37.7	38.8	40.1	41.5	42.8	44.1	45.5	46.9	48.4	50.0	51.5	53.1	54.7	56.5	58.0	59.6	61.3
80	30.8	31.9	33.1	34.2	35.4	36.6	37.9	39.0	40.4	41.7	43.0	44.5	45.9	47.3	48.7	50.2	52.0	53.6	55.1	56.9	58.6	60.1	61.8	63.7
81	32.0	33.2	34.3	35.5	36.7	38.0	39.3	40.5	41.9	43.3	44.7	46.1	47.6	49.1	50.6	52.1	54.0	55.5	57.3	59.0	60.8	62.5	64.3	66.0
82	33.2	34.4	35.6	36.8	38.1	39.4	40.8	42.0	43.5	45.0	46.4	47.9	49.9	51.0	52.5	54.1	56.0	57.6	59.5	61.3	63.0	67.9	66.7	68.5
83	34.4	35.7	36.9	38.2	39.6	40.8	42.3	43.7	45.1	46.6	48.0	49.6	51.2	52.9	54.5	56.1	58.1	59.7	61.7	63.5	65.3	67.2	69.1	71.0
84	35.7	37.0	38.2	39.6	41.0	42.3	43.8	45.3	46.8	48.3	49.9	51.5	53.0	54.8	56.5	58.2	60.2	62.0	64.0	65.8	67.7	69.7	71.6	73.6
85	37.0	38.2	39.6	41.0	42.4	43.9	46.4	46.9	48.5	50.0	51.6	53.4	55.0	56.8	58.5	60.4	62.4	64.3	66.3	68.2	70.0	72.1	74.2	76.3
86	38.3	39.6	41.0	42.5	44.0	45.5	47.0	48.7	50.2	51.9	53.7	55.4	57.1	58.9	60.7	62.6	64.6	66.5	68.5	70.5	72.7	74.8	76.9	79.0
87	39.6	41.0	42.5	44.0	45.5	47.1	48.7	50.3	52.0	53.8	55.5	57.2	59.1	60.9	62.9	64.7	66.9	69.0	71.0	73.0	75.2	77.5	79.6	81.8
88	41.0	42.5	44.0	45.5	47.2	48.7	50.4	52.0	53.8	55.5	57.5	59.3	61.2	63.0	65.0	67.0	69.3	71.4	73.5	75.5	77.8	80.0	82.4	84.7
89	42.5	44.0	45.5	47.1	48.8	50.5	52.2	53.9	55.7	57.5	59.6	61.2	63.3	65.3	67.3	69.4	71.6	73.6	76.0	78.1	80.5	82.9	85.2	87.5
90	44.0	45.4	47.0	48.7	50.4	52.2	54.0	55.8	57.5	59.5	61.5	63.4	65.4	67.5	69.5	71.5	74.0	76.4	78.6	80.9	83.4	85.7	88.1	90.5

* Instructions for use: To determine the "pelidisi," locate in the left hand column the child's sitting height in centimeters. With a ruler follow the weights in kilograms to the right until the proper figure is reached. Trace upward in that column to the heavy figure at the top, which indicates the pelidisi.

by the American Relief Administration. Even so, the American Relief gets a great deal more than one third of the credit. The spontaneous outbursts of gratitude to America evinced by the Austrians, in particular, is the source of much comment by continental visitors. A brief description of the machine in operation might not be amiss. The American food is landed at Hamburg, and shipped overland, duty free, to Vienna for the Austrian district. There it is stored in a central warehouse (a wing of the old imperial palace), and distributed on requisition to the district kitchens. These kitchens, often fitted up with old army supplies, cook food for a number of dining rooms in their respective districts. A charming part of the system is that there is no waste. Each dining room supervisor requisitions exactly the number of grams and "nem" prescribed in total for her children; it is delivered hot, about 11 a. m., and the feeding begins at 12. The children file in, and each presents a card indicating the result of a previous physical examination and the number of "nem" prescribed for him. Serving

desirable point (at present 94 per cent. "pelidisi"), the child is discharged from the class and a less fortunate individual substituted. THE NUTRITIONAL INDEX—THE "PELIDISI" Pirquet believes that the sitting height is a basis for the more accurate estimation of the nutritional state than is the standing height. It was demonstrated that the cube of the sitting height in centimeters is approximately ten times the weight in grams of the normal person. With this formula in mind, it becomes easy to compute the nutritional state in percentages, when the sitting height and the weight are known. The formula would read,
$$\frac{10 \text{ times the weight}}{\text{Sitting height}^3} = 100 \text{ per cent.}$$
 or
$$\sqrt[3]{\frac{10 \text{ times the weight}}{\text{Sitting height}}} = 100 \text{ per cent.}$$
 It is obvious from this formula that if the weight is lower, the percentage of nutrition (pelidisi) would be

lower; and if the sitting height were higher, the percentage of nutrition likewise would be lower. In order to make a convenient term to designate this percentage of nutrition, Pirquet coined the word "pelidisi" (*pon-dus, decies, linear, divided by sitting height*).

Given the sitting height and weight of a child, the physician, by simple mathematics or with a slide rule, can readily compute the pelidisi. Further to simplify matters, a table was devised (Table 1) wherewith a person with no medical training can easily determine the pelidisi of a child.

In actual practice, the pelidisi of a well-nourished, normal child is very close to 100 per cent. An obese child may go up to 110 per cent. Thin children run between 88 and 94 per cent. The thinnest we have observed in this country or in Austria was 85 per cent. Generally speaking, a child with a pelidisi between 95 and 100 per cent. may be said to be well nourished. An adult, however, with a pelidisi below 100 per cent. is undoubtedly undernourished. At 104 or 105 per cent., he is overfed and the intake should be reduced. In the American Relief Administration's feeding, the line is drawn at 94 per cent. If food were plentiful, Pirquet would probably insist that the limit be gradually raised to 98 or 100 per cent.

PHYSICAL EXAMINATION

In order to verify the accuracy of the pelidisi, Pirquet standardized the method of physical examination of the child. He classified the results of the examinations under four headings—*sanguis* (blood), *crassitudo* (fat), *turgor* and *muscularis*. He chose the vowel *a* to indicate normality and *e, i, o, u* as symbols to designate the degree of deviation of these tissues above or below normal. In this way a new word was evolved, one that would represent the physical status of the child. Eventually "sacratama" came to mean the physical examination.

TABLE 2.—SACRATAMA

	Sanguis (blood)	Crassitudo (fat)	Turgor (water)	Muscularis (muscle)	
i	Si	cri	ti	mi	Greatly increased
e	Se	cre	te	me	Moderately increased
a	Sa	cra	ta	ma	Normal
o	So	cro	to	mo	Moderately decreased
u	Su	cru	tu	mu	Greatly decreased

Index 3-2-1-0.

Further to simplify the formula (it is sometimes difficult to remember without consulting the chart what "so-cre-to-ma, for example, means), an index was formulated: 3-2-1-0. To illustrate: If a child were slightly anemic and moderately thin, but of good turgor and muscle tone, his classification would be "so-cro-ta-ma." It is apparent that there are two points off normal, so a circle is thrown around the 2. If, on the other hand, he were particularly well muscled and he were classified "so-cro-ta-me," he would have two points below normal and one point above; the difference would be 1, and a circle would be thrown around this number.

It is a common observation that there is a direct relationship between the pelidisi and the sacratama. When the pelidisi is around 90 per cent., the sacratama is likely to be three points off normal; if the pelidisi is near 95 per cent., the sacratama will probably be one or two points off normal. A normal pelidisi almost invariably accompanies a normal sacratama.

Pirquet felt that the calory, which is a unit of measure best adapted to the requirements of the physicist

and the engineer, does not meet the practical needs of the physician and dietitian. In place of the calory, Pirquet prefers a nutritional unit based on the food value of 1 c.c. of milk. This unit he calls a "nem" (*nutrition-element-milk*). The physician and dietitian have to deal with a populace to whom milk is familiar and who can readily visualize a unit of food measurement in terms of this common article of diet, while the calory suggests nothing concrete to one unaccustomed to thinking in terms of physics.

TABLE 3.—THE NEM VALUE OF FOODSTUFFS

	Nem in 1 Gm.	Protein, Dekanem in Hectonem
Meat:		
Tallow.....	13½	0
Lard.....	13½	0
Bacon.....	10	0.5
Fat mutton.....	5	2
Fat beef.....	4	3
Lean beef.....	2	6
Lean mutton.....	2½	4
Fresh fat fish (salmon).....	2½	4
Fresh lean fish.....	1½	8
Gelatin (Jello).....	Ignore food value	
Ham.....	5	8
Milk and Eggs:		
Condensed with sugar.....	5	1
"Evaporated milk".....	2	2
Mother's milk.....	1	1
Cow's milk.....	1	2
Skimmed milk.....	0.5	4
Cream.....	3½	1
Whole egg.....	2½	3
Egg yolk.....	5	2
Heavy cheese.....	6	3
Dry cheese.....	4	5
Cream cheese.....	2½	6
White of egg.....	0.6	9
Fats:		
Butter.....	12	0
Oleomargarin.....	12	0
Suet.....	12	0
Salad oil.....	13½	0
Lard.....	13½	0
Cereals:		
Rice.....	5	1
Rice, cooked.....	1½	0.3
Wheat flour (or other).....	5	1
Crackers.....	5	1
Zwiebach or toast.....	5	1
Barley, oats, wheat, corn.....	4½	1
Wheat bread.....	4	1
Vegetables:		
Dried vegetables.....	4	2
Potato.....	1½	0.5
Green peas.....	1	2
Green beans.....	0.5	2
Carrots.....	0.5	1
Turnips.....	0.4	1
Cabbage.....	0.4	1
Cauliflower.....	0.4	2
Spinach.....	0.4	3
Tomatoes.....	0.25	2
Asparagus.....	0.25	2
Lettuce, cucumber.....	0.2	2
Sweets:		
Chocolate.....	6½	0
Cocoa.....	6	1
Sugar—a starch.....	6	0
Syrup.....	5	0
Honey.....	5	0
Jam.....	3½	0
Fruits:		
Grapes.....	1	0.5
Fresh fruit.....	0.6	0.5
Grape juice.....	1.5	0
Lemon juice.....	0.6	0
Other fruit julees.....	0.7	0
Dried.....	3.3	0.5
Nuts:		
Nuts.....	9	1
Sweet almonds.....	8	1

The fact that there are about 667 calories in 1,000 c.c. of milk further complicates the application of the caloric system. With Pirquet's method, 1,000 c.c. of milk = 1,000 nem. The nutritive value of any other food can be readily expressed in nem simply by comparing its food value with that of milk (Table 3). For example, gram for gram, the value of sugar is six times that of milk. It would take, therefore, approximately 17 gm. of sugar to equal 100 c.c. of milk, (17 × 6 = 102); likewise, butter, having twelve times the value of milk, would require about 8 gm. to equal 100 c.c. of milk (8 × 12 = 96). In this manner all

combinations of foods can be reduced to milk value or nem.

For the dietitian it is one advantage of this method that most food combinations can be made so that they are "equal strength" (that is, 100 gm. = 100 nem); "one and one-half strength" (100 gm. = 150 nem); or "double strength" (100 gm. = 200 nem). In Table 4 are given a few recipes with their nem values. Others can be readily formulated.

In making up these recipes, it is only necessary to determine the value of a given food relative to 1 c.c. of milk (1 nem). For example, in making the recipe for succotash, we find by referring to Table 3 that fresh lima beans and string beans are each but 0.5 the strength of milk; that corn is 0.4 of milk strength; and that bacon is 10 times as strong in nutritive value as milk. So in calculation, 100 gm. of lima beans, multiplied by 0.5 = 50 nem; likewise, 100 gm. of beans = 50

of milk, (2,500 nem) or its equivalent in other food, the constant take of so much would tend to overtax the digestive system; so that a lesser or "optimum" amount of food would be desirable.

Pirquet also estimated the needs of the individual for basal metabolism which is, of course, an irreducible "minimum," as three tenths of the "maximum." The author of the system insists that the growing individual needs one tenth of the calculated "maximum" for purposes of growth; that he must have another tenth for the maintenance of his reserves of body fat; that he requires still another tenth to meet the demand of moderate exercise and a further tenth if he is one whose activity is unusual. The sum of these fractions provides the physician with a basis for calculating the nutritive needs of the child and for writing his prescription. For example, the prescription would read, 0.5, 0.6, 0.7 or, unusual cases, 0.8. For these figures, Pirquet has given the name "decinemsiqua" (written DnSq). To further amplify: Consider the same child whose sitting height is 50 cm. As stated, the square of 50 cm. (2,500 square centimeters) gives a figure which is about the same as the number of square centimeters of the intestinal "absorptive surface." This figure also represents the "maximum" number of nem which can be utilized by this surface. The child needs, to meet the demands of its basal metabolism, three tenths of the "maximum," 2,500 nem, which is 750 nem; for its growth, one tenth of the "maximum," or 250 nem; for fat reserve, one tenth, or 250 nem; for moderate activity, one tenth, or 250 nem more should be added. It is apparent, therefore, that this child would require 1,500 nem, or six tenths of the "maximum." If this child should become very active, another one tenth could be added to bring his total daily intake up to seven tenths, or 1,750 nem.

The dispensing of this prescription becomes simplicity itself. The dietitian or nurse takes the sitting height of the child, squares it, and in this manner arrives at a figure that is identical with the number of square centimeters of "absorptive surface" of the individual's intestinal canal; it will be remembered that this figure also represents the maximum amount of food in nem, utilizable by the intestinal canal; and that to administer this "maximum" amount would derange the digestive system. She then notes by the prescription that the physician has prescribed but six tenths of the maximum (written 6 DnSq). So she multiplies the square of the sitting height by the fraction prescribed, and the result gives her the daily total of food requirements. For example, suppose again the sitting height to be 50 cm., $50 \times 50 = 2,500$. $2,500 \times 0.6 = 1,500$. This figure, then, represents the number of nem required daily for the child's nutritional needs. (It is commonly designated as 15 hectonem, or 15 Hn.) Suppose the physician had prescribed three meals a day, she would probably give 4 Hn for breakfast, 6 Hn for dinner and 5 Hn for supper; total, 15 Hn. This would represent his actual food requirements, and the ingestion of anything less would leave him underfed.

The Pirquet method in no way interferes with proper "balancing" of a ration between its fat, carbohydrate and protein elements. Quite the contrary, it simplifies the estimation. In Table 3, the nem value of food-stuffs, a figure may be noted under the protein column. This represents the approximate amount of protein in dekanem (10 nem) contained in each hectonem

TABLE 4.—RECIPES WITH THEIR NEM VALUES

Single Strength			
	Gm.		Nem
Cream Soup			
Skimmed milk.....	340	(340 × 0.5 = 170)	= 170
Green vegetables.....	133	(133 × 0.4 = 53)	= 53
Butter.....	20	(20 × 12 = 240)	= 240
Flour.....	9	(9 × 5 = 45)	= 45
Total.....	502		508
The food value of this combination in relation to milk would be 100 c.c. = 100 nem.			
Note: To determine the relative value of these foods to milk, see Table 3.			
One and One-Half Strength			
	Gm. or C.c.		Nem
Rice Custard			
Milk.....	250	(250 × 1 = 250)	250
One egg.....	50	(50 × 2.5 = 125)	125
Sugar.....	10	(10 × 6 = 60)	60
Rice.....	18	(18 × 5 = 90)	90
Water.....	20	(20 × 0 = 00)	00
Total.....	348		525
Food value in relation to milk, 100 gm. = 150 nem.			
Double Strength			
	Gm. or C.c.		Nem
Succotash			
Fresh lima beans.....	100	(100 × 0.5 = 50)	= 50
String beans.....	100	(100 × 0.5 = 50)	= 50
Corn.....	100	(100 × 0.4 = 40)	= 40
Bacon.....	86	(86 × 10 = 860)	= 860
Water.....	114	(114 × 00 = 00)	= 00
Total.....	500		1,000
Food value in relation to milk = 100 gm. = 200 nem.			

nem; 100 gm. of corn has but 40 nem (100 × 0.4 = 40); 86 gm. of bacon carries 860 nem (86 × 10 = 860); water should be added to facilitate cooking, and when the combination is finished, sufficient hot water should be added to bring it up to 500 gm. (There are 1,000 nem in the mixture and we desire double strength).

In the matter of bread, fruit and the like, the nem value of a slice or a piece can be calculated readily by weighing an average helping and referring to Table 3.

Pirquet believes that there is a direct relationship between the food requirements of the individual and the "absorptive surface" of the alimentary canal. He demonstrated that the measure of this "absorptive surface" in square centimeters is equal to the figure arrived at by squaring his sitting height. Thus, a child with a sitting height of 50 cm. would have an absorptive surface of 2,500 square centimeters. It was further observed that, in twenty-four hours, this absorptive surface could not utilize more than 1 c.c. of milk or its equivalent in other food, for each square centimeter of its surface. Although the child in question could absorb a "maximum" quantity of 2,500 c.c.

(100 nem). For example, fresh ham carries 8 dekanem, or 80 nem, in each hectonem, of food value. So at the end of a daily menu, it becomes an easy matter to add up the dekanem of protein contained and to compare this with the total number of nem prescribed. Pirquet estimates that at least one tenth of the daily food ration should be protein in order that the "structural" element of the diet may be sufficient.

Outside the question of fat soluble vitamins and the palatability of the mixtures, the originator of the system concerns himself but little about the fats. He believes that the carbohydrates and fats are largely interchangeable as "combustibles," and that a high carbohydrate, low fat ration, provided the protein content is at least 10 per cent., and sufficient fat soluble A growth factor is present is not incompatible with health.

We believe that the Pirquet system is applicable to American conditions, especially those under which it may be desirable to feed children in considerable numbers. The method appeals to us for the following reasons:

It provides a simple, accurate and rapid method of estimating the nutritional status easily grasped by workers even without medical training, and it impresses them in a graphic way with the necessity of proper nutrition; it reduces the prescribing of the requisite food intake to a simple formula based on the sitting height as a constant; it makes it possible by the use of a single word to make a record of the child's nutritional state which may serve for comparison with the

TABLE 5.—CORRECTION FOR CLOTHING

	Girls 6 to 9 Years	Girls 9 to 12 Years	Boys 6 to 9 Years	Boys 9 to 15 Years
Subtract in pounds for weight of clothes.....	3 to 4	4 to 5	4 to 5	5 to 7

results of future examinations; it eliminates waste and at the same time it provides the child with an adequate amount of food to cover his needs and, by its very operation, it insures the actual ingestion of the food; it serves as a selective agent, at once segregating children into various groups—those with moderate need, those with urgent need and those without need of additional food.

In applying the method in the children's wards and in the outpatient department of the University of California Hospital, we have found it applicable, easy of accomplishment and extremely popular among all those who work with it.

APPLICABILITY OF THE SYSTEM TO CONDI-
TIONS HERE

In order to determine the relative accuracy of the pelidisi and sacratama features of the system when applied to American conditions, we have examined through the courtesy of Dr. William C. Hassler, health commissioner of San Francisco, 1,282 well children of the San Francisco schools. We have used the same technic as that applied to the Austrian children, with the exception that we were not permitted to remove the clothing. To make correction, we stripped a group of children in our outpatient department and weighed the clothing. From these figures, we constructed Table 5. It is obvious that this chart cannot be used in every locality. The season and the weather must be taken into consideration and

a chart formulated for each community. The school-children of this series were weighed, and an appropriate figure from this chart was subtracted. We believe this gives a close approximation of the child's weight.

To compensate for the increased sitting height produced by the clothing, we were careful to take the figure in measurement just below the fraction, if there was one, and to make due allowance in the case of boys wearing corduroy or other heavy trousers.

To determine the relative nutritional status of children of the different social strata, we chose three schools situated in (1) the very poor district (the Italian quarter); (2) the industrial district, and (3) the wealthy residence district (see Table 6).

TABLE 6.—THE PELIDISI OF ONE THOUSAND TWO
HUNDRED AND EIGHTY-TWO SCHOOLCHILDREN

School	Grades	Number	94 Pelidisi and Under		100 Pelidisi and Over	
			No.	%	No.	%
1. Michaelangelo.....	All	408	270	66	16	4
2. Mission Street.....	6-7-8	321	147	45	49	15
3. Madison.....	All	251	124	49	26	10
4. Open Air School M. A....	All	21	11	52	0	0
5. Marshall.....	Up to 6	281	157	56	14	5
Total.....		1,282	709	53	105	7

In analyzing the figures thus obtained, it becomes apparent that:

1. In School 1 (in the poor district), 66 per cent. of the children show pelidisi of 94 per cent. or under (this is the lower limit at which Pirquet regards a child as normal. The American Relief Administration gives a daily supplementary meal to each child whose pelidisi is 94 per cent. or below) and that in this district only 4 per cent. have a pelidisi of 100 per cent. or over.

2. In School 2 (in the industrial district), there are but 45 per cent. of the children with pelidisi under 94 per cent., and there are 15 per cent. with pelidisi 100 per cent. or above.

3. In school 3 (in the wealthy district), 49 per cent. of the children have pelidisi of 94 per cent. or below, and 10 per cent. are 100 per cent. or above.

4. In School 4 (an open air school for tuberculous children wherein a well balanced noonday meal is given) 52 per cent. of the pupils show pelidisi below 94 per cent., and none are 100 per cent. or above. (This is a small series, however).

TABLE 7.—EXAMINATION RECORD

Name.....	Sitting height.....cm.
Age.....	Weight.....kg.
Sex.....	Pelidisi.....per cent.
Grade.....	S - - e - - r - - t - - m - -
	Index: 3-2-1-0.

It is therefore apparent that the highest degree of malnutrition is in the school in the very poor quarter and the next highest is to be found in the wealthy district. The children showing the best nutritional status come from the industrial districts. It is also a significant feature that the tuberculous children of the open air school who receive a free, daily, supplemental meal, have a higher average than the children of the school (the Michaelangelo) to which the open air school is attached.

In examining these figures, it became apparent to us that while a high percentage of these children

would qualify for American Relief Administration feeding if they lived in central Europe, yet the extreme degree of malnutrition is not to be found here; that the greatest number of the children whose pelidisi were 94 and below are just under the upper limit fixed by the American Relief Administration, that is, in the 94, 93 and 92 columns. This corresponds rather closely to figures obtained by surveys of groups of schoolchildren conducted by the other organizations. Summarized, about half of the children of this series show a mild degree of malnutrition.

TECHNIC OF EXAMINATION

Blank sheets (Table 7), are distributed to the children, who fill in the name, age, sex and grade. The classes are then brought, one at a time, to the examining room. The child is first measured in centimeters ¹ then weighed in kilograms, and these items are entered on the blank. If scales weighing in pounds and ounces are provided, the transposition to kilograms can be made readily by reference to Table 8.

TABLE 8.—CONVERSION OF POUNDS TO KILOGRAMS

Lb. = Kg.	Lb. = Kg.	Lb. = Kg.	Lb. = Kg.	Lb. = Kg.
20 9.1	53 24.1	86 39.1	119 54.0	150 68.1
21 9.5	54 24.5	87 39.5	120 54.5	151 68.6
22 10.0	55 25.0	88 40.0	121 54.9	152 69.1
23 10.4	56 25.5	89 40.4	122 55.3	153 69.6
24 10.9	57 25.9	90 40.8	123 55.8	154 70.0
25 11.4	58 26.3	91 41.3	124 56.3	155 70.5
26 11.8	59 26.8	92 41.7	125 56.7	156 70.9
27 12.3	60 27.3	93 42.2	126 57.2	157 71.4
28 12.7	61 27.9	94 42.7	127 57.6	158 71.8
29 13.1	62 28.2	95 43.2	128 58.1	159 72.3
30 13.6	63 28.6	96 43.6	129 58.5	160 72.7
31 14.2	64 29.1	97 44.0	130 59.0	161 73.2
32 14.5	65 29.5	98 44.5	131 59.5	162 73.6
33 15.0	66 30.0	99 44.9	132 59.9	163 74.1
34 15.4	67 30.4	100 45.4	133 60.3	164 74.6
35 15.9	68 30.9	101 45.8	134 60.8	165 75.0
36 16.4	69 31.3	102 46.3	135 61.3	166 75.5
37 16.8	70 31.8	103 46.7	136 61.7	167 75.9
38 17.3	71 32.2	104 47.2	137 62.2	168 76.3
39 17.7	72 32.7	105 47.6	138 62.7	169 76.8
40 18.2	73 33.1	106 48.1	139 63.1	170 77.3
41 18.6	74 33.6	107 48.6	140 63.6	171 77.7
42 19.1	75 34.1	108 49.0	141 64.0	172 78.1
43 19.5	76 34.5	109 49.5	142 64.4	173 78.6
44 20.0	77 35.0	110 50.0	143 64.9	174 79.1
45 20.4	78 35.4	111 50.4	144 65.3	175 79.6
46 21.0	79 35.9	112 50.8	145 65.8	176 80.0
47 21.3	80 36.3	113 51.3	146 66.3	177 80.5
48 21.8	81 36.8	114 51.8	147 66.7	178 80.9
49 22.0	82 37.2	115 52.2	148 67.2	179 81.4
50 22.7	83 37.7	116 52.7	149 67.6	180 81.8
51 23.2	84 38.1	117 53.1		
52 23.6	85 38.6	118 53.6		

The pupil then goes to the physician, who makes a notation of the sacratama simply by filling in the proper vowels (Table 2). The child then takes the form to a desk, where an assistant fills in the pelidisi by reference to Table 1, after which he is discharged. With three assistants (nurses or even teachers), the physician can readily determine and record the nutritional status of 100 children in an hour. If it is desired to make further examination and to record the findings, such information might well be added to the blank. These records are then filed for future reference.

It is our firm conviction that this system could be applied to the feeding of American schoolchildren, a surprising percentage of whom have been shown to be in need of supplemental feeding. After seeing the great machine function so smoothly and so efficiently in central Europe, we can see no reason why it should not work with equal facility in this country.

1. A small box, to the back of which is nailed a rigid board bearing centimeter rulings, is easily improvised, and it makes an admirable apparatus for measuring the sitting height.

A central kitchen or kitchens, cooking food in large quantities, could supply the schoolchild with a good, palatable meal at a minimum price. In Austria the cost is but 9 cents per meal. Assuming that we could duplicate that figure, at a minimum, the individual could be served a meal for 10 cents; the 1 cent profit could go to a fund for the gratuitous feeding of the children of the poor. This would eliminate the distressing feature now often prevalent in school feeding programs—the undernourished child who cannot afford to buy a noon meal.

This food could be delivered in double walled cans (similar to a vacuum bottle) to the various schools and there dispensed to the children according to their nutritional needs. This distribution might be carried on without cost, by volunteers provided by the parent-teacher organizations. The problems of dishwashing and of cross infection could be eliminated by having each child bring his own plate and spoon. The principals of the schools could insure the ingestion of the proper amount of food by not permitting the child to leave the dining hall, except for good reason, until his plate is emptied. At stated intervals, the children could be reexamined, and, if desired, those showing a satisfactory pelidisi could be excluded.

The midforenoon milk feedings, and the cafeteria system of noon feeding, while admirable in some respects, can be nothing more than makeshifts. They can never take the place of a palatable, inexpensive, well cooked and well balanced noon meal.

CONCLUSION

The experience of Mr. Hoover and Professor Pirquet in central Europe is ample evidence that the nutritional status of children fed by this method is markedly improved in a surprisingly short time. The sending of food for the relief of the children of central Europe was highly commendable; in fact, it was one of the most generous things that history records. Yet we should not overlook the fact that many of our own children, judged by the same standards employed by the American Relief Administration, are in need of supplemental food. Mr. Hoover and Dr. Pirquet have pointed the way. Shall we ignore it?

Resolutions of Calcutta Leprosy Conference, February, 1920. —Forty-six superintendents of Indian leper asylums adopted resolutions to the effect that leprosy is contagious, but slowly, with a long incubation period, through the escape of the bacillus in the nasal discharges of the majority of cases, which include many cases having no outwardly visible ulceration, and to a less extent from open sores; that the disease is not directly hereditary, children being free from actual infection at birth, but that they are specially susceptible to contagion from an early age, children as a class being more susceptible than adults. These facts necessitate the earliest possible separation of infants and children from infected leper parents; that segregation is the most effective measure for reducing the prevalence of leprosy; that steps be taken to provide facilities for the training of medical assistants in the diagnosis and in the treatment of leprosy to enable the best methods to be more generally used in asylums, and also in hospitals and dispensaries. In view of the considerable degree of fecundity of lepers, especially of females, and the excessive danger of contagion to the children of lepers, which play a great part in maintaining the prevalence of the disease, the separation of the sexes is desirable as far as possible. Whenever this is not found to be practicable, married lepers should only be allowed to live together on the express understanding that any children born to them shall be separated from their infected parents at the earliest possible age.—*Internat. J. Public Health* 1:297, 1920.

MULTIPLE MYELOMA

REPORT OF A CASE

SVERRE OFTEDAL, M.D.

FARGO, N. D.

Multiple myeloma must still be classed among the rare diseases. According to Wallgren,¹ there were, up to 1920, only 118 cases on record in which the diagnosis had been confirmed at necropsy. While the etiology is to a great extent obscure, some interesting evidences have been brought to light by observations on the reported cases. Harbitz,² with the possibility in mind of its being a systemic disease of infectious origin, injected a series of animals with tumor substance; with negative results in all cases. Bradshaw³ reports a case in which the Bence-Jones protein was discovered in the urine more than a year before the appearance of any tumors. Based on this finding, he made a correct diagnosis of myeloma with its inevitable prognosis. This would seem to suggest an etiologic significance to the practically constant presence of the Bence-Jones protein in myeloma. Trauma has had an important rôle in the history of the reported cases, sometimes, indeed, being of such a trivial nature as scarcely to be noticed by the patient at the time of its occurrence; the site of such trauma, however, in many cases having been the starting point of a later tumor. The case here reported seems to be of interest not only from the standpoint of its rarity but also because of the definite history of trauma, and a period of more than one year during which there was constant irritation of the rib surfaces by a hard rubber drainage tube.

REPORT OF CASE

History.—A farmer, aged 41, married, gave an unimportant family history, except that the mother had died, at 60, of what might have been pulmonary tuberculosis. The patient had "shingles" of the right chest wall in 1900; was operated on for hemorrhoids in 1913, and had an attack of influenza in 1918, from which he made an uneventful recovery.

The present trouble dates back to the early part of September, 1919, when he was accidentally struck over the right chest wall with a fence rail. A physician was called, who found no ribs broken nor any other injury of a serious nature. The patient was suffering a good deal of pain, and the physician strapped the chest wall with adhesive. This, however, did not entirely relieve the pain, which continued until the latter part of the month, when he says he contracted a "cold," associated with pain in the right shoulder radiating into the right side of the chest. This pain grew worse, and October 6 he was obliged to go to bed on account of pain, severe chills and high fever. After remaining in bed several weeks, the right pleural cavity was aspirated and about a pint of thick pus withdrawn. In the early part of November, he was taken to the hospital for a rib resection. He remained in the hospital until March, 1920. During this period, there was considerable drainage, an occasional rise in temperature and cough, with puslike expectoration. The shoulder and chest pains were continually present, and at times, he complained of rather indefinite pains in various parts of the upper portion of the body.

Some time during the summer of 1920, he entered St. Luke's Hospital and was in the charge of an osteopath, until October 9, when he came under my care.

Examination.—The patient was markedly pale and emaciated. The superficial bone surfaces were very prominent; but there was no sign of tumor formation at this time. In

the right midaxillary space was a thoracotomy wound from which a hard rubber tube the size of a pencil protruded. The patient explained that this tube had been in place for many months, being removed occasionally for cleansing. There was a small amount of thick, greenish pus on the dressing. There was distinct tenderness on pressure over the distal portions of both clavicles, also of the lower portion of the left humerus. Percussion revealed a palm sized area of dullness over the lower chest posteriorly. Over this area there was distinct tubular breathing, but no râles. Beyond this, the physical examination revealed nothing of importance. The urine showed a specific gravity of 1.015, a trace of albumin and a few hyaline and granular casts. The hemoglobin was 70 per cent., leukocytes 6,800; red cells, 3,166,000. Differential count was: polymorphonuclear neutrophils, 69 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 8 per cent.; eosinophils, 2 per cent.; basophils, 1 per cent. The sputum was examined repeatedly for tubercle bacilli during his stay in the hospital, always with negative results. The Wassermann reaction was negative; the temperature at this time was 100.2 F., pulse, 82; respiration, 22; blood pressure, 128 systolic and 96 diastolic.

Clinical Course.—After two days of observation, the chest sinus was injected with bismuth and a roentgenogram taken. This showed a pencil-sized sinus, about 6 inches long running inward, downward and posteriorly. At the termination of the sinus was a small, well defined abscess cavity, the entire tract suggesting the appearance of a rose with a long stem.

Following the bismuth injection, there was considerable improvement in the general condition of the patient. The temperature, two days later, was normal and remained so for several weeks. The discharge ceased entirely until a few weeks before death; the appetite was good and the general disposition of the patient changed from deep depression to optimism. He still continued, however, to have the bone pains. And about two weeks after the bismuth injection, a small firm tumor was first noticed at the distal extremity of the right clavicle.

October 26, while being assisted to his bed by the nurses, he sustained a fracture of the lower third of the left humerus. A roentgenogram was taken, which showed the fracture at the site of a markedly rarefied area of the bone. This led to a general roentgen-ray examination of the body, which disclosed these rarefied areas in several of the bones of the upper part of the body, particularly the clavicles, sternum, ribs, left humerus and skull. The roentgenologist, Dr. Rothnem, made a diagnosis of multiple myeloma.

The fracture was splinted and healed after a few weeks, only to recur at the same point later, after he had left the hospital (January, 1921).

The occurrence of the fracture seemed to bring back the condition of depression. The arm was very painful in spite of immobilization, and there was now a marked aggravation of the pains in other parts of the body, notably in the head, which was so painful that special support had to be provided partially to alleviate the suffering.

Being discouraged with the progress of his treatment, he decided to leave the hospital and to try Christian science "healing." He was not seen again until January of this year. The chief complaint then was vomiting, associated with tympanites and constipation. These symptoms were temporarily relieved, and he improved for a time sufficiently to sit up in a chair. The old wound had been discharging occasionally during the previous few weeks. He had become markedly emaciated, and there was a decided accentuation of the bony irregularities, the clavicle tumor having become the size of an egg and pseudofluctuating. The entire sternum was enlarged and could be easily indented with the finger at any point over its entire surface. The left humerus, at the site of the fracture, was about three times its normal thickness. The ribs were markedly irregular in contour, and the chest had assumed a rectangular shape.

The first week in April, he developed bronchopneumonia. Death occurred April 14.

Necropsy.—This confirmed the diagnosis of bronchopneumonia as the immediate cause of death. Other notable changes were confined to the skeletal system. In the skull were numerous areas of softening, ranging in size from a

1. Wallgren, Arvid: Untersuchungen über die Myelomkrankheit, Upsala Läkaref. Förh. 25:113 (Sept.) 1920.

2. Harbitz, Francis: Multiple Primare Svulster i Bensystemet (Myelosarkomer), Norsk Mag. f. Lægevidensk. 64:1 (May) 1903.

3. Bradshaw, T. R.: On the Evolution of Myelopathic Albumosuria, Brit. M. J. 2:75 (July 13) 1901.

dime to that of a quarter. The spinal column was normal. Other tumors were found, as previously described; but there were no tumors in the lower part of the body. Cut section of the clavicle tumor showed all bony tissue to have disappeared. The tumor was almost boggy in consistency, had a glistening appearance and was grayish pink with numerous reddish streaks throughout its substance. The smaller tumors had a thin body covering, the center resembling in general the clavicle tumor. The appearance of the sternum was particularly striking, being completely softened except for a thin parchment-like shell of bony substance around the periphery.

Microscopic Examination.—The clavicle tumor showed a structure composed almost entirely of cells, with occasional strands of connective tissue between the cell groups. A few blood vessels were present, with thin, ill-defined walls. The cells were fairly uniform in size and were composed mainly of two types. In one the cytoplasm was homogeneous and finely granular, with a rather marked affinity for basic stains. The nucleus was round or oval, was eccentrically placed and had a definite nuclear membrane. The chromatin showed a tendency to peripheral grouping, and in many of the cells, there was a reticular arrangement, with a definite chromatin nucleolus.

In the other type of cell, the cytoplasm had the same basophilic structure with indefinite outlines; but the nucleus was smaller, densely staining and was found either centrally or eccentrically placed. Several mitotic figures were present.

The urine, which was examined by Professor Hektoen, gave a positive reaction to chemical and precipitin tests for Bence-Jones protein.

BRONCHOSCOPIC STUDIES OF PULMONARY ABSCESS*

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The marvelous development of roentgenography has made it possible to outline the large branches and even some of the smaller subdivisions of the tracheobronchial tree. It has also in the hands of the expert roentgenographer made the localization of the infected lobe of the lung comparatively easy. At times the roentgenographer, when studying for definite localization of a pulmonary abscess stereoscopically, has interpreted it to be a large cavity surrounded by a dense zone of "pus sponge soaked" lung structure. Also levels of fluid and air bubbles in the cavity have been interpreted; in fact, the cavity or cavities may appear to be of enormous size.

In a series of cases of pulmonary abscess in which I collaborated with Dr. William H. Stewart, we found that, after bronchoscopic suction, evacuation of the involved lobe of the lung and immediate roentgenography, most of the pus sponge soaked lung shadow had disappeared. The interpretation of the roentgenograms made after suction evacuation had materially changed for the better; it was much clearer and the abscess cavity more readily localized than in the roentgenograms taken before bronchoscopic evacuation. The abscess could now be distinctly outlined, and often the branch bronchus with which it communicated. However, further studies were deemed necessary for even more accurate localization of the abscess, especially as to its size and shape, and this I accomplished by the bronchoscopic injection of a bismuth mixture in pure olive oil which would gravitate into and map out the abscess cavity.¹

The air bubbles, "pus sponge soaked" lung, partial compression of the lung surrounding the cavity and normal lung structure, either anterior or posterior to the cavity, may at times, in my opinion, make roentgenographic interpretation even in the hands of the expert roentgenographer extremely puzzling, especially when bronchoscopic evacuation has not been made first, or when an opaque mixture has not been injected.

SYMPTOMATOLOGY

The symptomatology and physical signs are often misleading. The clinical picture is one of pneumonia, and the amount of purulent expectoration which is the most constant symptom is often the main factor in arriving at a diagnosis, especially when physical examination of the chest is made early and prior to roentgenographic findings. Bronchoscopy and roentgenography seem to be the greatest aids in arriving at a definite conclusion as to the localization of the abscess and to the branch bronchus into which it empties.

Dr. Otto M. Schwerdtfeger² has made all of the physical examinations on the patients at the Lenox Hill Hospital and gives the following opinion:

The diagnosis of abscess of the lung is suspected whenever a patient expectorates sputum which contains evidences of destruction of lung tissue, and especially when the sputum is evacuated periodically.

The physical signs are usually indefinite. There may be slight dulness, diminished breath sounds, and diminished voice, or a moderate number of moist râles with or without these physical signs. Occasionally bronchial breathing with increased voice sounds is found. Definite classical signs of a cavity are present only when the cavity is situated superficially, but this is the exception.

Although the diagnosis of cavity formation can usually be made by the internist, he is absolutely dependent on the roentgenologist and bronchoscopist for the exact location, size and number of these cavities.

BRONCHOSCOPIC STUDIES

Bronchoscopic studies that were made in patients suffering from pulmonary abscess gave the following findings:

In early cases of pulmonary abscess one usually sees the mouth of the branch bronchus from which pus is oozing very edematous and almost completely closed. On attempting to insinuate the long slant end of the bronchoscope into this branch, free bleeding is the usual result. Often the mouth of the bronchus is covered by a thick, fibrinous slough, the removal of which also causes bleeding. The edematous stenosis and fibrinous exudate both tend to close the mouth of the branch bronchus and therefore cause retention of secretion. However, the small sinus which remains open continually discharges pus with the slightest cough and even on quiet expiration. In later cases this area of fibrinous exudate is replaced by fungating granulations. The granulations bleed easily, and are probably one of the most frequent causes of pulmonary hemorrhage in patients suffering from pulmonary abscess. Of course, vessels may become eroded in the abscess cavity and cause severe hemorrhage. I am not speaking of this, but I refer to the bleeding ooze which accompanies almost all of the foul expectoration in patients suffering for a few months. In cases of long standing, it is not at all uncommon to see cicatricial strictures, and in one

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Lynnah, H. L. Lung Mapping by the Injection of Bismuth Mixtures in the Living, Tr. Am. Laryngol., May, 1920.

2. Schwerdtfeger, O. M.: The Etiology and Treatment of Pulmonary Abscess, Proc. New York Acad. Med., February, 1921, discussion.

instance there was a partial web stenosis of the right stem bronchus in a boy who had suffered from an abscess for eight years.

EXPECTORATION

The amount of expectoration usually varies with the duration of the abscess, but may be of no great indication as to the size of the cavity. A small cavity may produce considerable secretion. The probable reason for this is that the secretion becomes soaked into the lung structure much as a sponge soaks up water, and this is the reason why I termed the area surrounding the abscess cavity the "pus sponge soaked lung." Therefore, the greater the area soaked with pus, the greater will be the amount of expectoration. In a few instances in patients who had small abscesses as much as 500 c.c. of pus was coughed up during twenty-four hours. In these cases there was an enormous area of shadow shown by the roentgenograms which was probably responsible for the enormous amount of expectoration. Lung drainage and the relief of the sponge soaked area seems to be the most rational way to relieve the patient, and this is best accomplished by bronchoscopic measures.

As I believe that most of the cases of pulmonary abscess in which the patients survive are due to aspiration,³ I feel that they should be treated as aspiration or foreign body pneumonia, and be given a thorough bronchoscopic trial first, before radical major surgical intervention is attempted.⁴

CONTRAINDICATIONS TO BRONCHOSCOPIC EXAMINATION

Aside from a severe pulmonary hemorrhage, there are no real contraindications to bronchoscopic examination. Dr. Richard Jordan and I have performed bronchoscopy on many patients suffering from oozing hemorrhage due to fungating granulations, but this type of hemorrhage is readily overcome by an application of a thromboplastin preparation. Of course, one should wait when there is an alarming hemorrhage due to erosion of blood vessels. Rest in bed and the usual medical measures should be resorted to in order to control the persistent hemorrhage. The temperature is no contraindication even though it be very high. In one instance, a patient of Dr. Willy Meyer had a temperature of 105.2 F. at the time of bronchoscopic examination, suffered no discomfort, following the examination, and is still alive and rapidly improving. The examination was made without local or general anesthesia, a dose of morphin and atropin having been administered fifteen minutes prior to examination. The right upper lobe was found to be involved and almost completely closed with edema. The bronchoscopic suction evacuation, the duration of which was four minutes, improved the patient, and the temperature fell 2 degrees. This man was moribund, and the case was one of the worst in which I have ever had the good fortune to employ bronchoscopy. The patient has steadily gained in weight and promises to recover, but is still under bronchoscopic observation. Therefore, I feel that there are no real contraindications to bronchoscopy in pulmonary abscess aside from the one stated before: severe pulmonary hemorrhage. Dr. Willy Meyer agrees with me that the best time to

employ bronchoscopy is when the patients are in the pneumonic stage before definite cavitation and destruction of the lung has taken place.

BRONCHIECTASIS

I have noted in several instances a stricture of the bronchus which after dilatation reveals a saccular cavity or bronchial dilatation below. These I have termed dilated bronchi or bronchiectasis, in distinction to the cavities within lung structure which have definitely broken down. The bronchial dilatations or bronchiectatic cavities have smooth walls, and the bismuth mixture maps out these cavities beautifully. Such is not the case, however, in the abscess cavities within lung structure which have ragged and irregular walls. The bismuth mixture will not give the same interpretation and mapping in these irregular areas as it does in those in which the bronchial dilatation is the chief site of the purulent collection. Strictures of the bronchi should be dilated, and this is best accomplished by bronchial bouginage. Mechanical divulsors are also of great aid, but they make much more traumatism to the bronchial wall than gradual dilatation with bougies. After bronchial dilatation, a suction cannula should be introduced into the bronchial cavity and by suction the contents of the cavity evacuated. This is readily accomplished when the bronchus is on a line with the bronchoscope and not around a corner. If suction is to be made around a corner, then the curved, spiral suction cannula should be used. The same cannula used for the injection of the bismuth mixture is ideal as a suction cannula in such cases.

ENTERING THE ABSCESS CAVITY

So far I have not been able to enter what I could definitely interpret as an abscess cavity. I have, however, entered, in many instances dilated bronchi, but these I do not consider true abscess cavities. In the first place, most of the patients who have come to the clinic for bronchoscopic study have abscess shadows, as revealed by roentgenograms, well out toward the periphery. Many of them involve the right upper lobe branch and are beyond the range of vision. Such abscess cavities in the upper lobes and around a corner are extremely difficult to enter, and many of them which seem to be true abscess cavities within the structure of the lung are located in this manner. However, it is not difficult to follow this lead by studying the edematous area and the region from which spring fungating and easily bleeding granulations. The curved spiral cannula will act as a valuable suction tube in draining the upper branches when the curve is turned upward, and it will help to drain the lower branches of the upper lobe when the curve of the spiral is turned downward after introduction and before the stilet is removed.

To use the cannula as a suction or injection cannula, it must first be coated with flexible collodion before introduction. This prevents leakage in either instance. The collodion does no harm, nor does it come off the curved spiral. It renders it water tight and does not hamper its flexibility. I have repeatedly stated that I have never entered what I could definitely call an abscess cavity, that is, one within lung structure with ragged walls. Pus is usually seen coming from the branch bronchus into which the abscess empties, and that is all that one ever sees. Pus may also be seen coming from a minute branch bronchus on a line with

3. Lynah, H. L.: The Etiology and Treatment of Pulmonary Abscess, *Proc. New York Acad. Med.*, February, 1921.

4. Lynah, H. L.: Bronchoscopic Treatment of Bronchiectasis and Pulmonary Abscess, *Med. Rec.* 97: 215 (Feb. 7) 1920.

the bronchoscope, but too small to be entered even by a special 5 mm. bronchoscope. In such cases the small branch should be entered with a bougie to ascertain whether or not it be a stricture at the mouth of a dilated bronchus below. The small bougie can usually be readily introduced into this branch, and it can be dilated by twirling the handle of the bougie between the thumb and index finger. The bougie should never be advanced rapidly into the bronchus with a shove, for fatal traumatism may result. The small suction cannula is introduced after dilatation and the small branch evacuated.

One of the best controls of the improvement of a case of pulmonary abscess is the absence of bleeding when making bouginage and suction of the branch bronchus from which pus is oozing.

Aqueous solutions, when injected into the bronchi, are usually coughed up immediately through the bronchoscopic tube, and if the bronchoscopist is not a good dodger he will be bathed by the solution. Oily mixtures seem to remain in the bronchi much longer. In the cases injected with colloidal silver, the solution is usually sprayed out readily, provided it is injected slowly, as in the injection of the thick bismuth mixtures. However, on the other hand, if it is injected forcibly it will remain in the lung much longer. I do not advise the forcible injection of any solution. With bismuth mixtures a forcible injection will always spoil the picture. In washing the lung, as advised by Yankauer,⁵ I have never been able to recover by suction but little of the solution injected. It is usually coughed out as fast as it is introduced. It no doubt has a very beneficial effect, for in many of the cases recorded by Yankauer the patients have not only been greatly improved but finally cured.

Since the last report on this subject,⁶ there have been ten additional cases of pulmonary abscess studied at the Lenox Hill Hospital and observations made on the cases injected with bismuth subcarbonate in pure olive oil already reported. Of the five cases reported by Dr. Stewart and myself, three after a period of over one year have no symptoms or expectoration and may be classed as cures. The remaining two have greatly improved and have little expectoration. All of the patients seem to have improved after the bismuth injections. Many of them have been injected two and three times. One patient was injected four times with no ill effect. Dr. Stewart attributes the improvement and cure to the action of the roentgen ray on the metallic bismuth in the lung, and adds that the secondary ray has a very beneficial effect on the patient. I did not inject the bismuth mixture with any idea of its curing patients, but used it for mapping the abscess cavities for purposes of definite localization. However, Stewart has demonstrated that the effect of the roentgen-ray dosage after bismuth injection is what is improving the cases of long standing. I feel that in the early cases the drainage of the lung is the most important factor, and this has proved to be the case in all cases in which bronchoscopy was performed early. I feel that many clinicians often wait too long before they allow bronchoscopy to be performed. Many of them have the feeling that bronchoscopy is an exceedingly dangerous procedure, and therefore delay. Delay may

prove fatal to the patient. Bronchoscopic examination should be performed on the first indication of purulent expectoration. If any one thinks that bronchoscopy is a dangerous and fatal procedure, I would ask him to come to the Bronchoscopic Clinic at the Lenox Hill Hospital and see for himself how the patients return and beg for bronchoscopy. They would keep Richard Jordan and myself busy every day in the week if it were possible to do so, for some of them ask if they cannot be treated oftener than once each week. I think that a bronchoscopic treatment once a week is sufficient, but this idea does not coincide with the views of many of the patients. Therefore, the relief obtained by bronchoscopic suction evacuation of a pulmonary abscess must be greater than one would suppose, or else we would not have the constant return of these unfortunate sufferers who seek relief.

I have so far performed bronchoscopy on thirty-eight patients suffering from pulmonary abscess. Nine followed the sojourn of foreign bodies; eight, tonsillectomies; ten, postdiphtheritic abscesses; two, lobar pneumonia; one an operation for gallstones; one, necrosis of the jaw. Three were of indefinite cause probably postinfluenzal. Two followed the aspiration of sea water, and there were pure cultures of colon bacilli in the expectoration. One in a boy was due to lymphosarcoma, and the other in a girl of 6 years with similar bronchoscopic findings was not diagnosed.

THE PROGNOSIS

The prognosis in the abscess cases following foreign bodies is good after the removal of the intruder, but bronchoscopy, suction evacuation and the dilatation of bronchial stenoses is often necessary many times before the patient is finally cured.⁷ Of the nine patients with foreign body abscesses, two died and seven are still alive and well, but one has purulent expectoration from an abscess of eight years' duration following the aspiration of a blade of timothy grass. Two children who had suffered with generalized abscesses on the right side which involved all of the lobes of the lung for two and one-half years succumbed. One came to necropsy, and there was an extensive lymphosarcoma of the entire right lung. The lung was riddled with small miliary nodules and numerous small cavities, the macroscopic appearance of which simulated pulmonary tuberculosis. The pathologist at Lenox Hill Hospital, Dr. G. L. Rohdenburg, reported his findings as lymphosarcoma. The second patient, a little girl of about the same age, had similar bronchoscopic findings, but we were unable to demonstrate the nature of the pathologic condition, for the parents refused permission for necropsy. The bronchoscopic and clinical pictures were quite similar. No tubercle bacilli were found, and the probable cause of the lung destruction may have also been lymphosarcoma. There was pus coming from all of the branch bronchi of the right lung in both instances, and the bronchi were contracted and irregular. Three of the ten patients with postdiphtheritic abscesses died. In the cases following tonsillectomy, two of the patients died, one from rupture into the pleura and general septicemia, and the other from thoracotomy and pulmonary hemorrhage. Of the patients having abscesses following lobar pneumonia, one died from pleural rupture and pneumothorax. The other is alive and in good con-

5. Yankauer, S.: *Bronchiectasis and Pulmonary Abscess*, New York M. J. 6: 257 (Feb. 5) 1916.

6. Lynah, H. L., and Stewart, W. H.: *Roentgenographic Studies of Bronchiectasis and Lung Abscess After Direct Injection of Bismuth Mixture Through the Bronchoscope*, Am. J. Roentgenol. 8: 49 (Feb.) 1921; Ann. Surg. 73: 362 (March) 1921.

7. Lynah, H. L.: *A Series of Foreign Bodies in the Bronchi and Esophagus*, Tr. Am. Laryngol. & Otol., March, 1919; New York M. J. 112: 653 (Oct. 30) 1920.

dition, but still under observation. As to the three patients without definite history as to causation, but in whom the trouble probably followed influenza, one died after thoracotomy, and the other two are still under observation.

ETIOLOGY OF PULMONARY ABSCESS

I firmly believe that the great majority, if not all of the abscesses are due to aspiration.³ Aspiration of infected mouth or nasal secretions following opera-



Fig. 1 (Case 5).—Enormous amount of "pus lung soaking" and indefinite outline of abscess cavity in the right upper lobe.

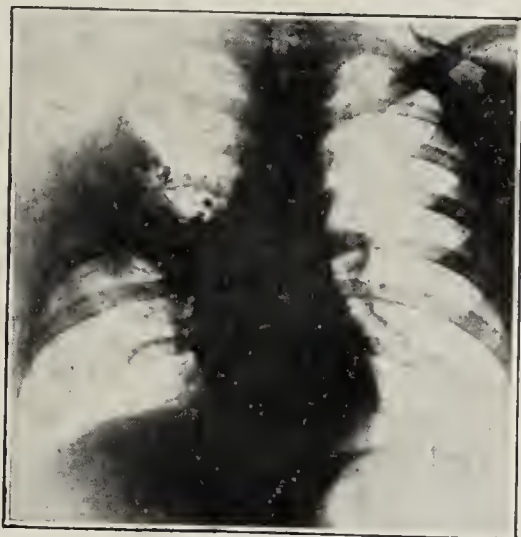


Fig. 2 (Case 5).—After the injection of an opaque bismuth mixture into the right upper lobe bronchus. The bismuth fills the cavity and also outlines the bronchial branches.

tions either under local or general anesthesia, especially the aspiration of vomitus either during or after operations under general anesthesia, seems to be one of the most potent factors in the causation of pulmonary abscess following tonsillectomy. Embolic abscess is usually a manifestation of a general pyemic process and is usually fatal. I cannot recall a single instance of an abscess which has come under my observation that has had the violent picture which is the accompaniment of embolic abscess. The very fact that the clinic is still filled with these patients, even though many of them still require bronchoscopic evacuation, would seem to point very strongly to the simplest cause—aspiration—as the chief etiologic factor in the production of pulmonary abscess.

REPORT OF CASES

CASE 1.—J. C., a man, aged 37, was operated on by Dr. Willy Meyer for gallstones. He aspirated vomitus during anesthesia, and developed a severe cough and profuse expectoration three days following the operation. The patient was in poor condition, and bronchoscopy was performed while his temperature was 105.2 F. No cocain was used. A dose of morphin and atropin was administered fifteen minutes before examination. The location of the abscess with a level of fluid was interpreted by William H. Stewart to be in the right upper lobe. Bronchoscopic suction evacuation was performed in four minutes. However, the patient was too weak for roentgenographic plates in the erect position for they could be taken only in recumbent posture. The bronchoscopic evacuation did no harm; on the contrary, the patient was apparently improved, for the temperature fell 2 degrees. After this, bronchoscopic suction evacuations were continued once a week. At the third bronchoscopy the lower branches of the right upper lobe were injected with a bismuth mixture. The opaque mixture

interpreted a ragged cavity in the lower portion of the right upper lobe just above the line of the level of fluid interpreted before injection. Dr. Stewart thought that the abscess cavity had been missed by the injection, for it did not fill the cavity which had been interpreted in the roentgenograms before injection. However, I think that, in early cavities with irregular, ragged walls, such an interpretation is possible. It is quite different, however, when the cavity communicates directly with a dilated bronchus; then the bismuth mixture stands out in a very sharply defined cavity. The patient is still under bronchoscopic treatment. Bronchoscopy has been performed fourteen times, and he has greatly improved. There is very little pus expectorated, and he has gained 15 pounds in weight. He says that he has a cough only at night, when he coughs up about a tablespoonful of pus.

CASE 2.—W. G., a man, aged 44, was admitted to the Methodist Episcopal Hospital, Brooklyn, suffering from necrosis of the left jaw following infected teeth. He was operated on for the necrosis by Dr. Thomas B. Spence. He developed what was supposed from the amount of expectoration to be a pulmonary abscess ten days later. Roentgenograms taken by Dr. W. H. Wallace at this time showed a very dense shadow in the lower portion of the right upper lobe. Bronchoscopy was performed one month after development of the abscess; it would have been impossible prior to this time, for the patient was unable to open his mouth. The patient was not in grave condition following the development of the abscess; therefore it was deemed best to wait until he could open his jaw sufficiently for introduction of the bronchoscope by mouth, rather than perform tracheotomic bronchoscopy. It was difficult to introduce the speculum into his mouth, but after two loose pyorrhea teeth were extracted on this side there was sufficient room to admit the speculum. The patient was cocainized and the 7 mm. bronchoscope introduced. Pus was seen to be coming from the right upper lobe branch in considerable amount. After suction evacuation he was roentgenographed, and at the second sitting one week later the lower

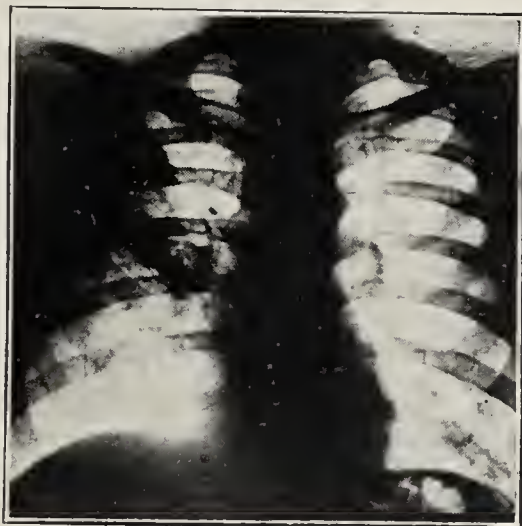


Fig. 3 (Case 5).—Bismuth mixture mapping the abscess cavity in the lower portion of the right upper lobe. Some of the bismuth has infiltrated into lung structure well up toward the apex.

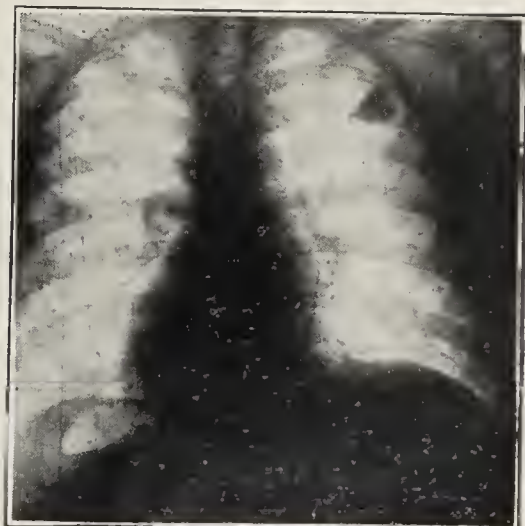


Fig. 4 (Case 5).—The condition of the lung after ten months. The lung abscess has completely disappeared. The small triangular area still remains in the upper portion of the lung. Compare the shadow with Figure 3, which shows that it gradually disappears, and with its disappearance the abscess is often cured.

branches of the right upper lobe were injected with the bismuth mixture in pure olive oil 1:2, 8 c.c. of the mixture being injected. After injection he was immediately sent to the roentgenographic room and instructed to lie on his right side and not to cough. Dr. Wallace made some beautiful pictures of the abscess cavity and the bronchus injected in the right upper lobe. Bronchoscopy was now performed once a week for three bronchoscopic evacuations and the patient was then reinjected with bismuth. The right upper

lobe was dilated with a bougie before bismuth injection, for as in all of the cases it was partially occluded by edema and granulations. With a 5 mm. by 40 cm. bronchoscope the lower branches could be seen. The small curved spiral suction cannula could be readily introduced into these branches, which were demonstrated after the bismuth injection. Bronchoscopy has been performed seven times. The patient has not been treated by the roentgen ray, after the suggestion of Dr. Stewart, but has gained weight and steadily improved. How-



Fig. 5 (Case 3).—Dense lung shadow in the right lower lobe; markedly thickened pleura. The abscess cavities are not clearly defined.

CASE 3.—C. D., a boy, aged 12 years, was admitted to the service of Dr. Willy Meyer at the Lenox Hill Hospital with a history of having had a lung abscess of eight years' duration following the aspiration of a blade of timothy grass. Bronchoscopy had never been performed for the removal of the foreign body, and he was given up as hopeless. Roentgenograms made by Dr. Stewart revealed the right lower lobe to be very greatly involved. The pleura was enormously thickened, and there was a triangular area in the lower portion of the right lung which was the site of numerous cavities. The cavities were not plainly visible in the first roentgenograms, nor was the localization anterior or posterior definitely determined even by stereoroentgenograms. After bronchoscopic suction evacuation, and re-roentgenographic plates, anteroposterior and lateral, the multiple abscesses were interpreted by Dr. Stewart to be in the posterior branches of the lower lobe bronchus. The boy was in poor condition and extremely emaciated, there was marked clubbing of his fingers, and he was coughing up from 150 to 200 c.c. of pus each day. It was creamy and very foul. Before bronchoscopy, owing to the continued flow of pus, the boy was placed in postural drainage so that he was able to evacuate the excess of purulent secretion. Bronchoscopy was performed without anesthesia, 7 mm. and 5 mm. tubes being used. Pus continued to pour out of the tube mouth, but this was evacuated by suction and the tube passed to the carina. At this time pus was noted to be coming from the right bronchus with each cough in spite of the fact that the patient had been well drained by posture before the introduction of the bronchoscope. When we attempted to introduce the tube into the lower branches of the right stem bronchus it met an obstruction. After careful suction evacuation of the remaining pus it appeared to be a stenosis of the lower stem branch. This was later seen to be a partial cicatricial web which completely obstructed the view of the posterior branches. The anterior branches, however, were partly visible, and pus was in all of the branches. By divulsion the cicatricial stenosis was opened, but the 7 mm. tube could not be introduced into the posterior branches. After thorough suction for fifteen minutes the operation was discontinued. One week later a second attempt to enter the posterior branch was made after bouginage through a 5 mm. tube. It was much more successful than with the larger tube. Continued dilatation and suction evacuation was made until this branch was

opened. It is interesting to note that, after thorough dilatation of the bronchial stenosis, the amount of expectoration was greatly increased, for perhaps the drainage of the bronchus was better. After the fourth bronchoscopy the posterior branches of the right lower lobe were injected with bismuth subcarbonate in olive oil 1:3. Eight c.c. of the mixture was injected. Some excellent roentgenograms were made by Dr. Stewart, both anteroposterior and lateral. The patient was also treated by roentgen ray. The boy was apparently improved after the first injection of bismuth and roentgen-ray treatment, but at the end of three weeks, as the bismuth had almost entirely disappeared from the cavities, he was reinjected with a mixture 1:2. The boy while under treatment gained steadily in weight and put on 12 pounds. However, the amount of expectoration did not decrease in proportion to his improvement. We still continued to evacuate the abscesses bronchoscopically once each week, and while the expectoration would apparently lessen and the odor disappear after Dr. Jordan had injected colloidal silver three times, nevertheless he would by measurement and postural drainage get out almost the same amount at each sitting. After thirteen bronchoscopies the mother decided that it was a waste of time for further treatment, and thought it best to take him home in the upper part of the state for a complete rest. I am unable to report on his present condition, but no doubt it is about the same as when he left us.

CASE 4.—P. K., a man, aged 26, developed an abscess following lobar pneumonia. He had a severe attack, but weathered the storm, and continued to cough up large quantities of foul smelling pus. Bronchoscopy was performed by Richard Jordan, and after several bronchoscopic suction evacuations of the right upper and middle lobe branches his condition was greatly improved. The amount of purulent expectoration was apparently arrested, and he remained apparently well for six months, when he started to have pulmonary hemorrhages. The sputum was negative for tubercle bacilli at this time. He had two or three rather severe hemorrhages, and then was readmitted for further bronchoscopic study. At the time of admission there was considerable expectoration, which was tinged with blood. Bronchoscopy was performed, a 7 mm. tube being used. Many fungating granulations were seen in the right upper and middle lobe branches.

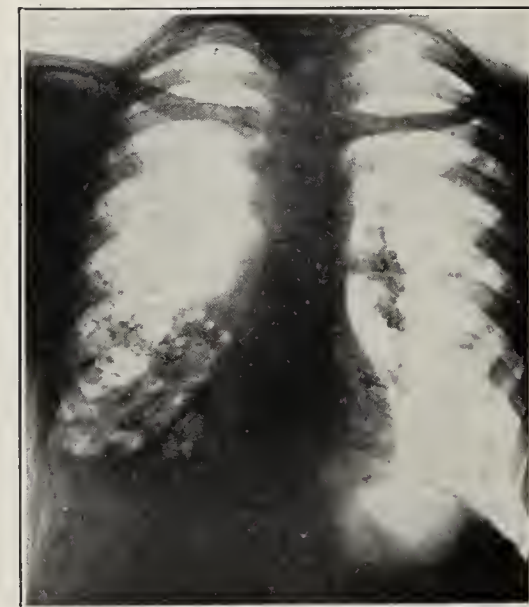


Fig. 6 (Case 3).—After bronchoscopic suction evacuation, and injection with bismuth mixture. Numerous cavities are definitely outlined in the lower lobe. The triangular area of thickened pleura and multiple abscesses communicated with the posterior inferior bronchus.

The granulations were touched with 10 per cent. silver, and after gentle dilatation the lobe branches were sucked out. He returned home the following day. There was considerable reaction following the bronchoscopic examination. A high temperature was present, and Dr. Herman Meyer, who was looking after him while at home, elicited a patch of pneumonia over the right middle lobe. After the cessation and improvement of this attack, he was readmitted and further bronchoscopic studies were made. There was considerable blood

coughed up while the direct application of cocain was being made to his pharynx, and Dr. Jordan and I decided that it was best to wait until he was in better condition before attempting further bronchoscopic treatment. One month later, by bronchoscopy, considerable pus was recovered from the right middle lobe branch. There were many granulations present which were again touched with 20 per cent. silver. After one month of treatment, that is, after four bronchoscopic

evacuations, the middle lobe branch was injected with the bismuth mixture in olive oil by Dr. Jordan. The opaque substance in the lung did not reveal any definite abscess cavity in the middle lobe from which branch pus was oozing. Bronchoscopy has been performed eleven times; and while the patient is greatly improved in general condition, there is still a small amount of expectoration. There have been no recurrences of hemorrhage. The patient is still under observation.

CASE 5.—E. E., a man, aged 24, was admitted to the Lenox

Hill Hospital, June 18, 1920, his chief complaint being cough with profuse expectoration, as much as 500 c.c. of pus being expectorated each day. Tonsillectomy had been performed, June 5; six days later he developed a cough, which became productive on the ninth day. There were pains in the joints. June 23, a preliminary roentgenographic examination revealed a dense triangular area in the lower portion of the right upper lobe; in the center

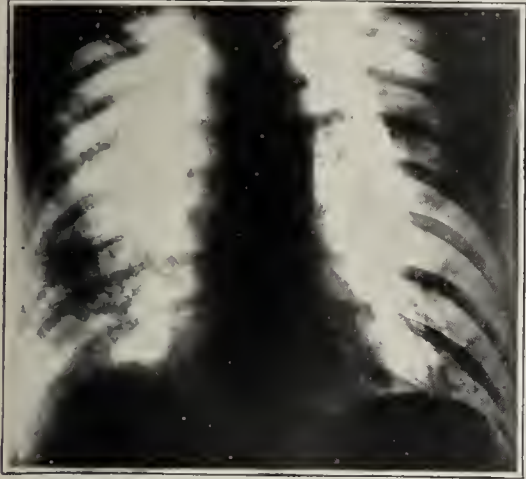


Fig. 7.—Large abscess of two years' duration injected with bismuth. The abscess communicated with an anterior branch of the lower lobe bronchus.

of this pus-soaked, spongy area of infiltrated lung tissue a fluid level with an air bubble above could be made out, indicating a large abscess. Bronchoscopy was performed, a 9 mm. tube being used. Pus was seen coming from the right upper lobe bronchus only. About 10 c.c. of bismuth subcarbonate in sterilized olive oil, 1:2, was injected into this branch; this was followed by roentgenographic examination, which showed the lower branches of the lobe outlined by the injection, but very little, if any, having passed into the diseased area (Stewart).

July 8, bronchoscopy was again performed. Pus was still obtained from the right upper lobe bronchus, which was again injected with the bismuth mixture. This time by fluoroscopy and stereoroentgenograms bismuth was seen outlining numerous cavities; some of the mixture had infiltrated into the lobular structure well out toward the periphery of the upper portion of the dense area (Stewart).

The quantity of sputum gradually diminished until July 19, when it had practically disappeared and the arthritic symptoms had greatly improved.

A stereoroentgenographic reexamination, July 26, revealed gradual disappearance of the bismuth except where it had infiltrated into lobular structure.

The patient has continued to improve from this time and has had no cough or expectoration. His lungs are negative to bronchoscopic, roentgenographic and stethoscopic examination ten months later. At this time roentgenograms taken by Dr. Stewart showed the lungs clear with the exception of a small bismuth patch still remaining well out toward the periphery. This is gradually disappearing.

This case has already been reported,⁶ but it has been added to show the final outcome of one of the cases already recorded in the first series.

SUMMARY

1. From a study of the cases it will be seen that the earlier bronchoscopy is performed, the more likely is a patient suffering from pulmonary abscess to recover. The procedure should be employed with the first sign of purulent expectoration.

2. The longer the duration of the case, the more difficult it is to cure or even improve. However, all of the patients seem to improve in time as to the amount of expectoration, odor and general condition.

3. The constant dilatation of edematous and cicatricial bronchial stenosis is essential for proper lung

drainage. All fungating granulations should be removed and the area touched with from 10 to 20 per cent. silver nitrate.

4. The injection of the opaque bismuth mixture will map out and localize the abscess cavity or cavities, and has also demonstrated roentgenographically that the cavities are not nearly so large as one would suppose.

5. The "pus sponge soaked" area surrounding the abscess cavity is most frequently responsible for the enormous amount of purulent expectoration, for this area must necessarily drain.

6. Bronchoscopic suction evacuation and roentgenography of the infected lobe of the lung have been of the greatest aid to us in the definite determination of the cavity before the opaque mixture is injected.

7. Abscess cavities are extremely difficult, if not impossible, to enter around a corner. The author's curved spiral suction cannula will usually evacuate a cavity in this locality.

For suction or injection of the apical branches of the upper lobe, the curved spiral cannula is pointed upward before the stilet is withdrawn, and the procedure is the reverse when the lower branches of the upper lobe are to be injected or aspirated.

9. Roentgenographic treatment after bismuth injection seems to have improved each patient on whom it was tried. Dr. William H. Stewart believes that the secondary roentgenographic action has had much to do with the improvement and cure of some of these patients. Dilatation of bronchial strictures and the establishment of proper lung drainage and constant suction evacuation, I believe, also have much to do with

the ultimate improvement of the patient.

10. I injected bismuth substances primarily for the purpose of lung mapping. It seems to have had a beneficial effect. So far we have seen no poisonous effects from the amount of the mixture injected (8 c.c. of a mixture of 1:2 in sterile olive oil), even though this amount has been injected four times in the same patient.

Ten patients have been injected with bismuth, and so far it has done no harm. Colloidal silver has also been

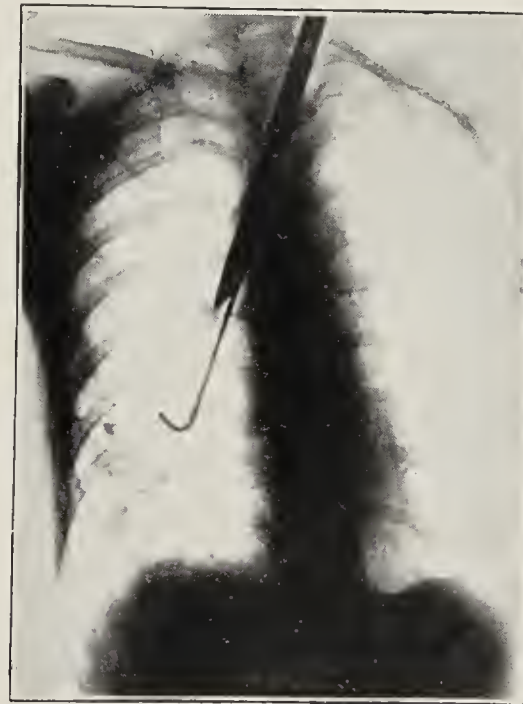


Fig. 8.—Same patient, demonstrating the method of using the curved spiral suction or injection cannula in treating the anterior branch around a corner. The abscess has disappeared, and there is no trace of the bismuth mixture remaining. The patient, while cured, is still under observation.

injected, and seems also to have been of benefit; likewise, it has done no harm.

127 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

DR. WILLY MEYER, New York: With reference to diagnosis of pulmonary abscess, particularly the multiple variety seen in bronchiectasis: General examination, local exam-

ination, analysis of the sputum, etc., does not tell us exactly how far the process has advanced. Stereoscopic roentgenography and bronchoscopy show from which lobe or lobes of one or both lungs the pus is exuded. The bronchoscopist is the thoracic surgeon's best friend. Every large hospital in the country should have a trained and reliable bronchoscopist, a man who will not harm the patient. In smaller cities, the hospitals ought to combine and entrust these cases to one man. As to differential diagnosis, we must exclude tuberculosis and syphilis. It is my belief that almost every case of subacute lung suppuration is due to aspiration of either solid, semisolid or liquid material; also that abscess formation following pneumonia is usually due to aspiration of mucopus in the course of the disease. Regarding liquids, these may be stomach contents, aspirated during general anesthesia or gastric lavage; blood, resulting from tonsillectomy and other mouth and pharyngeal operations; pus or mucopus, as during pneumonia, and infected water. Dr. Lynah has described two cases of lung suppuration in boys who had aspirated water while swimming in the infected waters of the two rivers bordering New York. In both cases the colon bacillus was found in pure culture. Treatment, as everywhere else, is palliative and radical. The bronchoscopist should start his work as early as possible. Not long ago, a woman came under my care ten days after tonsillectomy done under general anesthesia, with high temperature, severe, continuous cough, sputum of bad odor, and other signs of incipient purulent affection of the lung. She was subjected to aspiration, and it was remarkable how completely the entire picture changed within less than a week. Of course, the introduction of the bronchoscope must be gentle. At Dr. Lynah's clinic, bronchiectatic patients often prefer introduction of the instrument without previous cocaineization of the parts to be traversed. As to results, I feel sure that only early cases of chronic, nonspecific lung suppuration can be helped by means of aspiration. More advanced cases, patients who want to be cured, need surgical intervention, pneumotomy or lobectomy. It is the pressing task for those interested in this chapter of surgery to make these operations, particularly the latter one, less dangerous.

DR. CHEVALIER JACKSON, Philadelphia: I am delighted to note the cooperation between the bronchoscopist, the roentgenologist and the thoracic surgeon. If that cooperation can be established in every medical center, there will be a revision of prognosis in cases of abscess of the lung. Possibly, few cases will be cured by the bronchoscope; possibly, many. It is a matter for study and investigation. I most heartily corroborate Dr. Meyer's statement of concentrating bronchoscopic work for other diagnosis or removal of foreign bodies in the small community in the hands of one man who will equip himself for this special field of work. In each of the large medical centers a few such men are needed. Concentration of effort, and the cooperation of a bronchoscopist with a thoracic surgeon of such enormous experience as Dr. Meyer has had, will bring results obtainable in no other way.

DR. HENRY L. LYNAB, New York: Dr. Meyer emphasized the importance of early bronchoscopic diagnosis in these cases, followed by dilatation of strictures and evacuation of pus. Bronchoscopic dilatation and evacuation is usually followed by increased amount of expectoration. Some of the patients react sharply, and there may be increased paroxysms of coughing and expectoration for several days. It is difficult to base a prognosis on a cure of any of these cases. The process, like pulmonary tuberculosis, may become arrested, but you have to keep track of these patients for a long time, for in a year or so the patient may start to cough and expectorate pus. As regards bronchoscopic cures, I heartily agree with Dr. Jackson. I do not think bronchoscopy is going to cure them all. The bronchoscopist does improve them, but so far as a cure is concerned, that has frequently to be left to the thoracic surgeon. When lobectomy is made a safe procedure, then all cases of pulmonary abscesses will end in recovery. In the injection of bismuth mixtures, both the insufflation method Dr. Jackson employs and my own were used to localize the abscess for the surgeon when he was going to operate. This is the only reason for our starting to inject the bismuth; not the idea of curing.

TUMORS OF THE PANCREAS*

CHARLES D. LOCKWOOD, M.D.

PASADENA, CALIF.

Primary tumors of the pancreas are rare. Of the known tumors of this organ, cysts, carcinomas, adenomas, sarcomas and lymphomas are found in the order of frequency named. Of the solid tumors, carcinoma is the most frequent; sarcoma the least. Primary sarcoma is extremely rare.

Ziemssen, in 1878, said there was but one single authentic case of sarcoma of the pancreas, that reported by Paulicki,¹ in 1868. Some doubt has been thrown on this case from the fact that the patient, a young man, died from tuberculosis, and the reported tumor may have been a tuberculous lesion. Orth² says that primary sarcoma is almost unheard of. Since

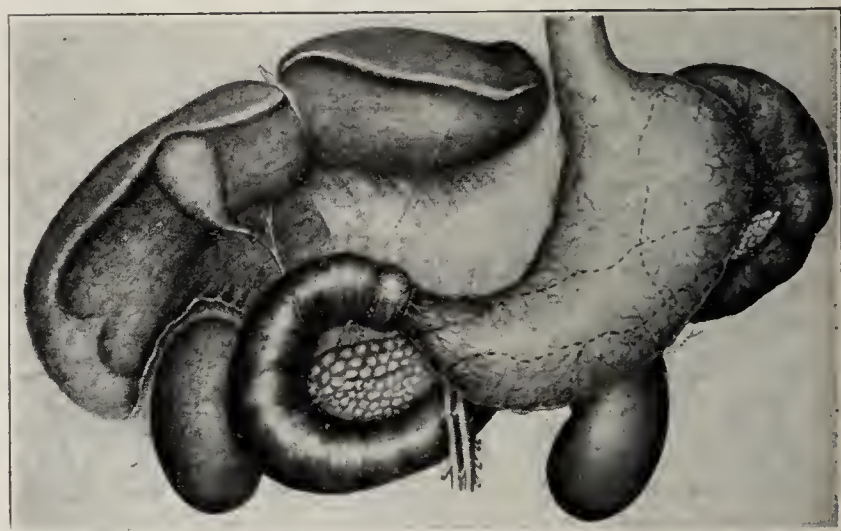


Fig. 1.—Drawing made from a careful dissection of the pancreas, showing its relationship to adjacent organs.

1887, there have undoubtedly been reported a number of well authenticated cases.

It is the purpose of this paper to discuss the diagnosis of pancreatic tumors and to report a case of sarcoma of the tail of the pancreas. The great rarity of sarcoma in this organ is believed sufficient justification for presenting this paper.

DIAGNOSIS

The diagnosis of pancreatic tumors is extremely difficult, and it is not possible to arrive at a correct diagnosis in a large percentage of cases, even after the employment of all modern methods. There are certain symptoms common to all tumors of the pancreas. These are: (1) pressure symptoms exerted by the tumor upon surrounding structures. The close proximity of the pancreas to the large vessels posteriorly and its intimate relation to the liver, stomach, duodenum, spleen and kidney give rise to a complexity of symptoms extremely difficult of interpretation. Tumors of the head of the pancreas by pressure on the large vessels or the common duct may produce edema, ascites or persistent jaundice. Pressure on the renal veins has produced marked hematuria as reported by Ransohoff.³ Pressure on the stomach and duodenum

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Paulicki: *Allgemein Medicin Central Zeitung*, 1868.

2. Orth, J.: *Lehrbuch der speciellen pathologischen Anatomie*, Berlin, A. Hirschwald 1: 904, 1887.

3. Ransohoff, J.: *Pancreatic Cyst as a Cause of Unilateral Hematuria with Report of Case*, *Surg., Gynec. & Obst.* 22: 275 (March) 1916

causes distention and apparent filling defects simulating tumor of the stomach on the roentgenogram, as in my case. Pressure on the solar plexus produces epigastric pain. Tumors of the tail of the pancreas give rise to fewer pressure symptoms, owing to the larger space offered for growth in this location and the freer mobility of the tail. Tumors of the tail, however, closely simulate those of the kidney and spleen. In addition to pressure symptoms there are: (2) fatty stools due to closure of the pancreatic duct, obstructing the discharge of pancreatic juice into the intestine. The failure of pancreatic juice to enter the duodenum may be determined by the administration of salol, the so-called "Signe de Sahli." In the normal individual phenol and salicin will appear in the urine soon after its exhibition. This decomposition fails to take place in the absence of pancreatic juice. Undigested muscle fiber in abnormal quantities has also been reported by a number of observers. (3) Sugar in the urine has been reported infrequently. (4) One of the most characteristic symptoms is rapid emaciation with cachexia and weakness. One of my patients lost 60 pounds in a year.

REPORT OF AUTHOR'S CASE

History.—W. F. M., a rancher, aged 62, was referred by Dr. H. P. Wilson of Whittier, Calif. His mother had died at 78, his father at 77. The patient's habits were good; he had had no serious illness, and no venereal infection. He had two children. In August, 1919, he began to have irritation in the throat, bad taste in the mouth and a sense of discomfort after eating. He was constipated and had lost 12 pounds in weight in two months. He had no pain; the appetite was good and he had no urinary difficulty.

Physical Examination.—The patient was anemic looking. The head, neck and chest were negative. The abdomen was tender. There was a nodular, movable mass in the left hypochondrium. This mass moved on respiration. There was no dullness on percussion, but a tympanitic note was heard over the tumor. The kidney and spleen were not palpable. Rectal examination was negative. The prostate was only moderately enlarged. The blood pressure was 130, systolic. Blood examination revealed: Wassermann, negative; hemo-

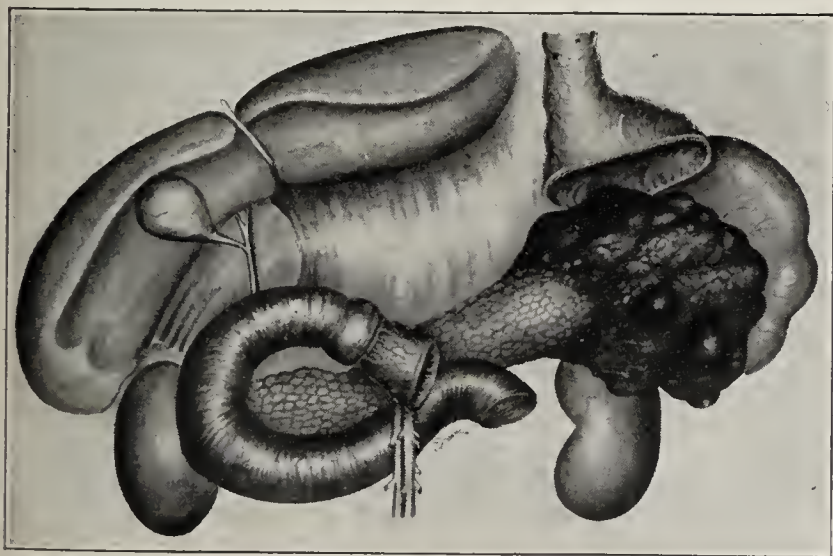


Fig. 2.—Tumor of the pancreas, involving the tail, reproduced from description of tumor and roentgenograms.

globin, 65 per cent.; red cells, 3,666,000; white cells, 8,116. There were no abnormalities in the red cells. There was moderate secondary anemia, not of the Banti type. The urine was normal except for a trace of indican. The stools were negative.

Roentgenographic Findings (Dr. Carl H. Parker).—"An opaque enema passed to the cecum without evidence of obstruction. The mass palpable in the left hypochondrium was above the transverse colon, which was apparently free from defects in outline. The splenic flexure was low, being

just at the border of the ribs of the left side, suggesting the possibility of its being displaced downward by a mass from above.

"The following day an opaque meal was given. There was no evidence of obstruction in the esophagus, but as the meal entered the stomach a marked abnormality of outline involv-



Fig. 3.—Defect in stomach, caused by pressure of tumor of pancreas.

ing the greater curvature of the cardiac end was apparent. On palpation the meal could be forced up into the cardiac end, giving what appeared fluoroscopically to be a normal outline. The stomach, however, seemed to be behind the palpable mass, which could be felt projecting below the left costal border.

"In a series of plates taken of the stomach there is a decided defect in stomach outline in the region of the palpable mass. The borders of the defect, however, are not so constant and regular as we would expect them to be, if the mass were a growth in the stomach wall itself. In the erect posture the bulk of the meal drops below the affected area, and in the cardiac portion of the stomach the rugae containing flecks of barium are apparent. The defect in the stomach outline is irregular, and appears to compress the stomach from in front rather than from the side, which I think accounts for the appearance which closely simulates that seen in carcinoma of the stomach wall itself. The pars media and the pyloric region of the stomach distend in normal fashion. The cap presents a slight defect on the basal border on the lesser curvature side, which I think is due to the gastrohepatic ligament. No abnormalities of either the small or large intestine were noted, except that the cecum and ascending colon present a considerably greater diameter than is usual."

Roentgenographic Diagnosis (Dr. Carl H. Parker).—"Mass in the left hypochondrium, causing a pressure defect in the outline of the stomach."

The mass was thought to be a tumor of either the stomach, kidney, pancreas or spleen. The roentgenogram excluded the stomach, and the urinary findings, the kidney. A probable diagnosis of tumor of the pancreas or spleen was made, and an exploratory operation was advised.

Operation and Results.—Through a long, left rectus incision joined by a transverse one, the tumor was well exposed. It involved about one half of the body and the entire tail of the pancreas. It consisted of many nodules varying in size from

that of a chestnut to that of an English walnut. There were also several cysts filled with bloody fluid. One of these corresponded accurately to a filling defect in the stomach wall shown on the roentgenogram. Two cysts were punctured and a nodule excised for microscopic examination. The tumor

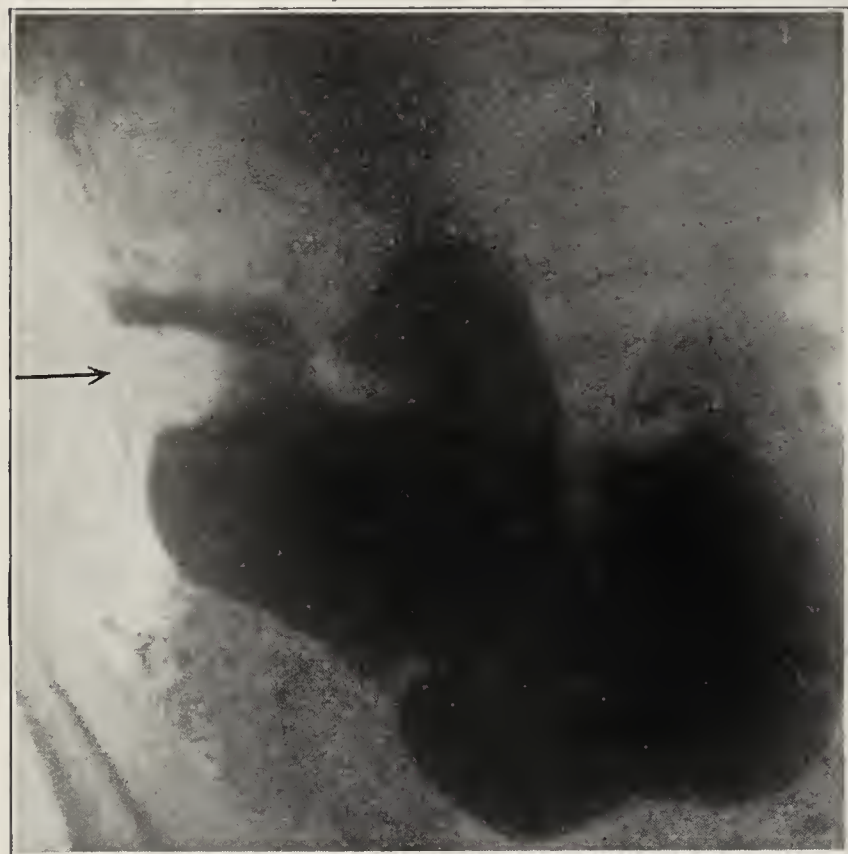


Fig. 4.—Indentation of stomach wall by hemorrhagic cyst.

was inoperable. The patient suffered considerable shock, but made a good operative recovery. He was given deep roentgen-ray therapy for six months, and during this time there was little change in his condition.

In August, 1920, he began to fail rapidly; metastases occurred in the supraclavicular glands. One of these metastatic tumors in the left supraclavicular region was the size of a hen's egg, hard, painless and movable. There were many other smaller masses. The patient failed mentally and devel-

to alcohol extremely gradual, I have finally secured sections which I can easily diagnose as sarcoma of the pancreas."

A section of this tumor was also submitted to Dr. Joseph C. Bloodgood of Baltimore for examination, and under date of May 8, 1921, he writes: "In one portion of the tissue we can recognize the glandular structure of the pancreas. The sections of the alveoli show, on the whole, compression. No cyst formation. No papillary cyst adenoma. The intralobular stroma much increased. In another portion of the section the pancreatic tissue is replaced by a very cellular tissue with considerable eosin staining intercellular material. These cells are, on the whole, round, rather of the endothelial type. There are no giant cells; no giant mononuclears. The morphology and arrangement of the cells is more that of a sarcoma than a carcinoma. It is not the picture of chronic pancreatitis."

COMMENT

The literature of sarcoma of the pancreas was carefully reviewed by Kakels,⁴ in 1901. He was able to find but twenty-one cases reported in the literature. These included those found at necropsy. Of this number, there was an element of doubt in five of them. In only ten was the tumor reported primary in the pancreas. Of all the cases of sarcoma reported up to 1901, only three occurred in the tail of the pancreas.

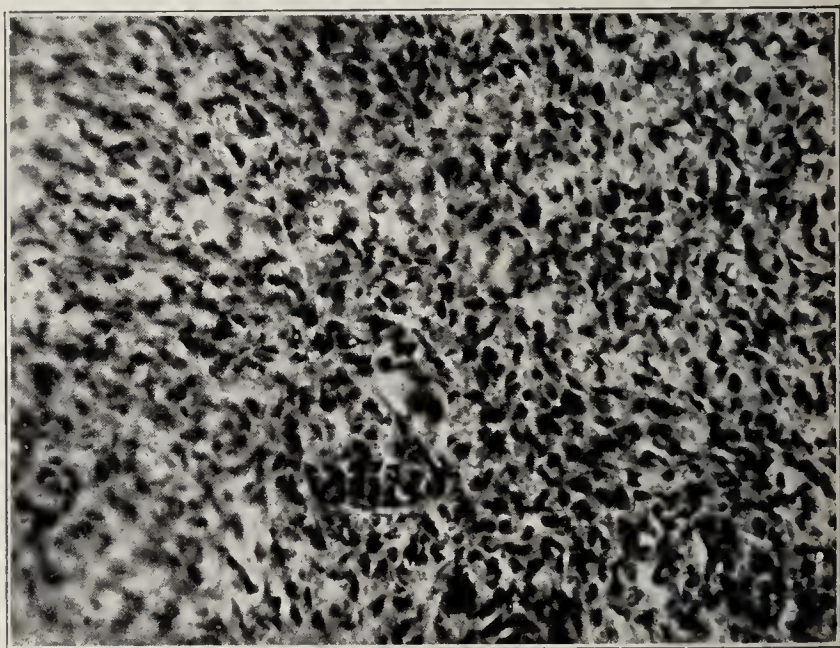


Fig. 6.—Enlarged photomicrograph of tumor, showing cell structure.

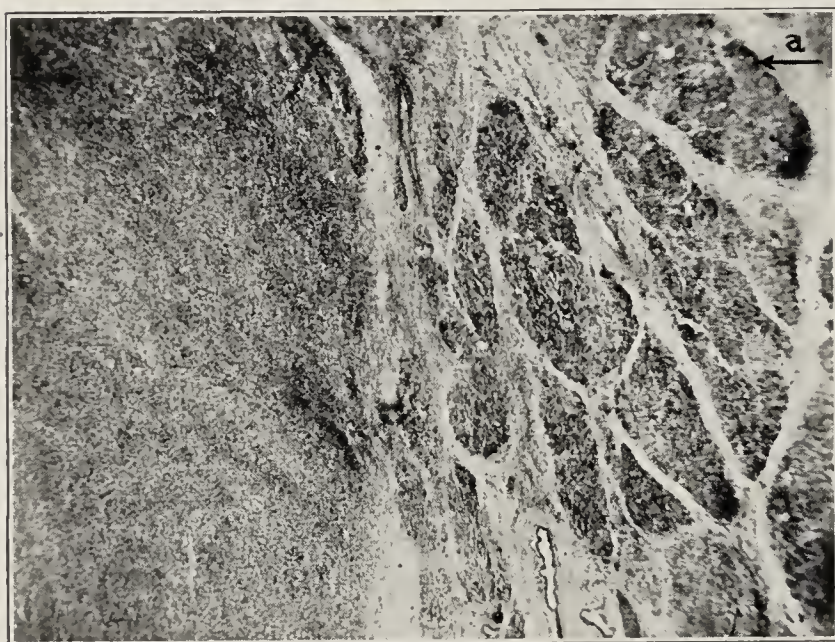


Fig. 5.—a, normal pancreas; b, tumor tissue.

oped an aphasia. He died the latter part of August, 1920. Unfortunately I was out of the city and failed to obtain a postmortem.

Histologic Examination.—The tissues removed at operation were submitted to Dr. Stanley P. Black who reported as follows: "In the early sections run through in the ordinary manner the cells were so shrunken that the diagnosis was problematical. However, by making the changes from water

Kakels failed to include the case report of Ehrmann,⁵ who, in 1896, reported a case of primary sarcoma of the tail of the pancreas. The patient was a woman, aged 56, whose chief symptoms were epigastric pain, dyspnea and anorexia. At necropsy, a tumor of the tail of the pancreas, 7 by 7 cm., was found. Microscopically it proved to be a small, round-cell sarcoma.

My case was definitely a tumor of the tail of the pancreas.

Guleke⁶ again reviewed the literature up to 1912. He does not report any cases of his own, but he collected thirteen cases reported in the preceding ten years. This author was able to find but twenty-eight cases of sarcoma of the pancreas up to 1912. Of these, four patients were operated on. Guleke refers to two cases reported by Ehrlich which were diagnosed as cysts and in which operation was performed.

4. Kakels, M. S.: *Am. J. M. Sc.* **123**: 471, 1902.

5. Ehrmann, J. E.: *Tr. Chicago Path Soc.* **2**: 157, 1896-1897.

6. Guleke: *Die neueren Ergebnisse in der Lehre der akuten und chronischen Erkrankungen des Pankreas, mit besonderer Berücksichtigung der entzündlichen Veränderungen.*

Microscopic examination of fragments of tissue excised from the walls of these cysts showed them to be sarcomas. Guleke believes that such errors frequently occur.



Fig. 7.—Edge of hemorrhagic cyst shown in Figure 4.

Since 1912, I have been able to find references to but two cases of sarcoma of the pancreas. They are those of Constantine⁷ and of Zagari.⁸

NOTE.—Since reading the above paper, I have submitted the slides of this tumor with the history of the case to Dr. E. R. Le Count of Chicago, and he questions the possibility of this being a primary tumor of the pancreas. He thinks it possibly a lymphosarcoma originating in the retroperitoneal tissues. Citizens' Savings Bank Building.

ABSTRACT OF DISCUSSION

DR. JOHN J. GILBRIDE, Philadelphia: My experience with tumors of the pancreas has been with four cases of carcinoma of the head of the pancreas and two cases of pancreatic cyst. In the cases of carcinoma cholecystoduodenostomy was performed in two cases; cholecystostomy, one case; no operation, one case. A necropsy was performed in the last two cases. In the case in which cholecystostomy was performed, the duodenal wall was so soft that on attempting an anastomosis of the gallbladder with the duodenum the sutures pulled out. Therefore, the procedure had to be abandoned and external drainage instituted. In operating on patients with malignant disease of the head of the pancreas, one may perform the conservative operation of biliary drainage, either external or internal, for the relief of the jaundice; or when it is possible to do so, the radical operation of extirpation of the growth with involved lymphatics. It is rarely feasible to perform the radical operation. In the four cases of malignancy referred to, there was not any itching associated with the jaundice, which was shown by the absence of scratch marks on the body and verified by the patients. This led me to think that there might be a difference between jaundice due to malignant and nonmalignant disease, or, still further, that the absence of the itching could be explained by the absence of infection. Therefore, I concluded that infection is probably the cause of itching associated with jaundice. Sarcoma of the pancreas, as Dr. Lockwood has stated, is comparatively rare. The questions to be dealt with in malignant disease of the pancreas are, first, the diagnosis; second, the anatomic relationship of the pancreas to the surrounding structures, especially the relationship to the great vessels, when performing a radical operation; third, disposition of the remaining portion of the pancreas after partial pancreatectomy. So far as tests for the internal function of the pancreas are con-

cerned, with the exception of the tests for carbohydrate metabolism there is not any of them of much value. The external function of the pancreas, with whatever information it may furnish, is accessible through the duodenum.

DR. CHARLES D. LOCKWOOD, Pasadena, Calif.: It is possible for us to diagnose many more cases of tumor of the pancreas than we have in the past. The distention of the peritoneal cavity with gas will outline most of these tumors and enable us to differentiate them. It was very clear that this was a tumor of the pancreas or spleen after eliminating the kidneys and the gastro-intestinal tract by the roentgen ray. It occurred to me at the time of the operation that if I had had some glass ampules of radium they could easily have been embedded in this tumor and, being sarcoma of the type greatly benefited by radium, it is quite possible that this tumor might have been destroyed, as the patient remained in practically the same state for over six months with no loss of weight. I think it is worth while considering the embedding of ampules of radium, and if I ever have another case I shall endeavor to do it.

XANTHOMA TUBEROSUM MULTIPLEX IN CHILDHOOD

WITH VISCERAL AND TENDON SHEATH
INVOLVEMENT*

FRANK CROZER KNOWLES, M.D.

AND

HENRY N. FISHER, M.D.

PHILADELPHIA

In 1913, one of us¹ read a paper before the American Dermatological Association with the title, "The Pathology of Xanthoma Tuberosum Multiplex." The present article will deal chiefly with this disease in childhood and the occurrence of xanthoma lesions of the viscera and tendon sheaths.

Hutchinson, Sangster and Crocker,² in 1882, compiled and tabulated thirty-six cases of this disease, of



Fig. 1.—Tumors over Achilles tendon and ankles.

which eight developed under the age of puberty. Török,³ in 1893, gave a résumé of seventy cases of this

7. Costantin, G.: *Il sarcoma primitivo del pancreas*, Tumori, Roma 1: 735-761, 1912.

8. Zagari, L.: *Sopra un caso di sarcoma del pancreas*, Tommasi, Napoli 7: 273-278, 1912.

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Knowles, F. C.: *J. Cutan. Dis.*, April, 1914.

2. Hutchinson, Sangster and Crocker: *Tr. Path. Soc. London* 33: 38, 1882.

3. Török: *Ann. de dermat. et de syph.*, 1893, pp. 1109, 1261.

condition, of which thirty appeared under the age of 16 years. In this series, three were given as congenital, three appeared either two or a few months after birth, one developed at 1 year, another at 2 years, two at 3 years, one at 4, three at 5 years, one each at 6 and



Fig. 2.—Tumors in gluteal region.

7, four at 10, one each at 14 and 15, and the age was not mentioned in seven.

Since Török's paper, the few examples of the disease reported in children by James, Winfield and Potter, Macleod and others, with the exception of those recorded by Low⁴ and by Feulard, resembled clinically urticaria pigmentosa rather than tuberosa type of xanthoma. This comment could likewise be made in regard to several instances tabulated in the articles of Hutchinson, Sangster and Crocker and of Török.

Certain instances have been recorded in which there was a family tendency to the disease, notably by Startin, MacKenzie, Hyde, Köbner, Hutchinson and Thibierge.

Visceral or systemic disease was present in twelve of the cases recorded. The following abnormalities were reported. In Low's patient, the physical signs were a systolic murmur and enlargement of the liver; Poensgen's patient had stenosis of the aorta; Pollosson's patient had a systolic murmur at the base of the heart; Vidal's patient had a mitral regurgitation; Gwynne's two cases gave the signs of mitral murmurs; Colcott Fox's patient had a mitral murmur, but in addition a history of rheumatism; Crocker's patient had an arthritis, and Barlow's patient had hypertrophy of the liver and hereditary syphilis.

Proof, however, as to the presence of xanthoma lesions in the vascular system has been confirmed in two instances, namely, by Lehzen and Knauss, and by Pavy and Fagge.

A girl, aged 11 years, exhibited lesions on the elbows, the buttocks, the knees and the feet, tuberosa in character. Some of these nodular masses were attached to the tendons of the

fingers and the Achilles tendon. The child had a mitral systolic murmur and suddenly died. A careful postmortem examination disclosed yellowish patches on the mitral valve and in the aorta, which were proved microscopically to be xanthoma.

Lehzen and Knauss reported a case almost identical to Low's.

Pavy and Fagge recorded a case in an adult with skin and tendon lesions and a mitral murmur. This patient subsequently came to postmortem and xanthoma lesions were found in the left auricle, the aorta and the pulmonary, innominate and carotid arteries. Apparently also in Moxon's case of xanthoma, lesions on the aorta, described as atheromatous, were of the same character as those on the skin.

According to Low, "taking these facts into account with regard to heart lesions in generalized xanthoma, justification is given in coming to the conclusion that in his case the heart murmur was due in all probability to xanthoma lesions in the aorta."

Tendon sheath involvement has been observed in ten cases in children of 12 years and under, namely, by Branchet and Monnard, Ehrmann, Feulard, Gwynne (two cases), Hyde, Lehzen and Knauss (two cases), Poensgen and Low.

REPORT OF CASE

An Italian boy, aged 10 years, came under our observation in April, 1920, and was subsequently treated in the skin dispensary of the Pennsylvania Hospital and later in the wards of the Children's Hospital. He had been apparently well until three years before, when he complained of vague pains in the knees from time to time. Shortly after this, small, yellowish nodules appeared about an old vaccination mark, and similar growths then developed on the buttocks and over



Fig. 3.—Proximity of tumor elements to epidermis, as shown under low power.

the malleoli and more recently over the elbows. The child had been somewhat short of breath on exertion for several years. There had been no previous illnesses, with the exception of measles.

Various tests were tried out which gave the following results: The von Pirquet test was negative, as was also the Wassermann test. The urine was negative and the various blood examinations detected nothing abnormal.

4. Low: Brit. J. Dermat., 1910, p. 109.

A roentgen-ray examination gave no evidence of the probable character of the growth found by the physical signs. The heart showed nothing abnormal in the roentgenograms.

The father, the mother and three other children are living and well with no abnormality of the skin.

A careful physical examination revealed abnormalities in the heart, the abdomen, the skin and certain tendon sheaths. There was a loud systolic murmur. The abdomen exhibited no pain or tenderness, but a mass was felt just below the

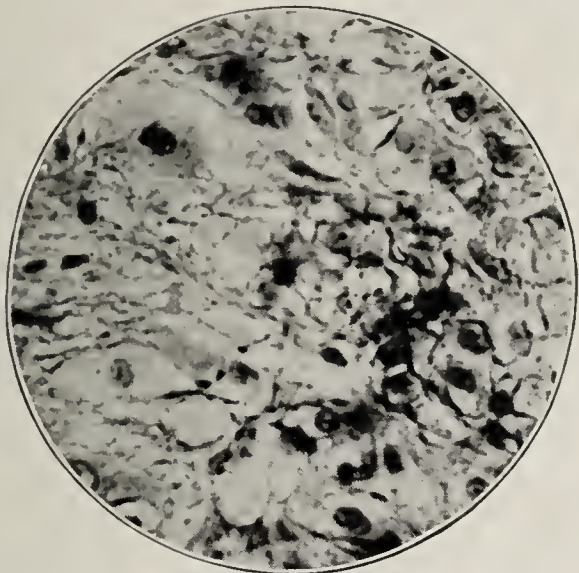


Fig. 4.—Xanthoma cells viewed under high power.

left costal margin which descended with respiration and could be rolled under the fingers and felt as if it was a part of, or attached to, the spleen.

The vaccination scar on the left arm was surrounded by a raised area of an orange-yellow color and consisting of pea-sized nodules. There were also tumors varying in size from a pea to a walnut, mostly isolated, but a few coalescing, looking very much like a mushroom or fungus growth, with a curious orange-yellow color, situated with marked symmetry on both elbows (extensor surface), both internal malleoli, over both Achilles tendons, on the flexor and extensor surface of the knees and on the buttocks. Those on the Achilles tendons were the largest, more of the color of normal skin than the others, and had a very hard base. They were of the same size, namely, 6 cm. in length, 4 cm. in width, and elevated 3 cm. above the surrounding normal skin. The mass on the buttocks measured 3 by 3 cm., with an elevation of 0.5 cm. Most of these tumors were situated at points of irritation, and none of them were painful. There were also small, firm nodules apparently attached to the tendons on the extensor surface of the second and third phalanges of each hand, and also on the flexor surface of the left wrist over the carpal bones.

One of the tumors was excised from the left Achilles tendon region, June 9, 1920, by Dr. Jopson, who reported that the growth was of a saffron-yellow color and contained an excess of indurated and hypertrophied connective tissue extending beyond the corium to the sheath and apparently to the tendon of the gastrocnemius muscle.

MICROSCOPIC APPEARANCE OF SECTIONS

Practically the whole excised area consisted of the "tumor," only a small portion of normal skin being included on either side.

The epidermis was normal at the edges of the section apart from the "tumor." There was a scant amount of keratin on the surface. All the cell layers were properly represented. The number of layers average seven or eight, and interpapillary pegs were exhibited. Over the tumor the same general appearance was preserved except for (1) a slight thinning (there were two less layers of cells), and (2) a loss of the interpapillary peg formation in great part.

The corium showed that the pars papillaris had the normal loose fibrillar texture through most of the section, save where replaced by "tumor" tissue. The stratum reticulare exhibited collagen bundles of normal appearance only at the sides of the sections. Here there were one or two small but normal

appearing hair follicles, and a few groups of sweat glands. The blood vessels showed a slight swelling and proliferation of their endothelial linings, and there was a scanty infiltrate of lymphocytes around a few of these channels.

The "tumor" occupied by far the greater part of the section, measuring from 8 to 10 mm. in width and extending 5 or 6 mm. into the subcutis. It was separated from the most part from the epidermis by a thin layer of the pars papillaris, but at times its elements, generally "xanthoma cells," came into actual contact with the basement membrane above and below the limits of the biopsy. Laterally it gradually merged with the adjacent collagen bundles of the corium.

The "tumor" consisted of three portions: The first element consisted of slender collagen bundles which interlaced in all directions either as individuals or as fasciculi. Their nuclei were much plumper than normal, and certainly more closely placed, i. e., hyperplastic. Certain portions of the collagen strands were traceable into and continuous with xanthoma cells.

The second element was the well-known "xanthoma cell." It occurred singly, in chains and in masses in connection with the collagen strands. They tended to appear in tracts, adjacent to and paralleling the collagenous bundles, although some of the massed xanthoma cells were grouped around the hair follicles. Close inspection generally revealed a narrow compressed capillary in the axis of the tract or adjoining the groups of these cells. The xanthoma cell had a typical appearance, with polygonal contour, rarefied, finely granular cytoplasm and a small, solid, either central or eccentric nucleus. In the examination of this first series of sections only a few multinuclear forms were found, and not of the extreme giant-cell formation.

The third element is comprised of the capillary blood vessels. These channels were considerably increased, and their endothelium lining proliferated. There was a region in the center of the tumor where dozens appeared in a single microscopic field.

Sections made from a tumor removed from the Achilles tendon area showed not only the more common type of xan-

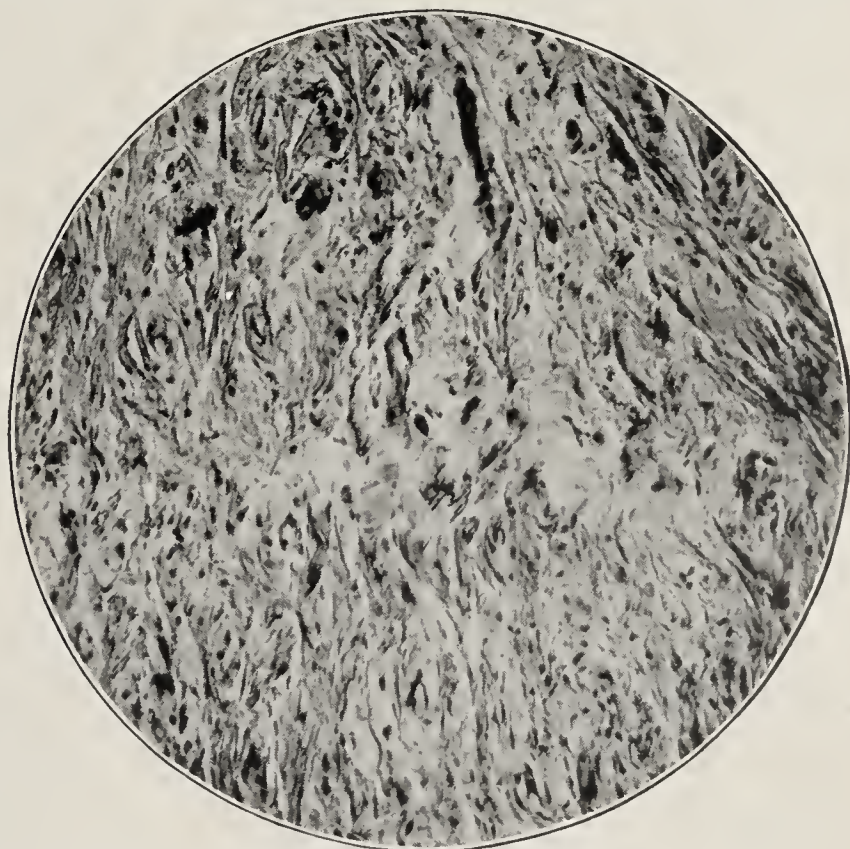


Fig. 5.—Fibrous and vascular part near center of tumor.

thoma cells but in addition many giant-cell formations. These cells were arranged in narrow or broad tracts, were found farther from the epidermis, in other words lower in the corium, and were found also in the subcutaneous tissue and extending into the Achilles tendon. In many instances these xanthoma cells were found surrounding the capillaries like a mantle, and practically all of these cellular groups were richly vascular.

COMMENT

Two cases of this rare disease have now been studied thoroughly, by one of us, one in an adult and the other in a child, and clinically and microscopically they have been exact counterparts, with the one exception that in the present instance (the child) there was visceral involvement.

No conclusions can be drawn as to etiology and no theories are mentioned, for as yet we are as much in the dark as when this disease was originally described by Rayer, Addison and Gull, and W. F. Smith.

ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: A number of years ago I reported a peculiar case of xanthoma tuberosum multiplex—which was not urticaria pigmentosa. This case was in a boy; it began when he was 8 or 10 and he was under my observation during adolescence. In this boy there was disturbance of the pituitary, with extreme polyuria. He had xanthoma lesions in the most unexpected places. He had one on the cornea that was as large as a half section of a good sized hazelnut. He had some lesions in the larynx that almost brought him to the necropsy table. They caused so much stenosis and so much obstruction to breathing that he nearly died before we discovered what his real trouble was, but after a tracheotomy he got back to the state of a healthy boy. I think that after seeing a lot of bizarre cases of xanthoma we can say of its clinical manifestations what a distinguished pathologist said many years ago of the pathogenic activities of the pneumococcus: "It can do anything it pleases." I think xanthoma lesions might be found in any solid tissue of the body and in any location.

DR. FRED WISE, New York: Has anything been done experimentally to eliminate the supposed causal factors—for instance, the elimination of cholesterol, if that is a causal factor?

DR. WALTER J. HIGHMAN, New York: The only item on record is an article published in the *Dermatologische Wochenschrift* five or six years ago by Selenew, in which he proved that an excess of cholesterol ingested, plus local trauma of the skin, which he produced in rabbits by placing setons under the skin, produced xanthoma lesions at the site where the setons were placed. Of course, we are not born with congenital setons in the skin, but I should think that, with due honor to Dr. Sutton's theory of focal infection, we might try to determine whether xanthoma lesions might be produced along those lines so that Dr. Wise and the rest of us could get some information. Dr. Knowles' paper arouses an effort to remember how often we have seen cases of this sort in children below the age of puberty. So far as I can recall, I do not believe a year has passed in the last ten years that I have not seen a case before the societies in New York, and these cases were not urticaria pigmentosa. I do not know what the experience of others has been, but we have not considered it such a rare condition.

DR. FRANK CROZER KNOWLES, Philadelphia: In looking over the case reports we found that in many cases the lesions were just spots on the skin occurring universally, but were reported at that time as xanthoma tuberosum multiforme.

Reduction of Mortality in Puerperal State.—In administrative efforts directed toward reducing the mortality in the puerperal, including the pregnant, state, not only deaths from puerperal infection, but causes under all other rubrics, must be analyzed, both as to the environment and as to the obstetric personnel under which they occur in different kinds of women. It is likely that at least in the United States, the personal attendant is generally the most important factor. Those physicians and midwives who have consistently high maternal or infantile death rates would become evident, and could be dealt with appropriately.—W. T. Howard, Jr., *Am. J. Hygiene* 1:231 (March) 1921.

THE THERAPEUTIC ASPECT OF
IRRADIATION IN SUPERFICIAL
MALIGNANCY*

ALBERT SOILAND, M.D.

LOS ANGELES

In the field of skin therapy, no agent has received more attention in the last decade than irradiation. Particularly is this true of the energy of radiation derived from roentgen rays and radium. The emergence from darkness and the evolution of this unseen force have been accompanied by many baffling, and at times discouraging, phenomena; and both comedy and tragedy have characterized the writings that have accumulated during the brief lifetime of this medical discovery.

A certain number of our enlightened medical fraternity still honestly question the therapeutic adaptability of irradiation, but it is evident that the great majority of medical men have accepted and placed a personal valuation upon this agent, in proportion to their individual knowledge of its potency. Nothing like unanimity of opinion exists, however, in regard to its applicability to given conditions, and it is not strange that considerable confusion exists in our minds as to the exact method to pursue in combating a certain malignant skin lesion, since we are confronted in medical literature with such widely varying opinions, theories and methods of procedure. This unfortunate situation has been brought about, not so much by any lack of knowledge of the essentials of our subject as by the mass of new and fragmentary information constantly being divulged at a rate which makes assimilation and adjustment to newer methods a process of considerable magnitude and concern.

It may serve to bring about a somewhat clarified vision of the whole matter if we enter here into a practical discussion of the rationale of this subject from its present broadening status.

In dealing with superficial malignancies, it was my custom for many years to use a rather conservative technic, to take a sufficiently safe middle ground position between the soft ray small fractional dose method and the hard ray single intensive application, more recently advocated. This method proved a fairly satisfactory one, and met with results which were in the main comparable with those of other active radiologists. In the last four years, however, I have gradually increased the hardness of the rays and adjusted the time and technical factors in line with the development and accumulated knowledge of the science.

In this discussion, irradiation from both the roentgen rays and radium will be considered alike, as they are employed in my office in similar wave length so far as it is possible to secure this result. In other words all soft rays are screened out, only hard beta and gamma rays are employed, and the two sources of radiation used conjointly, each one being selected for the field where it can most conveniently be applied.

The action of irradiation upon cell bodies is no longer a question of dispute. There is ample and

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

irrefutable evidence that cancer cells may be completely destroyed, even when situated at a comparatively remote distance from the surface irradiated, without any permanent injury to the overlying normal cell structures. Whether this is accomplished by inhibitory or direct lethal action on the sensitive and specialized pathologic cell body, or whether it is due to a secondarily reconstructive and stimulating action may be left open for further discussion. For our purpose, it will suffice to recognize the fact that a reorganization occurs along the lines of least resistance, with a more or less normal structure as a residual end result.

The rationale of treatment, then, is to ascertain the extent and exact location of a cancer area, and to apply to this area sufficient irradiation to insure the death of every pathologic cell within this field—a single cancer dose if possible. One must carefully distinguish between an erythema dose and a cancer dose. An erythema dose, when it is obtained with a gamma ray, may be an efficient cancer dose, but an erythema dose administered by soft ray technic may not only fail to destroy cancer cells, but may actually serve as a stimulus and promote cancer cell proliferation in the underlying structures. Such an eventuality, while not proved, is a decided possibility, and its bearing upon the case must not be lost sight of. It illustrates the truth of the statement that in no field of endeavor is it more necessary to have a comprehensive knowledge of the whole science of radiotherapy than in superficial malignancies.

As to the location of surface cancer, no single area is free from invasion. The face and head, however, seem to be most vulnerable. In this field, cancer of the lip is perhaps the most important, and calls for more than ordinary good judgment in its treatment. While primarily a superficial lesion, its close association with the floor of the mouth, tongue and lymphatic channels soon converts it into a metastatic and generalized cancer, unless we succeed with our initial treatment. When such a case is attacked, it is not sufficient merely to make a casual application of radium or roentgen ray to the lip. Here it is of the utmost importance to lay down a radiation barrage which shall include every gland-bearing area in the jaw and neck, and through which not a single malignant cell shall escape. Lesions around the eye or on the nose—and their number is legion—grow by extension and rarely metastasize. In a case of this kind, it is also necessary to destroy all malignant tissue as rapidly as possible.

It is essential, of course, to exercise great care when exposing skin areas overlying bone and cartilage, particularly on the nose and ears. With properly regulated dosage, however, these areas may be freely treated. A word of caution concerning the irradiation of plantar warts may be of value. One should be sure to allow sufficient time to elapse between treatments, as this region is prone to show a delayed reaction, which may mean overdosage and a resultant ray necrosis with a very prolonged and painful period of convalescence.

It is taken for granted that no skin lesion other than a malignant one has been concerned in the present discussion; yet there are many conditions, primarily benign, that with age or added irritation may take on malignant characteristics. Keratotic and seborrheic patches are the most common types of this character.

In such cases, we are fully justified in applying irradiation. Many of these, however, yield readily to simple and easily applied therapeutic measures, principally mild escarotic salves, carbon dioxide snow, electrolysis, fulguration and minor surgery.

The question of surgery is an important one. Many surgeons rightly feel that cases are often irradiated which could more readily have been treated surgically. Surgery is, however, rarely required in the cases enumerated, but when plastic or reconstructive work is demanded, it should always be given first consideration, either alone or in combination with irradiation. The habit of cutting out a small piece of tissue for microscopic study is a pernicious one, unless it forms part of a complete operative procedure, and with our present knowledge of malignant disease, it should not be required as a diagnostic aid. If the case is clinically malignant or on the borderline, it calls for irradiation irrespective of laboratory findings.

While attending a skin clinic recently where radium was the topic of conversation, I overheard one physician say that he thought he would invest from five to ten thousand dollars and go into the "radium game." This remark unfortunately reflects the attitude of a number of medical men, who look upon this subject wholly as a sporting proposition: in other words, a game in which a certain investment will insure an easy and quick return. No doubt a few individuals may succeed, at least temporarily, in this questionable effort; but, happily, he who experiments with radiation soon realizes that he is dealing with a two edged sword, which he either lays down carefully or else learns to use in a manner which will insure his own self-respect and redound to the benefit of his patients.

The modern radiologist has had ample opportunity to study both indications for and the effect of irradiation in superficial malignancies, and he does not hesitate to affirm that his method has accomplished more than any other medicinal agent heretofore produced to combat these unsightly and serious lesions.

527 West Seventh Street.

A CLINICAL STUDY OF CARCINOMA OF THE NOSE*

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KANSAS CITY, MO.

Recently, in checking over a series of approximately 1,000 case records of cancer of the head and face, I was surprised to find that, in more than 25 per cent. of the patients, the nose alone had been involved. A brief survey of the literature on the subject disclosed only one similar report, Broders,¹ who found that in about 19 per cent. of his patients the lesions were confined to this particular locality.

The object of this communication is not to present a statistical study, however, but to emphasize the outstanding clinical features in a small number of selected and typical cases, and to outline the methods of treatment which we have found most practicable and dependable. At the outset, I wish to say that the

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Broders, A. C.: Basal-Cell Epithelioma, *J. A. M. A.* 72:856 (March 22) 1919.

apparently disproportionate frequency of nasal involvement is probably due as much to the desire of the afflicted individual to secure early relief from a conspicuous and distressing deformity as it is to any preexisting regional hypersusceptibility. In other words, a lesion which might attract little or no attention on some other part of the face calls for prompt medical intervention when located on the nose.

Of the fifty patients whose cases were selected for this particular report, thirty-six had spent all, or nearly all, of their lives on farms or ranches. Forty-two (84 per cent.) were males. More than one half (twenty-nine individuals) of the total number suffered from long standing, dry seborrhea ("sailor's skin").

The anatomic location of the lesions varied. The tip was attacked most frequently (in twenty-eight instances), and the base of the nose only once (following a dermoid cyst). The upper lateral surfaces were occasional sites (in five cases), usually following injury from spectacle or eyeglass frames or clasps, and the median lateral four times.

malignant lesions. Syphilis as a predisposing factor is of far less importance here than in lesions of the mucous membranes.

A microscopic examination was made in only five instances. All of these tumors were of the basal-cell type. Clinically, forty-three of those remaining belonged in the same category.

Of the two prickle-cell growths, one developed on the tip of the nose, following injury, the other at the lower left alar angle, without appreciable cause.

The prognosis is dependent on the character of the growth, its location, and the degree of structural involvement. In carcinomas of the prickle or squamous cell type, the outlook is always serious. Even with prompt and radical treatment, more or less tissue destruction is bound to occur. Growths of the Krompecher type are as a rule easily eradicated, provided the cartilage and periosteum are not involved, or the contiguous tissues are not destroyed or irreparably damaged by long continued irradiation or the unskilled use of arsenic, zinc chlorid and similar escharotics.

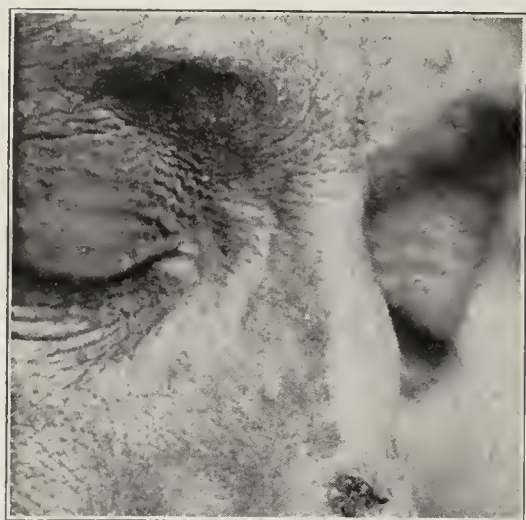


Fig. 1. — Basal-cell carcinoma of nose which developed following the forcible removal of an "ingrowing hair."



Fig. 2. — Basal-cell carcinoma, involving skin and cartilage; condition aggravated by long continued but inefficient roentgen-ray treatment.

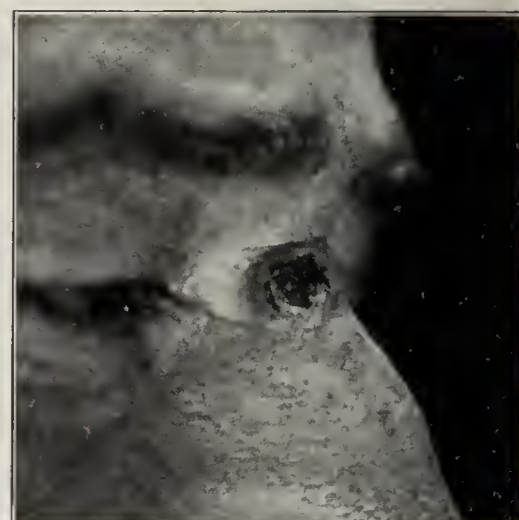


Fig. 3. — Basal-cell carcinoma of nose; lesion developed following injury from eyeglass clasp.

The bridge itself usually escaped. Involvement of the lower, lateral surfaces was fairly common (eight cases), and in this locality destruction of cartilage occurred in all of the advanced and neglected cases. In two instances, both of the patients being middle aged women, carcinomas developed in persistent fissures located at the anterior angle of one of the nostrils.

Consideration of the predisposing etiologic factors showed that long-continued and repeated sunburn, with or without the ensuing development of seborrheic keratoses, was undoubtedly the most common.

Trauma stood next, the injuries varying in character and degree from the slight bruises due to the forcible expression of comedones to incised and lacerated vocational wounds.

Frostbite, an occasional factor in the development of keratoses and cancer of the ear, was not noted in this series, although I have seen a few cases in which damage from this source undoubtedly was of causative import.

Carcinomas arising from nevi in this locality are rare.

The forcible removal of "ingrowing hairs" may be followed by the development of suspicious or frankly

The plan of treatment to be pursued is, of course, wholly dependent on the character of the growth to be attacked, and for this reason a correct diagnosis at the outset is of vital importance to the welfare of the afflicted patient. In the destruction of prickle-cell carcinomas we have found the knife cautery, followed by radium or the roentgen ray (employing a Coolidge tube, and exact dosage) best. It is wiser to pursue a radical course in these cases, depending on subsequent reparative work to hide the ensuing deformity, than to do a half-hearted job, and totally fail to benefit the patient's condition. On the other hand, the free and liberal use of the actual cautery in the average case of Krompecher's carcinoma is little short of criminal, for in dealing with these comparatively benign growths, more satisfactory results can be secured by the employment of much milder methods. It is from patients suffering with this type of tumor that the "cancer quack" reaps his harvest, for the removal of the little growth, together with several square centimeters of adjoining healthy skin, is easily, promptly and painlessly (?) accomplished by means of one of the old fashioned chemical pastes. The promiscuous and unskilled use of remedies of this kind is to be deplored, for they frequently accomplish

more damage than an untreated carcinoma. The greatest danger, however, lies in partial destruction of the growth, with erosion (and subsequent cancerous involvement) of the underlying periosteum. When this occurs, the probability of future cure, by any means, is enormously decreased.

In attacking uncomplicated cases of the basal-cell type, we have found, after long and diverse experience with all sorts and methods of treatment, that curettage, immediately followed by the application of liquor hydrargyri nitratis, as originally recommended by Sherwell, neutralized, three minutes afterward, with sodium bicarbonate, with subsequent radium therapy, the most satisfactory and dependable. In some instances, it is probable that the application of the caustic alone to the exposed base and margins of the wound would bring relief, but the use of radium undoubtedly greatly increases the percentage of permanent cures. As suggested by MacKee² and by Hazen³ in their discussion on the roentgen-ray treatment of tumors of this type, unscreened or thinly screened rays are preferable to heavily screened ones,

PRIMARY SARCOMA OF THE UPPER LIP

REPORT OF CASE *

S. E. SWEITZER, M.D.
AND
H. E. MICHELSON, M.D.
MINNEAPOLIS

Modern textbooks on surgery and on neoplasms do not mention primary sarcoma of the lips. A. J. Markley,¹ in 1913, reviewed the literature, referring to the cases of Coley, Maunsell and Langston. Our case is the only one reported that occurred on the upper lip. No reports have been recorded since Markley's.

The case reported here is of interest because of the rarity of the condition, and it emphasizes the possibility of primary sarcoma occurring on the lips and the need of considering such a condition when making a differential diagnosis of cases presenting a tumor of the lip.

In this case the condition resembled a giant chancre and, therefore, the lesion was subjected to dark field examination for spirochetes. Clinically, it also resembled a phlegmon because of the rapidity of the growth. The diagnosis was finally established by microscopic examination of the sectioned tumor.

REPORT OF CASE

History.—W. H., a man, aged 65, lumberman, American, presented himself at the University Hospital, on the advice of his physician, because of a swelling of the upper left portion of the lip. Two weeks before, he had noticed a lump the size of a hazelnut just below the left nostril. This lump seemed to be within the tissues of the lip; he also noted the fact that the entire upper left half of the lip was thicker than the right half. There was positively no pain, nor any

subjective symptoms, except an occasional pricking sensation. He immediately consulted a physician, who made no diagnosis, but advised hot applications, which he applied for three days, with no benefit. He then consulted another physician, who advised cold applications, which were tried for twelve days. The "lump" during this time increased to the size of a pigeon's egg. A film of disagreeable coating formed over the internal surface, but it continued to be painless. Wiping off this membrane caused a slight oozing of bloody serum. The mucous membrane was denuded, but there was no deep ulceration. He did not lose weight or feel different in any way than he did previous to noticing the growth. He stated that his wife had died five years before. The cause of her death he did not know. He had one daughter, aged 42, living and well; no other children. He had had no venereal exposure for forty years. He had always worked at the lumbering industry.

Physical Examination.—The patient was well nourished and well developed. He showed no distress. Examination was negative, except for the condition of the lip. The left half of the upper lip was swollen to three times its normal size. There was present in this portion of the lip on the mucosal surface a hard, red, circumscribed mass slightly depressed at its center and elevated at its edges. The mucosa was denuded over this area about the size of a half dollar.

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Markley, A. J.: Primary Sarcoma of the Lower Lip. J. A. M. A. 61: 334 (Aug. 2) 1913.

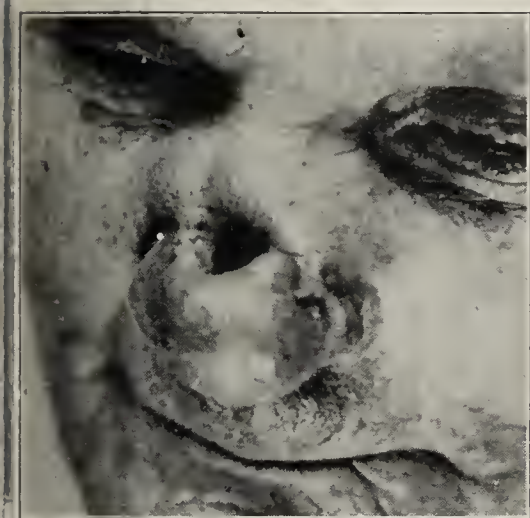


Fig. 4.—Deplorable result which followed the use of a "cancer paste" in a case of superficial basal-cell carcinoma of nose.



Fig. 5.—Basal-cell carcinoma of nose, involving periosteum; condition greatly aggravated by unskilled use of arsenic "plaster."

probably because of the comparatively superficial character of the growth. We have found that repeated short exposures give better cosmetic results than single, heavy ones, probably because of the greater ease with which the reaction can be controlled. In those cases presenting cartilage involvement, excision is preferable to radiotherapy.

1034 Rialto Building.

2. MacKee, G. M.: Roentgen Ray and Radium in the Treatment of Basal Cell Epithelioma, J. Cutan. Dis. 37: 179 (March) 1919.
3. Hazen, H. H.: Roentgen-Ray Treatment of Cutaneous Cancer, J. A. M. A. 76: 1222 (April 30) 1921.

Physicians and Civilization.—Spanish newspapers comment on the aid rendered by physicians in their pacifying task at Morocco. The friendship of many Moors was obtained through medical assistance rendered them. It seems that during the recent uprising, the Moors were deprived of a complete success through one of the chiefs failing to join in the movement. This chief, Abd-el-Kader, used to be one of the most bitter enemies of Spain. When he was taken sick some time ago with a diffuse phlegmon in the throat, the Arab healers declared his case hopeless. A Spanish surgeon, Dr. Bonet, offered to operate on him in his own home as Abd-el-Kader thought he would be put to death if he came to the Spanish stronghold of Melilla. He got well and ever since has been a loyal Spanish partisan.

It was not very tender to manipulation. There was no bleeding. The mass was covered with a thin film of adherent, yellowish exudate which was easily removed and left a raw, oozing surface. The entire left half of the upper lip was indurated and swollen. The swelling extended to 1.5 cm. from the vermilion border. There were no palpable, enlarged submental or submaxillary glands. Feb. 17, 1920, dark field examination by Dr. Michelson, and February 18, dark field examination by Dr. Butler were negative.

February 23, the lesion, resembling a phlegmon more than anything else, led to the tumor being treated as an infection

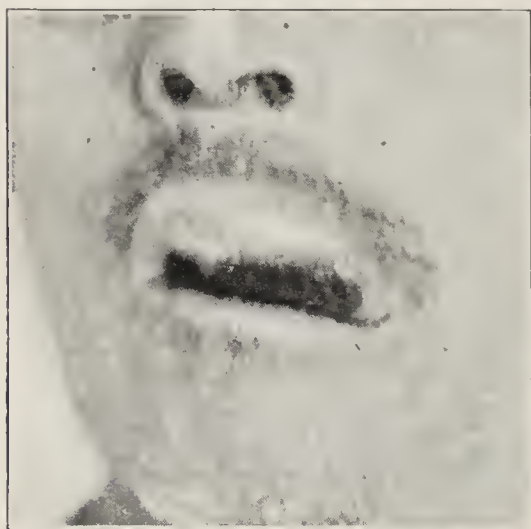


Fig. 1.—Sarcoma of upper lip.



Fig. 2.—Extent of growth inside lip.

with crucial incision and curettage of the infiltrated area. Scrapings were sent to the laboratory. Hot boric packs were applied by Dr. H. P. Ritchie.

Operations and Laboratory Reports.—A small piece of the lip was examined. The tissue was soft and whitish, almost translucent. Microscopic section showed a mass of very cellular tissue. The nuclei were so numerous that they appeared almost to be overlapping. They were round and vesicular, with pale staining chromatin, and a large percentage of them were in the stages of mitosis. This embryonic type of cells with such numerous mitoses indicated marked malignancy and an exceedingly rapid growth. A diagnosis of sarcoma of the round-cell type was made by Dr. M. Warwick.

February 24, the entire lip was excised. The piece removed measured 7.5 by 3 cm. Two incisions at right angles to each other had been made, thus laying the entire growth open. The tumor mass was soft and reddish-white. On the under surface there was ulceration and dark discoloration, with a very fetid odor of necrosis, suggesting gangrene. This mass was divided in the center by the skin and mucous membrane junction; in other words, it extended up under the skin of the face. The microscopic appearance was the same as described above. The diagnosis was round-cell sarcoma.

Further Observation.—Following this operation, the patient received a thorough roentgen treatment, with Coolidge tube, over the face and neck. This did not prevent the rapid metastasis into the neighboring glands and internal organs. The patient declined rapidly and became jaundiced; vomiting set in, and he died, April 18. Dr. Michelson attended the postmortem examination.

Summary of Necropsy.—Necropsy, which is omitted for want of space, revealed metastases in the abdominal, mesenteric, and submaxillary lymph nodes, kidneys, suprarenals and intestinal wall.

COMMENT

Because of the rarity of sarcoma of the lip, a diagnosis on such a tumor of the lip must necessarily be made by exclusion.

In considering chancre of the lip, this case greatly resembled a photograph of chancre of the lip shown in Schamberg's textbook. Negative dark field examinations and absence of adenopathy excluded this condition.

Phlegmon should be excluded because of the lack of inflammatory areola, local heat, tenderness and pain.

Epithelioma must be mentioned. In this case, there was no deep ulceration, no hard edge, and none of the

characteristics which suggest that diagnosis. The absence of history of injury ruled out infected hematoma, although it did resemble that condition. In favor of a diagnosis of sarcoma, we had a hard, localized, rapidly growing, painless tumor which was positively proved by microscopic examination.

625 Syndicate Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOILAND, SUTTON,
AND SWEITZER AND MICHELSON

DR. ERNEST DWIGHT CHIPMAN, San Francisco: What, if any, advantages result in the treatment of purely cutaneous conditions by filtering the roentgen rays? I have found the results quicker and generally more satisfactory without the interposition of any aluminum. It would be interesting to know whether any one has found the filter of advantage in the deeper skin affections.

DR. EVERETT S. LAIN, Oklahoma City: Two attempts to treat hypertrichosis with the roentgen ray were failures. As regards epitheliomas of the face, I have long since been convinced that the radiotherapist who studies his technic carefully and applies the more accurate methods of today

can accomplish a higher percentage of cures and do it with far better cosmetic and other essential results than by surgery or any other method of treatment. I am coming to believe that even in epitheliomas of the lower lip, where surgery has so long declared an advantage, radiotherapy is even here the method of first choice in all classes of cases. I realize that this statement sounds rather radical to a surgeon and perhaps to some dermatologists. I have tried to make a comparative study of cures as reported by the larger surgical clinics with

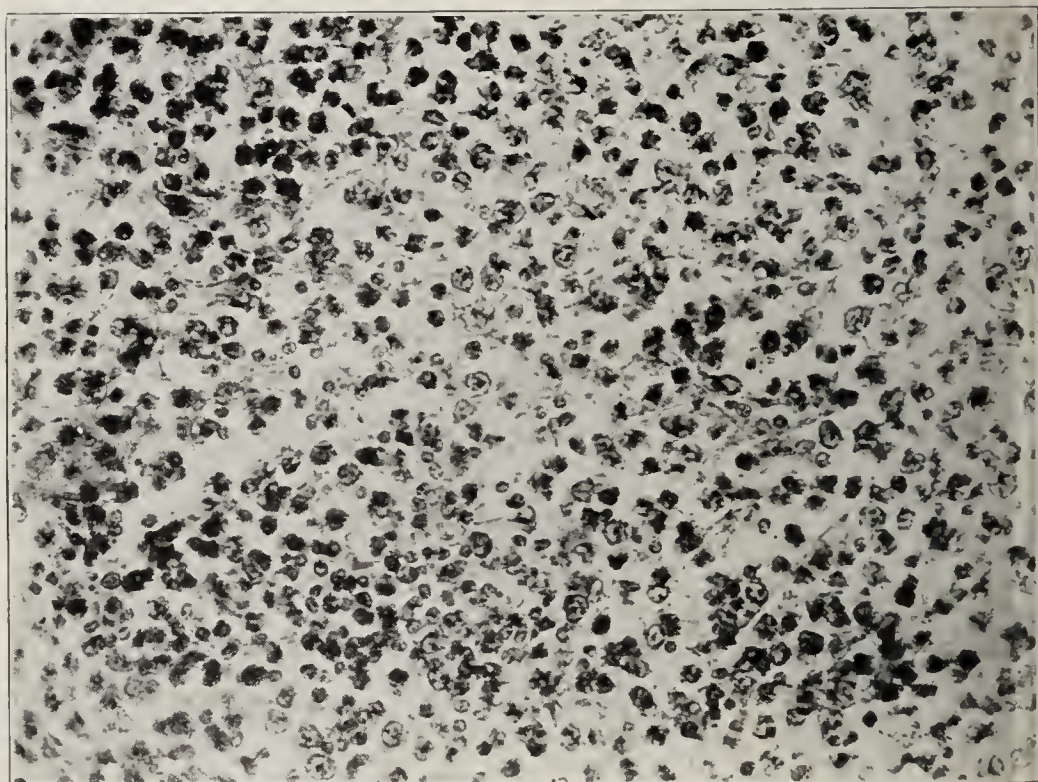


Fig. 3.—Section, round-cell sarcoma.

those of radiotherapists. I am convinced that radiotherapy gives a higher percentage of cures, and also gives the patient a much better appearance and mobility of the lip. I am also convinced that in malignant growths of the mouth the use of radium, properly applied by treating all of the communicating and adjacent lymph glands, will accomplish a higher percentage of cures and with far more comfort to the patient than surgery. I was interested in Dr. Sutton's paper on epitheliomas of the nose. I, too, have found this a very common location, perhaps second only to epitheliomas of the lower lip. I have followed methods of treatment similar to those used by Dr. Sutton, except that by placing a finger in the nose, I first try to determine whether the cartilage is involved. If it is, I give a heavily screened dose of roentgen rays; then with caustic soda and a curet I try to remove all dead cartilaginous material and follow with radiotherapy.

DR. C. J. BROEMAN, Cincinnati: I am sure that after more dermatologists use radium in sufficient quantity we shall begin to get better results and that we cannot do without radium in practicing dermatology on an extensive scale. A great number of dermatoses can be treated by other methods, but after all, radium, in some cases at least, is the method of choice. In regard to epithelioma of the nose and different parts of the face, instead of using an unscreened applicator I usually use a 10 mg. plaque, screened with 0.3 mg. of brass, then rubber tissue, and leave it in place for four hours, either at one sitting or for two hours on successive days. Following this I give an unscreened dose of radium for two hours. The last two hours of radium, in my opinion, act the same as the caustic or curet. If you use only the unscreened radium you do not penetrate the growth so well and you get more scarring. I noticed this extensive and marked scarring in a case in which they had used emanation needles with no screen, for a superficial epithelioma. I think this is an important point, especially when treating a woman who is particular about her appearance. Epithelioma of the lip is a serious and often fatal condition, especially if the disease is not treated properly in the beginning. It should not be treated with radium unless we have a sufficient quantity, at least 50 mg. An important point that was not mentioned in the paper of Dr. Soiland is the location, whether the epithelioma is on the vermilion border or on the true mucous membrane or at the junction of the two. If it is located on either of the last two mentioned localities, it is a more malignant form of growth, which is prone to metastasize, and we must treat with a massive dose in the beginning. These cases do not respond well to roentgenotherapy. Irradiation of the glands of the neck before we treat the lip may be of assistance; but, unless we treat the lip within a short time, the growth may spread and not respond to radium. In regard to using radium after the roentgen rays have been used: One of my patients, with epithelioma of the lower lip, had extensive roentgen-ray treatment by one of our best roentgenologists. The lesion failed to respond to the rays, and the case was referred to me for radium treatment. Radium also had no effect whatever on the progress of the disease. I had another case of extensive epithelioma of the abdominal wall that had thorough roentgenotherapy without any improvement. Two years later I treated this patient with deep radium exposures with a very favorable result. This, I think, illustrates quite clearly that radium is of doubtful value in a case recently treated with the roentgen ray.

DR. ALBERT SOILAND, Los Angeles: Concerning filters, I do not believe that the average medical man appreciates that the effect of irradiation, irrespective of the source, varies only in proportion to its wave length. If you apply rays of the same wave length or frequency to any part of the body, you will get the same result; so that when you say that radium will do this and roentgen rays will do that, that is not using the proper term. They will both do the same thing if they are used in the same amount. The important point is that you can apply the radium directly into the growth by embedding applicators and perhaps get 100 per cent. efficiency. In applying irradiation from the outside, you get only a small part, perhaps only 20 or 25 per cent. efficiency. The filtering of the ray is to avoid as much as possible the secondary disturbances on the skin. We do not need so

much on the skin, but we want to go below, so we filter off those rays and get as much underneath as possible. We believe that this is the proper thing to do, and it is in line with the conclusions reached by practically all authorities on this subject.

DR. RICHARD L. SUTTON, Kansas City, Mo.: With regard to split doses of radium (short exposures, repeated at intervals of a few hours or a day or so), I was much surprised at the opinions of Drs. Pusey, Morrow and Montgomery during the discussion of Dr. Morrow's paper on the treatment of cancer a few days ago. The fact that all three gentlemen prefer to employ this agent in this way would indicate that it is the method of preference in many cases. I agree with Dr. Soiland. Patients do not come to us to "buy radium"; they come in search of intelligent treatment that will ultimately lead to a cure. To paraphrase Dr. Pusey, not only should one "screen his radium with brains," but the entire plan of treatment should be outlined by the careful exercise of that same organ.

DR. SAMUEL E. SWEITZER, Minneapolis: I want to emphasize two points in Dr. Sutton's paper: One is that in epithelioma of the nose, if the bone is involved, neither the roentgen rays nor radium will effect a cure, and these cases usually go on to the involvement of the cavities. Also, the fact that in epithelioma of the nose located in the lower portion of the nose, around the alae, the glands are quite deep there and I have had many more recurrences in that locality than on any other portion of the face. It is practically the only portion of the face where I have noted recurrences, and that is because the growth has progressed down into the glands. I now warn these patients that within a year or so they will probably have recurrences, and that they must come back for treatment. In our own case the only reason for reporting it was that it was an unusual case which I saw with a surgeon and that accounted for the surgical procedure I related. I would have treated it a little differently myself.

AN ANALYSIS OF GASTRO-ENTEROSTOMY AND ITS FAILURES*

C. A. ROEDER, M.D.

OMAHA

The monotonous dispute between the surgeon and the internist relative to the treatment of chronic ulcer without obstruction, exemplified by the former's empiric advocacy of an operation for all ulcers and the latter's universal condemnation of such operations, has developed so great an attitude of offense and defense concerning the respective specialties that the patient still remains the party of the third part. The surgeon's lack of confidence in nonsurgical treatment is due to the fact that he knows that a great many ulcers reported as having been successfully treated were not ulcers, but were extragastric lesions producing a symptomatology of marked similarity. His adverse attitude toward medical treatment is intensified by his knowledge of the fact that the symptomatology of chronic ulcer is very frequently intermittent, and that consequently there is a possibility of such an intermission being regarded as a cure. The internist's lack of confidence in surgery is due to the fact that about 25 per cent. of gastro-enterostomies are failures, and failures of such magnitude that the cure is worse than the disease. The internist's opposition is further increased by the fact that the surgeon has never been able to offer an anatomic and physiologic explanation of successful

* From the Department of Surgery, Nebraska University School of Medicine.

* Read before the alumni meeting of the resident and ex-resident surgeons of the Mayo Clinic, held at Rochester, Minn., May 18 and 19, 1921.

and unsuccessful operations, thereby causing greater significance and importance to be attached to the 25 per cent. of failures in gastro-enterostomy than to the 75 per cent. of successes, so that the former arouse a disproportionate amount of comment, whereas but little is heard about the latter.

This uncompromising, as well as unprogressive, attitude on both sides might be greatly alleviated if the internist combined with his philosophic physiology a study of the living abdomen; which additional knowledge can be obtained only by his constant presence at the operating table, where, by the way, he is always welcome. It is, however, no less essential that the surgeon modify his egotistic complacency and obtain a better knowledge of the ever varying anatomy in order that he may acquire a better physiologic conception of the successful and unsuccessful results, and, furthermore, that he may determine, as far as possible beforehand, in what type of patient there will almost invariably be an unsuccessful result. He will then be able to state to the internist, who rightly demands it, what cases contraindicate a gastro-enterostomy; or, if the operation is essential, he will be able so to vary his technic that his results are greatly improved. If the surgeon can eliminate his 25 per cent. of failures, the *bête noire* of gastric surgery, and if the internist can improve his diagnostic acumen relative to chronic ulcer, both increasing their knowledge of the pathology of an ulcer, of the significance of its regional occurrence, and of the meaning of its active, inactive and so-called cured state, they would display such cooperation that the patient would actually become that which he has always considered himself, the party of the first part.

The surgeon realizes that a gastro-enterostomy attempts only a new physiologic rôle in a most unphysiologic manner; but the remarkable degree of success for ulcers beyond a certain size indicates that the procedure possesses sufficient merit to command a

further study of its failures in order to increase the percentage of its success, thereby preserving it as one of the most satisfactory procedures, if not the most satisfactory one, for the chronic ulcer which cannot be treated by excision only.

An analysis of gastro-enterostomy and its failures requires a study of its normal and abnormal anatomy and physiology. The anatomy, of primary importance, has received relatively scant attention, too much reliance having been placed on the roentgen ray and stomach tube, which are methods that give us important information of merely a very few of the troublesome anastomoses. The anatomy presents itself as the primary etiologic factor in the frequency of ulcers occurring in this area; it prohibits, with all ulcers beyond a certain size, a segmental resection with a restitution to normal continuity, allowing only some form of a gastro-enterostomy, with or without a resection of the stomach; and, therefore, it seems the most important factor in successful and unsuccessful operations. I am offering this paper mostly on an anatomic study, fully realizing, nevertheless, that our ultimate results are based on physiology.

ANATOMY AND PHYSIOLOGY OF THE STOMACH AND DUODENUM

The marked excursion of the stomach depends on its physiologic de-

mands and the position of the person. When the stomach is empty, it assumes a more nearly transverse position; when it is filled and the person is standing, it assumes a more nearly vertical position, because of the descent of the pyloric region. Although a gastro-enterostomy is performed in the former position, it is expected to function in the latter. From a motile and secretory standpoint, the stomach surpasses any other portion of the intestine, and its lesser curvature might be termed the central nervous system of the organ, having contracted to about one-fourth the length of the greater, leaving it with a relatively greater function from a motile standpoint. This is



Fig. 1.—Transperitoneal view of the two types of duodenum, resembling the letters U and C. The relation of the stomach and the base of the transverse mesocolon to the flexure should be noted; also the position of the ligament of Treitz (dotted line), which is never seen at the operation unless the peritoneum is reflected.

also exemplified by the "canalis gastricus" (magenstrasse¹), formed by the contraction of the lesser curvature in such a way that it controls the direction of food as it enters the stomach. The motile function of the stomach, which requires coordination between the lesser and greater curvatures, represents a proper balance between retention and propulsion of its contents, equaling in time the same function in the entire small intestine, both segments retaining food for from four to six hours.

The duodenum as a whole enjoys very little excursion, being more or less fixed to the posterior abdominal wall, particularly at its proximal and distal portions. From my own dissections in the cadaver and observations in the patient, I have noticed that it falls generally into two types, resembling the letters U and C, with occasional modifications. In the former, the jejunal flexure generally terminates above the transverse mesocolon; in the latter, generally on a line with the mesocolon's attachment to the posterior abdominal wall (Fig. 1). The flexure is formed by fixation and suspension through the ligament of Treitz, which is a prolongation downward of fascial and muscular tissue from the right crus of the diaphragm. This ligament, which is completely retroperitoneal, is never seen during an operation unless dissected free, and is frequently mistaken for the mesojejunal fold, which suspends the jejunum to the transverse mesocolon. It determines the angulation and the height of the duodenojejunal flexure, which must be given exceedingly careful consideration before the performance of a gastro-enterostomy, and afterward also, when accompanied by troublesome symptoms.

The function of the duodenum represents only a rôle of hypermotility, of such speed that it may be likened to a rapid transit duct. An obstruction of the stomach as compared with one of the duodenum is of far less significance, since one of the stomach's normal functions is retention. As the duodenum possesses a hypermotility unequalled in speed by any other portion of the gastro-intestinal tract, it withstands not the slightest degree of obstruction. We have these examples demonstrated clinically.

COMPARATIVE PHYSIOLOGY OF GASTRIC AND DUODENAL ULCER

We have only two types of obstruction in the gastro-intestinal tract: spastic and organic.² The former is represented by duodenal and gastric ulcer without scar tissue obstruction, the deformed cap and incisura resulting from a spasm in the segment containing the ulcer (defect). Coordination of peristalsis is interrupted, which in the duodenum is of far less significance than in the stomach, as has been proved clinically and by a study of the physiology. These spasms, deformed cap and incisura, are Nature's waves of

compensation, owing to the ulcer's having destroyed a portion of muscular tissue in the same segment. With both types of obstruction in any portion of the gastro-intestinal tract, we have, as a result, hypersecretions and hyperperistalsis in the segments above, which also are Nature's method of overcoming delay. This is exemplified by gastric hypersecretions and hypermotility with ulcers of the duodenum and stomach.

The variations in the symptomatology and in the postoperative success which may result after the same procedure indicate that, in addition to their different locations, gastric and duodenal ulcers are very different conditions, which suggest different methods of surgical treatment. The two, however, have one thing in common in that their symptomatology is produced primarily through an interference in motility with the stomach. In duodenal ulcer, the obstructive spasm is outside the stomach, leaving the gastric motility, although hyperactive, in perfect coordination. In gastric ulcer, particularly along the lesser curvature or thereabout, the obstructive spasm is inside the stomach, producing an incoordination

of gastric motility. This incoordination with gastric ulcer, as demonstrated by the inactive niche and hyperactive incisura, most probably accounts for the greater distress, greater delay and small postoperative success, as compared with the same factors of duodenal ulcer. With gastric ulcer, the stomach bears the pathology as well as the symptomatology; but with duodenal ulcer, it bears only the symptomatology.

These conclusions are drawn from the fact that the principal point in the diagnosis of a lesion in any por-

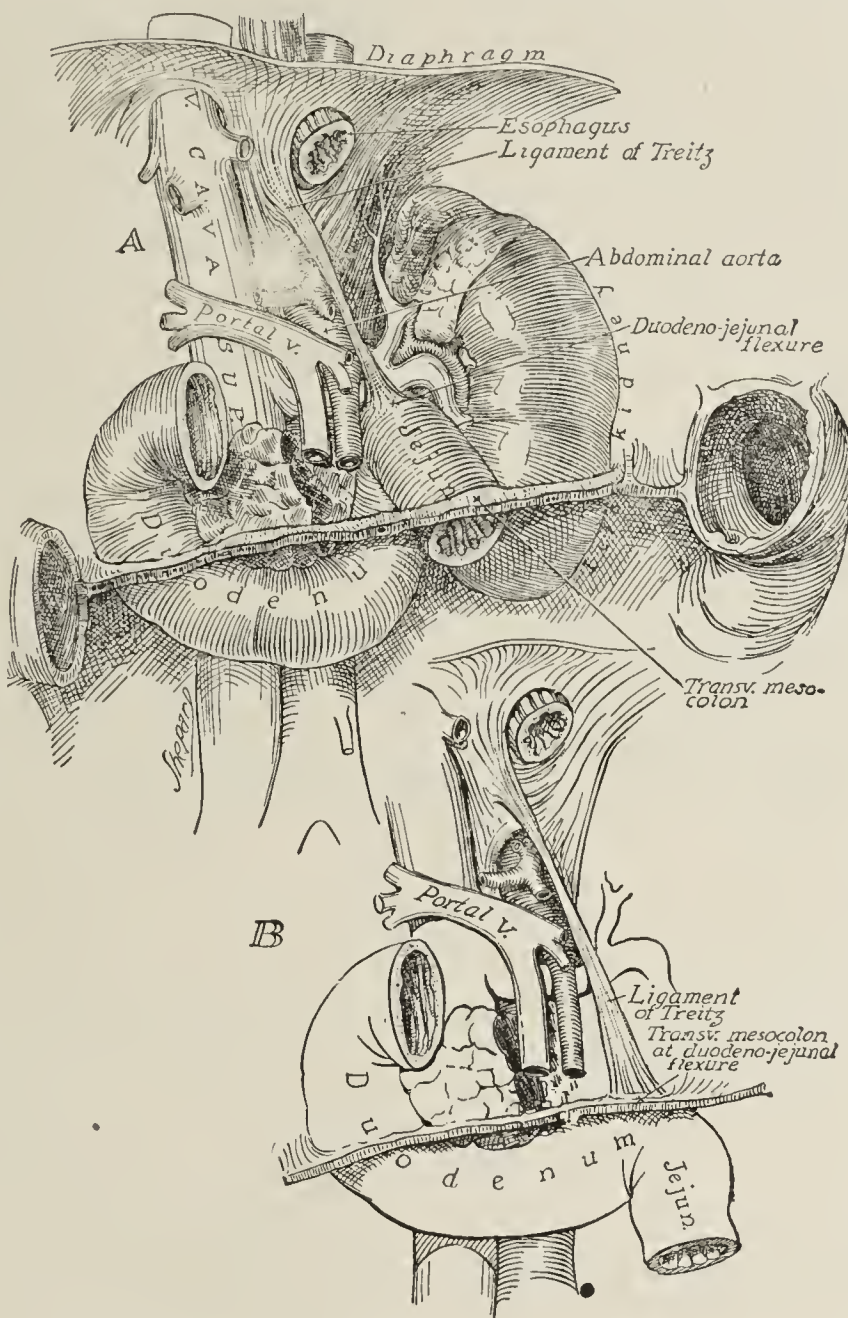


Fig. 2.—Schematic representations of the duodenum and its retroperitoneal relationship: A represents the U type of duodenum with the ligament of Treitz elevating the duodenojejunal flexure above the transverse mesocolon; B represents the C type of duodenum with the ligament of Treitz of greater length allowing the flexure to lie just below the transverse mesocolon. Compare the angulation of the two flexures.

1. Waldeyer, W.: Die Magenstrasse, Sitzungsber. d. k. preuss. Akad. d. Wissensch. Gesamtsetz. 29: 595-606 (June 4) 1908.

2. Ileus due to sepsis, atrophy of muscular tissue and lesions in the central nervous system are not true types of obstruction.

tion of the gastro-intestinal tract depends primarily on an interference with motility. This fact is further corroborated by the elusiveness of ulcers in the cardiac pouch, owing to the fact that this area is the most inactive portion of the gastro-intestinal tract; apparently it is beyond the influence of the lesser curvature.

ANATOMY OF A GASTRO-ENTEROSTOMY

If the anatomy of a gastro-enterostomy remained as we left it following the operation, and if the duodenum and the beginning jejunum were on a free mesentery, as in the dog, resembling the textbook illustrations of the no loop operation, I dare say that our results would meet with greater success. In man, however, the terminal duodenum and the beginning jejunum cannot approach the anastomosis directly because of: (1) the superior mesenteric vessels' passing anteriorly; (2) the fixation with varying angulations of the flexure by the ligament of Treitz, and (3) the frequent restriction of the beginning jejunum by the base of the mesocolon. We must also not fail to take into consideration the bend of the duodenum over the vertebral column.

The more or less frequent dilatation of the entire duodenum without the presence of a gastro-enterostomy indicates that this segment of the small intestine is so placed that its anatomy is the etiologic factor and requires a careful study before applying the anastomosis. Particularly should be noted the presence of the U-shaped duodenum where the flexure is found above the transverse mesocolon, requiring a sharp turn downward (caudad) in order to have the jejunum enter the greater cavity. This type of duodenum, more frequently in males, has two potential points of angulation which the C type has not: (1) the flexure, and (2) the opening through the mesocolon. In addition, this higher lying flexure is so placed that the stomach after food intake may compress it sufficiently against the vertebral column or posterior wall to bring about the varying degrees of duodenal dilatation, with or without symptoms. These areas of angulation and compression will generally be increased after a gastro-enterostomy.

It seems almost needless to state that if the U type duodenum is found, one should not expect the same degree of success as when the flexure ends below or on a level with the transverse mesocolon. In my experience, it has so happened that nearly all dilated duodenum have been found, with or without the presence of a gastro-enterostomy, only when the flexure lay above the mesocolon. If dilatation is found previous to the performance of the operation, it is very likely to be accentuated afterward, and should be relieved as much as possible, which circumstance can only add success to the operation. It is these angulations and restrictions, acting as potential points of obstruction, which may prevent a greater degree of success following this anastomosis, as they are so readily activated by traction when the stomach is attached to the jejunum. I am not laying so much stress on the possible angulations of the jejunum at

both ends of the anastomosis with a relatively long loop, as this condition has been described and emphasized frequently elsewhere. These angulations have to a large extent, but not entirely, disappeared with the no loop technic.

The anastomosis cannot remain at the lowest point on an empty or full stomach because even after a careful attachment of the transverse mesocolon to the stomach, the posterior wall retracts upward and backward after the operation and the distal half hangs below it after ingestion of food. Dilated stomachs reduce their lumen after the anastomosis, which fact further changes the anatomy. The same fractional drainage of the gastric secretions might be obtained by attaching the new opening in any portion of the lower two thirds of the stomach, provided the duodenojejunal loop was not obstructed. The principal point in performing a gastro-enterostomy is the free and complete drainage of all duodenal contents, keeping in mind that if such drainage is accomplished, the stomach is automatically taken care of. This reduces the stomach to a point of secondary importance in technic,

relative to drainage, since the slightest failure of this rapid and complete drainage of the duodenum brings on the symptoms of troublesome gastro-enterostomies. The operation of W. J. Mayo, the most deservedly popular today, accomplishes its good results mainly through its free drainage of the duodenum. The majority of surgeons now attach the edge of the opening through the transverse mesocolon to the stomach, several inches above the anastomosis,³ which method they feel not only prevents a hernia into the lesser peritoneal cavity, but also tends to form a funnel-shaped depression in the stomach to facilitate drainage.

I think this attachment of the mesocolon, which cannot be done too thoroughly and carefully, serves another and even greater purpose by immobilizing this portion of the stomach sufficiently to prevent angulations and traction on the duodenojejunal loop, thus adding greatly to the success of the operation. It is a point in technic demanding the greatest emphasis, as I feel it is one too generally overlooked, and next to the free drainage of the duodenum, is the most important procedure in the operation.

PHYSIOLOGY OF A GASTRO-ENTEROSTOMY

We still have with us the predominating thought that a gastro-enterostomy produces healing of an ulcer by short-circuiting secretions and food, and by introducing duodenal contents into the stomach as antacids. Duodenal and gastric ulcers occur in a mucosa which has been born and raised in an acid environment, and one would expect a normal environment to be the best therapeutic agent. Moderate acidity, therefore, might be more desirable than alkalinity, if the reaction of stomach contents has any direct therapeutic influence, which I am quite sure it has not, in either a normal

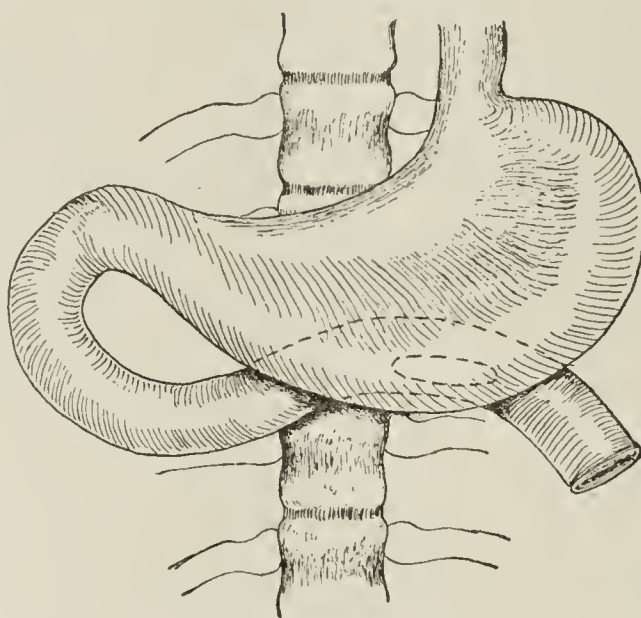


Fig. 3.—Posterior no loop gastro-enterostomy, which can be performed only in an animal having the duodenum on a free mesentery, which does not exist in man.

3. The attachment of the mesocolon to the stomach well above the anastomosis, as far as I was able to determine, was first advocated by the Mayos. Priority for the attachment of the mesocolon to the anastomosis, I could not determine.

acid or an alkaline state. A gastro-enterostomy generally reduces the hyperacidity to normal or thereabout; and when it is followed by a complete absence of acids, our results are not so successful. The ulcer segment first becomes spastic, thereby producing hypersecretions above to overcome delay; the hypersecretions in turn aggravate the spasm, thus producing a vicious circle, which a gastro-enterostomy breaks. This vicious circle produces a marked spasm in the ulcer segment resulting in a local anemia and edema, a condition which, in the presence of surrounding scar tissue, prevents healing or inactivation.

It seems, therefore, that the acidity has only an indirect influence, but an important one. The ulcer, however, does not heal, the reason being the same as that which caused the ulcer, namely, a lack of blood supply, which can return only through a relaxation of this segmental spasm. Actual healing in the sense of a normal union of each coat, with the disappearance of all scar tissue, must be unusual following a gastro-enterostomy or any type of medical treatment. We find these defects, although inactivated, later during exploration for other pathologic conditions. By an inactivated ulcer, I mean one with very little scar tissue and edema surrounding it, and with the symptomatology practically, if not entirely, absent.

Relative to the short-circuiting of food, we know that the greater portion soon after the operation passes through the natural channels, pylorus and duodenum. This must be expected, as the stomach's primitive functions are a retention of food by the pylorus and a propulsion of its contents through it. This is greatly desired with or without a gastro-enterostomy in order to bring about the intragastric, as well as the more important intestinal, digestion below. The success of a gastro-enterostomy for ulcer, when scar tissue or edema is not producing obstruction, is indicated by the passage of stomach contents through the pylorus and duodenum, as this passage signifies that the spasm in the ulcer segment has relaxed and that the stomach has resumed its normal motility; the operation should in no way be considered a short circuit for food.

The so-called healing of a chronic ulcer is brought about generally by substituting less scar tissue, without edema. This substitution results in an area which will return to a more active condition (ulceration) on the slightest irritation or infection. Therefore, in order to keep this area in its quiescent, but rarely normal, state, a gastro-enterostomy must constantly perform its new rôle: a vent for periodic acidity, which demands a proper coordination in gastric musculature, as important with a gastro-enterostomy as without it. The successful results following a Billroth or Polya operation indicate that whenever incoordination cannot be overcome by a gastro-enterostomy, which is true in most

instances with lesser curvature ulcers, it is better to resect the most active portion of the stomach, converting it into an inactive pouch.

In duodenal ulcer, the descent of the distal portion of the stomach is lessened, owing to the decreased elasticity of the duodenum resulting from inflammatory tissue. This holds the pylorus higher, resulting in less traction on the proximal loop, which may account partly for the greater degree of success with duodenal ulcer. The decreased excursion downward of the prepylorus with duodenal ulcer is so characteristic that I offer it as a diagnostic probability.

COMPLICATIONS FOLLOWING A GASTRO-ENTEROSTOMY

Following their operations, from about 5 to 10 per cent. of those who have undergone a gastro-enterostomy for duodenal ulcer, and from about 20 to 30 per cent. of those who have had a similar operation for gastric ulcer well above the pylorus seek further relief, particularly avoiding the surgeon. This state of affairs, which has naturally led many internists to assume that the operation has led to a far greater

degree of failure than is actually the case, is their principal argument in favor of medical treatment for all chronic ulcers.

Since the adoption of the technic of the Mayos and Moynihan, the operation has met with far greater success than formerly, and these procedures seem almost beyond further improvement. However, there still occur occasionally a few complications which

I wish to present here and which I shall attempt to analyze.

1. *Attacks of Chronic Obstruction of the Duodenum.*—Not infrequently these attacks follow a proper technic, coming on as late as ten years afterward, but generally occurring within a year after the operation. Such an attack is the most frequent complication and is conspicuous for the reason that very little has been written about it, as the acute attacks which come immediately after the operation receive more consideration. These chronic attacks, accentuated by small amounts of food, are characterized by spells of indefinite upper abdominal distress, with or without vomiting, and often with a persistence of the previous ulcer symptoms. The vomitus is generally of duodenal contents, bile, etc., only occasionally of food. The attacks do not become dangerously acute; but frequently they cause marked debility because of the fact that they are due to a partial obstruction of the duodenum. With nearly all gastro-enterostomies which are regarded as successful, this syndrome can be brought on by taking large amounts of food, which produce an obstruction of the proximal loop, particularly at the flexure, and possibly a dilatation of the

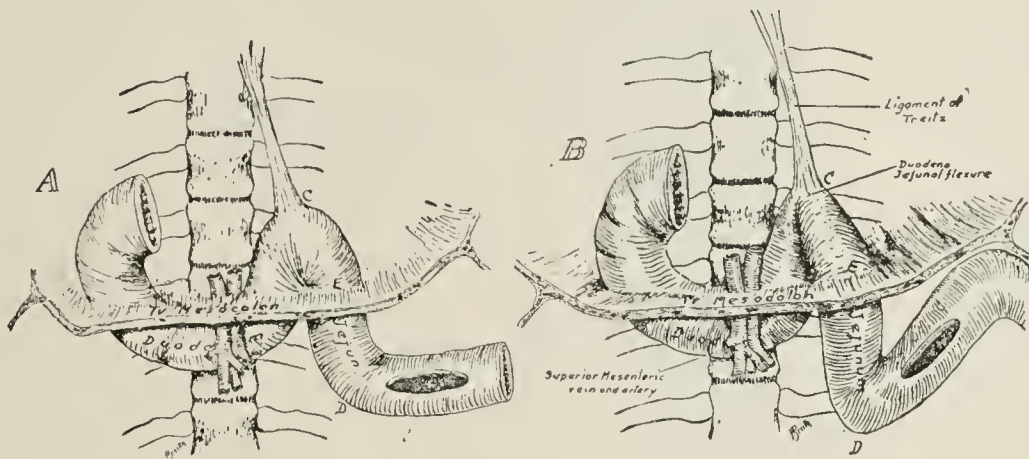


Fig. 4.—A, arrangement of the jejunal loop during the performance of a gastro-enterostomy with the U type of duodenum. Potential points of angulation are at C, D and E. The high flexure C is also subjected to pressure by a filled stomach. B, arrangement of the jejunal loop with the U type of duodenum after the stomach is filled, the anastomosis is slanting downward to the right, acutely angulating the flexure at C and the jejunum at D; pressure in the stomach further angulates the flexure, the jejunum is also angulated as it passes through the bare of the mesocolon at E by excursions of the stomach in all directions but downward. These angulations are prevented to a certain extent by attaching the mesocolon to the stomach.

anastomosis to the extent that the openings from the jejunum into the anastomosis are "stretched tight."

The duodenal contents are obstructed at one of three places: (1) at the proximal, rarely at the distal, end of the anastomosis; (2) at the base of the mesocolon where the jejunum comes through into the general cavity with the U type of duodenum; (3) with the same type of duodenum at the duodenojejunal flexure formed by the ligament of Treitz. The roentgen ray will generally demonstrate a barium meal flowing freely into the efferent jejunum, but offering very little, if any, information relative to any possible point of obstruction. During an attack, barium rarely enters the duodenum, probably because of a reverse peristalsis. Between the attacks, the roentgen ray demonstrates barium flowing through the anastomosis and also through the pylorus. In other words, a negative roentgen-ray report during or between the attacks is suggestively diagnostic.

A simpler and more accurate method of diagnosis is to have the patient swallow a pint of milk during the attacks, which will be followed in a few minutes by a vomitus of a pint of bile.⁴ The contrast, which is most striking, indicates that the milk flowed freely out of the stomach into the distal jejunum, while the contents of the duodenum, being obstructed at some point up to the anastomosis, were forced back by reverse peristalsis which extended through the stomach.

Not only is the roentgen-ray examination negative; but during the exploration, particularly if it is carried on between attacks, nothing of any diagnostic value can be determined. One might state that two such negative pictures are diagnostic, and, to say the least, most suggestive. During the attacks, the duodenum may be found dilated and extended to one of three points previously mentioned. One patient, with a flexure above the mesocolon and sharply kinked, I relieved completely by dividing the ligament of Treitz. With finger dissection I liberated the intestine for an inch or so on each side.

If one fails completely to find any signs of diagnostic importance, the condition of the old ulcer site should be determined. If a duodenal ulcer has become so small and inactive, it should be resected⁵ and the anastomosis removed. If the ulcer has perfectly healed, there is no further use for the gastro-enter-

ostomy; such a condition I have found particularly true with previously perforating duodenal ulcers. If, however, the duodenum had been previously destroyed beyond hope of repair, or if the original lesion was a gastric ulcer, remaining more or less active with no active or potential point of obstruction determinable in either loop, a resection of the lower third of the stomach is indicated, and a Polya anastomosis substituted.

These attacks of chronic obstruction of the duodenum are very difficult to avoid in a certain small percentage of cases, even with the most acceptable technic, because of a dissimilarity of anatomy in the proximal loop from the anastomosis up to the pylorus, particularly with the U type of duodenum. With the U type of duodenum a certain percentage of these indefinite attacks of upper abdominal distress, with or without vomiting, may be due to the fact that a filled stomach compresses the duodenum against the vertebrae, relief coming as the stomach empties, or, as so frequently noted by patients themselves, by lying on the left side. When the opening through the transverse mesocolon is too near its attachment to the posterior abdominal wall, it may prevent the stomach from moving toward the anterior abdominal wall after taking food, thereby holding it fast against the transverse and ascending duodenum, a theoretical point worth considering.

2. Attacks of Acute Obstruction of the Duodenum.

—These attacks, persisting after lavage, have by no means disappeared entirely with a proper technic, and their occasional occurrence is so acute and serious that the complication is still one to be reckoned with. It is an obstruction at some point in the duodenojejunum up to and including the small intestine just as it leaves the anastomosis.

A previously dilated stomach may contract its lumen more than is anticipated, and the posterior wall which had been pulled downward and forward in order to place it in the clamp may retract to a marked extent upward and backward, both producing angulation at one or both ends of the anastomosis, and also with the U type of duodenum where the jejunum is covered by the base of the transverse mesocolon. These attacks come immediately after the operation, before food can be given to cause a descent and traction from the stomach on the proximal loop; therefore, we would not expect an obstruction at the duodenojejunal flexure even in the high lying type (Fig. 5). If lavage does not relieve, an early exploration is indicated, during

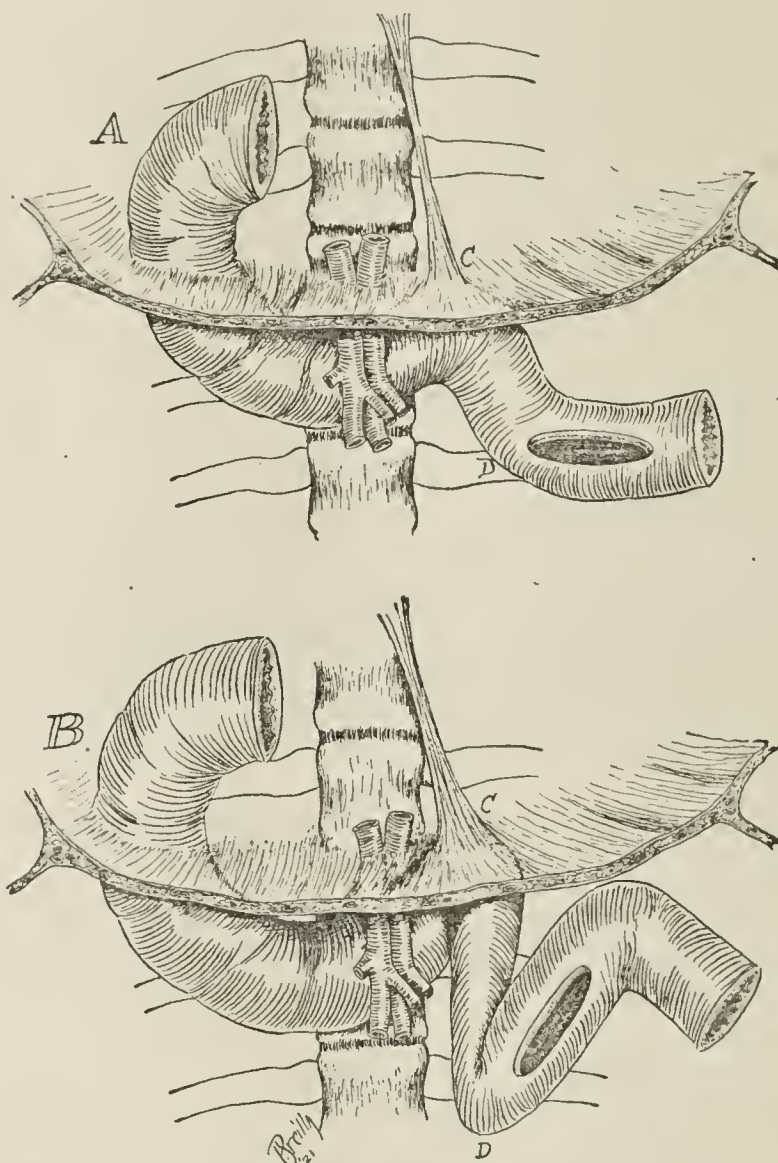


Fig. 5.—A, arrangement of the jejunal loop during the performance of a gastro-enterostomy with the C type of duodenum; the low lying flexure is not so acutely angulated as in the U type; B, arrangement of the jejunal loop after the stomach is filled, resulting in an acute angulation in the jejunum at D and very little if any at the flexure C, owing to its position below the mesocolon. Note that the jejunum is in no way restricted by the base of the mesocolon. The attachment of the mesocolon to the stomach prevents this angulation to a great extent.

4. This diagnostic point was presented to me by Dr. Morris Nielsen, Blair, Neb., who had had this complication after a gastro-enterostomy.

5. Roeder, C. A.: Surgical Considerations of Gastric and Duodenal Ulcers, J. A. M. A. 76: 1150 (April 23) 1920.

which the most frequent abnormality found is the retraction of the stomach upward, pulling as well as kinking the proximal and distal jejunal segments through the opening in the mesocolon.

A replacement of the edge of the transverse mesocolon higher up on the stomach is indicated, allowing a much freer approach and departure of the jejunum at the anastomosis. In the type of obstruction at the jejunal opening through the base of the transverse mesocolon, the diameter of this passageway should be enlarged,⁶ and with finger dissection the intestine liberated.

The characteristic feature of these cases of acute and chronic vomiting following a gastro-enterostomy is a more or less fixed duodenojejunum (proximal loop) at one or more points, which should always be liberated as much as possible if the anastomosis is not to be removed. Entero-anastomosis is not advisable as there is not a large enough loop with the standard technic.

3. Hemorrhage of Varying Degrees.—This is a complication demanding an improvement in the technic of suturing. Bleeding from the suture line can absolutely be prevented by the use of a plain, running, close-biting suture, which has proved very satisfactory to me for a number of years. Bleeding from the previous ulcer rarely, if ever, occurs if the ulcer has not bled before. With a history of bleeding, Balfour's cautery puncture or an ulcer resection is indicated, with very careful layer closure. Such hemorrhages seem almost inexcusable since there are such simple methods of preventing them.

4. Gastrojejunal Ulcer.—The alleviation of this complication is generally unparalleled in surgical procedures. It is found in the region of previous suturing and where clamps have been used. Since this complication occurs only following the operation, it is a matter which suggests further improvement of our technic. I shall not consider it further in this paper, as I am reporting the results of some experimental work relative to it in another communication.

834 Brandeis Theater Building.

AN OPERATION FOR VALGUS FEET

PERCY WILLIARD ROBERTS, M.D.

NEW YORK

For that type of valgus deformity of the foot commonly seen as a sequel of poliomyelitis, in which the tibialis anticus is powerless and the common extensor and peroneus muscles are active, with or without shortening of the Achilles tendon, I have, for the last year and a half, been using an operation yielding results so satisfactory that it seems worth recording.

The procedure may be described as the reinforcement of the tibialis anticus by the common extensor, thus reestablishing the muscle balance of the foot. The original attempt to correct a valgus deformity in this way was the result of the belief, since proved beyond doubt to be correct, that the tibialis anticus, though powerless, was not necessarily paralyzed. This muscle is supplied by the same nerve that stimulates the common extensor and the flexor longus hallucis, and while it is conceivable that the latter two muscles might

regain their power while the cells in the cord which control the tibialis were damaged beyond repair, it did not seem likely that this would frequently occur. Judging by the fact that a few months after operation contractions of the tibialis can easily be demonstrated above the site of the implantation of the common extensor, it is logical to assume that this muscle is seldom completely paralyzed when the common extensor and the extensor hallucis are active.

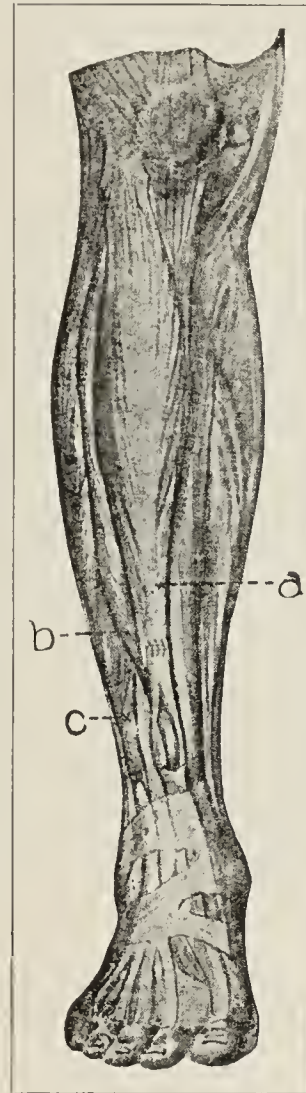
The impotence of the tibialis in the type of cases under discussion may be explained on the theory that after an attack of poliomyelitis the muscles on the fibular side of the leg are first to recover and that the tension they exert is sufficient to stretch the tendon of

the tibialis to a point at which the muscle can no longer function, and the atrophy of disuse follows as a natural phenomenon. At any rate, the muscle regains a certain amount of power when its proper mechanical relations are reestablished and its tendon does not stretch after reinforcement by the common extensor as it would be likely to do if a complete paralysis existed.

OPERATIVE TECHNIC

The operation itself is relatively simple. Ultimate success depends on attention to certain details of preoperative observation and after-treatment:

As a preliminary step, it is necessary, after the patient is under the anesthetic, to ascertain whether the Achilles tendon is of normal length and whether the posterior part of the foot can be easily inverted. If resistance is encountered, the tendon should be lengthened, preferably by an open incision, and the fibrous tissues on the external aspect of the ankle joint divided subcutaneously until the normal lateral mobility between the astragalus and the os calcis occurs. An incision is then made on the fibular side of the leg, extending from the middle third down to the ankle joint, as far as, or through, the upper third of the annular ligament. Division of the fascia exposes the anterior muscles and tendons. The tendon of the common extensor is then divided at the lower angle of the wound, and the muscle freed from its fibular



Roberts' operation for paralytic pes valgus. The tibialis anticus (a) is shortened by dividing the muscle at its junction with the tendon, overlapping the cut ends and suturing. The tendon of the extensor longus digitorum (b) is severed and woven into the tendon of the tibialis anticus; c, peroneus tertius. Drawing by Miss Emily Andrews.

attachment for a considerable distance upward. The distal end of the tendon may be sutured to the peroneus tertius; but this is not absolutely necessary, as an attachment already exists which experience proves is sufficient. An assistant holds the foot in varus and slight dorsiflexion while the operator picks up the elongated tibialis anticus, severs it at the junction of the muscle fibers and the tendon, overlaps it until it becomes taut, and sutures it with chromic gut. With a small knife, two longitudinal slits are then made in the tendon, a little below the previous suture and about half an inch apart. The proximal end of the tendon of the common extensor is then passed through the upper slit from below upward, then through the lower slit from above downward, and sutured in this position with chromic gut. If the annular

6. Roeder, C. A.: Gastro-Enterostomy, J. A. M. A. 69: 1320 (Oct. 20) 1917.

ligament has been partially divided, it is sutured. The muscle sheath is united only at the upper half of the incision. The subcutaneous fat is approximated with catgut throughout its entire length, thus forming a suitable covering over the spliced tendons. The skin is closed with catgut, and a plaster cast is applied from the toes to the knee, with the foot in varus and slight dorsiflexion.

The cast is allowed to remain on three weeks, when it is replaced by a removable posterior splint which still holds the foot in varus. This is taken off twice a day, and the foot is exercised in the motions of adduction and dorsiflexion. At the end of three weeks more, the splint is permanently removed, and the patient is allowed to walk in a shoe, the inner border of the sole of which has been raised one-fourth inch. This is worn six or eight weeks, during which time the patient should never be allowed to stand on the foot without a shoe on. At the end of three or four months, the reinforced muscle is usually strong enough to resume its ordinary duties and will in the average case continue to gain in power.

COMMENT

To tabulate the results of the forty cases in which this operation has thus far been performed would only be an expression of personal opinion; therefore, it is sufficient to say that of the very few cases which I classified as failures, there were none in which the patients did not think considerable improvement had been attained. Lack of success may usually be attributed to the selection of cases unsuited for the operation, to failure to lengthen a short heel cord, or to divide contracted tissues on the outer side of the ankle joint, or to insufficient attention to after-treatment. At the Hospital for Ruptured and Crippled, where most of the patients have been operated on, six different surgeons have performed the operation with very little difference in the results.

576 Fifth Avenue.

Clinical Notes, Suggestions, and New Instruments

PUNCTURE WOUND OF THE LEFT VENTRICLE OF THE HEART

FRANK WARNER, M.D., COLUMBUS, OHIO

S. A., aged 24, an Italian, was brought to the Protestant Hospital, Feb. 6, 1919, with a stab wound in the left chest, in the fourth intercostal space, $2\frac{1}{2}$ inches (63 mm.) to the left of the midsternal line. The wound was bleeding freely. The patient was placed under general ether anesthesia immediately and was taken to the operating room, where I made an incision over the site of the puncture, enlarging it. In order to give more room to follow the course of the puncture, I cut through the cartilage of the fourth rib and laid it back on the sternum. A puncture of both the pleura and pericardium was revealed. As the puncture in the pericardium was enlarged, it was seen to be filled with blood, the pressure on which was controlling in a measure the bleeding from the heart wound, a puncture of the left ventricle. The weapon which had been used was a pen knife. After some of the blood filling the pericardium had been cleared out, the wound in the heart was located by the blood issuing from it, and sutured with catgut. This controlled the hemorrhage. The pericardium and pleura were now sutured with the same material, and a rubber drain was inserted, down to the pericardium. As a slight infection followed, the drain was not removed for a few days. The patient made a complete recovery, but it was some weeks before the resulting anemia was overcome, and he had regained his strength.

Not more than thirty minutes elapsed between the time the young man was stabbed and the operation begun, and in

twenty minutes more he was off the operating table. Morphine was then administered hypodermically, and hypodermoclysis, shock enema and glucose proctoclysis, 1,000 c.c., were employed.

10 West Goodale Street.

RESTORATION OF TRICEPS TENDON BY TRANSPLANTATION OF THE PERONEUS LONGUS*

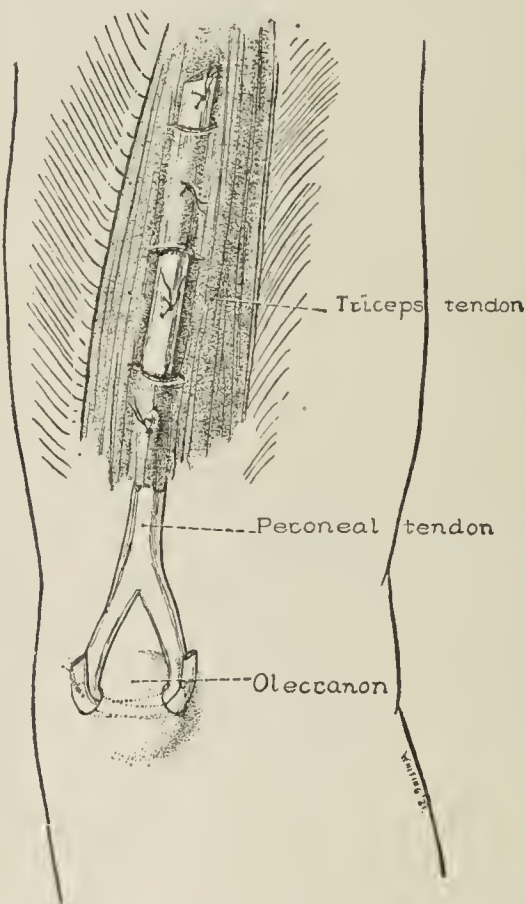
MELVIN S. HENDERSON, M.D., ROCHESTER, MINN.

The two cases herewith reported illustrate the excellent functional result that has followed the transplantation of the peroneus longus tendon as a means of restoring the triceps tendon. The peroneus longus is excellent for this purpose; it is strong, and from 15 to 18 cm. of it may be readily obtained without disabling the foot, which is amply everted by the peroneus brevis and the peroneus tertius. In these cases both patients were unable to extend the forearm, and had to depend on gravity entirely for extension of the elbow.

REPORT OF CASES

CASE 1 (68807).—A young man, aged 17, was first examined in the Mayo Clinic in June, 1912; he came on account of an old ankylosis of the right elbow which had followed a compound fracture sustained two years before. There was some drainage at this time and he was asked to return later.

In March, 1913, a large sequestrum 7.5 cm. long was removed from the medullary cavity of the lower end of the right humerus. The sinus healed, and in February, 1914, an arthroplasty was performed, sufficient flaps being procured from the surrounding tissue to cover the end of the humerus. An excellent result followed the arthroplasty. The patient was able to flex fully, but extension was limited to about a right angle, because the lower end of the triceps with its tendinous portion had sloughed, the patient being forced to depend entirely on gravity.



Free transplant of the peroneus longus tendon to restore triceps tendon, in Case 2.

The patient was seen at intervals, and finally in January, 1921, was operated on for the lack of extension, and for an interstitial neuritis of the right ulnar nerve. The peroneus longus tendon was sewed to what could be found of the triceps tendon, and to the body of the triceps muscle. The distal end of the tendon was split and looped through the olecranon process through a drilled hole. The elbow was forced in the most extreme extension possible, an angle of 160 degrees, and the tendon was sewed in under considerable tension. Dr. A. W. Adson then transferred the ulnar nerve to the front of the elbow. The patient's recovery was uneventful, and he gradually regained the power to extend the arm until now the triceps is working very nicely.

CASE 2 (313465).—A man, aged 29, came for examination, April 23, 1920. He had sustained a fracture of the left olecranon process in February, 1920, which had remained ununited. He had no power of extension, chiefly because the proximal fragment of the olecranon had become adherent to the articular surfaces of the humerus.

* From the Section on Orthopedic Surgery, Mayo Clinic.

At operation, May 17, 1920, it was found necessary to remove part of the olecranon process, which was ankylosed to the humerus. A piece of the peroneus longus tendon was removed from the left leg and interlaced with the triceps muscle. The distal end of the tendon was split and tied into the upper end of the ulna by looping the tendon through a hole drilled through the ulna, and fastening it under tension with silk and chromic catgut. The elbow was placed in extension and the patient is now able to flex and forcibly extend it. The new tendon functions satisfactorily.

A QUANTITATIVE TEST FOR VAGOTONIA: PRELIMINARY REPORT*

MORRIS H. KAHN, M.D., NEW YORK

The usual method of performing ocular pressure in studying its effects on the heart is by digital compression. The amount of pressure that is exerted is variable, and the length of time before an effect takes place is uncertain. The results in different cases are not comparable because of these unstable factors.

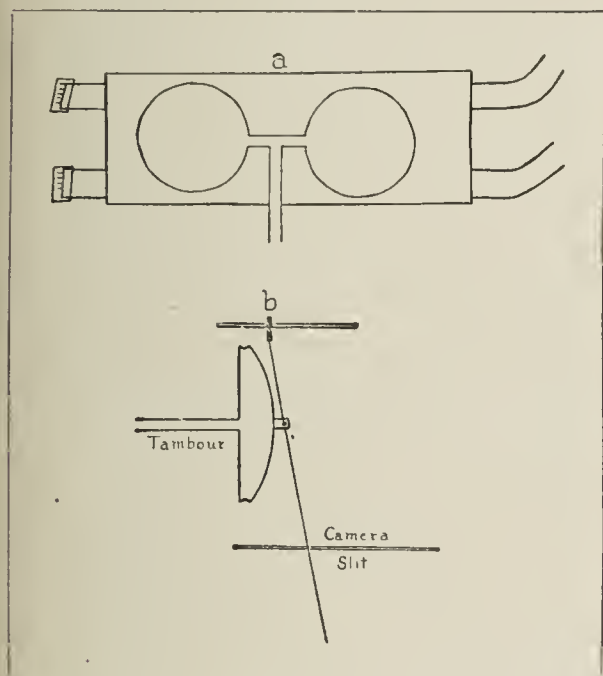


Fig. 1.—Apparatus for recording amount and duration of ocular pressure.

In order to standardize the method of ocular pressure, I have devised a simple apparatus by means of which the amount of pressure exerted and the length of time it has to be maintained will be recorded, until an effect on the heart through reflex vagus action is obtained. This instrument and the method described below serve as an accurate quantitative test for vagotonia.

THE INSTRUMENT, AND METHOD OF USE

The instrument consists of a pair of rubber eye-bags connected by a short rubber tubing (Fig. 1 a). This is enclosed in canvas, which will allow of free expansion, and is applied over the patient's eyes and fastened firmly around the head. It is also attached to a mercury manometer and to a tambour, which can be made to indicate the pressure graphically (Fig. 1 b). Air is introduced into the system, distending the eye parts and producing pressure on the eyeballs. The pulse is taken to note slowing or any change of rate or rhythm.

In my experiments, I photographed the tambour lever on the electrocardiographic film. The amount of ocular pressure is indicated by the position of the lever shadow on the cardiogram. The record of its effect on the heart is obtained simultaneously.

The accompanying tracings were obtained from three cases: one normal (Fig. 2 a), one sympathicotonic (Fig. 2 b), and one vagotonic (Fig. 2 c).

In the normal case, increase of pressure from 100 mm. of

mercury to 260 and 320 gradually reduced the pulse rate from 62 to 60 and 56, respectively.

In the sympathicotonic case, the pulse at first accelerated then fell but little, with great ocular pressure. Thus, with pressure of 290 mm. of mercury, the rate rose from 75 to 86, and with 310 mm. of mercury, it was 81.

In the vagotonic case, increase of pressure caused the pulse rate to drop precipitately from 86 to 58, the latter under 240 mm. of ocular pressure. Under pressure of 250 mm., there occurred a period of sinus block, the sinus rate falling to 42 a minute.

Vagotonia as a clinical condition manifests itself among other symptoms by a prompt slowing of the heart (depression of the sinus node) when ocular pressure is exerted. It occurs as a constitutional condition in persons of vagotonic type. Sympathicotonia, or a relative diminution of vagus tone, on the contrary, shows a resistance to oculocardiac reflex effects. This is especially evident in cases of hyperthyroidism, neurocirculatory asthenia, and in sympathicotonia.

The instrument described herewith can be used at the bedside as a quantitative test for vagotonia.

140 West Sixty-Ninth Street.

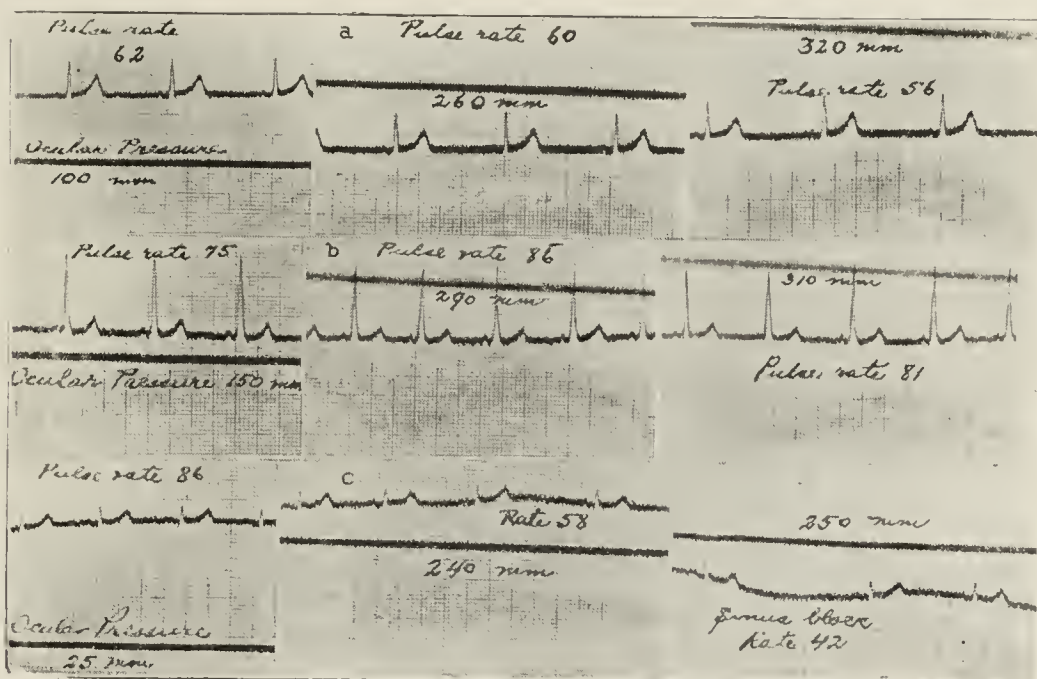


Fig. 2.—Tracings in (a) normal, (b) sympathicotonic and (c) vagotonic cases.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BARIUM SULPHATE (See Barium Sulphate for Roentgen-Ray Work, New and Nonofficial Remedies, 1921, p. 58).

Eastman Barium Sulphate for Roentgenology.—A brand of barium sulphate for Roentgen-Ray Work—N. N. R.

Manufactured by the Eastman Kodak Co., Rochester, N. Y. No U. S. patent or trademark.

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Actions and Uses.—See Potassium Mercuric Iodide (New and Nonofficial Remedies, 1921, p. 198).

Prepared by Davis and Geck, Inc., Brooklyn, N. Y. U. S. patent 1,276,119 (August 20, 1918; expires 1935). U. S. trademark 116,042.

* From the Department of Cardiovascular Diseases, Beth Israel Hospital.

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SATURDAY, NOVEMBER 12, 1921

IODIN AND SIMPLE GOITER

The great significance which small quantities of certain substances may have for the welfare and proper functioning of the organism is clearly exemplified in the case of the thyroid glands. It is today well known that one of the activities of these structures—and presumably their foremost function—is associated with the iodine-containing constituent. Although considerable time has elapsed since, in 1895, the German biochemist E. Baumann first detected the presence of small amounts of iodine in thyroid tissues, it was not until 1914 that, through the researches of E. C. Kendall at the Mayo Foundation, the final stage in the detection of the active complexes was reached in the discovery of thyroxine. According to Plummer,¹ a sustained elevation of basal metabolism follows an intravenous dose of more than 1 mg. of this unique iodine-containing hormone. The average daily exhaustion of thyroxine in the tissues is estimated by Plummer to represent between 0.5 and 1 mg. A daily oral dose of 1.6 mg. of thyroxine will hold the basal metabolism of most thyroidless individuals within the normal limits.

It is, therefore, of obvious interest to learn something of the extent to which iodine occurs in the normal body. Kendall has estimated the amount in the tissues exclusive of the thyroid to be equivalent to that in 14 mg. of thyroxine.¹ There have been many analyses of human thyroids for their iodine content. In most cases, however, the glands examined were derived from persons who have died as a result of disease, so that the tissues secured postmortem have usually not been ideally selected for ascertaining the facts about the physiology of iodine. During the World War, Edgard Zunz² of Brussels had opportunities to collect the glands from healthy soldiers who succumbed to fatal wounds. The recently published data of his analyses show that the thyroids of men aged from 19 to 55 years tend to approximate from 26 to 30 gm., or 1 ounce in weight, of which about one quarter is represented by dry substance. The content of iodine in the Belgian

specimens averaged 0.5 mg. for each gram of fresh tissue, there being little difference between the two lobes of the thyroid in this respect. They would thus contain an average total not exceeding 15 mg. of iodine for each person.

Apparently man's metabolic welfare depends in part on the maintenance of this seemingly insignificant yet actually indispensable store of iodine. The lack of the element is unquestionably the immediate cause of simple goiter, whatever the ultimate factors involved may prove to be. According to Marine, if the iodine store in the thyroid is maintained above 0.1 per cent., no hyperplastic changes, and therefore no goiter, can develop. The significant studies of Marine and Kimball³ show that simple or endemic goiter, which is by no means uncommon in the United States and which may lead to later forms of degeneration or terminal metamorphoses of undeniable seriousness, can be prevented by the administration of from 3 to 5 mg. of iodine twice weekly, over a period of a month, and repeated twice yearly. A considerable mass of statistical data now available both here and abroad corroborate this finding. Is it not time for the medical profession to give special attention to this matter when simple goiter has an incidence of more than 75 per cent. among schoolchildren in certain regions? Marine and Kimball have not neglected to point out the possibilities and their consequences: if the prevention of goiter is good preventive medicine, it is better preventive surgery. With so simple, so rational and so cheap a means of prevention at our command, they add, this human scourge, which has taken its toll in misery, suffering and death throughout all ages, can and should be controlled, if not eliminated.

PROBLEMS OF CARBON MONOXIDE AND OTHER GASES

No technical development of the war was more striking than that of the use of gases. It is not generally realized that almost equally rapid, but more humane advances of knowledge regarding the use of gases and protection against them are occurring now during peace. As we recently pointed out, the increasing use of the gasoline engine in many fields has brought with it new problems regarding the influence of exhaust gases on health. Vehicular tunnels are being generally considered both as substitutes for bridges and as a means of decreasing distances and grades on highways in mountainous districts. In particular, the plan to construct tunnels under the Hudson River between New York and Jersey City for the use principally of motor vehicles has raised several problems which have not previously been sufficiently investigated. Much is known regarding the conditions and the precautions necessary to avoid gas hazards in coal mines and about

1. Plummer, H. S.: Interrelationship of Function of the Thyroid Gland and of Its Active Agent, Thyroxine, in the Tissues of the Body, *J. A. M. A.* **77**: 243 (July 23) 1921.

2. Zunz, Edgard: Recherches sur la composition chimique du corps thyroïde, *Arch. internat. physiol.* **16**: 288 (April) 1921.

3. Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, *J. A. M. A.* **77**: 1068 (Oct. 1) 1921.

gas producer plants. But in such places only healthy men are to be protected. The conditions in such tunnels as those proposed at New York and elsewhere will affect the general public. The amount of traffic will be large; soldiers may march through such tunnels. The ventilation must therefore be ample to prevent not only danger but even slight discomfort. It must be managed in such a fashion as to avoid high wind velocities. The expense of artificial ventilation is likely to be one of the largest single items of maintenance.

Realizing the need of thorough investigation, the commissions of the states of New York and New Jersey contracted with the Bureau of Mines to undertake on their behalf the investigation of the two fundamental problems: (1) the amount and character of the exhaust gas produced by various types and sizes of passenger cars and trucks, and (2) the nature of the toxic substances in exhaust gas and their allowable concentration—that is, the extent to which the gas must be diluted with air to become practically harmless. On such data the ventilation of the tunnel may be intelligently based. The first of these problems has been worked out by Mr. A. C. Fieldner and his associates¹ of the Bureau of Mines at the Experiment Station in Pittsburgh. It has been shown that the percentage of carbon monoxid in exhaust gas may run from 1 or 2 up to 6 or 8, or from 1 to 2 cubic feet of carbon monoxid or more per car per minute, depending largely on the adjustment of the carburetor, a rich and smoky mixture producing much more carbon monoxid than a lean mixture.

The second problem, bearing more particularly on the physiologic conditions, was assigned to Dr. Yandell Henderson, consulting physiologist of the Bureau of Mines, who carried out the work with a staff of chemists and physiologists including H. W. Haggard and A. L. Prince in the physiologic laboratory at Yale University. The results of these investigations² and the principles formulated from them apply, not merely to the ventilation of tunnels, but equally well to conditions in garages and fire-rooms, to the air around gas producers, smelters and blast furnaces, to dwellings in which there is an escape of illuminating gas, and in general to all places where men are exposed to the gaseous products of incomplete combustion. The investigations have been extended also so as to cover several of the problems of illuminating gas poisoning and to develop suggestions for the treatment of acute carbon monoxid poisoning.

It was found that when fairly pure gasoline is used as the fuel in an automobile, the only considerable toxic substance in the exhaust gas is carbon monoxid. On the other hand, accessory toxic substances are present in illuminating gas and in the exhaust gas from cars

using adulterated gasolines and particularly when coal distillate is used. The investigations afford unqualified support to the view that, apart from a single reaction, carbon monoxid is a physiologically inert and non-poisonous substance. This reaction is its combination with hemoglobin, which is thus rendered incapable of transporting oxygen from the lungs to the tissues until the carbon monoxid is again displaced. Carbon monoxid is shown not to be in any degree whatever a tissue poison. The nervous disorders and lesions following asphyxia are due to the anoxemia and not to a direct action of carbon monoxid on the cells in the brain and heart. Thus, Haggard³ in the Yale laboratory finds that pieces of the living and developing brain of a chick suspended in a hanging drop of chicken plasma at body temperature grow and develop quite as actively in an atmosphere of 79 per cent. monoxid and 21 per cent. oxygen as they do in air 79 per cent. nitrogen and 21 per cent. oxygen. This investigator has shown also by electrocardiographic studies that carbon monoxid exerts no direct toxic action on the cardiac conducting system, but acts wholly through asphyxia.

The tunnel gas investigations showed, in accord with the previous work of Haldane, Henderson and others, that the combination of carbon monoxid with hemoglobin is entirely and readily reversible. Red cells which have taken up a considerable percentage of their capacity for carbon monoxid and have given it off again are stated by these investigators to be as competent for the transport of oxygen as before. It seems, therefore, that the treatment heretofore advocated by some clinicians, and designed to stimulate the formation of new red cells by bleeding and the infusion of saline solution, lacks logical foundation. The degree and rate of absorption of carbon monoxid are found to depend on the concentration of the gas in the atmosphere, the time of exposure, and the volume of breathing. It is emphasized that the last factor varies with the amount of physical exertion.

Turning to the more abstruse and fundamental side of carbon monoxid asphyxia, Henderson and Haggard⁴ have investigated the long accepted idea that this condition involves a typical condition of acidosis. They find, indeed, that under carbon monoxid asphyxia the blood alkali is greatly decreased, but they show that this decrease is not of acidotic origin. On the contrary, oxygen deficiency induces excessive overbreathing, thus blowing off an abnormal amount of carbon dioxide from the blood. The result of this acapnial process is that the blood is left abnormally alkaline, and this alkalosis is gradually overcome by the passage of alkali out of the blood. Thus, when a man is slowly asphyxiated by illuminating gas or a dog is asphyxiated under experimental conditions, the increasing oxygen

1. Fieldner, A. C.; Straub, A. A., and Jones, G. W.: *J. Soc. Automotive Engineers*, April, 1921; Bureau of Mines Report, March, 1921, Series No. 2225.

2. Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, R. M.: *J. Indust. Hyg.* 3: 79-92, 137-146, 1921.

3. Haggard, H. W., and Henderson, Yandell: *The Treatment of Carbon Monoxid Poisoning*, *J. A. M. A.* 77: 1065 (Oct. 1) 1921. Haggard, H. W.: *Am. J. Physiol.* 56: 390, 1921.

4. Haggard, H. W., and Henderson, Yandell: *J. Biol. Chem.* 47: 421, 1921.

deficiency as the blood gradually takes up more and more carbon monoxid induces such overbreathing that not only is the absorption of the gas increased, but an excessive amount of carbon dioxid is washed out of the blood. As the normal stimulus for breathing is carbon dioxid, a point is reached at which the lack of carbon dioxid results in failure of respiration. It is this condition that is chiefly responsible for the failure of breathing frequently observed immediately after the victim of a gassing accident is removed to fresh air. It is only as carbon dioxid reaccumulates in the blood that respiration gradually returns. It may then for a time be excessive because of the low alkali in the blood. But, according to these investigators, the alkali must be restored, or, as they express it, "recalled to the blood," by the body itself. This is, however, a slow process unless assisted. For this purpose and for the stimulation of respiration to a normal or more than normal volume, the subject is made to inhale oxygen to which a certain amount of carbon dioxid is added.⁵ Under inhalation of this mixture, full breathing is rapidly induced; the mass action of oxygen rapidly displaces carbon monoxid from the blood, and the alkali is "recalled." Animals which have been rendered completely comatose are thus quickly restored to apparently complete normality. The investigators point out, however, that the effectiveness of this treatment for the overnight case of illuminating gas poisoning can be decided only by experience.

Turning to other aspects of the applications and hazards of gas, we find that the industrial importance of coal gas, instead of growing less with the introduction of electricity, is evidently likely to increase greatly in the near future. Thus, in evidence brought out before the recent hearing of the United States Senate finance committee on the chemical schedule of the tariff, it was shown that, owing to the present methods of burning coal, the loss in the United States of fertilizer alone, chiefly ammonium sulphate, amounts to more than \$354,000,000 a year. According to this expert testimony all of our bituminous coal, instead of being burned direct, should be put through by-product coking ovens. By-products for the chemical industries, as well as ammonium sulphate, would thus be saved, and coal gas would be available more cheaply for industrial and household use. The coke, remaining after these substances have been distilled off, has nearly the same value for general fuel purposes as the original raw bituminous coal, since in the ordinary stove or furnace the gases are to a large extent driven off up the flue unconsumed. When the World War began, Germany was coking ten million tons more coal in by-product ovens than all the rest of the world combined. To this policy was largely due the German supremacy in dyestuffs, drugs and other chemical industries, as well as her ample supply of fertilizer,

and in part also her supply of nitrogen for the manufacture of explosives.

From the medical standpoint it is noteworthy also that coal gas such as that produced in the coking process contains only about 7 per cent. of carbon monoxid, whereas the carbureted water gas (produced by blowing steam over hot coal and "fattening" with petroleum), as supplied by most city gas companies in America, contains nearly 30 per cent. of this most toxic constituent. The difference in the use of coal gas and water gas in their bearings upon health and safety is evidenced by a recent editorial⁶ in the *British Medical Journal* in which an earnest protest is voiced against the government's allowing British gas companies to replace the coal gas, which they have hitherto supplied, with the far more toxic water gas. The editor emphasizes the point that, if the change is allowed, fatalities from gas poisoning may become as common in English as in American cities. To meet this implied indictment of our cities, we may comfort ourselves with the thought that if the advice of our chemists mentioned above is heeded, and all or nearly all our bituminous coal is coked, the supply of coal gas will be sufficient for our cities and for industry without recourse to the more poisonous water gas. This development would also help to conserve our supply of petroleum for other essential uses, since coal gas, unlike water gas, has sufficient luminosity without the addition of petroleum.

Finally, this survey would be incomplete without reference to the topic of gas masks. Here also the problems of peace are not less important than those of war. Indeed, the two are closely related. At the close of the war the American mask had reached a high degree of technical excellence, a development in which the chemists and physiologists of the Bureau of Mines played a major part. With the inspiration and collaboration of that bureau this mask has now been developed industrially to afford protection against ammonia leaks in cold storage plants, and against various acid fumes, vapors and smoke. In particular, a canister has been perfected for use with this mask containing "hopcalite," the new catalyst of carbon monoxid. With this protection the wearer may work with safety in an atmosphere containing a concentration of carbon monoxid which would otherwise be deadly. This mask will be of inestimable value to our city firemen, for carbon monoxid is the chief toxic constituent of smoke.

In all such problems the collaboration of physiologists with chemists and engineers is essential; and the former, while basing their contributions firmly on laboratory findings, carry them also far into practical fields. Evidently, as Sir Michael Foster once expressed it; the frog and the myograph, the dog and the kymograph, are not the alpha and the omega of physiology.

5. Henderson, Vandell, and Haggard, H. W.: *J. Pharmacol. & Exper. Therap.* 16: 11 (Aug.) 1920.

6. The Dangers of Carbon Monoxide in Lighting Gas, *Prit. M. J.* 2: 411 (Sept. 10) 1921.

POSSIBLE COMPLICATIONS OF THE STEINACH OPERATION

Among the many subjects of current interest to the medical profession are the various methods which have been proposed of recent years for the purpose of increasing longevity. The subject has been seized on with avidity by the lay press for its sensational interest. Moreover, the fact that elderly patients who are inclined to undergo operations with this end in view are usually well supplied financially, if not mentally, has caused the procedure to become still more a matter for publicity.

As has been pointed out in *THE JOURNAL*,¹ Steinach holds that ligation of the spermatic cords brings about, through stasis, an increased growth of the so-called puberty gland—the interstitial cells. He reported excellent results in increasing the longevity of animals by this method. Lichtenstern² applied the method to man, and reported improvement in five out of seven patients on whom he operated. Convinced by these reports that the method was of value, Kurt Mendel³ referred to a surgeon for operation a man of 61. The technic of the bilateral operation included application of local anesthesia; then a 5 cm. (2 inch) incision was made at the lowest point of the scrotum to the right and left of the middle line. The testes were lifted out; the head of the epididymis and the supplying blood vessels were carefully dissected free, and the efferent ducts were exposed and ligated with firm silk. The operation was, thus, not on the vas deferens itself but between the head of the epididymis and the upper pole of the testis, at the point that Steinach recommends as the most promising, because here the vessels that supply the testis can be best avoided, and the effect of the stasis and thus the incitation to the increased growth of the puberty gland sets in more promptly. The results of the operation were disastrous. The day after the operation the patient walked up and down the room uttering threats and curses against physician and nurse. The wound healed rapidly and without reaction. The patient became calmer for a few days, but soon very serious mental disturbances developed. Loss of orientation for time and space developed. Memory for recent events became rapidly worse. At night he suffered from insomnia. Erections were more frequent, possibly, immediately after the operation, but the patient soon lost, for the most part, all signs of libido. A peculiar feature was the fact that the mind of the patient, who previously had been decent, seemed to run on sexual matters, while he indulged in the vilest vulgar expressions, accusing his wife of being a street walker

and of enticing him into her room for immoral purposes. Three months after the operation the patient was committed to an institution in Pankow, where at first he was excited but later became calmer and even apathetic and somnolent, taking scarcely any nourishment. He died three weeks after commitment, with manifestations of respiratory paralysis.

As has also been pointed out previously in *THE JOURNAL*, it is necessary in all such operations to take into account the psychic effect on the patient. Psychic impotence and other psychic disturbances of a sexual character are not now new in medical practice. It is easily conceivable that the results of any operative procedure directed toward the sexual apparatus may have mental effects of a serious character.

THE ALLEGED FUNCTIONS OF THE SPLEEN

It is often quite as helpful to scientific progress to eradicate some of the unfounded and unsubstantiated assumptions that have crept into its literature as to contribute new facts and novel theories. This is particularly true in those fields which represent the borderline of the unknown or the domain of highly debatable questions. Much has been said and written about the spleen, an organ that is sufficiently conspicuous from an anatomic standpoint and sufficiently palpable in everyday life to arouse an interest in its presumable function. Occasionally it exhibits a variety of pathologic changes. Its physiology has long furnished a topic for speculation as well as ever recurring problems for scientific investigation. Yet the outcome of this uncertainty has been only the accumulation of a mass of data and the promulgation of a variety of views so indefinite, controversial or contradictory as to leave the reviewer of the situation well nigh bewildered.

The well established fact that both animals and man survive the surgical removal of the spleen without apparent serious detriment at once removes the organ from the list of indispensable structures like the suprarenals, the pancreas or the parathyroids, on the integrity of which life is demonstrably dependent. The intimate association of the spleen with the digestive apparatus and particularly with the portal circulation has naturally led to some speculative impressions. Changes in the size of the organ are known to occur during the digestive cycle; hence the idea that the spleen is merely a diverticulum of the portal circulation to receive the excess of blood rushed to the splanchnic area during the digestion period, and to act as an "abdominal heart" for supplying blood to the stomach and other viscera as needed. Again, the spleen has been represented as "an endocrine organ with the function of influencing, in an obscure manner, some portion of the digestive apparatus by way of the blood stream or of activating one or more of the digestive enzymes by an internal secretion." It is always easy to present analogies to other functions

1. What Determines the Development of the Secondary Sexual Characters, editorial, *J. A. M. A.* 58: 484 (Feb. 17) 1912; The Modification of Secondary Sexual Characters, *ibid.* 62: 618 (Feb. 21) 1914; The Problem of "Restoration of Youth," Vienna Letter, *ibid.* 75: 490 (Aug. 14) 1920; Foreign News, *ibid.* 75: 617 (Aug. 28) 1920; "The Puberty Glands," Berlin Letter, *ibid.* 75: 755 (Sept. 11) 1920.

2. Lichtenstern, R.: Berl. klin. Wchnschr., 1920, No. 42.

3. Mendel, Kurt: Zur Beurteilung der Steinachschen Verjüngungsoperation, *Deutsch. med. Wchnschr.* 47: 986 (Aug. 25) 1921.

in the body when the known facts do not suffice to establish a direct demonstration of fact. There are many other speculations regarding splenic activities on record, which need not be rehearsed here.

Recently the possible dependence of certain gastric functions on the integrity of the spleen have been brought into prominence. It has been alleged, for example, that splenectomy diminishes the digestive power of the stomach, and that this gastric function can be promoted by injections of extracts of the spleen. Here is an obviously fertile field for the medical advertiser's imagination. The pepsinogenic function of the spleen has, indeed, often been mentioned as a possibility of physiologic importance. Inlow¹ of the Mayo Foundation has put some of the questions here involved to the test of experiment, by studying the gastric secretion of animals under carefully controlled conditions before and after splenectomy. He failed to find the slightest evidence that the spleen gives to the blood stream during digestion a substance which activates or leads to the further elaboration of the gastric enzymes, especially pepsin. The only noteworthy change in gastric secretion after removal of the spleen was a slight diminution in the quantity of gastric juice secreted. This, Inlow contends, is presumably attributable to decreased gastric blood supply from injury to the gastrosplenic circulation after splenectomy. A definite pepsinogenic function, he adds, has not been demonstrated, and the relation of the spleen to gastric secretion is probably merely vascular. A negative conclusion not infrequently helps to secure positive progress.

Current Comment

OLOF HAMMARSTEN, PHYSIOLOGIC CHEMIST

The present year has included the celebration of the eightieth birthday anniversary of the distinguished Swedish physiologic chemist Olof Hammarsten, who was born, Aug. 21, 1841. To American medical readers he is well known as the author of a remarkable textbook of physiologic chemistry which, in its German and English translations, served an entire generation in the training of students in this branch of science. For many years it stood almost alone and unrivaled as a dependable reference book—a veritable encyclopedia of the progress in the chemical aspects of the physiologic sciences. Edition after edition attested the indefatigable energy and broad erudition of Professor Hammarsten of the University of Upsala. This work has truly left its impress on a considerable number of American physiologists and biochemists; and it is interesting to recall that the pioneer textbook on animal chemistry by the eminent Berzelius likewise was contributed from the Scandinavian peninsula by a professor of medicine and pharmacy a century ago. Time passes so rapidly that one generation of students takes for granted what their predecessors recognized as novelties and physiologic history in the making. In

addition to bookmaking, Hammarsten's contributions to his science were manifold. Half a century ago he made the fundamental observations on the milk-curdling properties of the gastric juice and the behavior of rennin. He pointed out the rôle of calcium in the clotting of both milk and blood. To Hammarsten we owe many essential facts regarding casein—the chief protein of milk—the proteins of the blood, the mucous substances in the bile and other secretions, the bile itself; and his continued fruitful scientific activities are still evident in papers which have appeared in recent months. The eminent physiologic chemist of Upsala remains as a living example of the many-sided investigators who have almost disappeared in the present age of extreme specialization.

DISAPPEARANCE OF MALARIA IN TEMPERATE CLIMATES

Malaria, formerly a disease common to the temperate as well as to warmer climates, has now become practically extinct in the temperate zone and is rapidly disappearing even in warmer regions. Dr. C. Joyeux,¹ professor of parasitology in the Paris Medical School, has recently commented on the disappearance of the disease from France. There is evidence to show that this disease was extremely prevalent in France in past centuries. Now Joyeux presents evidence that the anopheles still abounds in many regions, although there has been little or no malaria for generations in these districts. He calls attention to the explanation for this paradoxical fact published simultaneously by Roubaud² in France and Wesenberg-Lund³ in Denmark. According to these observers the mosquitoes, which used to feed on human blood, still do so in tropical countries; but in temperate zones they are attracted to barns and stables where they can find moisture, warmth and protection from the winds, and where they can feed on horses and cattle. According to Roubaud, in the course of time the mosquitoes have apparently developed a zoophile strain, being more attracted to cattle than to human blood. This has contributed to the elimination of malaria in the colder countries.

THE ERYTHROPOIETIC ACTION OF GERMANIUM DIOXID

What promises to be highly interesting work with the dioxid of the rare metal germanium has been started by J. H. Muller in the Harrison Chemical Laboratory of the University of Pennsylvania, and by Hammett and Nowrey in the Wistar Institute of Anatomy and Biology in Philadelphia. Germanium dioxid is not toxic for the white rat, and it has been determined by Hammett and Nowrey⁴ that the injection of 0.4 per cent. solution in white rats produces a marked and statistically valid rise in the number of red corpuscles in the blood, without any corresponding increase in the number of leukocytes. The marrow and the liver in the injected rats show changes which indicate that these organs are affected by the injections.

1. Inlow, W. D.: The Spleen and Digestion, *Am. J. M. Sc.* **162**: 325 (Sept.) 1921.

1. Joyeux, C.: *Presse méd.* **29**: 1392 (Sept. 24) 1921.

2. Roubaud, E.: *Ann. de l'Inst. Pasteur*, April, 1920.

3. Wesenberg-Lund: *Mém. Acad. roy. d. sc.* **7**: 8, 1920-1921.

4. Hammett, F. S., and Nowrey, J. F.: The Erythropoietic Action of Germanium Dioxide, *Wistar Institute Abstracts*, 1921.

The results indicate that germanium dioxide is an erythropoietic agent of considerable potency and, as it is nontoxic, at least for the rat, the hope naturally arises that it may be found of value in diseases of the blood-forming organs that result in anemia.

DEATHS FROM AUTOMOBILE ACCIDENTS IN 1920

During the year 1920, according to a bulletin of the United States Bureau of the Census just received, 9,103 deaths resulted from automobile accidents, excluding motorcycles, in the registration area, representing 82 per cent. of our total population. The death rate per hundred thousand population from this cause has been gradually rising in the last five years, being 5.8 in 1915, 7.3 in 1916, 8.9 in 1917, 9.1 in 1918, 9.4 in 1919 and now 10.4 in 1920. During this period the number of registrations of such vehicles in the twenty-five states covered by the registration area in 1915 rose from 1,767,055 to 6,085,150. With a death rate from this cause as high as that from many of our most serious illnesses, the safety engineer must soon be accorded a place along with the public health official in the battle-line of preventive measures against premature mortality.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Member of State Board.—We are informed that Dr. John C. Yates of San Diego has been appointed as a member of the California board of medical examiners, vice Dr. Alfred J. Scott of Los Angeles, deceased.

Personal.—Dr. Lucy Wanzer, San Francisco, the first woman to be graduated from the University of California, recently celebrated her eightieth birthday and forty-fifth anniversary of her practice as a physician.

Nutrition Courses.—Because of the general recognition of the prevalence of nutrition problems among children of school age, the leaders in educational, public health and social service work in San Francisco have planned to hold a nutrition institute, November 9-23, at San Francisco. Dr. William R. P. Emerson, Boston, will conduct the institute.

Lane Lectures.—Dr. Luther Emmett Holt, emeritus professor of pediatrics, Columbia University College of Physicians and Surgeons, New York City, will deliver the Lane Medical Lectures in the Leland Stanford Junior University Medical School, San Francisco, December 5-10. Dr. Holt will also give a clinic on children's diseases, December 7, at the medical school.

Hospital News.—At the conference of the State Hospital and Home Superintendents at San Francisco, October 26, Ralph T. Fisher, director of state institutions of California, was elected chairman and Dr. Leonard Stocking, Agnews State Hospital, first vice chairman of the conference; Fred J. Nelles, Whittier State School, was elected second vice chairman, and Mrs. Cornelia M. Stanwood, secretary of the state board of charities and correction, secretary.—A hospital building to cost \$40,000 is to be located on the County Hospital grounds at Eureka. The money has been appropriated for this building, which will be the first unit of the county tuberculosis hospital.—The new Jewish Ex-Patient Hospital, Belvedere Heights, Los Angeles, for tuberculous patients who have been treated at the Jewish sanatorium at

Duarte, was opened, October 22. The structure cost \$22,000 and will accommodate thirty-six patients.—A separate ward is being built for the most critical patients at the Tulare-Kings Joint Tuberculosis Hospital at Springfield, and the new nurses' quarters are practically completed.—According to a statement of Dr. Truman O. Boyd, resident surgeon and director of the Long Beach Sanatorium, \$20,000 is being expended in improvements at the sanatorium.

ILLINOIS

Public Welfare Conference.—The state department of public health will actively participate in the first annual meeting of the Illinois State Public Welfare Conference to be held in Peoria, Dec. 4, 5 and 6.

Additions to Elgin State Hospital.—The state hospital at Elgin is building a new operative department, which it expects to have completed by Jan. 1, 1922. The new additions will include eighty ward beds besides nine beds intended for employees. The hospital for soldiers to be opened later will have a capacity of 206 beds.

Personal.—At a recent meeting of the Elgin Physicians' Club they celebrated the birthday of Dr. Albert W. Hinman, Dundee. Dr. Hinman, who was 76 years old, October 10, is one of the oldest physicians in active practice in this part of the state, having been engaged in the practice of medicine for more than forty years, and most of the time in Dundee.

Improvements in Rockford Hospital.—Rockford Hospital has been reorganized in conformity with standards of the American Medical Association, the American College of Surgeons, and the American Hospital Association. Recent improvements include the laboratory, which is in full charge of a physician as pathologist; also a children's clinic and an outpatient department.

School of Instruction for Health Officers.—The state department of public health is arranging a program for a school of instruction for health officers to be held in Springfield early in December. The school will be conducted primarily for the benefit of newly appointed district health superintendents who will work under the direction of the state department of public health; but the courses will also be open to local health officers who desire to attend.

Board of Public Health Advisers Holds Initial Meeting.—The first regular meeting of the recently appointed board of public health advisers was held in Chicago, October 22, with all members present. One of the more important matters considered was the subject of birth registration in Illinois. It was brought out that due to incomplete reports the state is still ineligible for admission into the U. S. Birth Registration Area, and this led to the adoption of resolutions recommending that the state department of public health institute and carry out a campaign designed to bring about satisfactory birth registration. The department has already taken the initial step in carrying out the recommendation of the board by addressing a letter on the subject of birth registration to the state and local medical societies. This will be followed at once by a similar letter addressed to all physicians (as nearly as possible) licensed to practice medicine in Illinois.

Chicago

Public Health Institute in Chicago.—Announcement has been made by the U. S. Public Health Service of a public health institute to be held in Chicago, March 13-18, inclusive, 1922. The institute will be under the direction of Dr. Isaac D. Rawlings, state director of public health in Illinois. It will be confined to the subject of venereal disease control and allied problems. Courses will be given in syphilis, gonorrhea, the delinquents, clinic management and work of the venereal disease health education nurse. The program will include special luncheon speakers, and daily and nightly visits to established clinics. A complete schedule for lectures has not yet been worked out, but it will embrace a number of the more prominent physicians and others in the field of social hygiene service. The entire program will be ready for publication in the near future.

INDIANA

Hospital News.—The contract has been awarded for the erection of the Blackford County Hospital for \$55,115.

District Medical Meeting.—At a meeting of the Eighth District Medical Society, held October 21, at Muncie, Dr. Thomas Jones, Anderson, was elected president, and Dr. Clay A. Ball, Muncie, secretary-treasurer.

City Health Officer Fined.—According to the *Bedford Democrat* of Sept. 20, 1921, Dr. Harvey Voyles, city health officer, was fined \$10 in the circuit court by Judge Cox on that date, after being found guilty of failing to establish a quarantine at the home of a child who was suffering from an attack of scarlet fever. The affidavit against the health officer was filed by Dr. John T. Freeland.

New Division of Housing.—The Indiana State Board of Health, according to law, instituted a new division of the board, October 1, known as the Housing Division. The director is Mr. W. F. Sharpe, an architect, and he is assisted by Mr. Albert E. Wert, who has had experience in housing work in New York City. This is the fourteenth division attached to the Indiana State Board of Health. Tenement house surveys will be made in the large cities as rapidly as possible and the exact conditions reported. All plans and specifications made by architects for hotels, lodging houses and tenements must be submitted to the state board of health for approval. The housing law of Indiana is a very complete and good law, and its every provision will be thoroughly enforced.

IOWA

Hospital Improved.—The Odebolt Hospital and Clinic, which was recently acquired from Dr. Wayne L. Stillman, has been overhauled with the addition of new furniture, covered floors, arc and treatment lights and a supply of radium. The laboratory is being installed and the institution will be made to serve as a community hospital, at least until normal conditions have returned for the building of a larger institution.

KENTUCKY

Personal.—Dr. Ralph J. Malott has resigned as full-time health officer of Harlan County, and as secretary of the Harlan County Medical Society to go to Williamson, W. Va., where he will organize and direct a full-time health department for Mingo County.

MARYLAND

Hospital News.—At the meeting of the Baltimore City Medical Society, held at Osler Hall, November 4, immediate action in selecting a site for a municipal hospital was urged in a resolution adopted unanimously, and opposition was expressed in locating the hospital at Bay View or at Sydenham.

MASSACHUSETTS

Massachusetts Medical Society.—An adjourned meeting of the council was held in the Boston Medical Library, November 9, to consider a report of a committee on malpractice indemnity and insurance.

Drug Firms Refuse to Handle Beer.—Three of the five largest wholesale druggists have issued statements that they would not handle beer for medicine unless the retail organizations forced them to do so.

Clinics Suggested for Rural Districts.—At the annual meeting of the Massachusetts Mental Hygiene Society, held recently at Boston, Dr. Austen Fox Riggs, Stockbridge, advocated the establishment of clinics throughout the rural districts where no preventive measures have yet been taken.

Hospital News.—The U. S. Public Health Service has bought the hospital building and 72.8 acres of land at Rutland from the Central New England Sanatorium, Inc., for \$240,000. The building included in the sale is not yet completed and it is expected that changes may be made by the government. It will house about 300 patients and will be used for tuberculous war veterans.

Boston Association of Cardiac Clinics.—The object of this recently organized society is to further in any way the prevention and relief of heart disease in the community. A series of open meetings will be held during the next eight months, at which the discussion will not be limited to those especially trained in cardiology. The first meeting will be held, November 17, at the Massachusetts General Hospital. Dr. Paul A. White will speak on "The Diagnosis of Heart Disease," and Dr. Samuel A. Levine, on "Problems for Cardiovascular Research."

District Medical Meeting.—The four western district societies, Berkshire, Franklin, Hampshire and Hampden, met at Springfield, October 7, and effected an organization for the purpose of studying impending legislation of interest to the

profession and making its influence felt in shaping its legislation relative to health matters. Dr. John Bartol, Boston, president of the state society, urged that the 4,000 physicians of Massachusetts unite to influence healthful legislation, not by lobbying but by free and proper statements from the medical profession of the rights and wrongs of impending legislation.

Personal.—Dr. Ernest B. Adleman, former house physician at St. Mary's Hospital, Detroit, has been appointed assistant physician at the Bridgewater State Hospital, Bridgewater. —Dr. Clyde H. Merrill, Marlboro, was appointed by the governor as associate medical examiner of the Ninth District to succeed Dr. John J. Kelly, also of Marlboro, whose term has expired. —Appointments by Governor Cox that have recently been announced are: Dr. Fritz W. Gay, Malden, to be associate medical examiner of the second Middlesex district, to succeed William H. McBain, whose term has expired, and Elmer A. Stevens, Somerville, as associate member of the department of mental diseases. —Arthur Vincent Smith, Middleborough, was reappointed associate medical examiner of the fourth Plymouth district.

MICHIGAN

Jackson County Society Clinic.—Public interest was aroused in the Jackson County Society Clinic held, September 17-21, at the W. A. Foote Memorial Hospital, Jackson, and the cooperation of the press secured by the plan of having an open forum meeting for the general public on public health problems and furnishing medical men as speakers throughout the week for the various noon luncheon clubs of the city.

MINNESOTA

Personal.—Dr. Ronald L. Laney, Bemidji, has been appointed medical director of the Lake Julia Tuberculosis Sanatorium at Puposky. —Dr. Karl H. Van Norman, first assistant director, Johns Hopkins University, Baltimore, has been appointed superintendent of the Miller Hospital, St. Paul. —The governor has appointed Dr. Arthur T. Caine, Anoka, as a member of the Minnesota State Board of Health, to succeed the late Dr. Pierre A. Hilbert.

MISSISSIPPI

Hospital News.—The cornerstone of the new City Hospital at Brookhaven was laid, October 8, by the Masons.

Homochitto Valley Medical Society.—At the semiannual meeting, held, October 19, at Natchez, Dr. Thomas E. Hewitt, Liberty, was elected president; Drs. Marcus Beekman, Natchez, William R. Brumfield, Gloster, John W. Chisholm, Roxie, David S. Smith, Rodney, and J. W. Brandon, Jr., Woodville, vice presidents, and Dr. Jacob S. Ullman, Natchez, secretary-treasurer. The constitution was amended to provide a meeting in January, April, July and October instead of twice a year, as formerly.

MISSOURI

Reorganization of Medical Staff.—The Glenwood Sanatorium, Webster Groves, has announced the following reorganization of its medical staff: visiting consultants, Drs. Frank R. Fry, Sidney I. Schwab and Malcolm A. Bliss; visiting neurologist, Dr. Lewis D. Stevenson; resident physician, Dr. Raleigh K. Andrews.

NEBRASKA

Personal.—Dr. Fred Dieterich, formerly of the Rockefeller Foundation, has been elected head of the department of pathology and bacteriology at Creighton Medical College, Omaha. —Dr. Jacob H. Matthai, Newberry, Mich., formerly connected with the Nebraska State Hospital for the Insane at Norfolk, has been appointed superintendent of the Nebraska Orthopedic Hospital, Lincoln.

NEW HAMPSHIRE

Protest Against Sheppard-Towner Bill.—At the recent quarterly meeting of the Merrimack County Medical Society in Concord, resolutions were adopted protesting against the passing of the Sheppard-Towner Maternity Bill.

NEW JERSEY

Hudson County Medical Society.—At the October meeting, held at Jersey City under the presidency of Dr. Fred Quigley,

Dr. Samuel A. Cosgrove, Jersey City, was elected president; Dr. Lucius F. Donohoe, Bayonne, vice president; Dr. William H. Yeaton, Hoboken, secretary (reelected); Dr. Henry Brinkerhoff, Jersey City, treasurer (reelected).

NEW YORK

Resolution of Medical Society.—The Onondaga Medical Society, at its recent meeting in Syracuse, passed a resolution urging the common council to pass at once the measure requiring the pasteurization of all milk, except certified milk, offered for sale in Syracuse.

New Officers of District Medical Society.—At the recent meeting of the Fifth District Medical Society, held at Watertown, Dr. Walter Kidder, Oswego, was elected president, to succeed Dr. William D. Alsever, Syracuse; Dr. Nelson O. Brooks, Oneida, was reelected treasurer, and also made first vice president; Dr. Charles B. Forsythe, Alexandria Bay, was elected secretary, to succeed Dr. George W. Miles, Oneida.

Centennial Celebration.—The Medical Society of the County of Erie celebrated the one hundredth anniversary of its incorporation, October 17, and admitted a class of 100 new members, bringing its membership up to 816 out of about 900 registered physicians in the county. The exercises consisted of the dedication of the diagnostic and treatment clinic of the Buffalo City Hospital; continuous and parallel clinics in surgery by Dr. John D. Deaver, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia; in medicine by Dr. Charles F. Hoover, professor of medicine, Western Reserve University School of Medicine, Cleveland, and demonstrations of podalic version by Dr. Irving W. Potter, associate professor in obstetrics, University of Buffalo Department of Medicine. Four hundred members sat down to the banquet. The society put on a health week campaign, for the general public, consisting of a series of exhibits (which it is hoped to make permanent) covering many phases of public health, hygiene and sanitation, industrial medicine, safety first, the municipal departments, foods, child welfare, the Red Cross, tuberculosis, venereal diseases, the U. S. Public Health Service and others; a series of moving pictures and stereopticon views covering many of the topics in the exhibits, and presented in the lectures, and thirty minute popular lectures during afternoons and evenings on various public health topics by fifty different members of the society. The interest of the public, as shown by the attendance, was phenomenal.

New York City

Hospital Faces Foreclosure.—The Volunteer Hospital is now in serious straits because of threatened foreclosure of a mortgage of \$65,000, and other obligations totaling more than \$150,000. A campaign for funds has been initiated.

Personal.—Dr. and Mrs. Alexander Hamilton Rice have sailed for Europe and will spend the winter in Nice.—Henry S. Pritchard, president of the Carnegie Foundation, delivered the Anniversary Discourse at the New York Academy of Medicine, November 3. His subject was "A Layman's View of Medical Progress."

Tuberculosis in Industry.—A conference was held in the rooms of the National Tuberculosis Association, October 22, to which representatives of labor unions and fraternal orders were invited. The object of the conference was to learn the conditions surrounding workers in various industries, and discuss a community health plan.

Harvey Society Lecture.—Dr. C. C. Little, research associate of the Station for Experimental Evolution, Carnegie Institution of Washington, D. C., will deliver the second Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, November 26. His subject will be "The Relation of Genetics to Cancer Research."

Sight Seeing for Public Health.—A program has been carefully arranged for public health workers who will attend the fiftieth annual meeting of the American Public Health Association to be held in New York, November 14-18, and who are coming ahead of the convention crowds so that they can spend the week preceding, November 8-12, in looking over New York's resources for the conservation of human life. Fifty demonstrations have been arranged, including inspection of the various city departments. Government and state agencies will also demonstrate their health resources in New York.

National Cancer Week in New York.—During the observance of cancer week in this city the American Society for

the Control of Cancer, with headquarters at 25 West Forty-Fifth Street, opened booths in the Grand Central Terminal and the Pennsylvania Station, where it circulated educational literature prepared for lay readers. More than 4,000,000 pamphlets and pieces of literature were distributed throughout the city by house to house canvassing. Numerous meetings were held throughout the city, the most important of which was at the New York Academy of Medicine on the evening of November 3.

Roosevelt Hospital Anniversary.—Roosevelt Hospital celebrated the fiftieth anniversary of its founding, November 2. Its founder, James H. Roosevelt, was the first of a long line of Roosevelts to be interested in the hospital, the present president of the institution being W. Emlen Roosevelt. The hospital has had three superintendents before the present incumbent in that office. In 1873, Roosevelt Hospital had 180 beds; at present it has 285 beds. In 1890, the McLane Operating Room, the gift of Dr. James W. McLane, was opened; in 1892, the William J. Syms Operating Theater. In 1898 the Catherine Bliss Ward for Children came into being, and in 1903 a recreation room for the house staff was given by Drs. Seth Milliken, Jr., and Frederick T. Van Buren, Jr. In 1911 a nurses' home containing 108 individual bedrooms came as an anonymous gift of friends of Dr. McLane, and the next year the Harriman Research Laboratory was built for special studies in metabolism and digestive ferments. In order that the charitable work of the hospital may be better coordinated and the dispensary and laboratory system extended, it is planned to erect a six-story addition to be given over entirely to free work. Funds for this will be raised by private subscription.

NORTH DAKOTA

Personal.—Dr. E. V. Scanner, who has had wide experience in health work in Cuba, Canal Zone and South America, has been appointed director of the North Dakota public health laboratory at Grand Forks.

OHIO

Conviction of Dr. Loewenthal to Stand.—It is reported that the United States supreme court has refused to review the case of Dr. Morits Loewenthal, Cleveland, convicted of violation of the Harrison Narcotic Law by selling morphin without a license.

New Tuberculosis Cottage Opened.—The new tuberculosis cottage of the Massillon State Hospital, at Massillon, accommodating thirty-five men and thirty-five women, was opened, October 1. The cottage is a one-story building so arranged that the greater part of the walls are of glass, by which an abundance of sunshine may be secured.

History of Cincinnati Health Exposition.—It has been announced that a complete history of the Cincinnati health exposition with pictures of practically every exhibit, both commercial and educational, is being compiled under the direction of the executive committee for distribution among health officials and city authorities from other sections of the country, who are daily requesting information that will enable them to stage similar expositions in their home cities.

Meeting of Academy of Medicine.—At the regular meeting of the Academy of Medicine of Cleveland, held, October 21, at the Cleveland Medical Library, under the presidency of Dr. William B. Chamberlin, Dr. Henry L. Sanford outlined the relation of the legislative committee to the justice survey and introduced its representative, Dr. Herman Adler, Illinois state criminologist and professor of criminology, University of Illinois College of Medicine, Chicago, who spoke on "Medical Science and Criminal Justice." Dr. Adler's recommendations are:

Mental and physical examination of every juvenile court child. Creation of a division of mental health in the board of education and extended cooperation with juvenile court, and other agencies.

Creation of the position of chief psychiatrist with ample salary, staff and facilities for making mental and physical reports on cases coming before the probate, municipal and common pleas courts.

Abolishment of the office of coroner and the substitution of the medical examiner system now in use in Massachusetts and New York.

Appointment of three additional police surgeons, not only for examination of police recruits, but also to assist in the examination of suspected criminals.

The establishment of a privately supported institute or clinic, preferably in connection with the Western Reserve University, to investigate the nature and treatment of human behavior difficulties and to train and educate special workers and experts in this field.

Dr. Adler's suggestions were referred to the council of the Academy of Medicine for action.

PENNSYLVANIA

Philadelphia

College of Physicians of Philadelphia.—The sixth Mary Newbold lecture was delivered by Robert McCarrison, M.D., D.Sc., Indian Medical Service, at a special meeting of the College, held, November 11, at Philadelphia. Dr. McCarrison's subject was "Faulty Food in Relation to Endocrine Disorders."

Increase in Intoxication.—The number of intoxicated persons arrested during October increased remarkably in one station house of the city over the record of other months. Of the 905 arrests made during the month, 559 of the persons were charged with intoxication. The total arrests in the district for October exceeded the total arrests of any other three districts combined.

PHILIPPINE ISLANDS

Creation of Office of Public Welfare Commissioner.—One of the acts of the last Philippine Islands legislature was the creation in the Department of the Interior of the Office of Public Health Commissioner, which merges the former public welfare board (the government agency that coordinates and inspects organizations for public welfare and social service work in the Philippine Islands) with the former bureau for dependent children, which cared for orphans and the destitute, defective and delinquent classes of children.

Fifth Biennial Medicopharmaceutical Assembly.—The physicians and pharmacists of Manila are engaged in organizing the Quinta Asamblea de Médicos y Farmacéuticos de Filipinas, to be opened during carnival week in February, 1922, under the auspices of the Colegio-Médico-Farmacéutico. Dentists and veterinarians have been invited to join the Quinta Asamblea. This is a departure from the usual custom, physicians and pharmacists being the only participants at previous congresses. The change was deemed proper by the general committee and in keeping with the trend of the times to bring together more and more men following allied professions.

VERMONT

New Hospital.—The new Springfield Hospital at Springfield, with a capacity of thirty beds, is being completed and will be occupied about December 1.

TEXAS

Personal.—Dr. Richard L. Cooke, U. S. Public Health Service, formerly stationed at Washington, D. C., has been sent to Houston to take charge of health work at Camp Logan, where a large number of ex-service men are being taken care of. Dr. Cooke relieves Major Moreton A. Axline, who has been transferred to another station.

WASHINGTON

Children's Clinic Hospital.—As an outgrowth of the Junior Red Cross activities a children's hospital, practically equipped and partially supported by children themselves, has been established in Spokane. The Spokane Junior Red Cross has 16,000 members. They have made, and will renew periodically, the towels, bed linen, curtains and similar supplies for the hospital, and money from the Junior Red Cross purchased the full surgical equipment. The organization is now paying the salaries of two physicians, a dentist and a surgeon, as well as that of the attendant nurse. The board of education provides housing and fuel. There is no charge for treatment, but the parents of the children pay from 50 cents to \$5, depending on their financial circumstances.

CANADA

Gift of Roentgen-Ray Equipment to Hospital.—A roentgen-ray equipment has recently been installed in the Charlotte Eleanor Englehart Memorial Hospital, Petrolia, Ont., as a gift from the late J. L. Englehart, one of the founders of Imperial Oil, Ltd., and a former resident of the town.

Peel County Medical Association.—The postgraduate course now being conducted at Brampton by the Peel County Medical Association has been so successful that arrangements have been made to hold it annually. The course lasts for six weeks. Lectures have been given recently by Dr. William E. Gallie, Dr. J. G. Middleton, and Dr. George S. Strathy, Toronto.

Hospital News.—In the annual report of the Woman's College Hospital, Toronto, special reference was made to the outdoor department, where 2,242 patients were treated during the year; 347 births took place in the hospital, while there were only twenty-six deaths. Of the 1,270 patients treated in the hospital during the year, 1,128 came from Toronto.

Royal Canadian Institute.—At a meeting of the Royal Canadian Institute held recently at the University of Toronto, Lieut.-Col. R. McCarrison, M.D., F.R.C.P., Laureate of the Academy of Medicine, Paris, France, gave an address on "Diet and Malnutrition." Lieut.-Col. McCarrison is in charge of important research work carried on by the Indian Medical Service in connection with the various diseases peculiar to India. During his stay in the city Colonel McCarrison is the guest of Prof. J. J. R. McLeod of the Faculty of Medicine, University of Toronto.

GENERAL

Southern Medical Association.—The fifteenth annual meeting of the Southern Medical Association of which Dr. Jerry L. Crooks, Jackson, Tenn., is president, will be held November 14-17, at Hot Springs, under the auspices of the Garland County-Hot Springs Medical Society and the Arkansas Medical Society.

Personal.—Dr. Clemens von Pirquet, Vienna, whose "pelidisi" formula for computing degrees of malnutrition was used by the American relief administration, in determining the most undernourished children in Austria at a time when every ration counted, has arrived in New York. He will deliver the Stillman course of lectures at Yale University this winter.

Journal of Orthopaedic Surgery.—Beginning with the January issue, the *Journal of Orthopaedic Surgery*, the official organ of the American Orthopedic Association and of the British Orthopaedic Association, has announced that the publication will change from a monthly to a quarterly publication. The journal will continue to be published in Boston under the existing management.

National Society for the Promotion of Occupational Therapy.—At the close of the recent session of the society at Baltimore, reported in THE JOURNAL, October 29, Dr. Herbert J. Hall, Marblehead, Mass., was reelected president. Dr. G. Canby Robinson, dean and professor of medicine, Vanderbilt University, Nashville, Tenn., is vice president, and Mrs. Eleanor Clarke Slagle, secretary-treasurer. Boston was selected for the 1922 convention.

National Anesthesia Research Society.—The board of governors of this organization at the convention held in Kansas City, Mo., October 24-28, decided to call a world's convention of anesthetists to be held in conjunction with the next annual meeting which will take place at Columbus, Ohio, in October, 1922. Invitations to participate will soon be sent to the leading and representative anesthetists in London, Paris, Vienna, Buenos Aires, Sydney and other world centers of importance.

Committee on Welfare of Immigrants.—Secretary of Labor Davis has appointed a special committee to consider the welfare of immigrants coming through the principal ports of entry of the United States. The members are: Fred C. Croxton, chairman of the Ohio council of social agencies; Miss Julia Lathrop, former head of the U. S. Children's Bureau; Miss Lola D. Lasker of New York. The committee has proceeded to Ellis Island, N. Y., to begin its work and later will visit the Boston and Philadelphia immigration stations.

Druggists Need No Special Permit to Supply Malt Liquors.—Druggists who hold permits authorizing them to handle and sell alcoholic liquors now have ample authority to sell beer for medicinal purposes, and no additional permit authority is necessary, it was announced recently at the Internal Revenue Bureau. Druggists, in their applications for permits to buy malt liquors, merely will be required to insert the words "malt liquors" or "beer" in such forms. Physicians will need no further authority or permits. This official view of the Internal Revenue Bureau dispels reports that the prohibition unit of the Treasury might require druggists to obtain new permits before they would be allowed to sell beer or other malt liquors.

New York and New England Association of Railway Surgeons.—The thirty-first annual session of the association was held, October 29, at New York City. Dr. George Chaffee, Binghamton, who is the founder, ex-president and corresponding secretary of the association, was presented with a

case containing \$222 in gold, in recognition of his devotion and loyalty to the association in his thirty years' of able service. The following officers were elected for the ensuing year: Dr. Donald Guthrie, Sayre, Pa., president; Dr. James K. Stockwell, Oswego, N. Y., vice president; Dr. Edgar Vander Veer, Albany, N. Y., second vice president; Dr. James M. Hamilton, Rutland, Vt., treasurer; Dr. Horace H. LeSeur, Batavia, N. Y., recording secretary, and Dr. George H. Chaffee, Binghamton, N. Y., corresponding secretary.

LATIN AMERICA

Vaccination in Haiti.—Vaccination for smallpox is a legal requirement in Haiti and the vaccination must be renewed every seven years. It has been ruled that a child shall be vaccinated within one or three months after birth. Free vaccination is to be provided by the national Public Health Service and the hospitals and dispensaries subsidized by the state.

Labbé in Brazil.—Prof. M. Labbé after leaving Buenos Aires visited S. Paulo, Brazil, where he delivered addresses on diabetes, endocrinology, acidosis in diabetes, and infant feeding. He was tendered a banquet and took a trip to the interior of the state. At Rio he was also tendered a banquet and delivered an important address in the medical school on anaphylaxis and the hemoclastic crisis.

Hookworm in El Salvador.—According to the last report by Dr. C. A. Bailey, representative of the Rockefeller Commission in El Salvador, 36,162 persons, i. e., 92 per cent. of the people in the district covered, were examined, and 19,710, i. e., 54 per cent., were found infected with hookworm. Treatment was given to 17,180 and on reexamination 41 per cent. were found cured.

Cancer in Cuba.—In the last number of *Sanidad y Beneficencia*, the official bulletin of the Cuban Department of Public Health, an editorial is devoted to the increase of cancer in Cuba. While the statistics are admittedly incomplete, from 480 reported deaths and death rate of 26.5 per hundred thousand in 1900, death has shown a constant increase. In 1919, the number of deaths reported was 1,379 and the death rate had risen to 47.98 per hundred thousand.

The "Gazeta Medica da Bahia."—After a long intermission, this exchange has resumed publication, thus entering on its fifty-second year. The editorial staff comprises eight of the professors in the medical school, with Dr. A. Novis and Dr. A. Sampaio Tavares as the directors. Among the articles in the opening number is one on the skin manifestations of bubonic plague by E. Araujo. Only sixty cases with manifestations in the skin were encountered among the 827 cases of plague at the isolation hospital in his charge at Bahia, and forty-one of the sixty died. Only eight recovered of the thirty-six presenting pustules.

Personal.—Prof. Miguel Jiménez López of Bogotá, who is a member of the senate of Colombia, has been appointed on the council of the ministry of foreign relations.—Prof. Diego Carbonell, minister from Venezuela, addressed the National Academy of Medicine at Rio de Janeiro, saying that both as a diplomat and physician, he regards leprosy as the most important international problem from the standpoints of pathology and hygiene. He was speaking during a discussion of the contagiousness of leprosy, in view of preventing further importation into Brazil.

Resolutions Adopted by Venezuela Medical Congress.—Among the sixteen resolutions adopted by the Third National Medical Congress of Venezuela, which convened at Valencia in June, were some advocating the foundation of leagues to combat tetanus in children and for other welfare and preventive work; the construction of aqueducts to improve the water supply where needed; means to prevent the importation of adulterated drugs, especially quinin, emetin and arsphenamin; exemption of wire mosquito netting from customs duties and an active campaign against venereal disease, tuberculosis, malaria and alcoholism. The number of the *Gaceta Médica de Caracas* containing the report of the congress has only just arrived. The meeting was the most largely attended of all that have been held. Its principal aim was the study of the diseases most common in Venezuela, and, above all, the medical geography of the country. For this it called on the cooperation of the profession throughout the whole land.

FOREIGN

Radium Mines in Austria.—The *Wiener klinische Wochenschrift* confirms the cable report that the radium production at Joachimsthal has passed into the hands of a British company.

Honor for Indian Woman Physician.—Dr. Satyapriya Ghosh, graduate of Calcutta University, has been admitted into fellowship of the Royal College of Surgeons. She is the first Indian woman physician to receive this honor.

New Professors at St. Andrews.—At the opening of the winter session of St. Andrews University, Scotland, the newly appointed professor of chemistry, Dr. Robert Robinson, F.R.S., and the newly appointed professor of bacteriology, Dr. William J. Tullock, were inducted into their respective offices.

Prizes of the Académie des Sciences at Paris.—Among the eighteen prizes recently awarded was one to E. Roubaud for his works on malaria in France and the disappearance of malaria in temperate climates. Others were awarded to Prof. E. Sacquépée for his works on gas gangrene, to Foveau de Courmelles for his works on radiotherapy, and to A. Vernes for his atlas of syphilimetry.

Fiftieth Anniversary of Swiss Medical Society.—The fiftieth annual meeting of the Société Médicale de la Suisse Romande was held in October at Lausanne, Dr. M. H. Monnier of Neuchâtel presiding. The main addresses were on anaphylaxis and immunity; the endocrine glands in scurvy, and Feissly's report of experimental research on thromboplastic medication as affecting the coagulation of the blood in normal and hemophilic conditions.

Postgraduate Lectures at Sheffield Hospitals.—A post-graduate course of lectures and demonstrations in the Sheffield hospitals has been arranged by the faculty of medicine of the University of Sheffield, and will be given on Wednesdays and Fridays, October 12 to December 16. The course was opened at the Sheffield Royal Infirmary, when Professor Connell dealt with fractures and Professor Mellanby with recent views on diet.

Endowment of Chair of Bacteriology at Leeds University.—Sir Edward Allen Brotherton, Bt., M.P., has given £20,000 to the University of Leeds for the development of bacterial study and research, more particularly in the interests of public health. This is the largest individual gift ever received at the University of Leeds. Sir Edward Brotherton, who is an ex-lord mayor of Leeds, is chairman of the university's advisory committee on the department of pathology and bacteriology. This department is engaged in research into pathologic and bacteriologic questions as well as with the instruction of students, and also performs the bacterial tests required by the public health department of the city of Leeds.

Personal.—Prof. P. Clairmont of Zurich took a party of 100 medical students to Vienna recently for a two weeks round of the hospitals and institutes.—The seventieth birthday of Dr. Fritzsche of Glarus, Switzerland, was celebrated by his friends in October, and the *Schweizerische medizinische Wochenschrift* dedicated one issue to him.—The *Gazette des Hôpitaux* gives an illustration of the large medal presented to Prof. J. Boeckel as he presided at the recent French Surgical Congress at Strasbourg. He had maintained through all the years of German occupancy of Alsace the *Gazette Médicale de Strasbourg* until the war began, when he returned to Lyons to work in the military hospitals.

Deaths in Other Countries

Dr. M. Denekamp, a retired physician of Rotterdam, long residing in Brussels, aged 76.—Dr. Hauben, formerly professor at the University of Brussels, aged 88.—Dr. Juan Antonio Rodríguez of Montevideo, founder of the Instituto Profilactico de la Sífilis, aged 47.—Dr. M. J. Bahia of Rio de Janeiro, killed in an automobile accident.—Dr. A. Pongs, privatdozent for internal medicine at Frankfort on-the-Main.—Dr. J. Adolpho da Silva, a leading physician of Bahia, Brazil.—Dr. M. A. Boullón Cayezudo of Madrid.

CORRECTION

Personal.—Dr. Ellen C. Potter, reported in THE JOURNAL, September 24, as having been appointed head of the bureau of child welfare in the Pennsylvania Department of Public Welfare, should have been given as a graduate of the Women's Medical College of Pennsylvania and not of the University of Pennsylvania.

Government Services

Federal Board of Hospitalization

For the purpose of coordinating the separate hospitalization activities of the medical department of the Army, the bureau of medicine and surgery of the Navy, the Public Health Service, St. Elizabeth's Hospital, the National Home for Disabled Volunteer Soldiers, the Office of the Commissioner of Indian Affairs, and the U. S. Veterans' Bureau, a Federal Board of Hospitalization has been organized. It is to be composed of the following officials: An official to be designated by the President, who shall be known as Chief Coordinator and who shall be president of the board; the Surgeon General of the Army; the Surgeon General of the Navy; the Surgeon General of the Public Health Service; the superintendent of St. Elizabeth's Hospital; the President, board of managers, National Home for Disabled Volunteer Soldiers; the Commissioner of Indian Affairs; and the director of the U. S. Veterans' Bureau. Brig. Gen. Charles E. Sawyer, the President's private physician, has been appointed chief coordinator. The duties of the board include consideration of all questions relative to the coordination of hospitalization of the departments represented; standardization of requirements, expedition of the interdepartmental use of existing government facilities and elimination of duplication in the purchase of supplies and the erection of buildings; also the formulation of plans designed to knit together in proper coordination the activities of the several departments and establishments, with a view to safeguarding the interests of the government and to increasing the usefulness and efficiency of the several organizations, and to report to the President thereon.

Brig. Gen. Sawyer, chief coordinator of the board, is authorized to preside over the board and to be responsible for its efficiency and for developing its activities along practical lines. After a full discussion of any question by the board, the decision of the chief coordinator is final as to any action to be taken or any policy to be pursued, but any member may appeal from the decision to his own immediate superior.

Regulations for Officers' Reserve Corps

A document of much interest to the medical profession of the United States has just been issued by the War Department. It is the regulations for the establishment of the Officers' Reserve Corps. As a result of its publication, a determined attempt will be made by the Surgeon General of the Army to induce as many as possible of the physicians and surgeons of the country to become members of this reserve organization. For this reason the regulations have been made extremely attractive to medical men engaged in private practice, both with reference to assignment to duties and to promotion. Experiences during the World War show that the organization of an effective medical reserve corps in times of peace is even more important than a reserve corps for the other branches of the service, because the first problem on assembling large bodies of troops for war is to be able to keep them in health. A brief summary of the regulations follows:

(a) Composition: The medical department reserve comprises medical, dental, veterinary, medical administration and sanitary sections. The medical, dental and veterinary sections are composed of graduates of reputable medical, dental and veterinary schools; the medical administrative section of persons having practical experiences in administrative duties pertaining to the Medical Department of the Army; the sanitary section of persons of broad experience and ability who have had practical experience in professions and occupations allied to special duties of the medical department exclusive of administrative duties. The latter comprises psychologists, sanitary engineers, food and nutrition experts, chemists, hospital architects, laboratory and roentgen-ray technicians, statisticians and technical men engaged in the production of supplies and appliances used by the medical department.

(b) Eligibility: Officers of the Army of the United States between April 6, 1917, and June 30, 1919, National Guard officers holding federally recognized commissions as such,

June 4, 1920, and persons who served in the army between these dates and were recommended for commission may be appointed on examination of military records, supplemented by personal examination if necessary. Civilians, that is, those without previous military service, are eligible for appointment in the Reserve Corps on examination. After Nov. 11, 1923, no appointments will be made solely on the examination of records, and former officers will have to stand the same examinations as civilians.

(c) Appointment of officers of the World War will not be made in a grade higher than that previously held in the army.

(d) Period of Appointment: Five years. A reappointment will generally be tendered without examination.

(e) Acceptance of Appointment: There must be a formal acceptance or declination within sixty days.

(f) Assignment: Every reserve officer is to be assigned to a unit for specific duty for which it is contemplated to use him in time of emergency and for which it is contemplated to train him in time of peace. Officers will generally be assigned to units in proximity to their homes.

(g) Classifications: As a basis for assignment of the officers of the medical department, reserve sections are classified by the Surgeon General according to their special qualifications as determined by a review of their entire military record and of the "personal report and statement of preferences of the reserve officers, themselves." Groups are accordingly made up representing every specialty of medical practice to the end that intelligent and appropriate assignments can be made. The two main groups are then separated—the territorial assignment group and the branch assignment group. The former comprises those officers especially suited to fill the positions in the medical department of the military units to be organized by the corps area commanders. The branch assignment group comprises those held for assignment by the Surgeon General to special duties and activities not included in those organized by the corps area commanders. These will include hospital functions behind the division, such as surgical, evacuation, convalescent and general hospitals, and other medical units of the communication zone of the interior.

(h) Active Duty: According to the law, no reserve officer shall be employed for more than fifteen days in any calendar year without his consent except in time of a national emergency expressly declared by Congress. So far as practicable, the personal desires of officers to be called to active duty will be considered when funds for training for only a portion of the reserve force in any year are available. The funds appropriated by Congress are at present insufficient to train any considerable number of reserve officers, even volunteers.

(i) Exemption from Active Duty: A reserve officer called to active duty for training purposes during any calendar year and on whom such duty, for business or other reasons, would work a hardship, will, on request, be exempt from such tour of duty.

(j) Pay and Allowances: These will be the same as for officers of the regular army of the same grade.

(k) Promotions: They are made under the following conditions:

1. An officer must signify his willingness and must be recommended to be examined for promotion.

2. An officer must have served the prescribed minimum time in the grade from which promotion is contemplated.

3. An officer must have satisfactorily passed the promotion examination.

The examinations for promotion are conducted by a board of three officers. The applicant for promotion must have served three years in the lower grade. He is given credit for double time for service during the war.

Surgeon General Ireland of the Regular Army has declared that the regulations are so advantageous as to offer an opportunity to every medical man in the country to enter the reserve corps and assist in the general scheme of medical preparedness for war.

MEDICAL OFFICERS, UNITED STATES NAVY, RELIEVED FROM ACTIVE DUTY

MASSACHUSETTS
Boston—Horton, W. V.

PENNSYLVANIA
York—Hostetter, R. D.

NEW YORK
New York—Finnegan, J. F.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 15, 1921.

The Medical Service of the Army After the War

At the war section of the Royal Society of Medicine, Sir John Goodwin, director-general of the Army Medical Service, delivered a presidential address on the medical service of the army after the war. He stated that, on the cessation of hostilities, the release of temporary officers to meet the requirements of the civil population, the closure of hospitals, so that expenditure might be reduced and public buildings used as hospitals might resume their normal function, the organization of a satisfactory dental service, and the bringing up to date of all orders, regulations and war establishments, so that these might be in accordance with modern requirements and with the lessons of the war, were pressing desiderata. At the time of the armistice, there were more than 364,000 military hospital beds in the United Kingdom alone; at present there are less than 8,000. An army dental corps has been established. The compilation of the official history of the war has been begun under the editorship of Sir William Macpherson. The object of the history is to preserve for future generations a record of war diseases as we encountered them during the course of the campaign. This record should prove of great value in future wars. But its value may also extend to peace time, for much important research work has been done in both medicine and surgery. The first volume of the medical history of the war, dealing with medical service in the United Kingdom, garrisons overseas, and the colonial expeditions is about to be issued. The first volume of the "Diseases of the War" is almost ready for issue, the first volume of the "Surgery of the War" is complete in galley proof, and the second volume of both these works is only awaiting the addition of a few chapters. A volume on the hygiene of the war is being prepared for the press next year, by Sir William Horrocks. A volume on the pathology of the war is also being prepared. Professional libraries are being established in all the larger military hospitals, so that officers may have at hand the most recent works for reference. The valuable Army Medical War Museum has already been described (*THE JOURNAL*, Oct. 15, 1921, p. 1266). The specimens have been mounted and exhibited as a special collection at the Royal College of Surgeons. The government has now decided to pay to the college \$37,500, and the college has generously agreed for this sum to house, maintain and care for, and complete the preparation of the entire pathologic collection of war specimens and also certain selected facial and orthopedic exhibits.

Marriage a Disqualification for an Official Post

A curious situation has arisen in the borough of St. Pancras (London). The assistant medical officer, a woman, had the audacity to marry. She was at once asked to resign by the borough council. She declined to do this and gave the following reasons: (1) Resignation on marriage was not a condition of her engagement. (2) No resolution has been passed by the council requiring women to resign on marriage, although the engagements of certain women had been terminated. (3) She sees no reason why she should be singled out from the other women physicians employed by the council for special inquiries and treatment. (4) She calls attention to the sex disqualification act of 1919, laying down the principle that "a person shall not be disqualified by sex or marriage from the exercise of any public function, or from

being appointed to or holding any civil or judicial post, or from entering or assuming or carrying on any civil profession or vocation." The Women's Local Government Society has forwarded a resolution to the council expressing the view that marriage should be no disqualification to the employment or the promotion of women in civil service, the teaching or other professions, or in industry, and that strong representations on this matter should be made to the government and local governing bodies. However, the council by a large majority decided to dismiss the medical officer.

The London Water Supply

The fifteenth annual report of the Metropolitan Water Board, by the director of water examination, Sir Alexander Houston, is an important contribution to the general question of the purification of raw river water. The methods adopted by the board are storage, filtration and, in recent years, chlorination. It was only as recently as 1902 that Houston observed that the number of excremental bacteria was enormously reduced by storage, and he later found that it devitalized the microbes of water-borne diseases, such as typhoid fever and cholera, and that it reduced the amount of suspended matter, color and ammoniacal nitrogen. This system has proved effective in providing a pure water supply, but it entails considerable cost in pumping. About five years ago it was decided to experiment with chlorination of a portion of the Thames water, which could be effected without pumping. The process proved so satisfactory that it has been continued, and a population of 2,000,000 has been supplied with chlorinated water without a single complaint as to taste. This substitution of chlorination for storage has effected an annual saving of \$100,000. Another advantage is that, while storage gives the least satisfactory results in winter, the results of chlorination are even better than in summer. The water so treated is tasteless and colorless, and absolute protection against epidemic water-borne disease is conferred, for the total elimination of *B. coli* shows that the typhoid bacillus and the cholera vibrio are destroyed.

Anthrax from Shaving Brushes

The prohibition of the importation of shaving brushes from Japan, because those imported from that country had been found to be contaminated with anthrax bacilli and were the source of cases of the disease in this country, has been reported in previous letters. The ministry of health has now issued a circular with regard to shaving brushes made in this country. The minister is advised that, as the hair in brushes after their manufacture cannot be effectively sterilized, it is essential for the protection of the public health that all practicable measures should be taken to insure that the hair used for making shaving brushes is efficiently disinfected before the brushes are manufactured. He draws attention to the methods of disinfecting hair recommended by a departmental committee on the disinfection of horsehair. The formaldehyd process for the disinfection of wool is equally efficient for hair but requires the installation of a special plant and machinery, and effect cannot immediately be given to it. Adequate disinfection of horsehair for shaving brushes by ordinary chemical processes is extremely difficult on account of the high resistance of the anthrax spores and the protection afforded to them by clots of blood, grease and other substances. The most trustworthy method of disinfection is by steam under pressure at a temperature which should not exceed 230 F., for at least thirty minutes. A higher temperature may seriously damage horsehair. The minister suggests that local authorities possessing efficient steam disinfecting apparatus should afford brush manufacturers facilities for disinfection of hair. Records should be kept of all material disinfected.

PARIS

(From Our Regular Correspondent)

Oct. 14, 1921.

Second Congress of the Association of French Speaking
Gynecologists and Obstetricians

The second congress of the Association of French Speaking Gynecologists and Obstetricians was recently held in Paris, from September 29 to October 1, under the presidency of Dr. J.-L. Faure, professor of clinical gynecology in the medical department of the University of Paris, who delivered an interesting lecture on the application of radium to uterine fibromas and uterine cancers. This lecture might well have been entitled, "The Future of Gynecology and Obstetrics." Dr. Faure believes that, in the course of the twentieth century, medicine will gradually reconquer from surgery what the latter has taken away from medicine, and it was with a certain tone of sadness that he said these words: "We who have participated in the wonderful expansion of surgery, who have seen it at what appears to be its apogee, and who feel that today it is in danger of losing something of the grandeur to which we have brought it, let us not view it with too much bitterness or too many regrets, if it should go down a gradual incline leading toward an unknown future . . . for whatever evolution it undergoes is sure to be for the good of humanity." On the other hand, Dr. Faure thinks that the future of obstetrics is destined to become more and more brilliant, for nothing can ever rock the immovable foundation of this branch of medicine. No doubt, some day, there will be no more accidents due to infection, but the weakness of human nature will remain, and there will always be enough cases to satisfy the obstetrician's need of action and his consciousness of the greatness of his specialty, even though such cases should be confined to the infinite variety of interventions necessitated by dystocia. The future will thus doubtless see the expansion of the operative field of obstetrics, while that of gynecology will gradually diminish.

THE THYROID IN RELATION TO PREGNANCY

Drs. Fruhinsholz and Parisot of Nancy were the essayists, and they treated the subject partly from the experimental and partly from the clinical standpoint. From the clinical angle, Fruhinsholz reviewed successively, as far as overactivity of the thyroid body is concerned, the forms of hyperthyroidism appearing before pregnancy, during pregnancy and after pregnancy. It would seem that pregnancy brings about, through a physiologic process, a state of compensatory hyperthyroidism, which tends to manifest itself more plainly during the second half of pregnancy. This hyperthyroidism may go beyond the limits of compensation, in the strict sense of the word, and may become pathologic. Evidence of pathologic hyperthyroidism may appear during any of the stages of pregnancy. Sometimes it does not betray itself until after delivery, as if it had been kept, throughout the period of pregnancy, in a sort of temporary neutralization. As a rule, a state of hyperthyroidism is not favorable to fecundation. Hyperthyroidism existing before pregnancy is often alleviated by the latter, as if the state of pregnancy brought neutralizing elements into action. However, hypothyroidism seems even less favorable to fecundation than hyperthyroidism. If fecundation occurs, in spite of this fact, the effect of pregnancy on preexisting hypothyroidism may be ameliorating (when the hypothyroidism is slight and the thyroid gland shows a sufficient reactional tendency to the gravidic stimulus); aggravated (when hypothyroidism is such that the gland does not possess sufficient power of adaptation to allow it to make the required effort toward restitution), or entirely indifferent. During the course of the discussion that followed this report, Dr. Bécclère of Paris stated that pregnancy is

rare in exophthalmic goiter on account of the fact that menstruation is usually suppressed. The most effectual treatment for exophthalmic goiter is roentgenotherapy, and, long before the disappearance of basedowian symptoms, menstruation reappears and this is one of the first signs of improvement. In case pregnancy brings about an aggravation of hyperthyroidism, Bécclère advises roentgenotherapy. He confirmed the alleviating effect of pregnancy on Basedow's syndrome, and reported the case of a woman who had several pregnancies and was in good health only during pregnancy. Just as hyperthyroidism suppresses menstruation, so the overactivity of also the pituitary gland causes amenorrhea, and, in the latter case, roentgenotherapeutic treatment likewise brings about a reappearance of the menses. It seems that the ovaries are very sensitive and that they reflect, through amenorrhea, the secretory disturbances of certain other glands.

HYSTERECTOMY IN ACUTE PUERPERAL INFECTION

According to Dr. Potvin of Brussels, who had been delegated to discuss the subject, the importance of this question lies in the frequency of acute puerperal infection, which, even at the present day, reaches at times 10 per cent. of all cases of childbirth. On the other hand, the difficulty in the choice of treatment must be reckoned with. The thought of saving the uterus should not be taken into account, but the physician should ask himself these two questions: (1) Is it too late for any other form of treatment than hysterectomy? (2) Can hysterectomy (either abdominal or vaginal) save the patient? Before reaching a decision, we must be sure that it is the uterus or the adnexa that is the principal or the only cause of the continuance of the infection. The essayist then discussed, in turn, the following questions: 1. Shall we consider hysterectomy as a means of treatment in acute puerperal infection? 2. At which moment and in what cases should it be performed? 3. What method of hysterectomy shall we employ? This important fact must be borne in mind: Retention of placental fragments is the substratum of the infection; these must be promptly removed from the organism, and if the infection still persists, it indicates that it had already passed beyond the stage at which it could have been checked by means of local treatment (curettage or écouvillonnage). If this local treatment (cleansing of the uterus in conjunction with injections of camphorated oil, etc.) does not give immediate results, and, more especially, if new complications arise, then we must resort to hysterectomy.

Dr. Cotte of Lyons, co-essayist, held that hysterectomy is only exceptionally indicated in acute puerperal infection. In the light of present-day knowledge, aside from the cases in which there is a lesion of the uterus necessitating its immediate removal, hysterectomy cannot be regarded, at the beginning of a puerperal infection, as a necessary intervention to check its evolution, for we have no means whatever of predicting at that moment how serious the infection will prove to be. Primary acute puerperal septicemia is still out of reach of known medical or surgical therapeutic means. However, we may resort to intervention for fear that the septicemic condition may be due to an unobserved local lesion, in which case we might regret later that we neglected to intervene. In acute forms, due to abortion, and especially to criminal abortion, hysterectomy should be done at once in grave cases which give the impression that curettage might risk spreading the infection. In other cases, when the usual means have not brought noticeable improvement, we must promptly resort to intervention. Vaginal hysterectomy, extolled for thirty years by J.-L. Faure, seems here particularly indicated; but intervention is especially important in remittent types of prolonged acute infection, which so often cause death by

secondary septicemia or secondary pyemia. When, on the one hand, signs of grave infection, with tendency to pyemia, repeated chills, etc., exist, and, on the other hand, the uterus, still enlarged, presents, upon examination of the lochia collected directly from its cavity, colonies of streptococci, it would seem that the best thing to do is to intervene without delay, by means of either vaginal hysterectomy or abdominal hysterectomy. The latter route will be chosen in cases in which there is a phlebitis of the veins supplying the uterus and ovaries; in cases in which the infection has spread beyond the pelvis toward the abdominal peritoneum, and when signs of peritoneal reaction appear in addition to signs of general infection.

Dr. Anderodias, associate professor of the School of Medicine of Bordeaux, spoke of the analogy that exists between a war wound and a uterine lesion, and endorsed the use of Carrel's method of intermittent irrigation by means of a rubber urethral sound. Of 152 infected women who were thus treated, 133 were cured in from two to eight days.

Dr. Bourcart of Geneva said that in the case of failure or inconstancy of the ordinary means, it is well to try to increase the natural defenses of the organism and particularly the antitoxic functions of the liver. He holds that insufficiency of the liver is due, above all, to circulatory insufficiency in the organ, and to improve the circulation he advises the daily application, for twenty or thirty minutes, of a light manual vibratory massage of the region of the liver and that patients be given exercises in deep breathing.

RADIUM THERAPY

Prof. J.-L. Faure believes that the time is not yet come when we can pass a definitive judgment on the treatment of fibromas with radium. A surgeon who loves his art should make a real effort to remain impartial in debates on the question, in which all sorts of ideas and the most conflicting opinions are heard. Faure thinks that a great number of patients, more especially those who are suffering from hemorrhagic fibromas of moderate size, should be treated with radium. These are the patients who will be most benefited by such treatment, and it should be recommended to them, and, since there are many such, representing as they do perhaps the majority of patients with fibromas requiring treatment, an important field is thus opened to radium therapy. There are also other patients for whom this treatment should be endorsed; namely, those who seem too weak to undergo so radical an operation as abdominal hysterectomy. Although, when it is properly performed and no particular operative difficulties occur, abdominal hysterectomy requires only a quarter of an hour and causes the loss of only a few drops of blood, it is nevertheless a trying operation for exhausted, bloodless and obese patients; especially the last mentioned, as is well known, do not bear abdominal operations well, and such operations are also more difficult to perform on them than on others. The majority of other patients should be operated on.

Dr. Hartmann, professor of clinical surgery in the medical department of the University of Paris, submitted a report on radium therapy as applied to cancer of the cervix uteri and of the body of the uterus. From this report it appears that cancer of the uterus is the type of malignant growth that has benefited most from the introduction of radium therapy into surgical therapeutics. For frankly inoperable cancers the use of radium therapy and its superiority to palliative treatment are unquestionable. It arrests bloody or other discharges, reduces the pain, cicatrizes ulcerations, seems to check, for a while at least, the progress of the disease, and brings about a manifest improvement in the general condition of the patient. Should we combine intra-abdominal radium therapy or deep roentgenotherapy with vaginal appli-

cations? This question has been a subject for investigation, of late, and we can now assert that by these various treatments—if not cures—at least unexpected ameliorations have been realized in cases that were previously considered incurable.

Dr. Koenig of Geneva spoke, in his report, on radium therapy as applied to hemorrhagic metritis apart from cancer and uterine fibromas. He does not regard radium therapy as a panacea for uterine hemorrhage any more than he does a curet. Within the narrow limits of these indications, we can already affirm that radium is a sure and prompt hemostatic for all uterine hemorrhages not due to cancer, to fibroma, to neoplasia or to inflammations of the adnexa. It is harmless as applied to women 40 years of age or more, in whom the interruption of menstruation, while it may not be absolutely desirable, does not cause serious disturbances. In such cases it is the preferred treatment and may be used without hesitation to the exclusion of all other gynecologic methods. With respect to younger women, in whom it is important to preserve the normal function of the ovary, radium therapy, until such time as the technic of radium application shall permit a more exact gradation of dosage, will remain contraindicated unless all ordinary gynecologic methods of treatment have failed. The presence of adnexitis, if acute, is an absolute contraindication to radium therapy in any form, and if it is chronic, intra-uterine radium therapy is contraindicated.

BELGIUM

(From Our Regular Correspondent)

Liège, Oct. 19, 1921.

Measures Against Dissemination of Transmissible Diseases

The minister of the interior has directed the attention of the physicians on whom rests the important duty of supervising the fulfilment of sanitary measures to the following points: 1. In all frank or suspicious cases of transmissible diseases; more especially, pulmonary tuberculosis, typhoid fever, smallpox, diphtheria, scarlet fever, dysentery, cholera morbus, so-called epidemic cerebrospinal meningitis, puerperal fever, syphilis, gonorrhea, etc., in which the services of health officers have been solicited, they should promptly institute, in conjunction with the necessary treatment, all indicated prophylactic measures and see that they are carried out, in order to prevent contagion and the dissemination of infectious organisms. 2. They should suggest, and if need be, take personally the necessary steps to insure the effective isolation of patients. The persons with whom patients come in contact should be given the necessary instructions to insure the efficacy of these measures. 3. They should report all cases to the chief health officer of their province, in accordance with the instructions contained in the royal edict of Feb. 13, 1915. 4. They should encourage bacteriologic or biologic diagnosis in all suspicious cases but, more especially, cases of typhoid fever, diphtheria, dysentery, pulmonary tuberculosis, venereal diseases, cancer, etc. 5. They should attend regularly to the disinfection of patients and, if need be, of nurses, utensils, rooms, etc., during the course of the disease and see to the final disinfection at the termination of the disease. 6. They should instruct the patients and their friends and attendants in the precautions to be taken to prevent dissemination of certain diseases (typhoid fever, diphtheria, etc.) by bacillus carriers.

Education of Abnormal Children

Dr. Decroly recently submitted an interesting report on the aid to be given to abnormal children and to those in general who cannot take advantage of the ordinary educational institutions. In the same manner that we now lend assistance in grave and pronounced cases—to the deaf, the

blind, the insane and the sick—so likewise, in accordance with the principle of public instruction—let us say, compulsory education—we should instruct and educate the other categories of children who cannot take advantage of the ordinary schools and who constitute an obstacle to the good functioning of the school. The problem raises four essential questions: 1. What children should be considered as needing a new regimen or special instruction? (1) Those who on entering school are declared, after observation and examination by competent persons, to be unfit to follow ordinary courses of instruction and who also constitute an obstacle or a frank and continual menace to their comrades; (2) those who are found, while attending school and after previous examination by competent persons, to be in the same condition as those previously mentioned, and (3) those who, on account of sickness, irregular attendance, apart from all disturbances of sensory, mental or motor functions, are at least two years behind in their studies. Dr. Decroly recommends the creation of classes in which these abnormal children can be fully educated and demands at least one school in every rural commune, that will serve several communes, accommodating both boarding and day pupils. Before the children are assigned to classes, they will be subjected to a very careful examination, which will take into account the information obtained by looking up antecedents and school and family reactions, the environment in which the child has been reared, physical examination and the application of tests enabling the authorities to secure data on the sensory, intellectual, emotional and motor state. This system, which ought to become general in Belgium, exists already in certain centers, especially in the province of Brabant, where provincial institutes and a medicopedagogic clinic have been established.

Compulsory Physical Education in Belgium

Monsieur Destrée, minister of science and art, among whose functions public instruction and consequently physical education are also included, has introduced a bill providing for compulsory physical education in all educational institutions under government supervision or subsidized by the state. Young men not attending any educational institution are directed to register for physical instruction with certain authorized societies. The bill provides also for a council on physical education, in connection with the ministry of science and art, with the duty of giving advice, either on request of the minister or voluntarily, on all questions pertaining to physical instruction, and especially in matters concerning courses and methods, the preparation to be required of instructors and special training courses for physical directors. The council is also empowered to promote any enterprise that will contribute to the development of physical education, to favor private undertakings and to render opinions on the qualifications of societies for physical instruction. In addition, communes of more than 5,000 inhabitants are obliged to install and to maintain at least a playground and a gymnasium, accessible to all children in the public schools, as well as to members of recognized societies. A swimming pool will also be established whenever possible. Communes may make use of private equipment if it fulfils the required conditions mentioned above. Several communes may also, if necessary, combine and use one establishment in common.

Shipment of Radium from the United States

On August 19, one gram (more exactly, 1.17 gm.) of radium, carefully packed and triply sealed in twenty small tubes, arrived in Belgium from the United States, via London. It was recently purchased by the Belgian Red Cross Society and is intended for use in the hospitals of the country. This gram of radium cost the Red Cross 900,000 francs. When the radium shall have been transferred into special tubes—

this operation being done in Paris by specialists—it will be sent back to Brussels and will be kept at the Red Cross Institute, where it will be at the disposal of patients. A certain well known practitioner, who has employed radium extensively in his private practice and is especially competent in the use of it, will doubtless be appointed to take charge of this special branch of service. All patients, irrespective of their economic status, may hereafter enjoy the benefit of radium therapy. Available funds in the hands of the Red Cross permitted the immediate purchase of the radium, whereas, if it had been left to the government or to any hospital service, several years would doubtless have elapsed before the purchase could have been made. Moreover, it would never have been placed at the disposal of all patients throughout Belgium, as will be the case now that it is under the control of the Red Cross Institute.

VIENNA

(From Our Regular Correspondent)

Oct. 15, 1921.

Damages Claimed by the Donor of Blood in a Case of Transfusion

Some time ago, the supreme court of justice was called on to decide as to the validity of a claim for damages, which a young girl was said to have sustained by the act of giving blood for a transfusion without her consent being asked. It appeared that the girl, a primipara, aged 18, was an inmate of the first gynecologic clinic, awaiting there the delivery of her child. She was called one night into the operating theater, and a quantity of blood said to have amounted to half a pint (236 c.c.) was taken from her arm vein. She did not remonstrate at that time. Later on she was told that she had done an invaluable service to the clinic by giving her blood to transfuse it into a very ill woman, at that time a patient at the clinic, and a small sum of money was given to her. The girl now claimed that since that time she had decidedly lost in health, had become weakly and anemic, and could no more make up for the loss of the blood. After protracted hearings—the action took more than a year—the ordinary court decided that the girl had not been wronged and that her complaints were not due to the loss of blood, as alleged. The clinical physicians, in a rider, were criticized for not having told beforehand to the girl that she would have to act as donor. The court of appeal consented to that judgment, and put it down as a rule that, transfusion being a recognized method of treatment, its use should not be discontinued as long as healthy blood was available to save a life, and the donor was not put to considerable disadvantage or did not distinctly refuse to give his (or her) blood. The legal proceedings of that case were watched with great interest by the profession because an important question was at stake.

Government Promotion of Graduate Medical Instruction for Country Practitioners

For about a year, regular courses, lasting from one to two weeks, and comprising the most important subjects necessary for the country practitioner in order to keep up his scientific standard, have been organized by the ministry of health for such men as apply for it. These classes are held four times a year, either in Vienna or in one of the capital towns of the provinces, where a large hospital enables the lecturers to show the practical side of the classes as well. Only a nominal fee is charged, and a large percentage of the members of such classes find free board and lodgings at the cost of the state in the hospitals or in hotels. Physicians are eligible to these classes only through the agency of their respective medical boards, and cannot apply more often than once every

two years. Among the subjects thus chosen are: the duties of a school physician; the work of a doctor of public health; inspection of meat, cattle and agricultural products; general hygienic and prophylactic methods; modern serotherapeutics; modern biology and climatology; the advances of surgery and of organotherapy; treatment by roentgen rays and radium; cancer in women, and its early detection and others. The advantages to the general practitioner thus offered nearly free of charge have resulted in a steady increase of the bookings for these classes, and the idea is regarded by the profession as one of the happiest that the ministry has adopted.

The Vienna Lupus Institute

Our city boasts of an institute for treatment of lupus which has no rival on the continent, and this in spite of the reduced means of our state. In 1913, a thoroughly equipped building had been erected and put in working order, but only a few weeks before the outbreak of the war it was opened officially and did excellent work during the war and thereafter. Situated in a lofty area of nearly 20,000 square meters (23,923 square yards), 18,000 square meters (21,530 square yards) being garden and 2,000 square meters (2,393 square yards) being covered by buildings and pavilions, it commands an excellent view, is swept by breezes and is in clear sunshine. The house is finished in white; it contains six large compounds of Finsen apparatus, each compound consisting of four lamps so that twenty-four patients can be treated at one time, or more than 200 a day, on the lines worked out by Dr. Finsen. In the three stories of the building, there are special rooms for the treatment of the mucous membranes and the eye, nose, larynx and ears; two dressing rooms for postoperative treatment; laboratories for chemical, bacteriologic and microscopic examinations; a photographic outfit, with laboratory; a roentgen-ray department with the latest apparatus; a modern operating theater; a room with three quartz lamps; a room for radium treatment, and disinfection plants. The institute will accommodate from eighty to a hundred patients, including about twenty children. It must be kept in mind that a proportion of the patients, especially those from abroad or from the country, will not find lodgings, owing to the disfigurement produced by their disease. These are received on part time. Of course, ample arrangements for baths—Turkish, swimming and tub—have been made, besides the required administrative and recreative buildings. A special feature is the roof garden adopted for open air treatment, combined with constant insolation as at Leysin (Switzerland) in Dr. Rollier's Hospital for Tuberculosis. Since the opening of the first home for lupus some time before the war, no fewer than 5,825 persons have applied for treatment, of whom 42 per cent. were males; 15 per cent. were children under 14 years of age. The number of cases of lupus was 3,100; the remainder consisted of dermatoses of other nature. Up to the end of 1914, no less than 398 lupus patients were treated by plastic operations, while now the figure stands at 639. The remainder were subjected to roentgen-ray treatment (36 per cent.), radium (20 per cent.), uviole lamp (6 per cent.), Finsen light (15 per cent.), while the rest were treated with high frequency current, artificial sunlight, or diathermy. As regards the result, the Finsen light gave a very satisfactory method of treatment also for lupus erythematosus, acne rosacea, superficial nevi, alopecia and trachoma. The latter disease was cured by repeated sittings of from ten to twenty minutes each, while lupus required sittings between fifty and eighty minutes. Excellent results are obtained also by plastic operations, which are also the quickest method for a cure. The material at the disposal of the institute showed that tuberculosis of the skin began in the first years of life in more than 3 per cent., or in 19 per cent. if the first five years was considered.

A marked drop occurred at the age of 18 and onward, while from the forty-eighth year the beginning of the disease seems to be rather an exception. But there were cases in which illness commenced not before the sixty-eighth year, and even in the seventy-second year (four cases). The occupation does not seem to play a prominent part; domestic servants are rather often victims of the disease, but all other occupations are also present among the patients. However, there was not a single physician in the number. The patients came—and still are coming—from all parts of the world: Italians, Russians, Egyptians, Turks, Chinese, Greeks and negroes. A special department has been devoted to nasal prosthesis, in order to hide the disfigurement of numerous patients, which makes them unfit for social work. The artificial noses are modeled from a special composition of wax, being very elastic and having a melting point of from 60 to 70 C. (140 to 158 F.), colored in a most artistic way, and really hardly discernible even on close inspection. The only drawback is their short durability, which necessitates frequent renovation; but the patient soon learns to do this himself, and thus becomes independent of the institute.

Marriages

DANIEL W. SHUMAKER, Dover, Ohio, to Mrs. Matie C. McCullough of New Philadelphia, Ohio, at Washington, D. C., October 19.

EDWARD DUNCAN MIDDLETON, Davenport, Iowa, to Miss Nora Seccombe of Peterboro, N. H., October 20.

PEYTON MONCURE CHICHESTER, Richmond, Va., to Miss Marie Cunningham of Savannah, Ga., August 18.

NICANDRO FRANCIS DECESARE, Lawrence, Mass., to Miss Ada Victoria Moulton of Eliot, Me., October 5.

WILLIAM EDWARD DONOHUE, Manitowoc, Wis., to Miss Kathryn Carey of Berlin, Wis., September 14.

HAROLD SIMON HATCH, Indianapolis, to Miss Violet Wilmetta Brewer of Southport, Ind., August 5.

ROBERT L. MCCLURE, Gosport, Ind., to Miss Lorene J. Eaton of Princeton, Ind., at Franklin, August 22.

CHESTER WARREN HOWARD, Crawfordsville, Ind., to Miss LaVerna Schultz of Newtown, August 27.

MAURICE KELLOGG SMITH to Miss Margaret Perry Blanchard, both of New York City, October 29.

PHILIP W. WHITELY, Chicago, to Miss Florence Alice Kirchoff of Hampshire, Ill., October 11.

BURTON W. MACK, Philadelphia, to Miss Ruth Nicholson of Chicago, October 8, at Philadelphia.

FRANK CHURCHILL HODGES to Miss Aline S. Adams, both of Huntingdon, W. Va., September 14.

CLAUDE EDWIN HALE, Marshall, Mich., to Miss Ruth Ann Mauk of Martinsville, Ill., August 28.

WILLIAM SHARNLINE MIDDLETON to Miss Maude Webster, both of Madison, Wis., September 30.

GEORGE HANLON DAY, Louisville, Ky., to Miss Catherine C. Hilpp of Lebanon, September 22.

NICHOLAS FREDERICK WENY to Miss Gladys McClian, both of Little Rock, Ark., August 10.

KATHRYN MARION WHITTEN, Fort Wayne, Ind., to A. H. Unhank of Marion, August 24.

HENRY GOLDEN, Philadelphia, Pa., to Mrs. Anna Gee Goldstone of Chicago, October 30.

FREDERICK E. HARRISON to Miss Mittie Smith, both of Fordyce, Ark., September 28.

F. W. URTON, Louisville, Ky., to Miss Ida Cooper Pryor of Carrolton, September 20.

JOHN P. COUGHLIN to Miss Edwina Marie Suess, both of Chicago, October 20.

ALBERT J. RANDALL to Mrs. Lillian Galvin, both of Kenosha, Wis., September 30.

SIDNEY WIGGINS to Miss Pansy Jones, both of Rock Island, Ill., October 14.

Deaths

Thomas Bryan Roche, San Francisco; University of California, San Francisco, 1898; member of the San Francisco board of health; at one time superintendent of the City and County Hospital; served during the late war as captain, M. C., U. S. Army; member of the American Legion; died, October 20, from injuries received in an accident, aged 48.

Thomas C. Thornton, Lewisburg, Pa.; University of Vermont, Burlington, 1862; member of the Medical Society of the State of Pennsylvania; veteran of the Civil War; secretary of the board of health and health officer of Lewisburg; practitioner for over fifty years; died, October 21, from organic disease of the heart, aged 83.

George T. Mounsey ☉ Louisville, Ky.; Louisville Medical College, 1894; Hospital College of Medicine, Central University of Kentucky, Louisville, 1895; Kentucky School of Medicine, Louisville, 1899; formerly instructor in pediatrics, University of Louisville; died, October 23, from pleuropneumonia, aged 59.

Charles J. Boswell ☉ Mounds, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; surgeon of the Illinois Central Railroad for twenty years; member of the Illinois state board of health; mayor of Mounds for two terms; president of the state bank; died, October 22, from a duodenal ulcer, aged 45.

Henry J. Blankmeyer, Jr., Gabriels, N. Y.; Jefferson Medical College, Philadelphia, 1903; member of the Medical Society of the State of New York; resident physician at the Sanatorium Gabriels for fifteen years; died, October 22, at Philadelphia while on his vacation, from tuberculosis, aged 42.

Robert E. Jones ☉ Crystal Springs, Miss.; Eclectic Medical College, Cincinnati, 1868; Medical Department, University of Louisiana, New Orleans, 1869; practitioner for over half a century; at one time president of the Mississippi State Medical Association; died, October 25, aged 78.

Henry Clay Chisolm ☉ Huntingdon, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; member of the state legislature, 1897-1900; died, October 27, at Niagara Falls, where he had gone to recuperate from a general breakdown due to overwork, aged 62.

Henry H. Levy, Richmond, Va.; Medical College of Virginia, Richmond, 1871; emeritus professor of practice of medicine at his alma mater; died, October 20, at the Stuart Circle Hospital, after an illness of two years following fracture of the femur, aged 71.

John Wilson Gibbs, New York City; Eclectic Medical College of the City of New York, 1878; Civil War veteran; member of the state health department, 1881-1894; served as United States pension examiner in New York; died suddenly, October 28, aged 77.

Joseph T. Clarke ☉ San Francisco; University of Virginia, Charlottesville, 1887; colonel, M. C., U. S. Army, and served in the corps for thirty-two years; honorable discharge, June, 1901; died at the Presidio, October 25, from heart disease, aged 59.

Mary Lucinda Vincent, Chicago; University of Michigan, Ann Arbor, 1875; practitioner in Chicago for forty-two years; former physician at the Sarah Hackett Stevenson Home, where she died, November 2, from heart disease, aged 82.

Chambers Morton Lindley, Princeton, Ind.; Medical College of Ohio, Cincinnati, 1860; member of the Indiana State Medical Association; practitioner for over half a century; died, October 26, at the Methodist Hospital, aged 89.

John F. Stockwell ☉ Baton Rouge, La.; Memphis (Tenn.) Hospital Medical College, 1912; formerly on the staff of St. Joseph's Hospital, Memphis; former assistant parish health officer; died, October 26, from typhoid fever, aged 32.

Oscar W. Shreve, Holden, W. Va.; University of Louisville, Ky., 1910; died, October 22, from injuries received several months ago when hit on the head with the butt of a revolver by a drunken man, resulting in paralysis, aged 57.

Charles F. Carnes, Kosciusko, Miss.; Memphis (Tenn.) Hospital Medical College, Memphis, 1881; member of the Mississippi State Medical Association; died, October 18, at the Baptist Memorial Hospital, Memphis, aged 66.

Vilmas Condory, San Francisco; University of Budapest, Hungary, 1869; Spanish-American War veteran; died, Octo-

ber 28, in the Harbor Emergency Hospital, from chronic myocarditis and arteriosclerosis, aged 84.

William Marshall Alrich, Philadelphia; University of Pennsylvania, Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; died suddenly, October 27, from heart disease, aged 58.

Albert Spurgeon Barnes ☉ Columbus, Ohio; Rush Medical College, Chicago, 1900; member of the Columbus Academy of Medicine; took his own life by severing the femoral vein, October 23, aged 57.

L. P. Sorrell, Leasville, N. C.; Medical College of Virginia, Richmond, 1875; member of the Medical Society of the State of North Carolina; died, October 24, at the Rex Hospital, Raleigh, aged 72.

John Hiatt ☉ Ione, Wash.; Marion-Sims College of Medicine, St. Louis, 1892; served in the M. C., U. S. Army, during the late war; died at Spokane, Wash., October 11, from carcinoma, aged 49.

Albert Garfield Koch, Kansas City, Mo.; College of Physicians and Surgeons, Chicago, 1907; served during the late war as lieutenant, M. C., U. S. Army; died suddenly, October 23, aged 41.

Jeheil H. Patrick, New York City; University of City of New York, 1893; member of the Medical Association of Greater New York; died, October 25, from heart disease, aged 53.

Solomon S. Golden, Chicago; Chicago College of Medicine and Surgery, 1913; served in France during the late war as lieutenant, M. C., U. S. Army; died, November 3, aged 48.

Robert Walter, Walter's Park, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; died, October 26, at Reading, Pa., from a complication of diseases, aged 80.

Edward O'Reilly Maguire ☉ Derby, Conn.; Columbia University, College of Physicians and Surgeons, New York City, 1898; died, August 15, at New Haven, Conn., aged 49.

Espy Milo Williams, Monroe, La.; Medical Department Tulane University, New Orleans, 1904; was found died in his room at St. Francis Sanatorium, October 19, aged 41.

Samuel Stephen McCrum, Lone Oak, Texas; University of Nashville, Tenn., 1891; University of Tennessee, Memphis, 1892; died, September 22, in a local hospital, aged 63.

Jonathan Titus Deyo, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York City, 1870; died suddenly, October 27, from heart disease, aged 75.

Samuel W. Badger, Athens, Pa.; Bellevue Hospital College, New York City, 1873; member of the Medical Society of the State of New York; died, September 27, aged 70.

William A. Wiseman ☉ Camargo, Ill.; Jefferson Medical College, Philadelphia, 1886; president of the Douglas County Medical Association; died, October 15, aged 68.

Oba Haley, Frederickstown, Mo.; Missouri Medical College, St. Louis, 1879; member of the Missouri State Medical Association; died, September 20, aged 74.

Joseph P. Isley, Polo, Mo.; Eclectic Medical University, Kansas City, 1906; member of the Missouri State Medical Association; died, September 1, aged 44.

Everind Alexander Kirkpatrick, Halifax, N. S.; McGill University, Faculty of Medicine, Montreal, 1888; died, September 23, aged 60.

Charles Ross Bennett ☉ McHenry, Ky.; Chicago College of Medicine and Surgery, 1913; died, October 2, from angina pectoris, aged 35.

William H. DeLacy, Crestview, Fla.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1899; died, October 13, aged 43.

James Henry Phillips, Westlock, Alta., Canada; Rush Medical College, Chicago, 1878; formerly of Chicago; died, August 25.

Vera F. Bary, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1878; died suddenly, October 2, aged 75.

Elijah Alvis Davidson, Richmond, Tenn.; University of Nashville, 1873; died, October 12, from chronic nephritis, aged 76.

Cornelius L. Hatfield, Orenco, Ore.; Rush Medical College, Chicago, 1883; died, October 14, from senility, aged 76.

Frisby T. McKaig, Andrews, N. C.; University of Alabama, Mobile, 1890; died, August 25, aged 56.

☉ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

INTRAVENOUS COMPOUND (LOFFLER)

Its Composition and the Peculiar Methods by Which It Is Exploited

For some time past inquiries have been received regarding Charles Lyman Loffler, his Post-graduate Course in Intravenous Therapy and especially relative to "Intravenous Compound (Loffler)." For instance a physician writes:

"Can you tell me anything about the Physicians Drug Syndicate. . . . They are pushing the sale of Thymozene and offering One Hundred Dollars worth of stock fully paid and non-assessable, free to those sending in their order, and also a copy of Dr. Loffler's Lectures on the Blood."

And from another physician:

"What do you know of Charles Loffler, M.D., and his Intravenous Compound? A few evenings ago a man who appeared to be about 40 years old came to my office and tried to interest me in the above mentioned article; he claimed to be Dr. Charles Loffler of Chicago. With him was a young lady whom he introduced as Miss B——. Miss B——, said that she had been with Dr. X—— [a physician of high standing in Los Angeles] for two months and that he was using the Intravenous Compound; also quoted other physicians . . . His whole layout looks quackish and were it not for the fact that he showed me a letter that appeared to be from Dr. X—— I should not have given him a second thought."

And this also:

"Charles Loffler, M.D., or his agent was traveling around inducing one M.D. in each town to take up his methods of blood examination and treatment and with a little advertising of blood examinations free the doctor selected gets quite a run of patronage."

Another physician writes:

"My attention has been called by another physician to Loffler's Intravenous Compound. May I trouble you to give me any information that you may have with regard to its composition and its value as a therapeutic agent?"

C. L. Loffler does business from Rooms 1101-1102, Venetian Bldg., Chicago, the location of the "Intravenous Chemical Co.," the "Physicians Drug Syndicate" and the "Ma-Oze Chemical Co." Of these, more later. THE JOURNAL has in its files a large amount of material regarding Loffler. A brief resumé of that part of the material dealing with Loffler's professional activities will be given for the purpose of allowing physicians to evaluate the scientific status of Loffler's "Lectures," "Post-Graduate Courses," his therapeutic "discoveries" and his products.

It seems that Loffler was reared in Yankton, S. D. In 1898-1899 Loffler was a senior student at John Creighton Medical College, but, for reasons that need not be gone into here, he was never graduated. He received a diploma from Barnes Medical College in 1900, and in the same year was licensed to practice in South Dakota. In 1902 he was at Le Mars, Iowa; in 1904 his name appears in the medical directory, under Sioux Falls, S. D., as "Specialist in Chronic Troubles."

THE INTRAVENOUS COMPANY IN COLORADO

Charles L. Loffler's "specialty" is "Intravenous Medication." In 1912 and 1913, as the Intravenous Company of Colorado Springs, he was sending out a booklet entitled "Consumption." This described the alleged marvelous results to be obtained in the treatment of tuberculosis by the use of "Intravenous Compound"; there was also a side line, "The Loffler Internal Bath Plate." At that time the administration of "Intravenous Compound" was recommended intravenously, hypodermically, by rectum, by mouth and even by insufflation. When the stuff was to be given by rectum, the recommendation was made: "First wash out the bowels with a preliminary injection of two or three quarts of warm water, using for this purpose the Loffler Internal Bath."

In 1913 Loffler sought a larger field for his peculiar talents and left Colorado Springs. After a short stay in Denver he

is next found in Minneapolis, where he was also "engaged in the practice of intravenous therapy" and, incidentally, seems to have been an organizer and manager of a common law concern known as the Automatic Thrasher Co.

THE PHYSICIANS' DRUG SYNDICATE

In 1919 we find Loffler in Chicago as president of the "Physicians Drug Syndicate." This concern—another common law organization—had for its vice president one A. E. Erling, M.D., and for its secretary and treasurer, Arthur C. Hanson. Erling was discussed¹ in an article that appeared in THE JOURNAL, July 5, 1919, on the egregious "Allied Medical Association of America" of which organization C. L. Loffler was "President" in 1918.

Hanson, the secretary and treasurer of the Physicians Drug Syndicate, is said to have hailed originally from Minot, N. D., where he was in the drug business. His name appears in the Propaganda files as the manager of the Ma-Oze Chemical Co. of Minneapolis, which, in October, 1919, was advertising in a daily paper of that city:

"Protect yourself against influenza. Don't let the germs get a foothold in your system. Kill them with Ma-Oze Antiseptic Powder. Use it as a gargle. It is . . . sure death to all kinds of disease germs."

In a preliminary statement sent out by Hanson in the early part of 1919 it seems that the Physicians Drug Syndicate was conceived "primarily to supply physicians with a product to be used in Leucorrhea and personal cleanliness of women." This product, apparently, was the Ma-Oze of influenza fame in Minneapolis. It was to be put out, however, under the name of "Thymozene," which, "packed in 4 ounce unlabeled carton for dispensing," would "show nearly 100 per cent. profit to the organization over the profit which you make if you dispense your own drug."

THYMOZENE, FREE STOCK—AND EVERYTHING

In October, 1919, the Physicians Drug Syndicate was circularizing physicians in Iowa trying to get them to send in \$6 for "1 Dozen Thymozene 4 oz." For this \$6 the doctors were to get, in addition to the marvelous Thymozene, the following rights, privileges and emoluments:

1. A free Post-Graduate Course in Intravenous Therapy by Dr. Charles Loffler.
2. A gift of \$100 worth of stock in the Physicians Drug Syndicate.
3. A copy of Dr. Loffler's Lectures on Blood.
4. The privilege of purchasing future supplies of Thymozene "at wholesale prices less discount of 33⅓ per cent."

The letter making these offers mentioned incidentally:

"Besides our product Thymozene we have been forced to add a Uterine Wafer to be used in connection with hot Thymozene douches in Leucorrhea. These wafers are simply miracle workers."

1. Here is what THE JOURNAL published on Erling:

A. E. Erling, according to the stationery, is "Chairman" of "Censors." Our records fail to show that Erling ever graduated in medicine. The Health Department of Milwaukee, however, says that Erling, when interviewed, claimed to have "a diploma from the German Medical College of Chicago, but refused to show or present the same." The American Medical Directory has this item:

German Medical College, Chicago. Chartered Dec. 28, 1891, by Johann Malok. Fraudulent. Extinct.

A few years ago Erling was in La Crosse, Wis., and in 1908 a circular letter bearing his name and picture was sent out, from which the following extracts are taken. Capitalization as in the original:

"Dear Friend:—Permit me to call your attention to the fact that Dr. A. E. Erling, the eminent specialist, after many years of travel, practice and medical research, has given up his extensive road practice and severed his connection with the several medical institutes which have heretofore occupied considerable of his attention . . . Dr. Erling's success in the treatment of all CHRONIC DISEASES is truly remarkable. NERVOUSNESS, all BLOOD DISEASES, RHEUMATISM, DISEASES PECULIAR TO WOMEN, CATARRH, DEAFNESS, CHRONIC CONSTIPATION . . . APPENDICITIS . . . PILES, STOMACH TROUBLES, PARTIAL PARALYSIS, etc., give way as if by magic under his skilful method of treatment . . . Understand, please, that Dr. Erling DOES NOT ACCEPT A CASE FOR TREATMENT unless he can PROMISE A SPEEDY AND POSITIVELY PERMANENT CURE."

THE JOURNAL also has in its files advertisements (vintage of 1915), from some Wisconsin country newspapers, which notify the afflicted that "Drs. Erling and Karass, the expert German Specialists," could be seen in their offices in the "Schlegel Hotel," the "Schlitz Hotel," etc., as the case might be. Whether one of these "German Specialists" was Dr. Arnold E. Erling, THE JOURNAL does not know. Official medical records fail to show, at least, that there is any other Erling in the state of Wisconsin.

In addition to this circular letter there was a membership blank leaflet detailing the marvels of "Thymozene." There was another leaflet headed in very large, black type "Influenza" and recommending "Ma-Oze Antiseptic Powder" or "Thymozene" for this condition. Still another leaflet accompanying it lauded "Intravenous Compound (Loffler)" and reprinted laudatory puffs of this preparation that were credited to H. H. Witherstine, M.D., Rochester, Minn., Joseph B. Klinehans, M.D., Chicago, and the "Loring Park Sanatorium" of Minneapolis.

In addition to the Intravenous Compound (Loffler) there is, of course, certain "apparatus for the giving of the treatment", which the Intravenous Chemical Co. supplies. The "compound" must be given just so, and the Intravenous Chemical Co. "reserves the right to refuse to supply any physician with Intravenous Compound (Loffler) who, either through lack of proper apparatus or proper care in preparation of solution, or for any reason, uses it in such a manner that will cast discredit upon it."

The complete apparatus, including 2 ounces of Intravenous Compound (Loffler), sells for \$24. What is Intravenous Compound? Apparently, nobody knows except Charles L. Loffler who asks physicians to inject—and we regret to say some are injecting—this nostrum of unknown composition into the veins of their patients. To a physician who had raised the point of secrecy Loffler wrote in part:

"I am sure that you will agree with me that it is far better to place this treatment in the hands of competent physicians, such as Dr. Witherstine, and many more whose names I will gladly send you, and to protect the honest and competent doctor who investigates and takes up the work, than to publish the formula and give to the unscrupulous a chance to try to make the product and no doubt to claim to cure disease that is beyond hope. The formula is not kept secret for profit . . . but is so kept upon the advice of a number of good men who have the interest of the doctor at heart. . . . I am willing and anxious to place the product and the results in thousands of cases before the A. M. A. on the one condition that the formula shall be kept secret for the benefit of the reputable physician."

In another letter written more recently to a physician who called attention to the secrecy of the nostrum, Loffler wrote:

"The Intravenous Compound contains approximately 58 per cent. oxygen, 12 per cent. chlorine, 16 per cent. potassium, 9 per cent. sodium and 5 per cent. boron. I have no hesitancy in giving it, and it was due to an incompetent man in this office that this was not given fully in the booklet. He made the changes without my consent and has caused me to answer many inquiries by physicians."

A seeming frankness is a trick as old as nostrum exploitation itself. Loffler's "formula" is meaningless. A quack who was putting out a mixture of 1 part baking soda and 2 parts common salt might with equal frankness say that his marvelous combination contained approximately 35.4 per cent. sodium, 4.8 per cent. carbon, 19 per cent. oxygen, 40.4 per cent. chlorine, and 0.4 per cent. hydrogen.

In order that the profession might know more about this product a specimen was turned over to the A. M. A. Chemical Laboratory for analysis. Here is what the chemists report:

CHEMISTS' REPORT

"One original 2 ounce bottle of 'Intravenous Compound (Loffler) for Intravenous Use' was submitted to the Association's Chemical Laboratory for examination; according to the label the product is sold by the 'Intravenous Chemical Co., Chicago.' The bottle contained a white granular substance, which appeared as if the ingredients had been fused together. The product responded to tests for sodium, potassium, chlorate, borate and nitrate. As this same set of chemical radicals was found by Puckner and Hilpert (J. A. M. A., May 22, 1908, p. 1706) to be present in 'Oxychlorin' and 'Zyme-oid,' a quantitative comparison of 'Intravenous Compound (Loffler)' was made.

"The analysis indicated that all three products are essentially the same:

	OXYCHLORIN	ZYME-OID	INTRAVENOUS
	Per Cent.	Per Cent.	Per Cent.
Potassium (K ⁺).....	12.26	13.50	13.79
Sodium (Na ⁺).....	8.20	9.84	9.82
Boric acid anhydride (B ₂ O ₃)....	18.63	13.42	15.20
Chlorate (Cl O ₃ ⁻).....	25.52	27.53	26.44
Nitrate (NO ₃ ⁻).....	21.70	24.22	23.75
Water calculated.....	13.29	10.42	11.72

"Assuming that the chlorate in 'Intravenous Compound (Loffler)' is present as potassium chlorate and the nitrate

is present as sodium nitrate, the figures obtained by the analysis correspond to a mixture approximately as follows:

Potassium chlorate (KClO ₃).....	38.6 per cent.
Sodium nitrate (NaNO ₃).....	32.6 per cent.
Potassium borate (K ₂ B ₄ O ₇).....	4.9 per cent.
Sodium borate (Na ₂ B ₄ O ₇).....	4.0 per cent.
Boric acid.....	21.1 per cent.

"From the results of the examination it is concluded that this preparation is a mixture of alkali chlorate and nitrate and boric acid probably produced by fusing together the constituents. It is practically the same mixture as Oxychlorine and Zyme-oid as analyzed nearly fourteen years ago in the A. M. A. Chemical Laboratory."

Throughout the advertising of "Intravenous Compound (Loffler)" the physician is reminded of the financial returns that the product offers.

"... The financial return will prove as interesting to yourself as results are to the patients."

"And lastly but not less interesting, the financial returns are commensurate with results."

"... the instruction given me in the use of your Intravenous Compound and the opportunity presented adds four to five hundred dollars per month to my bank account."

"... will not only give you more positive results than have ever obtained in chronic and progressive diseases but a very remunerative business."

"Intravenous Compound (Loffler) is supplied in granular form, 2 ounces to a bottle, at \$2 per bottle. An ounce will average fifteen treatments and treatments are at from \$3 to \$5 each, according to the ability of the patient to pay."

A physician whose name the Intravenous Chemical Company had given as a user of Intravenous Compound (Loffler) was written to by another physician who was interested in the matter and he was asked frankly for his opinion. He replied in part:

"The treatment makes a profound impression on the recipient and is usually followed by a marked improvement mentally, and I have not been keen enough to draw the line of just how far the physical or material improvement went and when the psychical began.

"For the office 'specialist' of the advertising type this would be a boon, but I am not entirely satisfied that its use completely justifies its claims."

SUMMARY

Intravenous Compound (Loffler) stands revealed as a nostrum of secret composition which physicians are asked to inject into the veins of their patients. It must be purchased in connection with some supplementary material, "a complete set of apparatus," sold by the same concern. Its successful administration is said to depend on following a technic detailed either in a booklet sent out by Loffler or given by Loffler in a "Post-graduate Course" which costs physicians \$50 unless they have purchased six dollars' worth of another nostrum, "Thymozene."

The intravenous administration of drugs is impressive. To the patient the technic is mysterious and its psychic effect striking. Its dangers—infection, air-embolism, intravascular clotting, sudden death—are matters of record. Every conservative physician will admit that there is no excuse for the intravenous administration of even those drugs that are well known and whose effects have been carefully studied, except when distinct advantages are to be secured. As THE JOURNAL has stated before, "little is known of the results to be expected from intravenous therapy even with simple substances."

What, then, can be said of the physician who subjects his patients to the intravenous injection—"at from \$3 to \$5 each, according to the ability of the patient to pay"—of a preparation of whose composition he is as ignorant as he must be of its effects? Intravenous Compound (Loffler) has been on the market ten years; it is unmentioned in the literature of scientific medicine. The name of its exploiter while not unknown in the twilight zone of professionalism as the exploiter of a nostrum, as a "Specialist" in "Chronic Troubles" and "Intravenous Therapy," as well as in other capacities even less savory, is equally unknown to scientific medicine.

Mens Sana in Corpore Sano.—Every one knows that a splendid physique can be attained by means of continued and regular exercise of the muscles; but few realize that the same law applies to the mind, and that mental poise may be attained by the proper exercise of the mental faculties.—R. R. Spencer, *Nation's Health* 3:540 (Oct.) 1921.

Correspondence

"PULMONARY ABSCESS IN ADULTS FOLLOWING TONSILLECTOMY UNDER GENERAL ANESTHESIA"

To the Editor:—In THE JOURNAL, Oct. 22, 1921, p. 1313, Drs. Lewis Fisher and A. J. Cohen have an article on "Pulmonary Abscess in Adults Following Tonsillectomy Under General Anesthesia." I have read this with great interest, partly because both in the body of the article and in the discussion, my name is mentioned several times, and partly because I expressed some views—apparently most unpopular news—on this subject in THE JOURNAL (April 3, 1920, p. 941). In referring to these views, Drs. Fisher and Cohen are responsible for the following paragraph:

Use of the Motor-Driven Ether Vaporizing Apparatus.—This, as a cause, can probably be dismissed with very little consideration.

It is not unlike the statement made by the wife of one of my colleagues, who, when suing him for divorce, alleged in the public press that she frequently saw her husband out driving, in a motor car, with a lady whose society he apparently preferred, and that, upon encountering his wife, he passed her by "with an airy wave of the hand."

Now, I happen, like the wife, to be one of those not meek persons who refuse to be convinced by a gesture. I am not, by any means, certain that Drs. Fisher and Cohen have proved, by their summary sentence, that the lady they are riding with is Truth. Perhaps she is Error.

But, passing that, and simply reading into the minutes a humble request to have the reasons why motor-driven apparatus can "probably be dismissed" patiently and carefully explained to me, I wish to call attention to a statement made in the discussion, which I think is fundamentally pernicious. Dr. A. A. Hayden of Chicago, on page 1317, states that "because a lung abscess develops after a tonsillectomy, it does not necessarily follow . . . that it is due to the operation." This is the sort of flattering unctious that operators are constantly laying to their souls, and they should not be allowed to, let us say, get away with it. The primary thing for laryngologists to recognize is that the operation is certainly responsible for the lung abscess. If the patients did not have the operation, they would certainly not have the lung abscess. There are no "probabilities" or "not necessities" about it at all. If any one deliberately maintains that lung abscesses following tonsillectomies are not the result of the tonsillectomies, he either doesn't know anything about tonsillectomies, or else he doesn't know anything about lung abscesses. And no progress will be made in the prevention of these lung abscesses unless that fact is seriously and uncompromisingly faced.

Since the publication of my article I have had an opportunity of seeing twelve more of these cases. I have seen no reasons radically to alter my opinions. I take a somewhat more defensible position by saying that all the single abscesses are due to aspiration of infective material. Several factors may be responsible for such aspiration. Abolition of the swallowing reflex by ether, the position of the patient, pressure from in front by motor-driven apparatus, a prepared lung soil—all may play their part. The thing to avoid is the aspiration. Drs. Fisher and Cohen argue for an embolic origin. There are unquestionably embolic lung abscesses, but they are multiple. A case in point is that of a woman in my service at the Kansas City General Hospital last fall, who had had a tonsillectomy done, under local anesthesia in a doctor's office, and a few days later developed abscess in the cervical lymph nodes, multiple lung abscesses, double

empyema of the pleural cavity, and femoral phlebitis. But that is not the usual clinical picture.

No one cause is operative exclusive of all others. But to deny the responsibility of the operation itself is to place oneself in the position of the surgeons of the preantiseptic era who contended that the operation did not cause the pus, but that it was a natural process of healing.

LOGAN CLENDENING, M.D., Kansas City, Mo.

POSTGRADUATE COURSE OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY

To the Editor:—The American Academy of Ophthalmology and Oto-Laryngology held its twenty-sixth annual session in Philadelphia, October 17 to 22. The first three days of the meeting were given over to the program of the regular annual session. Papers were read and discussed as usual. These were of the usual high order. Prof. J. Van der Hoeve, head of the department of ophthalmology of the University of Leyden, Holland, was the guest of honor, and as such addressed the academy.

The academy has in the neighborhood of 1,400 members. Seven hundred of these were in attendance. They came from all over the country and Canada. The Philippines sent one, as well as Honolulu.

The attention given the authors and the discussers of papers was noticeable in its intensity. The members in many instances held their seats continuously through entire sessions lasting three hours, morning and afternoon.

The outstanding feature of the session was the holding of a postgraduate course for the members, succeeding the annual session. This lasted three days. For this new feature 500 men registered and paid subscriptions.

The course opened Wednesday evening, October 19, by lectures, given by Professors Sachs of Washington University, St. Louis, and Prof. Van der Hoeve of Leyden. Every morning thereafter a joint session was held at the Academy of Natural Sciences, in which the borderlines of ophthalmology and otolaryngology were touched on. The afternoon sessions were section meetings, the section on ophthalmology meeting at the Academy of Natural Sciences and that on otolaryngology at the Medico-Chirurgical College.

The demonstrators were assembled from all over the country, some from university medical schools, some from independent medical schools and from no medical schools. The medical schools represented were: Leyden, Vienna (Professor Fuchs), Rush, Harvard, St. Louis, Colorado, Minnesota, Nebraska, Illinois, Pennsylvania, Michigan, Jefferson, Iowa, Columbia, Tulane, Cincinnati, Washington, the Post-Graduate, New York, Mayo Clinic, New York Eye and Ear Infirmary, Wills Eye Hospital, and Illinois Charitable Eye and Ear Infirmary; a faculty the like of which was never gathered together before for such a purpose.

The attention given the demonstrators was marked. To get the front seats, many went early. The most attentive students were the leaders of the academy and the demonstrators themselves. Prof. Van der Hoeve did not seem to miss a single word. Prof. Ernest Fuchs remarked: "You Americans have been coming to us to learn from us and now we have come to you to learn from you." Up to the last minute of the last sessions the attention and attendance did not languish. All seemed determined to hear the last word spoken.

Naturally, no such course or scheme of demonstrations could escape criticism. Some of it was rather caustic. I took particular pains to mingle freely with the registrants to listen to criticisms and to evoke them. The caustic criticisms

seem to come from the occasional attendants at the annual meetings and from those who seldom or never prepare and read papers or discuss the papers of others. Criticisms, constructive and commendatory, came from the regular attendants and from those who take enough interest in the welfare of the academy to prepare and read papers with becoming regularity. The latter were in the great majority, and regarded the scheme as a great success, urging its continuance indefinitely.

It proved to be a review, in part. But it was more than that. It proved to be a distinct inspiration, a thing we all need so much on the routine of our daily work.

GEORGE F. KEIPER, M.D., La Fayette, Ind.

"MELLON ISSUES BEER REGULATIONS"

To the Editor:—I was very sorry to read your editorial (THE JOURNAL, Oct. 29, 1921, p. 1425) opposing the granting to the medical profession the right to write prescriptions for beer. I regret to see our supposedly most representative medical journal line itself up with our professional reformers and other fanatics. In doing so, it no longer represents the consensus of the medical profession, and in stating that every physician who writes a prescription for beer does so from ulterior motives and prostitutes his profession, the editor utters a damnable untruth.

If I have a patient with an asthenic condition, underweight, circulation sluggish, extremities cold, blood pressure low, who becomes easily fatigued, and if my experience tells me that such a patient can be converted into a normal healthy being, by taking one or two bottles of beer per day—and I have seen many such cases—no narrow-minded editor has a right to prevent me from practicing my profession according to the best dictates of my experience.

I prefer to take my medical instruction from such recognized leaders of the profession as Jacobi, Hare, and our eminent physiologic chemists Atwater and Benedict, all of whom know the value of alcohol as a readily assimilable food, and a reliever of fatigue, and our best protein sparer—rather than the ipse dixit of an editor who scathingly condemns all physicians that dare to differ from his own narrow views. I am sure that every red blooded American agrees with me. This is still a free country, in spite of the efforts of reformers to destroy its freedom, and our medical journals should be the spokesmen for true liberalism of thought, and not for hide-bound reactionary ideas. Are we to become a nation similar to the Turks, enervated, fanatical, nonproductive? Or, rather, shall we emulate the example of the countries that have revealed true progress in the history of civilization—the countries whose inhabitants with very few exceptions have been moderate drinkers?

The only unfortunate feature is the fact that it should be necessary for a person to go to a physician for an important remedy, as well as a true food, that should be as easy to obtain as milk, and is no more harmful; when he needs no prescription for truly harmful drugs, such as barbitol, chloral, paregoric, bromo-seltzer, orangeine, antikamnia and midol, all of which have a large trail of deaths directly due to them.

Wake up Mr. Editor, and show a little broadness of mind.

LUCIUS FELIX HERZ, PH.B., M.D., New York.

To the Editor:—"Self respecting physicians should and will resent" attempts to prostitute the medical profession by Congress in presuming, with the aid of the Anti-Saloon League, to dictate to the medical profession what drugs it shall use, and how it shall use them, in the treatment of disease.

How strong is your support among physicians in your astigmatism on the prohibition question? I believe you

didn't receive any tremendous "vote of confidence" in the House of Delegates the last time the question came up, as I remember.

In your current editorial you really must have intended to use the word *travesty* in connection with the present day prohibition enforcement. Certainly it is hard to see how the fact that the Attorney-General obeys the law as it stands should be criticized.

ALBERT A. RAYLE, M.D., Athens, Ga.

PREVENTION OF COCAIN INTOXICATION BY ETHYL ALCOHOL IN SURGERY

To the Editor:—Referring to the special article on "Anesthesia in Nose and Throat Work" (THE JOURNAL, Oct. 22, 1921, p. 1336), I should like to call attention to an article on the prevention of cocain intoxication in its hypodermic use in surgery, which I published in the *Zentralblatt für Chirurgie* (1913, No. 44, p. 1705). An abstract of this article in Merck's Annual Report, "On Recent Advances in Pharmaceutical Chemistry and Therapeutics" (27:159, 1913) reads: "An important contribution on local anesthesia has been published by A. Herzfeld. He states that alcohol is an excellent drug for preventing acute cocain intoxication, such as may occur particularly in females who exhibit an idiosyncrasy to cocain, alcohol being the physiologic antidote of cocain. The author gives to every patient without exception a large dose, 25 to 50 c.c., of whisky or brandy by mouth ten to thirty minutes before the first injection of cocain. To women and children it is given in sugar and water (liqueur). With this treatment he has never had a single unpleasant experience in the course of four years in inducing local anesthesia by cocain. Herzfeld's suggestion is worthy of trial, especially in dentistry."

I have been using ethyl alcohol in its various forms for the prevention of cocain intoxication for twelve years, and I have not seen a single case of cocain poisoning in using cocain hydrochlorid or in one of its derivatives as a local anesthetic in my practice. In long continued operations the dose of the alcoholic liquor may have to be repeated.

ALFRED A. HERZFELD, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ADMINISTRATION OF TOXIN-ANTITOXIN WHEN SCHICK TEST IS NEGATIVE

To the Editor:—When the Schick test for susceptibility to diphtheria is negative in a patient, is there any risk whatever in administering diphtheria toxin-antitoxin to the patient? I ask this because, after having applied the test to about one dozen children, I failed to get a single positive reaction. On this account I am somewhat afraid that the Schick test has not shown the susceptibility to diphtheria when it may have existed.

L. M.—, Texas.

ANSWER.—There would be no more risk in administering diphtheria toxin-antitoxin to those giving a negative Schick reaction than to those giving a positive one. In persons who have a natural antitoxin immunity, as shown by a negative Schick test, a very decided increase in the amount of antitoxin follows injections of toxin-antitoxin (Park and Zingher: Reprint series, Dept. of Health of City of New York, 1916, No. 44, p. 11). Since, however, such persons are already immune, there is no need of subjecting them to the annoyance and possible discomfort of the injection.

The entire absence of positive reactions in about a dozen children leads to the suspicion that the toxin used was inactive.

Zingher has published some observations on the reliability of the Schick test (*THE JOURNAL*, Nov. 13, 1920, p. 1333). He found several Schick test outfits furnished by commercial laboratories unreliable, and containing insufficient toxin to give positive reactions in Schick-positive children. It is not unlikely that toxin in small outfits may deteriorate after leaving the manufacturer, especially if exposed to much fluctuation in temperature. The potency is best preserved at low temperatures. The toxin should be stored in the cold, and during transportation it would be desirable to insure it against variation in temperature, especially elevation, by packing in specially insulated containers.

DANDRUFF

To the Editor:—Kindly suggest some effective treatment for seborrhea (dandruff), a local variety affecting the hairy scalp, in the form of thin, dry scales, which are firmly adherent to the surface. The skin beneath is normal. It appeared about ten months ago in several patches on the scalp of a girl, aged 10. At this time the disease has invaded the scalp uniformly; scales hang loosely on the hair now. The father of this child has suffered from the same disease since childhood, and the disease has invaded the eyebrows, mustache and beard, and follows a similar course to that of the scalp.

J. S. WEBSTER, M.D., Paradise Valley, Neb.

ANSWER.—The most effective remedies for dandruff are mercurial and sulphur preparations. A good ointment is

	Gm. or Ce.	gr. xx-xxx
Salicylic acid	1.3 to 2	5i
Ammoniated mercury	4	5i
Rose ointment to make.....	30	5i

or a similar ointment in which the ammoniated mercury is replaced by the same amount of precipitated sulphur. Either of these ointments should be rubbed into the scalp two or three times a week while the condition is bad. As it improves, the interval between applications may be made longer. After the condition is much improved, an application once a week may be sufficient. Even after the condition has apparently disappeared, the greasing with one of these salves once in two weeks may well be continued, for the trouble has a persistent tendency to recur. While these salves are being used frequently, the scalp should be shampooed about once a week. A good soap for this purpose is a tar soap.

For parts other than the scalp, either of the same salves can be used in much weaker strength. On nonhairy parts it should, however, be diluted say down to 25 or 30 per cent. of the strengths given above at the beginning of treatment.

The use of salves, such as the foregoing, furnishes the best means of treating dandruff, but because of their rather unpleasant qualities on the scalp, lotions are used in their place. Lotions containing mercuric chlorid, resorcinol and various other antiseptics are used. They are not effective in well developed cases of dandruff, and will not cure them. They are useful in holding cases in check, and, perhaps, in preventing recurrence.

FULTON'S DIABETIC COMPOUND

To the Editor:—Will you please write me personally or tell in the next issue of *THE JOURNAL* what John J. Fulton's Diabetic Compound No. 2 contains?

A. L. THOMAS, M.D., Ennis, Texas.

ANSWER.—The Fulton nostrums ("Fulton's Diabetic Compound" and "Fulton's Renal Compound") were dealt with at some length in the Propaganda department of *THE JOURNAL*, Jan. 29, 1916. In March, 1917, the federal authorities issued reports on both the diabetic compound and the renal compound. The government declared that the claims made for each product "were false, misleading and fraudulent in that no ingredient or ingredients in the product or compound were capable of producing the therapeutic effects claimed for it." *THE JOURNAL's* original article on the nostrums and an abstract of the government's case against them appears in the pamphlet "Nostrums for Kidney Disease and Diabetes," price 15 cents.

ESTIVIN

To the Editor:—What is "Estevin," or something like that? It is said to be good in hay-fever.

CONSTANT READER.

ANSWER.—The product called "Estivin" is sold by Schieffelin and Company, New York. A request for a statement of the composition of this preparation sent to Schieffelin and Company by the Council on Pharmacy and Chemistry brought the indefinite and, therefore, meaningless statement that "'Estivin' is an extract of Rosa Gallica containing no alcoholic or foreign ingredients."

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, 1551 Canal St., New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

TEXAS: Dallas, Nov. 22-24. Sec., Dr. F. J. Crowe, 918-919 Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

CLEVELAND'S HOSPITAL SUPPLY

A bulletin issued September 1 by the Cleveland Hospital Council states that Cleveland already has 3,500 beds and that 1,500 more are needed. This would make a total of 5,000 beds in a city having a population of 796,838, or one bed to every 160 people. This is based on the assumption that there should be five beds for every 1,000 people. Statistics published in the Hospital Number of *THE JOURNAL* (April 16, 1921) show that last year in the fifty largest cities of this country there was on the average one bed for every 185 people. A tabulation shows that in Cleveland altogether 46,192 patients were cared for in hospitals during 1920 and of this number 15,358 (25 per cent.) paid full fees, 24,854 (54 per cent.) were part-pay, and 9,983 (21 per cent.) were free. The total number of patients cared for at the City Hospital was 5,947 (60 per cent.) of the free cases, while 4,036 of the free patients, and all of the part-pay patients were cared for in private charitable hospitals. This, as shown in the report, is "an unequal division of the burden." It is stated that recent bond issues provide for an additional 700 beds and, in proportion to the patients cared for in 800 beds during the last year, the 1,500 beds in the City Hospital will care for over 11,000 patients. This still leaves all of the part-pay patients to be cared for in the private charitable hospitals. The other 800 beds required to bring the total hospital bed capacity of Cleveland to 5,000 beds reported as essential will need to be provided by private funds.

New Hampshire March Examination

Dr. Charles Duncan, secretary, New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, March 10-11, 1921. The examination covered 11 subjects and included 80 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Boston.....		(1916)	81
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Homeopathic Medicine		(1913)	Mass.
Medical School of Maine.....		(1894), (1910)	Maine
Medical Dept. of the University of the City of New York		(1890)	New York

Idaho April Examination

Mr. Paul Davis, director, Department of Law Enforcement, reports the written examination held at Boise, April 3, 1921. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. One candidate was

licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University.....		(1902)	81.2
State University of Iowa College of Homeopathic Med.....		(1913)	87.5
Kansas Medical College, Topeka.....		(1904) 80.3,	(1912) 84
Kansas City Medical College.....		(1892)	75.5
St. Louis University School of Medicine.....		(1920)	84.4
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado.....		(1920)	Colorado
Chicago College of Medicine and Surgery.....		(1917)	Wyoming
Rush Medical College.....		(1903)	Colorado
Saginaw Valley Medical College.....		(1899)	Washington
University of Michigan Medical School.....		(1895)	Colorado
John A. Creighton Medical College.....		(1913)	Montana
University of Oregon.....		(1897)	Oregon
Vanderbilt University.....		(1899)	Montana
Milwaukee Medical College.....		(1905)	Washington
College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College.....		(1918) Nat'l Bd. Med. Ex.	

Iowa June Examination

Dr. Guilford H. Sumner, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 9-11, 1921. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Forty-six candidates were examined, all of whom passed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University.....		(1921)*	90.4
Rush Medical College.....		(1921)*	90.2
State University of Iowa College of Medicine.....		(1921)	83.1,
83.5, 85.4, 85.5, 85.6, 86.2, 86.5, 87, 87.1, 87.4,			87.6, 87.6, 87.6, 87.7, 88, 88, 88.1, 88.1, 88.1,
88.4, 88.4, 88.5, 88.7, 88.7, 88.9, 89, 89.1, 89.1,			89.1, 89.2, 89.4, 89.4, 90.1, 90.1, 90.6, 90.7, 90.7,
91, 91.1, 91.4, 91.5, 91.5			
Harvard University.....		(1920)	89.1
St. Louis University School of Medicine.....		(1921)	89
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery.....		(1914)	Illinois
College of Physicians and Surgeons, Chicago.....		(1895)	Minnesota
Hahnemann Medical College and Hosp. of Chicago.....		(1918)	Illinois
Jenner Medical College.....		(1909)	Illinois
Loyola University.....		(1917)	Wyoming
Rush Medical College.....		(1917)	Illinois
American Medical College.....		(1912)	Illinois
John A. Creighton Medical College.....		(1917)	Nebraska

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, July 12-13, 1921. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 25 candidates examined, 24 passed and 1 failed. Four candidates received duplicate licenses, 8 candidates were granted reregistration licenses, and 1 candidate's previous license was restored. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....		(1908)	78
Northwestern University.....		(1921)	78
Kansas City College of Medicine and Surgery.....		(1916)	87,
(1919)*			
St. Louis College of Physicians and Surgeons.....		(1921)	78
Washington University.....		(1921)	84, 85.5
University of Oklahoma.....		(1921)	76.5,
76.5, 77.5, 80, 80, 81, 81, 81, 81, 83, 84, 87, 87,			88, 90, 92.5
Western Reserve University.....		(1919)	83
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas.....		(1913)	Arkansas
Northwestern University.....		(1913)	Kansas
College of Physicians and Surgeons, Keokuk.....		(1888)	Colorado
University of Louisville Medical Department.....		(1903)	Kentucky
Washington University.....		(1919)	Missouri
Cincinnati College of Medicine and Surgery.....		(1902)	New Mexico
Western Reserve University.....		(1916)	Ohio
Memphis Hospital Medical College.....		(1902)	Arkansas
Sewanee Medical College.....		(1901)	Tennessee
University of Tennessee.....		(1895)	Texas
Fort Worth School of Medicine.....		(1900)	Texas
University of Texas.....		(1920)	Texas

* No grade given.

Miscellany

THOMAYER'S DISTRIBUTION OF THE PERCUSSION SOUND IN TUBERCULOUS PERITONITIS AND A SYMPTOM IN PERICARDIAL EFFUSION

Nearly forty years ago, Josef Thomayer (*Casop. lék. česk.*, 1883) published his observations on a typical distribution of the percussion sound in tuberculous peritonitis and in some cases of carcinoma of the peritoneum: the dullness reaches far higher on the left side of the abdomen than on the right, irrespectively of the position the patient assumes. This is caused by the oblique course of the root of the mesentery, which pulls in, contracting the intestine in the same direction, as Thomayer pointed out and confirmed by postmortem findings.

Another sign found by the same author in patients suffering from a great pericardial effusion (*Casop. lék. česk.*, 1913) is the suppression of the breathing murmur under the left clavicle with the patient in the horizontal position, the murmur returning immediately on resumption of the sitting posture. The pressure on the left bronchus caused by the falling back of the heavy pericardial sac accounts for the sign.

MEDICINE IN CHILE

Dr. Eduardo Moore¹ has compiled a complete list of physicians who have practiced in Chile in the four centuries (1520-1920) since the country was first discovered by Magalhães. About 2,000 (1,997) physicians practiced in Chile in that period. There are at present 969 practicing physicians besides seventy-six about to be licensed. As Chile has a population of about 5,000,000, this makes one physician for every 4,785 inhabitants. Twenty-three of the physicians are women. There are 856 students in the medical school, of whom fifty are women. The first physician to practice in Chile was Juan D. Morales, who was Magalhães' surgeon on the *Trinidad*, and who landed with his chief when the latter discovered the famous Strait, Nov. 1, 1520. He stayed on Chilean soil only twenty-seven days. The second physician to visit Chile came with Loaysa and Elcano's expedition in 1525, but his name has remained unknown. The third was E. Herrera de Hernando, who accompanied Almagro in his ill fated conquest trip in 1536 as far as Copiapó. Another physician, A. Marín, accompanied Almagro but did not get beyond the Aconcagua Valley. He remained twenty months in the country, asking 5,000 gold castellanos for his services. The first physician to settle in Santiago (the fifth to visit the country) was Castro, who arrived in 1552. He was for a while the only one in the country. In the next few years, more physicians arrived, among them F. Zavala de Estéban, Charles V's own physician, who came to take his grandchildren home. In 1566 the first protophysician had already been appointed, Alonso D. Villadiego, and examinations were regularly held for all those desiring to practice medicine. The first inoculations of smallpox virus were made by a monk, Pedro Manuel Chaparro, in 1772 with success. Jennerian vaccination was introduced by J. J. Grajales early in the nineteenth century, and vaccine virus by J. J. García Quintana, about 1872. There was at least one hospital as early as 1580. A physician, Camilo Henríquez, founded, *La Aurora*, the first newspaper in Chile; and two French physicians, Daizion Lavayne and Gay, were the founders and first two directors of the national museum. Until recently, medicine was a cosmopolitan profession in Chile. British graduates have especially been numerous, several of them—Brink, Bleakley, Carpenter, Clarke, Davis, Douglas, Greene, Martin, Michael, McLaughlin, Sanders, Ward and Welsh—occupying the highest positions in the navy. In fact among the earliest physicians we find Winter, Drake's surgeon in his trip around the world in 1577, and Elliott, surgeon on the *Wager*, who was shipwrecked in 1640 on the island named after him and who died there later. Among the first four

1. Moore, Eduardo: *Nomino de Medicos que Han Residido en Chile*.

physicians graduated in Chile in 1842, one was named Mackenna. The course in medical instruction lasted ten years. American physicians seemed to have been rather scarce, the only names given being those of J. O. Cook, James W. Franklin, John Grady, W. R. Richardson, Frederick T. Shaw, S. Trumbull, R. Howard Tuttle and Olaf Page, who became surgeon general of the army. Medicine was taught for the first time in the University of San Felipe in 1756 by Domingo Nevin, a graduate of the medical school of Rheims, France. He was succeeded in 1773 by J. I. Zembrano, a graduate of the University of San Marcos of Lima. The first Chilean to graduate in medicine was J. A. Rios, in 1776, who later became the third professor of medicine.

Book Notices

THE CLINICAL STUDY AND TREATMENT OF SICK CHILDREN. By John Thomson, M.D., F.R.C.P., Consulting Physician to the Royal Edinburgh Hospital for Sick Children. Third edition. Cloth. Price, 32 shillings, 6 pence. Pp. 877, with 249 illustrations. Edinburgh: Oliver & Boyd, 1921.

This edition is said to have been largely rewritten, thus accounting for the larger size of the book. New chapters have been added on the food disorders, congenital malformations and derangements of the digestive tract, spasmophilia, acidosis and other subjects in which medical knowledge has advanced. The citations from the literature are numerous and well chosen, and contain many references to the work of American pediatricians. In the main, this is a textbook on clinical pediatrics for practitioners, and while the author believes that he has said little about pathology, his discussion of the etiology and pathogenesis of diseases, notably scurvy and rickets, is full and complete. Some of his opinions will doubtless give rise to dissent: in congenital stenosis of the pylorus he recognizes a "natural process of cure" which, while slow, is most effective, although in the acute cases the loss of weight and strength is so rapid that he thinks the risk of an operation is far less than that of prolonged medical treatment. The chapter on growth and development is good, especially that part dealing with the development of the sensory functions and their testing for clinical purposes. By observing closely changes from the normal in all the functions of the infant, much of value may be learned on which to base a diagnosis. Thomson devotes much space to this subject in the consideration of the infant's cry, how it nurses, sleeps, breathes, holds its hands and feet, and reacts to outside influence. Fifty pages are devoted to syphilis and tuberculosis. The chapter on therapeutics discusses many measures which unfortunately are not used as they should be, such as sponging, packs, douches, baths, fomentations, poultices, bleeding, the mechanical treatment of the stomach and intestines, the administration of medicines by mouth and hypodermically, and the local application of drugs. By no means the least valuable chapter is that at the end of the book in which many things are discussed, such as case taking; periods of incubation and infectiveness of contagious diseases; anaphylaxis; accessory food factors, or vitamins; technic for intravenous injections in infants, and directions to mothers with respect to paralyzed children and those who are mentally defective. Many formulas are given as well as recipes for the preparation of foods. The book is well illustrated and the index is very complete.

LIFE OF ELIE METCHNIKOFF, 1845-1916. By Olga Metchnikoff. Preface by Sir Ray Lankester, K.C.B., F.R.S. Cloth. Price, \$5. Pp. 294, with 1 illustration. New York: Houghton Mifflin Company, 1921.

It has been the opinion of most literary critics that biographies of great men written by wives or by other near relatives are invariably unsatisfactory. Until now the exception that proved the rule was the life of Pasteur by his son-in-law, Valery-Radot. To this exception must now be added the present volume. Madame Metchnikoff has prepared a book which may well stand with the Pasteur volume. It was the wish of Metchnikoff that she write this biography, and he contributed extensively to it; repeatedly it partakes of the nature of autobiography. The literary style, reveal-

ing traces of the influence of such Russian masters as Turgenev and Tolstoi, must be accredited wholly to Madame Metchnikoff and to the unnamed English translator.

The early steps in the career of the great biologist are traced with broad strokes revealing much without the intimate detail that makes dry and monotonous reading. We learn of the introspective character of the man, of his nervous temperament and of his innate pessimism. These features of his character caused him twice to attempt suicide before the age of 35. His enthusiasm for science was the vital feature of his life. When he found himself in the environment of Russia before the revolution, a country with small regard for science and with little encouragement for research, his spirit and aspirations were repeatedly thwarted. He sought an outlet in Germany, where he was received coldly. Eventually he reached France, and there at last found the sanctuary which he had long sought.

He was not only a biologist and naturalist but also a philosopher of extraordinary depth. As represented by Madame Metchnikoff, he was a man with an ideal. To him the doctrine of phagocytosis was a creed to be fought for and defended to the bitter end. The story of his many battles makes the recital of his scientific work as intense as a piece of fiction.

In his second attempt at suicide, when young, Professor Metchnikoff had inoculated himself with relapsing fever. He recovered, but the effects on the myocardium were such as to give him serious difficulty throughout the remainder of his life. Becoming imbued later with the idea that the intestinal flora with the toxins produced in the large bowel were primarily responsible for senile changes, he evolved the plan of changing this flora through the implantation of opposing organisms. The newspaper notoriety following this work was so great as to make him best known to the public for this rather than for his many greater and more scientific contributions to medical science. The development of all these discoveries is carefully traced in the book.

Passing the age of 50, Professor Metchnikoff, studying his own mind, realized that he was now imbued with the desire to prolong life whereas he had formerly sought only for an early end as the greatest desire of mankind. As his last illness developed, he began to write down from day to day the feelings which came over him. This diary occupies a score of pages, and is easily comparable to the text of "Barbellion's Last Diary," presented last year with an introduction by H. G. Wells as one of the literary sensations of 1920. This biography may be read by every physician with great interest: it is intimate, instructive and fascinating.

A DICTIONARY OF SLANG AND COLLOQUIAL ENGLISH. Abridged from the seven-volume work entitled, Slang and Its Analogues. By John S. Farmer and W. E. Henley. Half morocco. Price, \$5 net. Pp. 534. New York: E. P. Dutton & Co., 1921.

The publishers have here abridged into one volume the seven volume work of Farmer and Henley on the same subject by eliminating obscene words and by omitting the quotations showing the varying usages of the words included in literature. In the growth of slang, medical words have a prominent place because the public is inclined to use simple locutions for the technical diction of the sciences. Furthermore, the slang term is frequently far more descriptive than is the correct one, and in many instances it has an added historical value. Examples of words included in this volume which are of medical interest are: "Adam's Apple" for the "thyroid cartilage," first introduced in 1586; "bloat," a term used to describe a drowned body or a drunkard; "blue boy" for "bubo," obviously an ignorant derivation; "blue devils" for dejection or hyperchondria, first used in 1786, and for delirium tremens (1818) and gradually modified to our modern "blues"—not the dancing variety; "bone-ache" for syphilis, 1592; "boneyard" for cemetery, 1836; "nolimetangere" for scabies, 1626, and "Scotch grays" for "pediculi." The words contained in this volume are chiefly English, with a slight sprinkling of old American terms. It is safe to say that a dictionary of modern American slang would far exceed in size this English one. The growth of language recapitulates the growth of the race, and the history of new terms is an interesting study.

Medicolegal

Power to Quarantine, but Jail Not Proper Place

(*Dowling, Health Officer, v. Harden (Ala.), 88 So. R. 217*)

The Court of Appeals of Alabama says that the right of the legislature, under the police power, to establish quarantine to prevent the spread of contagion and infection is too well established by adjudication and grounded in common sense to be questioned or doubted, and governmental agencies, when authorized, may enact and enforce all reasonable ordinances necessary to attain the desired results. To that end, persons affected or reasonably suspected of being affected with diseases known to be infectious or contagious may be segregated or isolated from the public, either in their homes or in hospitals or camps prepared for that purpose, until such time as they will cease to be a menace to the public, and prisoners under legal charges of crime may be, when so affected, segregated from their fellows. When so quarantined, they are subject to such reasonable examination as is necessary to satisfy the health authorities that their release will not endanger the public. But persons affected with disease are not for that reason criminals, and jails and penitentiaries are not made or designated for their detention. Section 17, Subdivision 15, of the Act of 1919, authorizes quarantine or isolation, but not imprisonment, and the Act of Oct. 12, 1903, provides for detention in a hospital established for that purpose, and even when parties are in prison, charged with crime, the provision, by Section 17, Subdivision 16, of the Act of 1919, is for the establishment of a hospital or clinic, that parties so infected may be treated.

The petitioner in this case, who sought by habeas corpus proceedings to secure her discharge from quarantine in which she was detained by the health officer of the city of Birmingham, had been arrested on a charge of vagrancy. She gave bond for her appearance and the case was continued. She was presumed to be innocent of the criminal charge against her, and as she had given bond, the court was not authorized to order her further imprisonment. However, the health officer, under the facts, was authorized to consider the petitioner within the class of those reasonably suspected of being sources of infection, as provided by Section 17, Subdivision 15, of the Act of 1919, and to be dealt with as provided by that section of the act and the Act of 1903. But neither the one nor the other authorized the health officer to confine or order the petitioner's confinement in jail. Such confinement would be illegal. But, under the agreed statement of facts, which must govern here, the petitioner "was detained by Dr. J. D. Dowling, as health officer of the city of Birmingham and county of Jefferson, as being reasonably suspected," etc. It nowhere appeared that the health officer confined the petitioner in jail. Nothing to the contrary appearing, this court must presume that she was being detained in one of the places provided by law. If such was not the case, the judge before whom the case was heard could make the proper order. For these reasons, the court reverses a judgment that ordered the discharge of the petitioner.

Hints Regarding Expert Testimony—Duty of Surgeon

(*Lehman v. Knott (Ore.), 196 Pac. R. 476*)

The Supreme Court of Oregon, in reversing a judgment for \$750 damages that was rendered in favor of the plaintiff, says that the gist of the complaint was that the defendant failed to exercise the requisite knowledge and skill in the treatment of a fracture of the plaintiff's left wrist. Objections were made to portions of the expert testimony. As an expert is not allowed to draw inferences or conclusions of fact from the evidence, his opinion should be exact on a hypothetical statement of fact. It is the privilege of counsel to assume any state of facts which there is any testimony tending to prove, and to have the opinion of the expert based on the facts assumed. But the testimony should tend to establish the facts embraced in the question. If the hypothetical question is clearly exaggerated and unwarranted by

any testimony in the case, an objection to it should be sustained. The form of the hypothetical question, whether it states facts, or puts facts hypothetically, or refers to the testimony of witnesses as being true, should be shaped so as to give the witness no occasion or opportunity to decide on the evidence. Hypothetical questions are clearly improper if they directly seek the opinion of the witness on the merits of the case. In a malpractice case the question whether a physician has in a given case adopted the proper treatment is one in which the opinions of medical men may be received in evidence, and they may state whether in their opinion the treatment was proper or not, whether it was in conformity with the rules and practice of the profession. As the opinion evidence rule is intended to provide against the danger of invasion of the province of the jury, a court should, as far as possible, exclude the inference, conclusion or judgment of a witness as to the ultimate fact in issue, even though the circumstances presented are such as might warrant a relaxation of the rule excluding opinions but for this circumstance. But the rule is not absolute, for it frequently occurs that the only possible or practicable method of making proof of the fact in issue is by means of opinion evidence.

It was error to allow the plaintiff to ask a medical witness whether the application of side splints was "unskilful and negligent." The distinction between improper treatment and negligent treatment is not as broad as it is vital. Improper treatment by a surgeon might be due to an error in judgment of a skilful surgeon honestly and carefully exercised, and not constitute negligent treatment. It would seem that, in order for the opinion of the experts to be of any assistance to the jury, the condition in which the splints were applied to the arm should have been described. If the splints practically encircled the wrist, the court fails to see that it would be very material whether they were termed side splints, or anterior and posterior splints. Moreover, while the place where the defendant practiced and treated the plaintiff was mentioned, the practice about which the experts were interrogated was in no way confined to the practice in similar localities. The fact that a witness who was skilled in medicine and surgery had never treated a case like the one in question would not disqualify him from giving his opinion. The objection would go only to the weight of his testimony.

A part of the instruction to the jury was that it is the duty of a surgeon in cases of this kind to use reasonable care and diligence, first in undertaking to reduce the fracture and to place the bones in apposition; second, in using proper appliances in a proper manner, by the means within his command, and as a prudent and careful surgeon, situated in like circumstances, under like conditions and in similar localities would do; and, unless he does these things, he lays himself liable for ensuing damages that may result from such want of skill and improper treatment and care. The instruction was not objectionable, except as to the reference to the "want of skill." It was not alleged in the complaint that the defendant did not possess the requisite knowledge and skill to treat the plaintiff; and perhaps what the court said of another instruction that referred to lack of knowledge by the defendant was applicable here, namely, that the instruction added to the issues, and might lead the jury outside the case and to consider the qualifications of the defendant.

Society Proceedings

COMING MEETINGS

- American Association of Anatomists, New Haven, Conn., Dec. 28-30.
- American Physiological Society, New Haven, Conn., Dec. 28-30.
- American Public Health Association, New York, Nov. 14-18.
- Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
- American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
- Hawaii, Medical Society of, Honolulu, Nov. 21.
- Porto Rico, Medical Association of, San Juan, Dec. 10-11.
- Radiological Society of North America, Chicago, Dec. 7-9.
- Society of American Bacteriologists, Philadelphia, Dec. 27-29.
- Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
- Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
- Southern Surgical Association, Pinchurst, N. C., Dec. 13-15.
- Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
- Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Sept. 15, 1921, 29, No. 3

- *Absorption from Ventricles in Experimentally Produced Internal Hydrocephalus. G. B. Wislocki and T. J. Putnam, Boston.—p. 313.
- Various Types of Amitosis in Bone Cells. T. H. Bast, Madison, Wis.—p. 321.
- Dynamics of Histogenesis. Tension of Differential Growth as a Stimulus to Myogenesis. VII. Experimental Transformation of Smooth Bladder Muscle of Dog, Histologically into Cross-Striated Muscle and Physiologically into an Organ Manifesting Rhythmicity. E. J. Carey, Milwaukee.—p. 341.
- Comparative Histology of Enamel Organ of Mammalian Tooth, with Special Reference to Its Blood Supply. H. E. Jordan, Charlottesville, Va.—p. 379.

Absorption from Ventricles in Experimental Hydrocephalus.

—Hydrocephalus was produced by Wislocki and Putnam in a number of kittens and young rabbits by injecting a suspension of lampblack into the cisterna cerebellomedullaris. Subsequently a readily diffusible solution or a colloidal dye was injected into the dilated ventricles. The experiments show that absorption occurs to some extent from the ventricles in hydrocephalic animals and that the pathway of escape is through the ependyma into the intercellular spaces and finally into the perivascular spaces. The rate of diffusion of a true solution (potassium ferrocyanid and iron ammonium citrate) from the cerebral chambers into the brain substance is fairly rapid, but that of a colloidal suspension (trypan blue) is somewhat slower. No observations on the rapidity of absorption of the foreign substances into the cerebral capillaries were made. No evidence of absorption by the choroid plexuses was obtained.

American Journal of Diseases of Children, Chicago

September, 1921, 22, No. 3

- *Demonstration of Food Proteins in Human Breast Milk by Anaphylactic Experiments on Guinea-Pigs. Their Probable Relationship to Certain Diseases of Nursing Infant. W. R. Shannon, St. Paul.—p. 223.
- *Nutritional Keratomalacia in Infants. With Report of Four Cases. S. G. Ross, Baltimore.—p. 232.
- *Medullary Malignancies of Suprarenal Gland, with Report of Cases. W. E. Carter, San Francisco.—p. 244.
- Size and Weight in One Hundred and Thirty-Six Boarding School Boys (Groton). H. Gray, Boston, and W. J. Jacomb, Groton, Mass.—p. 259.
- Ideal Tables for Size and Weight of Private School Boys. H. Gray, Boston.—p. 272.
- *Bacteriologic Study of Fecal Flora of Infants and Children (Lack of Association of Nutritional Disorders with a So-Called "Putrefactive" Intestinal Flora). W. C. Davison and L. V. Rosenthal, Baltimore.—p. 284.
- *Congenital Heart Block. P. D. White and R. S. Euster, Boston and W. J. Kerr, San Francisco.—p. 299.
- Peritonitis as Complication of Scarlet Fever. E. C. Dunham, New Haven, Conn.—p. 307.
- Review of Literature for 1920 on Neurology of Children. L. J. Pollock, Chicago.—p. 310.

Food Proteins in Breast Milk.—It is established by Shannon that egg protein may be present in the breast milk after the ingestion of a moderate quantity of egg at least by some nursing mothers. It demonstrated as conclusively as possible under the conditions of the experiments that it may cause disturbances in the nursing infant under these conditions. It is deemed probable that this may occur with almost any other food that the mother may eat. It is contended that we must revise our ideas as regards the diet of the nursing mother and must study our cases of food disturbances in the nursing infant from the standpoint of what the mother is eating.

Nutritional Keratomalacia.—Ross describes a general nutritional disturbance which is accompanied by a keratomalacia which may be classified separately from the eye lesions occurring in certain infectious diseases and from other causes. This type of dietary malnutrition frequently corresponds closely with the condition first described by Czerny as "mehlnährschaden." Clinically and histologically the keratomalacia is very similar to the eye lesions produced experimentally in rats by a diet lacking in the fat soluble A factor. The weight of evidence would tend to show that the cases occurring in

human beings have also resulted from a lack of the same factor. If so, this "nutritional keratomalacia" in infants is the manifestation of a definite "deficiency disease" in the sense in which we now understand the term. Four cases are reported.

Suprarenal Medullary Malignancy.—Carter claims that suprarenal medullary malignancy is not an unusual occurrence. He cites three cases. In the majority of cases an orbital hemorrhage is the first sign observed, and it may occur before any tumor is palpable. The orbit first involved is often on the same side as the primary tumor. Diagnosis is not difficult once the orbital hemorrhage has occurred; the disease is likely to be mistaken only for trauma, chloroma and scurvy. Surgical interference can be of no avail, except as a palliative to drain a pyonephrosis or to meet other complications, as the metastases usually occur before a diagnosis can be made. Metastases probably occur via the lymph stream. The malignancy rarely may metastasize to the skin. The medulla of the suprarenal gland being neuro-ectodermic in origin, these malignant tumors are similar in their histologic structure to malignant neoplasms of the sympathetic nervous system and they are correctly designated as neuroblastoma.

Fecal Flora of Infants.—The so-called "putrefactive" and "fermentative" types of stool flora Davison and Rosenthal occur too frequently in normal children to be of diagnostic or therapeutic significance in patients with nutritional disorders. The influence of diet on the incidence of a "putrefactive" flora is not striking.

Congenital Heart Block.—An unique case of congenital heart block is recorded by White, Euster and Kerr in which the irregular pulse was observed before birth. This case also showed mongolian idiocy. A second case of probable congenital heart block is also reported. These two patients, with two other cases found in the literature, are tabulated with eight cases already recorded, making a total of eleven individuals with congenital heart block proved by graphic records, and one probable case also proved by electrocardiogram.

American Journal of Ophthalmology, Chicago

October, 1921, 4, No. 10

- Papilloma of Cornea. E. F. Garraghan, Chicago.—p. 717.
- Atypical Circinate Retinitis. F. Yano, Nagoya, Japan.—p. 719.
- Chronic Choroiditis with Liquid Vitreous and Bilateral Cataract; Operation; Good Result. F. Allport, Chicago.—p. 722.
- Keratitis Caused by Excessive Sugar Ingestion. A. C. Macleish, Los Angeles.—p. 724.
- Repeated Operations for Glaucoma. Report of Case. O. Dodd, Evanston, Ill.—p. 727.
- Three Cases of Word Blindness. E. M. Alger, New York.—p. 731.
- Ocular Changes in Infantile Scurvy. E. M. Blake, New Haven, Conn.—p. 736.
- Foreign Body Spud Illuminator. W. H. Lowell, Boston.—p. 739.
- New Test Card. J. M. Thorington, Philadelphia.—p. 740.
- Tubercular Iritis. L. M. Carvill, Boston.—p. 742.
- Carcinoma of Caruncle. G. M. Duckworth, Cuero, Tex.—p. 743.
- Syphilitic Retinal Disease. F. B. Harding, Allentown, Pa.—p. 744.
- Chronic Simple Glaucoma. Iridodactylitis. W. F. Holzer, Worcester, Mass.—p. 746.
- Enucleation; Fat Implantation. W. W. Lewis, St. Paul.—p. 747.
- Refractive Error with Folliculosis Simulating Trachoma. T. E. Oertel, Augusta, Ga.—p. 748.
- Malignant Growth of Left Eyeball, Probably Sarcoma of Cornea. T. E. Peery, Bluefield, W. Va.—p. 748.
- Neoplasm or Cyst of Hypophysis Cerebri. M. Ravdin, Evansville, Ind.—p. 750.
- Visit to Dr. J. Komoto of Tokyo. H. J. Howard, Peking, China.—p. 752.

American Review of Tuberculosis, Baltimore

October, 1921, 5, No. 8

- Small Pneumothorax in Tuberculosis. N. Barlow and J. C. Thompson.—p. 611.
- *Effect of Artificial Pneumothorax on Collateral Lung. S. Simon, Denver.—p. 620.
- *Effect of Nitrous Oxid, Natural Gas and Formaldehyd on Experimental Tuberculosis. J. B. Rogers, Cincinnati.—p. 637.
- *Studies with Morphine in Experimental Tuberculosis. H. J. Corper, H. Gauss and O. B. Rensch, Denver.—p. 643.
- *Value of Flavine Compounds in Experimental Tuberculosis. S. A. Petroff, New York.—p. 656.
- *New and Easy Method for Demonstration of Granules in Tubercle Bacilli. J. Kieffer, Norwich, Conn.—p. 662.
- *Case of Tuberculoma of Left Frontal Lobe of Brain. B. M. Randolph, Washington, D. C.—p. 665.
- *Tuberculosis of Husband and Wife. Report of 150 Cases. H. L. Barnes, Wallum Lake, R. I.—p. 670.

Malnutrition and Its Relation to Tuberculosis. H. D. Chadwick, Westfield, Mass.—p. 674.

Tuberculosis in Discharged Service Men. M. J. Breuer, Lincoln, Neb.—p. 678.

Effect of Artificial Pneumothorax on Collapsed Lung.—One point made by Simon is that bilateral tuberculous involvement alone does not necessarily contraindicate the use of artificial pneumothorax.

Effect of Gases on Experimental Tuberculosis.—Neither repeated nitrous oxid and oxygen anesthesia, nor formaldehyd nor natural gas influence the development or progress of the tubercle in guinea-pigs infected through the respiratory route with a watery solution of tubercle bacilli positive sputum.

Action of Morphin in Tuberculosis.—This study is concerned with the action of morphin on the tubercle bacillus and on experimental tuberculosis in the guinea-pig. Morphin, even in saturated solution, is not tuberculocidal for short intervals up to three days, whereas it does exercise a distinct inhibitory action on the growth of the bacilli. The results indicate that morphin sulphate, in amounts as small as 1 mg. incorporated in 10 c.c. of glycerol agar, completely inhibits the growth of human tubercle bacilli during the first month of incubation (morphin diluted to 1:10,000); and that during the second month growth occurs in the 4 mg. concentration, whereas after three months it occurs in 16 mg. concentration. Above 16 mg. (morphin diluted to 1:625) there appears to be complete inhibition of growth. In experimental tuberculosis in the guinea-pig, small amounts of morphin sulphate (8 mg.), administered daily before and during the early part of the infection, have a slight inhibitory effect upon the development of the tuberculosis in these animals, while prolonged treatment exceeding five weeks after infection has little or no effect.

Value of Flavine Compounds in Tuberculosis.—Petroff found that acriflavine and proflavine (American preparations) have inhibitory properties on the development of tubercle bacilli when these dyes are used in culture mediums. In the former this property is in a dilution of 1:50,000, and in the latter, 1:25,000. The dyes as therapeutic agents in experimental tuberculosis are of no value, but have a tendency to accelerate the progress of the disease. All controls outlived the treated animals.

Demonstrating Granules in Tubercle Bacillus.—Kieffer makes use of the three solutions beside the counter stain, the use of which is optional: (1) the staining reagent, a carbolfuchsin-violet solution; (2) the fixing solution, concentrated Lugol's solution, and (3) the decolorizing solution, an acid, alcohol, acetone mixture.

Numerous Convulsions in Case of Brain Tuberculoma.—In the course of forty-eight hours Randolph's patient had 278 convulsions which were counted.

Tuberculosis of Husband and Wife.—The histories of 229 consecutive widowed patients admitted to the Rhode Island State Sanatorium, 1905 to 1921, show that ninety-three, or 40 per cent., lost their consorts by death from tuberculosis, a tuberculosis mortality over three times that of the married people of the community.

Boston Medical and Surgical Journal

Oct. 27, 1921, 185, No. 17

*Surgical Abdomen in Children; Its Diagnosis and Prognosis. T. H. Lanman, Boston.—p. 489.

Consciousness in Epileptic Fit. L. P. Clark, New York.—p. 494.

Premature Rupture of Amniotic Membranes. A. T. Moulton, Boston.—p. 497.

*Cancer of Prostate. A. L. Chute, Boston.—p. 500.

Surgical Mortality in Children.—Lanman analyzes 4,748 cases from the surgical service of the Children's Hospital. The total mortality was 7.6 per cent. Among 738 abdominal cases the total mortality was 19.2 per cent. The mortality among various conditions was: umbilical sepsis, 51 per cent.; imperforate anus, 18 per cent.; other malformations, 100 per cent.; pyloric stenosis, 9.9 per cent.; intussusception, 41 per cent.; intestinal obstruction—other causes, 50 per cent.; appendicitis, acute, 9 per cent.; acute with abscess, 9 per cent.; acute with generalized peritonitis, 33 per cent.; generalized peritonitis, pneumococcus, 83 per cent.; other organisms, 70 per cent.; tuberculosis, 34 per cent.; other abdominal conditions, 45 per cent.

Cancer of Prostate.—In all instances where a malignant prostate is producing obstruction to urination Chute says it should be removed unless the patient's general condition is such as absolutely to preclude this. In the cases in which patients complain of pain in the thighs or sacrum, the perineal removal of the growth will give temporary relief in some cases. Operation in carcinoma of the prostate should be carried out by the perineal route and radium should be left in any bits of suspicious tissues that remain, or in the cavity from which the prostate tissue has been removed. The removal of these growths may be carried out with relatively little risk when done by the perineal route; that there is little probability of a permanent fistula.

California State Journal of Medicine, San Francisco

October, 1921, 19, No. 10

*Acute Mechanical Obstruction of Small Intestine. S. Robinson, Santa Barbara.—p. 389.

Uncomplicated Fractures of Pelvic Ring. H. Brunn and L. D. Prince, San Francisco.—p. 392.

Incidence and Clinical Significance of Flagellate Infection in Certain Chronic Diseases. J. V. Barrow, Los Angeles.—p. 395.

Etiology of Parenchymatous Nephritis. G. E. Ebright.—p. 401.

California's Cancer Problem. A. R. Kilgore, San Francisco.—p. 403.

Chronic Lesions of Lower Lip. E. I. Bartlett, San Francisco.—p. 404.

Motais Operation for Ptosis Report of Six Operations. R. O'Connor, Oakland.—p. 409.

Prenatal Care. G. C. H. McPheeters, Fresno.—p. 411.

Great Second Type of Chronic Arthritis. L. W. Ely, San Francisco.—p. 415.

Acute Mechanical Obstruction of Intestine.—The persistently high mortality in the surgery of acute mechanical obstruction of the small intestine in Robinson's opinion is due in part to delayed diagnosis, but more particularly to errors in judgment as to the proper surgical technic to employ in a given case. This error consists primarily in an over-enthusiasm for radical measures, such as resections and anastomoses, and an unjustifiable reluctance to employ ileostomy alone. Four cases are cited.

Colorado Medicine, Denver

October, 1921, 18, No. 10

Doctor and Commonwealth. H. A. Smith, Delta.—p. 213.

Some Problems Connected with Tonsillectomy in Tuberculosis. R. Levy, Denver.—p. 216.

*Tuberculosis of Gums. M. R. Stratton, Denver.—p. 219.

Treatment of Uterine Fibroids; Based on a Series of Five Hundred Cases. R. T. Frank, Denver.—p. 221.

Tuberculosis of Gums.—Stratton cites the case of a man, aged 36, who, following an attack of influenza developed pulmonary tuberculosis, extensive tubercular involvement of the larynx and epiglottis, and tuberculosis of the gums. The largest area was along the lower jaw on the right side and extended anteriorly to nearly the center of the jaw. Scrapings of the area contained tubercle bacilli and were entirely negative for any organisms found in Vincent's angina.

Delaware State Medical Journal, Wilmington

July-August-September, 1921, 12, No. 3

Sheppard-Towner Bill. C. R. Layton.—p. 20.

Illinois Medical Journal, Oak Park

October, 1921, 40, No. 4

Early Neurologic Findings in Primary Anemia. F. G. Norbury, Jacksonville.—p. 273.

Paternalism Destroys Self Reliance. State Medicine A Menace to People. W. D. Chapman, Silvis.—p. 278.

Difficult Cases in Bronchoscopy and Esophagoscopy. E. McGinnis, Chicago.—p. 282.

Foot Problems. E. B. Ball, Quincy.—p. 284.

Postoperative Pulmonary Complications. F. A. Norris, Jacksonville.—p. 288.

Lipoma of Kidney. J. W. Alexander, Charleston.—p. 289.

County Secretary As Viewed by County Secretary. E. B. Ball, Quincy.—p. 292.

County Secretary as Viewed by County President. F. A. Norris, Jacksonville.—p. 294.

County Secretary as Viewed by County Secretary. T. D. Doan, Scottville.—p. 295.

County Secretary as Viewed by Member. C. U. Collins, Peoria.—p. 296.

County Secretary as Viewed by Members. M. Herschleder, Mt. Olive.—p. 298.

What Secretary of County Medical Society Thinks of Members. W. E. Shastid, Pittsfield.—p. 299.

County Secretary as Viewed by Members. F. A. Renner, Lebanon.—p. 299.

- Cystitis: Its Cause and What to Do with It. J. A. Jerger, Chicago.—p. 300.
County Secretary as Viewed by County Secretary. C. S. Ambrose, Waukegan.—p. 305.
New Viewpoints in Feeding and Nutrition of Infants and Children. A. H. Byfield, Iowa City.—p. 306.
Hyperchlorhydria. M. M. Null, Seattle.—p. 314.
Treatment of Complete Prolapse of Rectum in Adults. C. J. Drueck, Chicago.—p. 316.
Occupational Treatment in Mental Disorder. C. F. Read, Chicago.—p. 318.
Obturator Hernia. L. F. Watson, Chicago.—p. 322.
Treatment of Cervicitis and Endocervicitis with Bismuth Paste Injections. A. R. Hollender, Chicago.—p. 323.
Indications for Surgical Treatment of Fibroid Tumors of Uterus. E. B. Montgomery, Quincy.—p. 325.

Kansas Medical Society Journal, Topeka

October, 1921, 21, No. 10

- Anesthesia and Analgesia in Obstetrics. J. D. Clark, Wichita.—p. 313.
Inversion of Uterus. J. W. Faust, Kansas City.—p. 317.
Present Day Obstetrics. C. D. McKeown, Hutchinson.—p. 320.
Placenta Previa. E. A. Reeves, Kansas City.—p. 323.
Tribute to Doctor Weston Howard McConnell. F. M. Wiley, Fredonia.—p. 329.

Medical Record, New York

Oct. 29, 1921, 100, No. 18

- *Transfusion in Infants with Malnutrition. Use of Superior Longitudinal Sinus. S. B. Burk and L. Fischer, New York.—p. 751.
Employing Elasticity: Dynamics of Splint. D. H. Stewart, New York.—p. 759.
Electrobiology. A. Abrams, San Francisco.—p. 761.
Plea for Rubber Catheter. M. Thorek, Chicago.—p. 762.
Radium and Research—A Protest. C. E. Field, New York.—p. 764.
Diathermy in Treatment of Tuberculous Kidneys. C. T. Stone, Brooklyn.—p. 765.
Medical Aspects of Workmen's Compensation. Public Health Committee, New York.—p. 766.

Transfusion in Infants with Malnutrition.—Fourteen citrated blood transfusions into the superior longitudinal sinus were performed by Burk and Fischer on ten infants. The ages ranged from 9 days to 6 months. Seven were under 2 months of age. The amount of blood injected averaged about 1 ounce. The time of injection averaged about ninety seconds. Four injections were followed by severe reactions; seven by moderately severe reactions, and three by slight reactions. The severe reactions consisted of a short period of dyspnea which lasted from twenty-five to forty seconds. A child who oftentimes cries lustily when the procedure is begun becomes suddenly quiet. Cyanosis of the face and pallor about the mouth appears about this time together with lateral and vertical nystagmus. The radial pulse remains unchanged. The child soon thereafter again becomes noisy and restless. The period of quietude lasts a few minutes. A 0.3 per cent. citrated solution was used without any harmful effects. This amount of sodium citrate facilitated the passage of the mixture through the small caliber of the needle with greater ease than with the 0.2 or 0.25 per cent. solutions. In four patients there was a marked improvement following transfusion; in six patients there was a slight improvement, and in two there was no improvement. Feeding should be delayed for at least one hour after transfusion. Children fed before this time elapsed vomited. The authors assert that transfusion of blood is valuable in the treatment of malnutrition and of the cachexias following the acute infectious diseases. Transfusion of blood improves the general condition of patients with gastro-intestinal disturbances who do not improve with formula feedings or with the use of mothers' milk. This is particularly noticeable when marked dehydration is present following failures after the use of hypodermoclysis, rectal instillations and venous infusions. Transfusion improves the prognosis in premature infants.

Michigan State Medical Society Journal, Grand Rapids

October, 1921, 20, No. 10

- Clinical Aspects of Blood Pressure. J. A. MacGregor, London, Ont.—p. 371.
Fractures of Lower Third of Tibia and Fibula. A. D. Laferte, Detroit.—p. 374.
*Some Effects of High Protein in Nephritis. T. L. Squier, Battle Creek.—p. 378.
*Typical Case of Botulism and Its Specific Therapy. M. Wells, Grand Rapids.—p. 381.
*Botulism. B. N. Colver, Battle Creek.—p. 385.

- Diagnosis and Treatment of Certain Diseases and Traumatism of Esophagus. T. Hubbard, Toledo, Ohio.—p. 392.
Community Clinics and Public Health. W. De Kleine, Flint.—p. 398.
Venereal Disease in British Army. C. K. Valade, Detroit.—p. 402.
Surgical Treatment of Saddle Nose and Malignancies. F. Smith, Grand Rapids.—p. 413.
Diphtheria Following Operation for Tonsils and Adenoids. C. McClelland, Detroit.—p. 419.
Mumps Benefited by Ultra-Violet Rays. L. C. Donnelly, Detroit.—p. 420.

Effects of High Protein in Nephritis.—Two cases are presented by Squier in one of which there was a history of three separate exacerbations of nephritic symptoms following the addition of meat or meat extractives to the diet. In the second case under experimental conditions and consequently in a much more satisfactory manner the same reaction to protein was demonstrated. Following two forced meat meals the blood urea increased from 18 to 84 mg. per hundred c.c., the albuminuria increased from 6 gm. per liter to a maximum of 35 gm. per liter and the phthalein excretion for two hours was diminished from 40 to 28 per cent. There was a distinct increase in edema evidenced by a gain of 5½ pounds in weight in the course of two days, and in addition there were headache, nausea, lassitude and other symptoms of toxemia.

Botulism from Canned Spinach.—In Wells' case canned spinach was the source of the poison. In the treatment rest in bed and liquid diet were used from the onset, together with strychnin in doses of 1/60 grain hypodermically every four hours as indicated by the apparent bulbar paresis. Difficulty in swallowing made it necessary to introduce medication and various forms of liquid nourishment into the stomach per Ewald tube for four days. Castor oil and enemas were apparently of little avail in securing bowel activity, but pituitary extract hypodermically accomplished satisfactory results on each occasion. Graham's antitoxic serum was however, the agent to which credit is given by Wells for effecting a cure in this case. The usual desensitizing dose of 3 or 4 minims was given, and then regular dosage of from 5 to 15 c.c. intravenously at intervals of from six to twenty-four hours during the subsequent four days. In all this patient had 115 c.c. of botulinus antitoxic serum over a period of four and one-half days, 45 c.c. of which were polyvalent and 70 c.c. type A serum; 97 c.c. were given intravenously and 18 c.c. subcutaneously. Definite improvement in swallowing, in speech, and in general appearance followed the administration of serum from the third day and at times temporary relief of the sense of constriction in the throat and of occasional difficulty in breathing was mentioned by the patient about an hour after the serum injection.

Botulism a Toxic Encephalitis.—Five cases are cited by Colver and he directs attention to the fact that botulism is essentially a toxic encephalitis affecting the nuclei of the pons and medulla and with rapid course, whereas endemic encephalitis is an infectious process affecting, as a rule, the cortex, the meninges or the basal ganglia of the upper cranial nerves and with more deliberate course. The two conditions may be confused.

Nebraska State Medical Journal, Norfolk

October, 1921, 6, No. 10

- Treatment of Diabetes Mellitus. A. D. Dunn, Omaha.—p. 297.
Functional Diagnosis. C. R. Kennedy, Omaha.—p. 302.
Passing of Family Physician. J. L. Sutherland, Grand Island.—p. 305.
Report of Female Infant with Double Inguinal Hernia, Prolapsed Tube and Ovary in Left Side; Operation; Recovery; Review of Literature; Reference to Fetal Development of Pelvic Organs. H. M. McClanahan, Omaha.—p. 307.
Plea for More Carefully Planned Tonsillectomies. C. G. Baird, Beatrice.—p. 310.
Some Practical Points About Tonsils. J. C. Tucker, Omaha.—p. 311.
Clinical Syndromes in Seros Meningitis Following Infectious Diseases. G. A. Young, Omaha.—p. 312.
Case of Methyl Alcohol Poisoning. F. W. Heagey, Omaha.—p. 316.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 319.

New Jersey Medical Society Journal, Orange

October, 1921, 18, No. 10

- Experience in Reconstructive Bone and Joint Surgery. R. E. Soule, Newark.—p. 309.
Electrocardiograph and Its Clinical Application. H. M. Ewing, Newark.—p. 316.
Pages from Medical History Collector's Notebook. W. S. Disbrow, Newark.—p. 319.

- Cloudy Urine. B. M. Hance, Easton, Pa.—p. 322.
Medical Society. J. A. McCulloch, Nashville.—p. 325.
Two Cases of Foreign Bodies in Bronchus. H. B. Orton, Newark.—p. 326.

New Orleans Medical and Surgical Journal

October, 1921, 74, No. 4

- Malarial Hemoglobinuria. F. M. Thornhill, Arcadia, La.—p. 224.
Infection with Flagellates. E. C. Prentiss, El Paso, Tex.—p. 232.
Importance of Blood Sugar Estimation in Diagnosis and Treatment of Diabetes. F. M. Johns, New Orleans.—p. 244.
*Two Cases of Leprosy Cured by Anthrax Vaccine. J. N. Roussel, New Orleans.—p. 250.
Gallbladder Disease and Its Treatment. A. L. Levin, New Orleans.—p. 255.
Drug Addiction and Its Relation to Public Health. M. W. Swords, New Orleans.—p. 269.
Neglected Teeth of Children. J. R. Snyder, Birmingham, Ala.—p. 273.
Nerve Blocking Anesthesia. W. Johnson, New Orleans.—p. 279.
Radium Therapy. A. Henriques, New Orleans.—p. 283.
Fundamental Properties and Therapeutic Uses of Radium. C. H. Voss, New Orleans.—p. 290.
Acute Diffuse Gonorrheal Peritonitis Without Tubal Rupture. M. J. Gelpi, New Orleans.—p. 296.
Kidney Surgery Under Local Anesthesia. C. W. Allen, New Orleans.—p. 300.
Statistical Study of Three Thousand Cases of Mental Diseases. H. Daspi, New Orleans.—p. 305.

Leprosy Cured by Anthrax Vaccine.—One of Roussel's cases was a tubercular leprosy with numerous lesions on the face and many on the arms and legs and body, only a few of which were anesthetic. They were mostly tubercular infiltrations forming rather large tubercular masses from the fusion of contiguous tubercles. There were a very few macules which were mostly on her body. There was a pronounced leonine expression and the voice was husky. She was given 0.25 c.c. liquid anthrax vaccine on Feb. 25, 1919, and twice a week thereafter in gradually increasing dosage up to 1.05 c.c. until April 3, with no apparent effect except a slight sensation of chilliness which occurred about five or six hours after the injection. Two years later she was entirely well. The second case was one of macular-anesthetic leprosy. She was given anthrax vaccine every four days, from March 2 to April 15. Two years later she was entirely well. Roussel does not claim priority for this treatment. The use of anthrax vaccine in leprosy was first suggested by Dr. Campos of the state of Columbia, who in turn does not claim originality, but who does not disclose the name of the originator of the idea.

New York State Journal of Medicine, New York

October, 1921, 21, No. 10

- Interpretation of History in Surgical Affections of Right Upper Quadrant. C. G. Heyd, New York.—p. 357.
Physiologic Guides Underlying Operations on Stomach and Duodenum. W. W. Babcock, Philadelphia.—p. 362.
Acute Abdominal Conditions in Gynecology. G. W. Crile, Cleveland.—p. 366.
Accomplishments of Intracranial Surgery. C. H. Frazier, Philadelphia.—p. 369.
Development of Pulsating Exophthalmos in Blind Eye: Restoration of Almost Normal Vision Following Cure of Exophthalmos. J. L. Behan, Brooklyn.—p. 373.
*Virulence of Streptococci Isolated from Material Expressed from Tonsils. M. J. Gottlieb, New York.—p. 378.
Points of Contact Between Some Surgical Conditions and Cardiac Disorders. S. A. Levine, Boston.—p. 382.
Cooperation Between Central State Laboratory and Local Municipal and County Laboratories. A. B. Wadsworth, Albany.—p. 386.

Virulence of Streptococci in Tonsils.—Gottlieb feels certain that *Streptococcus viridans* can be isolated from the expressed materials of all tonsils, and that *Streptococcus hemolyticus* can often be isolated from the expressed substances. *Streptococcus viridans* isolated from tonsils is usually nonvirulent in moderate doses. In this series of twenty-seven cases only one out of twenty-four was found to be distinctly virulent. The association of *S. hemolyticus* with *S. viridans* does not seem to enhance the virulence of the latter. *Streptococcus hemolyticus* is virulent to rabbits in the great majority of cases. The relation of symptoms to the finding of virulent streptococci is not always present. The finding of virulent streptococci in the tonsils of a patient, may be an indication that the patient's resistance is such as to be sufficient to prevent an invasion of these organisms or that the infection has not been present long enough to have made its inroads on the tissues of the tonsil and the correlated

lymphatics structures if any corollary may be drawn from the effect of streptococci on rabbits as compared to human beings.

Northwest Medicine, Seattle

October, 1921, 20, No. 10

- Local Anesthesia, Its Advantages, Indications and Technic. R. E. Farr, Minneapolis.—p. 267.
Operative Treatment of Old Ununited Fracture of Neck of Femur. E. O. Jones, Seattle.—p. 270.
*Dislocations and Fractures of Atlas. R. D. Forbes, Seattle.—p. 274.
Case of Fracture of Carpal Scaphoid. D. V. Trueblood, Seattle.—p. 277.
Treatment of Chronic Osteomyelitis. C. F. Eikenbary, Spokane.—p. 279.
New Bone Saw. M. Langworthy, Spokane.—p. 281.
Cecal Tuberculosis. Report of Cases. W. D. Read, Tacoma.—p. 282.
Tuberculosis Question from General Practitioners Standpoint. E. R. Ahlman, Hoquiam, Wash.—p. 287.
Migraine; Its Cause and Treatment. S. Wolfe, Salt Lake City.—p. 288.

Fracture of Atlas.—Forbes reports one case of fracture of the atlas, probably the posterior arch, complicated by a fracture of the odontoid process and a rotary subluxation, the result of striking the head forcibly on the ground in a fall. The diagnosis was made by the roentgen ray. Under general anesthesia an attempt was made to reduce the dislocation somewhat after the method of Walton. Examination of the pharynx at this time was easy and revealed in a modified degree the two prominences mentioned by Corner. Rotation to the left was not markedly limited, but to the right there was practically none. At the height of rotation to the left the patient suddenly stopped breathing, his pupils dilated, and he became cyanotic, giving every indication of an impending fatality. However, with rotation in the opposite direction and a hypodermic injection of camphor in oil he slowly recovered. His head was then supported on a plaster of Paris collar, molded over the shoulder and he was kept in bed for a few days. This support was removed in a couple of weeks and a collar of leather with a metal support fashioned as a rest for his head, permitting a moderate degree of movement. A report three months later was to the effect that, whereas some stiffness of the neck remained, he was free from pain and discomfort. A final report a year later showed him to be free from complications.

Ohio State Medical Journal, Columbus

Oct. 1, 1921, 17, No. 10

- Relief of Pain in Labor. W. Gillespie, Cincinnati.—p. 669.
Methods for Shortening Labor. A. J. Skeel, Cleveland.—p. 673.
Acute Torsion of Great Omentum: Two Case Reports. J. Price, Columbus.—p. 675.
Prevention and Control of Diphtheria. R. Lockhart, Cleveland.—p. 676.
Sterilization of Mentally Unfit. E. J. Emerick, Columbus.—p. 679.
*Use of Luminal in Epilepsy. M. L. Austin, Gallipolis.—p. 683.
Hyperplastic Sphenoiditis. C. H. Hay, Cleveland.—p. 686.
Tuberculous Meningitis. C. E. Shinkle, Cincinnati.—p. 692.

Luminal in Epilepsy.—Luminal has been used by Austin in one group of forty-nine epileptics for fifteen months with daily doses of from 1 to 5 grains at bed time. In cases of status epilepticus and mania, it has been used subcutaneously in doses of from 1.05 to 5 grains (0.1 to 0.3 gm.), or per rectum from 5 to 10 grains (0.3 gm. to 0.6 gm.). As to the results: In some cases the character of major seizures has been replaced by an atypical one, in which there is no tonic or clonic convulsion, but a furor of considerable violence, of irregular body movements, with loss or partial loss of consciousness. In other cases major seizures are controlled or replaced with minor ones in which loss of consciousness is sometimes incomplete. Austin does not herald luminal as a specific in epilepsy. As a matter of fact he cannot believe that it is. But it will ameliorate many cases, and to date, has given better results by far in essential epilepsies than any remedy so far used. Those patients who have been on luminal treatment are in as good physical and mental state as at the beginning of the treatment and many much improved. So far no pernicious results are recognized.

Oklahoma State Medical Assn. Journal, Muskogee

October, 1921, 14, No. 10

- Conservative Intranasal Surgery. H. C. Todd, Oklahoma City.—p. 257.
Malignancies of Eye. J. E. Davis, McAlester.—p. 262.
Pneumococcus in Eye, Ear, Nose and Throat. E. F. Davis, Oklahoma City.—p. 264.
Vitrous Opacities. W. A. Cook, Tulsa.—p. 267.
Focal Infection. C. B. Barker, Guthrie.—p. 271.

Pennsylvania Medical Journal, Harrisburg.

October, 1921, 25, No. 1

- Meningococcus Infection: Summary of Recent Advances in Knowledge of Its Clinical Features. W. W. Herrick, New York.—p. 4.
Carcinoma of Rectum. D. B. Pfeiffer, Philadelphia.—p. 10.
*Etiology of Convulsions in Infants. A. G. Mitchell and W. Barber, Philadelphia.—p. 14.
Necessity of More Strenuous Efforts to Reduce Infant Mortality Rate. Z. R. Scott, Pittsburgh.—p. 17.
Case of Melanosarcoma of Choroid. E. Stieren, Pittsburgh.—p. 20.
Radium Treatment of Mouth and Throat. R. H. Boggs, Pittsburgh.—p. 22.
*Method of Distinguishing from Among Various Microorganisms Present in Patient, Those That Are and Those That Are Not Acted on by That Patient's Whole, Coagulable Blood. M. Solis-Cohen and G. D. Heist, Philadelphia.—p. 27.
Thyroid Gland and Exophthalmic Goiter. H. L. Foss, Danville.—p. 35.
Prenatal and Obstetric Care. J. S. Taylor, Altoona.—p. 39.
Case of Exfoliative Dermatitis. H. Stewart, Gettysburg.—p. 41.
Famine Dropsy or Hunger Edema. J. A. Nixon, London.—p. 43.

Etiology of Convulsions in Infants.—Etiologically convulsions in infancy are divided by Mitchell and Barber into several groups—those due to organic causes, those due to spasmophilia, those due to idiopathic epilepsy and those due to reflex causes. The majority of babies between 6 months and 2 years of age in whom no organic basis for convulsions can be demonstrated, can be shown to be suffering from spasmophilia. Spasmophilia is the real cause of most of the convulsions ordinarily classed as reflex. A certain proportion of infants who have convulsions are epileptic, but the number of infants who have eclamptic attacks. Occasionally an infant who has convulsive seizures is neither an epileptic nor a spasmophilic subject, and it is only in such a case that the term "reflex convulsion" is justifiable.

Distinguishing Organisms in Blood.—Cohen and Heist state that the whole, fresh coagulable blood of human beings possesses the property of destroying or inhibiting the growth of various pathogenic and nonpathogenic organisms; but this power against a particular organism is not always present at all times in every individual and, when present, may vary in degree. The absence in the whole blood of an individual of this bactericidal or inhibiting property against an organism is presumptive evidence of the susceptibility of that individual to infection by this organism. The presence or absence of bactericidal power against a particular organism in the whole, coagulable blood of any animal or human being can easily be determined in vitro by incubating the organism in the whole, coagulable blood of the individual for twenty-four hours; at the end of which time the organism will have disappeared or will be growing vigorously. When an organism present in a papule, pustule, abscess, urine, or aural discharge grows in the whole blood of the infected individual there is a strong presumption that it is the etiologic organism or a complicating organism, or is likely to become the latter. When an organism present in the respiratory passages, sputum or feces grows in the whole blood of an infected individual, there is a probability that it may be the etiologic or a complicating organism. When an organism present in an infected discharge, secretion or excretion, or on an infected area, disappears when planted in the whole blood of the infected individual, it may be fairly presumed to have no part in the infection. Its inclusion therefore in an autogenous vaccine may be regarded as unnecessary and possibly harmful.

Philippine Islands Medical Association Journal, Manila

May-June, 1921, 1, No. 3

- Ethical Aspect of Medical Advertisements. S. de Los Angeles.—p. 89.
Some Less Familiar Aspects of Parasitology. F. G. Haughwout.—p. 93.
*Iso-Agglutination Group Percentages of Filipino Bloods. C. Cabrera and H. W. Wade.—p. 100.
Cases of Eclampsia in Philippine General Hospital. A. Villarama.—p. 103.
*Cases of Infantile Beriberi Admitted to Philippine General Hospital During Year 1920. A. V. Tupas.—p. 108.
Weight of New-Born Filipino Babies. M. Tolentino.—p. 111.
Hymen Atresia: Report of Case. H. Acosta-Sison.—p. 112.
Gigli's Operation: Report of Case. B. Roxas and A. Villarama.—p. 114.

Iso-Agglutination Group Percentages of Filipino Bloods.—The results of iso-agglutination tests of 204 Filipino bloods made by Cabrera and Wade reveal distinct differences from the Moss group percentages of both Americans (Moffit's

figures) and Chinese. The number of Group I (1 per cent.) is extremely low; that of Group II (14.7 per cent.) is roughly ten less than Chinese and forty less than American; that of Group III (19.6 per cent.) is practically intermediate between the American (6 per cent.) and the Chinese (34 per cent.), while that of Group IV (64.7 per cent.) is roughly twice as great as either of the others, two thirds of all specimens instead of one third. In other words, there is a much lower incidence of agglutinin, and presumably—though this is not actually demonstrated by the technic used—a correspondingly greater incidence of agglutinins than in American and Chinese blood. Since practically two thirds of the Filipinos, being of Type IV, are universal donors, that is, have blood that is not agglutinated by the serum of any group, the chances for harmless transfusion with untested bloods are much better in Filipinos than in Americans or Chinese. A comparison of the percentages in the sexes shows no essential differences, though the numbers involved (sixty-nine females and 135 males) are too few for positive conclusions.

Infantile Beriberi in Philippines.—Out of thirty-six admissions to the hospital, thirty were under 3 months of age. The youngest patient was 14 days old and the oldest was 1 year and 5 days old; the latter belonged to the pseudomeningitic form. There were eleven deaths, or a mortality of 30.5 per cent. Roentgen-ray findings were noted in sixteen cases, fourteen of which showed enlargement of the heart to the right, and two to the left. Of the eleven fatal cases, a necropsy was made in five. The constant lesions found were dilatation of the heart, the right ventricle being about three times as large as the left; hydropneumothorax; punctate hemorrhages in the lungs; passive congestion of the liver, kidney, and spleen; and degenerative neuritis of the vagus nerve.

Texas State Journal of Medicine, Fort Worth

October, 1921, 17, No. 6

- Endocrine Problems in Pelvic Surgery, with Special Reference to Vicarious Menstruation. C. Rosser, Dallas.—p. 290.
Endocrines in Gynecology. C. L. Maxwell, Myra.—p. 293.
Basal Metabolism and Precision Diagnosis in Thyroid Diseases. F. W. Hartman, Temple.—p. 295.
Use of Pollen Extract Made by Author in Treatment of Hay Fever. A. Woldert, Tyler.—p. 298.
Repair of Major Defects of Face. V. P. Blair, St. Louis.—p. 301.
Correction of External Deformities of Nose by Intranasal Route. S. Israel, Houston.—p. 302.
Tracheotomy and Intubation. O. M. Marchman, Dallas.—p. 304.
Evolution in Ear Examinations. R. H. T. Mann, Texarkana.—p. 306.
Various Aspects of Plague Situation in South. H. F. White, Beaumont.—p. 307.
Plea for Safe Water. J. D. Blevins, Austin.—p. 309.
Chlorination of Water by Use of Liquid Chlorin or Hypochlorite. E. G. Eggert, Austin.—p. 311.

West Virginia Medical Journal, Huntington

September, 1921, 16, No. 3

- Simple Goiter; Prevention and Treatment. J. W. Moore, Charleston.—p. 91.
Deductions Based on Recent Series of Operations for Goiter. S. McGuire, Richmond, Va.—p. 93.
Thyroiditis. R. K. Buford, Hansford.—p. 100.
Thymus. S. J. Morris, Morgantown.—p. 105.
Endocrine Types of Dysmenorrhea. M. V. Godbey.—p. 108.
Radium in Non-Malignant Gynecological Conditions. C. J. Broeman, Cincinnati.—p. 110.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 15, 1921, 2, No. 3172

- *Pericarditis in Childhood. F. J. Poynton.—p. 583.
*Study of Some Factors Controlling Normal Sugar Content of Blood. P. J. Cammidge, J. A. C. Forsyth and H. A. H. Howard.—p. 586.
Anesthesia for Nose, Throat and Abdominal Surgery by Nitrous Oxide-Oxygen—C. E. Combination. H. E. G. Boyle.—p. 591.
Value of Spinal Anesthesia for Urgency Operations in Aged. A. H. Southam.—p. 592.
Operative Treatment of Hemorrhoids. C. G. Watson.—p. 593.
Ionization in Suppurative Otitis Media. T. B. Jobson.—p. 598.
Treatment of Asthma. G. H. Wildish.—p. 598.

Pericarditis in Childhood.—In an analysis of 100 fatal cases of suppurative pericarditis of all varieties Poynton found that 84 per cent. of the patients were under 4 years of age.

The rarity of this form of pericarditis as a solitary event is evidenced by the fact that there was only one such case in this series; fifty-four cases were associated with empyema and thirty-one with pleurisy or pneumonia. The diagnosis and treatment of pericarditis in children is discussed.

Factors Controlling Sugar Content of Blood.—Cambridge and his co-workers found that the liver contains a diastatic ferment, the action of which is reversible. In the fasting state the glycogenolytic activities of this ferment are very largely inhibited by (a) an anti-ferment formed by the pancreas, (b) the impermeability of the resting liver cells to sodium chlorid, (c) the reaction of the fasting blood and liver cells. As long as the pancreas and liver are functionally intact and a flow of blood with a normal reaction is maintained, glycogenolysis will be constant therefor and the sugar content of the blood vary within narrow limits. The entrance of food into the stomach causes a flow of acid, and when this acid reaches the duodenum a formation of secretin results. The secretin (a) stimulates the liver cells to produce bile, thus permitting the entrance of sodium chlorid, which activates the diastatic ferment; (b) causes the pancreas to pour out its alkaline secretin into the intestine to combine with the acid gastric contents, forming acid salts and sodium chlorid, which pass to the liver and increase the activity of the diastatic ferment; (c) interferes with the formation of the internal secretin of the pancreas, thus diminishing its inhibitory effect on glycogenolysis in the liver. Carbohydrates reaching the liver from the intestine or formed from proteins in the liver are converted into glycogen by the diastatic ferment, the efficiency of the process depending on the extent to which the glycogenolytic action of the enzyme is inhibited by the internal secretin of the pancreas. Unless the power of glycogen formation possessed by the liver is exceeded, sugar as such, or formed from starch in the intestine, does not pass into general circulation or play any direct part in the rise of blood sugar following feeding. This theory appears to account for the constant level of the normal sugar content of the blood in a fasting condition and to explain the variations produced by the ingestion of food. It also permits of a reasonable explanation of the changes occurring in disease.

Journal of Pathology and Bacteriology, Edinburgh

October, 1921, 24, No. 4

- *Pathology of Pneumococcal Infections of Human Lung. R. R. Armstrong and J. F. Gaskell.—p. 369.
- *Digestion of Esophagus as Cause of Postoperative and Other Forms of Hematemesis. J. H. Pringle, L. T. Stewart and J. H. Teacher.—p. 396.
- Viscosity of Syphilitic Serum. J. Holker.—p. 413.
- *Standardization of Vaccines. J. Holker.—p. 419.
- Group Agglutination of Gonococcus. S. S. Warren.—p. 424.
- *Absorption from Peritoneal Cavity. C. Bolton.—p. 429.
- *Blood and Blood Vessels in Guinea-Pig Scurvy. G. M. Findlay.—p. 446.
- *Experimental Scurvy in Rabbit; Effects of Antenatal Nutrition. G. M. Findlay.—p. 454.
- Heterophile Antigen and Antibody. T. Taniguchi.—p. 456.
- *Blood Platelet Antiserum; Specificity and Role in Experimental Production of Purpura. S. P. Bedson.—p. 469.
- *Case of "Erythema Nodosum;" Blood Cultures. E. Emrys-Roberts.—p. 477.
- *Bacillus Proteus in Cerebrospinal Fluid of Typhus Fever. J. M. Anderson.—p. 478.

Pathology of Pneumococcal Lung Infections.—Armstrong and Gaskell assert that the pneumococcus invades the lung by three paths—the air passages, the blood stream and the lymph channels. The air borne infections include both lobar pneumonia and bronchopneumonia, the infection first settling in the terminal bronchioles in both instances. The factors determining the type which occurs are the virulence of the infecting organism and the resistance of the host; mechanical factors may also play a subsidiary part. The reaction of the lung tissues to the invasion is essentially the same in both forms of infection. No particular form of exudate can be claimed as characteristic of either; even in lobar pneumonia the alveoli are never all in the same stage of reaction. In lobar pneumonia the invading pneumococci are practically all destroyed by the fifth day, so that endotoxin ceases to be liberated. A possible explanation of crisis may be the final neutralization of endotoxin. Blood borne infections give rise to characteristic changes, which have been designated

by the term miliary pneumonia. The infection spreads directly into the alveoli from the capillaries, and the bronchioles are only secondarily involved. One of the characteristics of this form is the absence of polymorphonuclear exudate. The lung changes are merely a part of the reaction to a general septicemia. Evidence is given of the spread of the pneumococcus in the lung by the lymphatic channels. This method is suggested as the explanation of certain chronic forms of pneumococcal infection, usually met with in children—for example, relapsing pneumonia. Experiments are recorded in which, by intratracheal insufflation, air borne infections, comparable to both lobar pneumonia and bronchopneumonia, have been reproduced in rabbits by varying the virulence of a single strain of pneumococcus.

Digestion of Esophagus Cause of Hematemesis.—In some cases the cause of postoperative vomiting of black material or hematemesis, Pringle and his associates state, appears to be digestion of the esophagus. Sixteen fatal cases have been observed by them in the last seven years. The characteristic vomiting has been observed most commonly from thirty-six to twenty-four hours before death. The condition of the esophagus may vary from superficial erosion of the mucous membrane to deep ulceration and perforation or extensive destruction of the tube and digestion of adjacent structures. Hemorrhages are always present in the wall of the esophagus and may be present also in the lungs and pleurae. In contrast with the state of the esophagus there is little or no digestion of the stomach, and the cardiac orifice is found closed. Microscopically the condition is a severe ulceration accompanied by more or less necrosis and solution of tissue and acute inflammatory reaction. The condition is not an agonal condition but one the nature of which can be diagnosed during life and which might be amenable to treatment. Healing reaction has been observed. It is not extremely rare.

Standardizing Vaccines by Opacity Method.—The opacity method of standardizing vaccines is in Holker's opinion the most suitable for the practical work of a pathologic laboratory, in that it is simple, accurate and rapid. He independently worked out the method described by Don and Chisholm, but discarded it as not being convenient nor sufficiently accurate. He therefore worked out another method of measuring opacity which has proved not only accurate and rapid, but being a standard in itself, has had the advantage of not requiring any other standard such as a suspension of barium sulphate. This method is described in detail.

Absorption from Peritoneal Cavity.—The mechanical and physical factors concerned in the process of absorption are discussed by Bolton. He states that the peritoneal cavity is drained principally by the diaphragmatic lymphatics into the mediastinal lymphatics passing through the sternal and anterior mediastinal lymphatic glands to the right lymphatic duct, and also through anastomoses in the chest to the thoracic duct. It is drained also by the diaphragmatic lymphatics into the cisterna chyli, but this path is quite subsidiary to the former. It is probably also drained to a small extent very slowly by the retroperitoneal lymphatics into the cisterna chyli. Particles easily pass between the endothelial cells with the lymph, the limit of size of such particles being approximately that of the red blood corpuscles of the animal used. Probably only the finest particles pass directly into the cisterna chyli and then very slowly. The drainage is accomplished by a purely mechanical process, the force being supplied by the respiratory movements. Colloidal dyes, which are indiffusible outside the body, pass through the peritoneum and capillary wall by diffusion directly into the blood, but slower than crystalloids. If colloids of a larger molecular weight are able to pass through, they must do so very slowly and in small quantity, but it is probable that molecules of the complexity of those of albumins are unable to do so. Poisonous or other substances, whether formed by bacteria or otherwise, which are indiffusible through an artificial membrane, may still be directly absorbed into the blood from the peritoneum, provided that they are not of great molecular complexity, otherwise they will be slowly absorbed by the lymphatics in accordance with their position in the peritoneum.

Experimental Scurvy.—Findlay found that the absence of vitamin C from the diet of the guinea-pig leads to swelling and degeneration of the capillary endothelium; the flow of blood through the capillaries is retarded and extreme congestion occurs, and the formation and repair of the intercellular substance is interfered with. The stagnation of blood in the capillaries appears to be one of the factors leading to deficient oxygenation of the tissues and thus to death. When a pregnant rabbit is deprived of vitamin C throughout the period of gestation, Findlay says the offspring show hemorrhages at the joints and in the internal organs, although the mother remains healthy.

Blood Platelet Origin.—The view that the platelet arises directly from the polymorphonuclear leukocyte is not supported by finding. This finding is in support of the view first put forward by Bizzozero, that the platelet is an independent element of the blood. An antileukocyte (polymorph) serum is unable to agglutinate platelets (same species), and similarly an antiplatelet serum is without effect on leukocytes. Bedson's antiplatelet serum contains a specific antibody for platelets.

Micro-Organism of Erythema Nodosum.—In Roberts' case a blood culture developed an almost invisible dewdrop growth, consisting of minute discrete transparent colonies, composed of a delicate nonmotile, nonspore-bearing, gram-negative rod, scarcely more than 1 micron in length. This organism failed on further subculture, so that it was impossible to proceed in its identification. A provisional diagnosis of *B. influenzae* in the blood stream was returned.

Bacillus Proteus in Cerebrospinal Fluid in Typhus.—In both cases cited by Anderson examination of blood films for malaria parasites and spirilla of relapsing fever was negative. Agglutination tests with *B. paratyphosus* A, B and C were completely negative. In both a positive Weil-Felix with *B. proteus* X 19 was obtained. From the cerebrospinal fluid of each an organism was grown which appeared to be *B. proteus*. No agglutinating serum for *B. proteus* was obtainable, and the classification of the organism is incomplete, but the tests done seem to warrant the conclusion that from the cerebrospinal fluid of two cases of typhus fever with meningeal signs *B. proteus* has been isolated.

Archives Médicales Belges, Liège

August, 1921, 74, No. 8

*Congenital Heart Disease. Taillens.—p. 705.

*Operative Treatment of Jacksonian Epilepsy. J. Voncken.—p. 722.

Congenital Disease of the Heart.—Taillens remarks that the congenital anomalies of the heart which seem to be so complex, in reality are not so. The single anomaly entails secondary malformations of different kinds. Stenosis of the pulmonary artery, for instance, compels the ductus arteriosus and Botalli's foramen to remain patent. The symptoms from this variety of secondary anomalies have a wide range. Congenital mitral stenosis may cause no appreciable symptoms for years until some special strain, as in military training, may reveal it. He outlines the clinical picture with the various congenital anomalies and the mechanism of the symptoms observed. Treatment and prognosis are not discussed.

Traumatic Epilepsy.—Four typical cases after war wounds are described, with the operative treatment applied. The results are not very satisfactory. The epilepsy did not develop until eighteen months after the traumatism in one case. Auvray found a subdural cyst in seventy-nine cases; it was above the brain tissue in all but thirty-three. In this latter group a focus of softening was evidently the primary lesion; in the forty-six others, there must have been some circumscribed serous arachnoiditis to start with. Voncken's experience has made him very dubious as to the ultimate benefit from operative treatment in cases of jacksonian epilepsy, although healing may proceed smoothly. The attacks may not return for many months—over three years in some of Tuffier's cases, and ten months in a case here reported, and they then returned every month. He remarks in conclusion that simple suture of the skin over the brain lesion seems to be preferred more and more rather than introduction of a foreign substance. De Martel said at a recent meeting, "I am afraid that some confrère may be reading us a few months or years hence a report on 'cases of jacksonian

epilepsy aggravated by introduction of a sheet of foreign substance between the dura and the brain.'"

Archives de Médecine des Enfants, Paris

October, 1921, 24, No. 10

*Immunization Against Diphtheria. P. Rohmer and R. Lévy.—p. 585.

*Diphtheric Paralysis Cured by Serotherapy. R. Labbé.—p. 612.

*The Schick Diphtheria Reaction. J. Comby.—p. 624.

Active Immunization Against Diphtheria.—Rohmer and Lévy give the results of injecting children with a mixture of diphtheria toxin and antitoxin. They advise having the free toxin very slightly in excess, and to give the injection between the ages of 6 and 18 months. The children are less sensitive then than later, but the sensitivity is alike in all. A second injection ten days later is sufficient. With the onset of the third year the sensitivity increases, and varies from child to child, and exploratory injections may be necessary to determine the tolerance. Children under 5 months are generally refractory. The state of the health, constitution or chronic disease do not affect the tolerance or the reaction. The latter consists in the development of antitoxin in the blood and in a specific sensitization of the tissues. They add that the Schick test is sometimes misleading, and is of restricted usefulness in the prophylaxis of diphtheria. The details in respect to seventy-three children are tabulated under various headings.

Diphtheric Paralysis Cured by Serotherapy.—In Labbé's six cases of tardy diphtheric paralysis, immediate and systematic treatment with antitoxin was begun and kept up until the paralysis had disappeared, regardless of the age and previous treatment. The children were from 3 to 13 years old and the paralysis had developed a month to six weeks after the onset of the disease. In a seventh case the serotherapy proved successful also in curing paralysis of the soft palate of four years' standing.

The Schick Reaction.—Comby urges that provision should be made by the local health authorities for applying the Schick test to aid general practitioners.

Bulletin Médical, Paris

Sept. 3, 1921, 35, No. 36

*Intensive Iodin Treatment. Boudreau.—p. 711.

Intensive Iodin Treatment.—Boudreau has been treating tuberculosis with iodine for seventeen years, but did not publish his experiences until 1914. He is convinced that iodine is the direct, specific and heroic remedy for this disease, and that it should be given to the limits of tolerance. He adds that not only in tuberculosis but in all infectious diseases, iodine is the most harmless internal disinfectant at our disposal, with the maximum of action and ease of administration. The iodine is given in the form of the tincture added to the milk, wine, teas or other fluids taken during the day. Some of his patients, cured now for ten to seventeen years, had taken up to 400 drops of the tincture of iodine during the day, and these doses have been doubled and tripled in cases cured since 1914, as he gained confidence, he says, in the absolute harmlessness of this medication. It has been applied by Bonnefoy of Geneva in malaria, by some London physicians in chronic rheumatism, by Italians in cholera, by Manuelli of Mexico in tuberculosis, and by Filliol and others in France.

Sept. 10, 1921, 35, No. 37

*Desensitizing Autoplasmothérapie. C. Flandin and A. Tzanck.—p. 725.

*Pleural Effusions. F. Saint Girons.—p. 725.

*Chenopodium in Treatment of Ascariasis. G. Léo.—p. 728.

Desensitizing Autoplasmothérapie.—Flandin and Tzanck draw the blood into a syringe containing a few drops of a 1 per cent. solution of an arsenical. Transferred to a test tube, the plasma can soon be decanted, and a subcutaneous injection of from 0.5 to 3 c.c. has the same effect as a desensitizing injection of the blood serum.

Pleural Effusions.—This is a lecture in the regular course, and it describes all the signs and findings that may aid in diagnosis and guide in treatment.

Sept. 17, 1921, 35, No. 38

*Modern Treatment of Asthma. G. Lyon.—p. 739.

*The Arsenoxid in the Arsenicals. M. Pomaret.—p. 743.

Asthma.—Lyon remarks that there have to be predisposing and provocative factors before asthma can develop, and treatment has to be based on discovery and avoidance of the provocative factors, and efforts to reduce the predisposition. In addition to the usual array of measures, he advocates a course of spa treatment, especially with arsenical mineral waters (Mont-Dore and Bourboule).

Arsenoxid in Arspnenamin.—Some persons have ascribed certain by-effects of the arsenicals to the presence of an arsenoxid, and Pomaret has been studying its action on dogs. He found that it raised the blood pressure, the action very much like that of epinephrin. Hence it cannot be incriminated for the symptoms of shock, the nitritoid crisis, as the blood pressure drops in this.

Lyon Chirurgical, Lyon

July-August, 1921, 18, No. 4

*Retrograde Strangulation of Intestine. M. Patel and M. Vergnory.—p. 417.

Complex Tumor of Breast. L. Bouchut and J. F. Martin.—p. 425.

*Painful Sacralization of Lumbar Vertebra. P. Japiot.—p. 437; Idem., A. Bonniot.—p. 445.

*Surgical Treatment of Painful Cystitis. Rochet.—p. 462.

*Remote Results of Maydl's Operation. E. Mugniéry.—p. 481.

*Jacksonian Epilepsy. R. Leriche and P. Wertheimer.—p. 492.

Retrograde Strangulation of the Intestine.—In the case described there was a W hernia of the cecum, with retrograde strangulation.

Radiotherapy of Pain from Sacralization of Vertebra.—Japiot reports success with roentgen-ray treatment in three cases of persisting pain from abnormal growth of the fifth lumbar vertebra. In a fourth case no benefit was realized. In the first case the lumbar neuralgia and sciatica had lasted for ten years in the man of 38, and they had been considered the result of an industrial accident. The pains and their exaggeration by movement had long incapacitated the man, and he was restored to active life by two exposures in the course of three weeks. In the second case the spinous process was not much enlarged, but it was enough to bring on violent sciatica, rebellious to all treatment, with edema in the legs. The last attack of sciatica had lasted for over six months, when the roentgen rays were applied. Improvement was soon evident and the pains subsided permanently after the third exposure in about six weeks. When last seen, four months later, the cure was still complete. In a third case there was return of the pain after the second irradiation, but it was banished anew by another exposure. In a fourth case the patient, a woman of 30, had long had shifting neuralgias, predominantly lumbar, but there was also slight fever towards night. The fifth vertebra showed the typical enlargement but no benefit was derived from the roentgen exposures. The rays in all the cases were applied to the last lumbar roots and the first sacral: from 1 to 3 H units. Japiot adds that there are now six cases on record of radiotherapy for painful sacralization of this vertebra, all successful but one, and it is probable that this may have been the primary cause of certain other sciaticas that have been benefited by radiotherapy.

Resection of Spinous Process of Fifth Lumbar Vertebra.—Bonniot gives an illustrated description of the simplest and safest mode of access to the root of the spinous process of the fifth lumbar vertebra when this has to be resected on account of its abnormal growth, and consequent pressure on nerves, etc. Hitherto the resection has been done rather blindly in the depths, but this study systematizes it.

Surgical Treatment of Painful Cystitis.—Rochet explains the different procedures required according as the pain comes from contraction of the body of the bladder or the sphincter or lower ureter. Removal of the hypogastric ganglions deprives the bladder mucosa of sensibility, and thus there can be no painful reflex contraction, while at the same time the primary painful contraction is arrested. The exact technic in men is shown in some illustrations both intraperitoneal and extraperitoneal. In two cases of advanced tuberculosis, bilateral resection of the hypogastric ganglion cured permanently the atrocious cystalgia. The bladder was paralyzed in consequence, but this was regarded as an insignificant infirmity in comparison. In two other cases he

accomplished the same by merely resecting the main branches from the ganglion, just before they reach the bladder. This is a simple and harmless operation, he says, and the paralysis of the bladder was transient, although pollakiuria persisted, but there was no further pain. In three other cases the pain was restricted to the lower ureter, and he resected the nerve supply to this segment, with permanent relief. In one case, the pain was evidently due to an inflammatory process in the ureter left after nephrectomy, and a year after the latter he resected the nerves innervating this segment, putting an end at once to the attacks of pain. There had been no return when last seen two years later. Painful contraction of the neck of the bladder can be treated by forcibly stretching or incising the sphincter or by resection of nerves. He regards incision as the most effectual of these measures. The incontinence that follows for two or three weeks is transient. Complete relief from pain was always realized in his experience. He makes the incision in men with a double lithotome introduced through a buttonhole in the perineum; he opens the lithotome as he withdraws it, after turning the concave side up. The sphincter can thus be cut entirely through all its thickness. Another incision can be made with a bistoury—the whole forming a T.

Exstrophy of the Bladder.—Mugniéry cites 60 per cent. good remote results after the Maydl operation in Tholois' compilation of 58 cases and in Buchanan's 98. The ultimate results have been even better in some other cases he has compiled. This latter group includes 5 cases from Josserand's service with an interval since of from twelve to twenty-two years without any signs of pyelonephritis. In one of the cases pyelonephritis did develop immediately but soon healed spontaneously. One in this group of 5 was a child of 3 who succumbed to postoperative peritonitis. The immediate mortality of the Maydl technic is 26 to 30 per cent. but that of other technics seems to be even higher.

The Intracranial Pressure in Jacksonian Epilepsy.—Leriche here presents further evidence to demonstrate that the attacks of jacksonian epilepsy can be brought on at will in the predisposed by reducing the pressure in the cerebrospinal fluid or by inducing abnormally high pressure. The pressure in this fluid can be modified by intravenous injection of saline or distilled water. An extreme case is described in which the attacks and the psychic condition were seen to be unmistakably dependent on the state of the pressure, and fluctuated with it, the pressure left to itself being usually subnormal in the girl of 17. In another case, in a man of 40, the protrusion of the cicatricial tissue in the skull wound suggested hypertension as responsible for the attacks, and since enough spinal fluid was released to bring the tension to normal, there have been no further attacks, as also in another case.

Presse Médicale, Paris

Sept. 10, 1921, 29, No. 73

*Technic for Suturing the Intestine. M. Robineau.—p. 721.

*Reconstruction of Lower Lip. A. Tzaïco (Jassy).—p. 723.

*Hemorrhagic Purpura. J. Mouzon.—p. 726.

Suture of the Intestine.—Robineau gives a profusely illustrated description of methods for suturing the bowel without leaving any dead space. The invaginated seroserosa suture always leaves a closed cavity, which invites trouble. This he avoids by suturing the mucosa over and over first, cutting off all redundant tissue to leave a smooth line, with nothing protruding. This deep suture takes up nothing but the mucous membrane; the outer suture, through muscle and serosa, leaves the mucosa unmolested. This technic takes time and patience, and clamps cannot be used with it, but this is compensated by the smooth healing after extensive operations on the bowel. A tedious gastrectomy or colectomy heals without by-effects.

Plastic Operation on Lower Lip.—Tzaïco's seven illustrations show his method of reconstructing the lower lip by a flap from the front of the neck, twice reversed. The sides of the defect in the lip are cut vertical and the flap is cut with right angles to correspond, but fully three times longer than the gap to be closed. The flap is cut loose from the bottom and sides, the upper edge, just below the gap, being left attached to serve as the pedicle. The flap is then turned

back over the lip and nose and is sutured to the lip. The long upper end is then turned down over the sutured part, thus bringing a fold of skin where the edge of the lip should be. The skin of the neck is drawn toward the center to cover the defect left, and the lower edge of the flap is sutured to this. In a case illustrated, the new lip answers its purpose and closes the mouth. He has improved on this on the cadaver by inserting a pedunculated strip of muscle between the two layers of the new lip; this would give more active control of the new lip.

Hemorrhagic Purpuræ.—Mouzon expatiates on the importance of abnormal conditions in the blood platelets as the cause of the large group of true hemorrhagic purpuræ, that is, those in which the blood clot does not retract although the coagulating time may be normal. Hayem called attention to the protracted bleeding time and abnormally small numbers of platelets, and others have published results of research on the pathology of the platelets which have demonstrated essential thrombopenia and thrombasthenia, and the cure of the hemorrhagic diathesis in a case of essential thrombopenia by splenectomy. He adds that there probably are as many varieties of these hemorrhagic syndromes as there are parts and combinations of parts in the mechanism of hemorrhage. In one the wall of the vessel is at fault, as in slow endocarditis; in another, the coagulating ferments are lacking, as in sporadic hemophilia; in others nothing can be found in the blood to explain the hemorrhagic tendency, as in scurvy. But the rôle of the platelets is primordial in all the purpura cases in which the clot does not contract.

Progrès Médical, Paris

Aug. 27, 1921, 36, No. 35

*Influence of Dyspepsia on Nervous System. M. Loeper, Debray and Forestier.—p. 403.

Pathologic Ovulation in General. Dalché.—p. 405.

The Syphilitic Chancre in General. Queyrat.—p. 407.

The Question of Studying Latin. E. Callamand.—p. 409.

The Influence of Dyspepsia on the Nervous System.—Loeper and his co-workers have been calling attention to the direct absorption from the stomach not only by the circulation but also by the nerves. The pneumogastric and the medulla oblongata take up toxic substances from the stomach and suffer from their action. Their experimental research has confirmed the rapid impregnation of the nerve, its entire length, with formaldehyd and tetanus toxin injected into the stomach, as well as with water, salt, pepsin, etc. Here we have a new cause for the reactions of the vagus in the course of digestion, if any defect in the mucosa allows the toxic substances in the stomach to get to the nerve tissue. They have found pepsin along the pneumogastric and up into the oblongata—the first time, they say, that a product of the secretion of an organ has been discovered in the nerve of the organ. Possibly other nerves from other organs become impregnated in the same way with the special product of the secretion of the organ. If so, this might show the action of hormones and the synergy of glands in a new light. In conclusion, they reiterate the warning that in all cases with gastric lesions, substances with a special affinity for nerve tissue should be given very cautiously, if at all. They also reiterate their warning that pepsin must be regarded as something more than a mere digestive ferment.

Revue Franç. de Gynécologie et d'Obstét., Paris

August, 1921, 16, No. 8

*Pelvic Fixation of Uterus. P. Gaifami.—p. 417.

*Catarrhal Jaundice During Lactation. C. Thélin.—p. 429.

Septic Complications of Uterine Fibromas. E. Goinard.—p. 432.

Technic for Fixation of Uterus.—The evils of ventrofixation of the uterus are illustrated anew in a case of dystocia from this cause reported by Gaifami, the fourth within a brief period. All these evils are avoided, he says, by Pestalozza's method of pelvifixation, which he describes. In 275 cases in which it was applied in the Rome clinic there was a complete or partial recurrence in only 7 cases, and of 121 women who passed through a pregnancy afterward, 107 were delivered at term, and there were only 5 premature deliveries or abortions—no more than the usual average. The pelvifixation

had also a favorable influence on sterility. In 43 cases in which the operation had been done on this account, conception followed in 23. Pestalozza fastens the uterus in anteversion by means of a uterus-bladder serosa-muscle flap which is drawn up and sutured to the fundus of the uterus. A buttonhole is cut in the serosa at the upper limit of the inferior segment. This buttonhole is enlarged transversely across the uterus and for a short distance on the anterior peritoneal layer of each broad ligament. With the fingers, this fibro-muscular-serosa flap is worked loose up to a point level with the top of the bladder. A needle threaded with silk is then passed through the middle of the flap, about 0.5 cm. from its free edge, and the fundus is caught up with it. This brings the uterus up into anteversion, and other stitches are taken to fasten it, and some in the round ligaments. The anterior aspect of the uterus is thus covered with a double covering, and the anteversion can be more or less pronounced according as the flap is sutured farther along on the fundus.

Catarrhal Jaundice During Lactation.—Thélin concludes from his two cases of this kind that the bile salts and pigments may pass into the woman's milk, but that this does not contraindicate continuing the breast nursing. In one case jaundice followed four weeks after delivery and the infant refused the breast as it developed, although no bile products could be found in the milk. The jaundice was mild and disappeared in three days. In the other case, the jaundice followed six days after delivery under 5 c.c. of chloroform. The milk contained bile pigments but the child nursed normally throughout, and showed no effect from the mother's jaundice, which lasted into the third week.

Policlinico, Rome

Sept. 15, 1921, 28, Surgical Section No. 9

*Hematoma from Middle Meningeal Artery. A. Cosentino.—p. 369.

Operation for Jacksonian Epilepsy. G. Giorgi.—p. 380. Cont'd.

*Loose Body in Hernial Sac. C. Oliva.—p. 397.

Inflammatory Tumor of Sublingual Salivary Gland. Cevario.—p. 411.

Extradural Hematoma from Lesion of Middle Meningeal Artery.—In connection with three cases of this kind, Cosentino discusses the mechanism and clinical picture of these hematomas. In one of the three cases the family refused any operation, and necropsy revealed a shirt-stud hematoma in and on the dura.

Loose Bodies in Hernial Sacs.—Oliva reports the discovery of a completely calcified loose body in a hernial sac, along with a loop of small intestine. There had evidently been a nucleus of fibrin. He has found records of twenty-one such cases in the literature, but only two others completely calcified. In Shaw's case the patient felt when the loose body slipped into the hernia, but Oliva's is the only instance of the correct diagnosis having been made before the operation.

Riforma Medica, Naples

Aug. 13, 1921, 37, No. 33

*Pyonephrosis with Calculi and No Symptoms. P. Marogna.—p. 770.

Suborbital Tumor. B. Rosati.—p. 773.

Another Vaccine from Turtle Tubercle Bacilli. L. Urizio.—p. 776.

*Ether in Pleural Cavity. L. Torraca.—p. 778.

*The Metabolism, Etc., in the Tuberculous. A. Ferrannini.—p. 779.

Pyonephrosis Without Symptoms.—Marogna reports three cases in which pyonephrosis had developed from the presence of calculi in the kidney but the symptoms did not point to the kidney. One patient was a previously healthy man who complained of vague malaise, and his abdomen enlarged, especially in the right upper two thirds, and there was albuminuria but no pain. He was losing weight, and the assumption was abdominal tuberculosis or a pancreas cyst. Even palpation and pyelography were misleading, but discovery of a droplet of pus at the right ureter mouth cleared up the diagnosis. An incision revealed a closed pyonephrosis with six calculi and 5 liters of thick pus. In the two other cases there were likewise no symptoms to call attention to the kidney, but the source of the disturbances was traced to the kidney. One patient was a previously healthy woman with seven children, and the other kidney showed signs of severe nephritis. The urine from this kidney soon cleared up after removal of the suppurating kidney. He compares with these

a number of symptomless cases from the literature. He removed the diseased kidney as the routine procedure.

Ether in the Pleura.—Torraca found that dogs were killed in a few minutes by injection of ether into the pleura in amounts which they bore with merely the development of narcosis when injected into the peritoneum. Hemorrhagic infarcts formed, and vast and tenacious adhesions in the animals that survived.

The Metabolism in the Tuberculous.—Ferrannini reviews the conflicting statements of various writers on the anomalies of the nutritive interchanges in the tuberculous. A progressive loss of weight is almost the only point on which they agree as a reliable sign of tuberculosis. With this, in 99 per cent., the subject is tuberculous, especially if young. He explains why pulmonary tuberculosis is less grave with a mitral defect, and discusses further the chilliness or heat felt by the tuberculous without actual change of temperature. Sudden fluctuations of temperature from emotions or indigestion or slight exercise have diagnostic import. The rectal temperature fluctuates more sensitively than the axilla temperature.

Archivos Españoles de Pediatría, Madrid

June, 1921, 5, No. 6

*Syringomyelia in Children. J. M. de Villaverde.—p. 321.

Syringomyelia in Children.—De Villaverde comments on the rarity of syringomyelia in children without other manifest developmental defects. He adds, however, that cavities are sometimes found in the spinal cord of children dying from other diseases, and they may have had unsuspected syringomyelia. This may have been the explanation in certain cases of atrophy of muscles without known cause. The diagnosis of syringomyelia is difficult in children. In one case described, in a girl of 15, the first symptoms had been noted at 13½: pains in the left wrist assumed to be of rheumatic origin. They subsided in a few weeks but returned several months later, and persisted, with pain also in the hand and forearm, aggravated by moving the hand, and the hand grew weak and thin. A few months later the other hand developed the same set of symptoms, but less pronounced. The legs and sphincters were normal. Roentgenography showed decalcification of the bones of the carpus. Sedatives to relieve the pain and electricity to arrest the atrophy of the muscles failed to check the progress of the disease. He gives some charts showing the gradual extension of the sensory disturbances. The appearance of an isolated symptom and its persistence and the gradual sequence of symptoms should suggest the possibility of this disease. He queries whether syringomyelia is responsible in another case, in a girl of 12, who for three years has had periods of pains extending the entire length of the left arm from spine to finger tips, and sometimes, less severe, in the right arm. The pains disappear for months at a time, but then return as severe as ever. The child seems in excellent health and normal otherwise, and there is no tenderness along the spine or elsewhere. The motor disturbances are progressive with syringomyelia, while they are stationary when poliomyelitis is responsible for them, and there are no sensory disturbances. With polyneuritis the paralysis retrogresses more rapidly and completely than in the syringomyelia cases, while the sensory disturbances differ from those of syringomyelia, in which, besides, the course is progressive.

Revista del Instituto Bacteriológico, Buenos Aires

March, 1921, 2, No. 6

*Typhus in Argentina. II. R. Kraus.—p. 1.

*Disinfection with Circulating Hot Air. R. Wernicke.—p. 41. Idem., M. V. Carbonell.—p. 49.

*Biologic Reactions in Typhus in South America. R. Kraus and J. M. de la Barrera.—p. 55.

*Bacteriology and Treatment of Typhus. Pérez Canto.—p. 101.

*Trypanosomes of Surra and Cadera. R. Dios and Oyarzábal.—p. 113.

*Research on Triatomas. E. del Ponte.—p. 133.

*Adsorption of Snake Venom by Charcoal. María Angélica Catan de Houssay.—p. 197.

Influence of Sugar on Production of Diphtheria Toxin. A. Sordelli and R. Wernicke.—p. 231.

*Bovine Antitoxins. R. Kraus, J. Bonorino Cuenca and A. Sordelli.—p. 237.

*Normal Beef Serum in Treatment of Anthrax. R. Kraus and P. Beltrami.—p. 249.

*Paralysis in Consequence of Antirabies Treatment. R. Kraus.—p. 265. Bacillary Dysentery in Argentina. II. H. Riganti.—p. 281.

Serum Tests for Plague. R. González and E. Bustingori.—p. 289.

Present Status of the D'Herelle Coccobacillus Acridiorum Grasshopper Destroyer. R. Kraus.—p. 297.

History of Bacteriotherapy and Protein Therapy. R. Kraus.—p. 301.

*The Invisible States of Pathogenic Protozoa. R. Kraus, R. Dios and J. Oyarzábal.—p. 305.

Typhus in Argentina.—Kraus reports the campaign against typhus in the Salta province undertaken by the national public health service. The disease is endemic in this province, and provisions were enforced for the delousing and disinfection of travelers from the infected zone.

Disinfecting Apparatus.—Wernicke reports experiences with the Hartmann apparatus and Carbonell with circulating hot air, the latter having been found much more effectual than quiet air. They found the current of superheated air more destructive to germs than formaldehyd. The latter acts only on the surface, and is liable to injure tissues and papers, which is not the case with the superheated air.

Research on Biologic Reactions in Typhus.—Kraus and Barrera warn that the temperature of the guinea-pigs should be taken before any biologic tests are applied; otherwise the findings may be malinterpreted. They found the biologic reactions identical with those in Europe with virus from Argentina, Chile, and other strains.

Bacteriology of Typhus.—Pérez Canto relates that 8,400 persons died from typhus at Santiago de Chile in the two years ending September, 1920. He cultivated a diplococcus from some of the cases which, he says, seems to be the causal agent, and relates that a vaccine prepared with this diplococcus reduced the mortality to one third in the hospital in which it was used, in comparison to other hospitals. It also seemed to shorten the course of the disease.

Intracorpuseular Forms of Trypanosomes.—Dios and Oyarzábal describe an intracorpuseular form of the trypanosome of surra and of mal de cadera.

Triatomas.—In this second communication, Del Ponte reports the results of his research on various members of the triatoma genus of insects, besides the megistus responsible for the transmission of Chagas' disease. It is an iconographic description as there are forty pages of illustrations.

Adsorption of Snake Venoms by Charcoal.—The tests with cobra venom, and lachesis and crotalus venom showed that animal charcoal seemed to adsorb the substance in the venom causing the hemolytic action on the blood. After adsorption of the venom a substance was left in the liquid that is not hemolytic, although it binds the antihemolysin. It seems evident that only the combination of the substance that is bound by the charcoal and the substance that binds the antihemolysin have a hemolytic action; neither alone induce hemolysis. The absorption of the venom does not follow the usual law regulating such adsorptions.

Bovine Antiserums for Diphtheria and Tetanus.—The advantages of using bovine instead of horse antiserums are sometimes obvious, and the experiences related seem to indicate that serum sickness is less liable after bovine than after horse antiserums.

Normal Beef Serum in Treatment of Anthrax.—Kraus and Beltrami report additional experimental research which confirms, they say, the efficacy of normal beef serum in treatment of anthrax.

Myelitis After Antirabies Treatment.—Kraus reports the clinical and necropsy findings in a man of 62 who developed paralysis from myelitis after Pasteur treatment for a bite from a rabid dog. The treatment had been begun two days after the bite, and the paralysis developed about the thirteenth day of the treatment. He tabulates the data from the institutes at Rome, Lille, Madrid and elsewhere where no instance of paralysis from this cause has been known, and then lists the twenty-six institutes where there have been from one to thirteen cases, with a total of nineteen deaths. No instance of paralysis from this cause in a child is known.

The Invisible Phase of Pathogenic Protozoa.—A similar communication from Kraus and his co-workers was summarized in these columns recently, September 3, page 822.

Revista Médica del Uruguay, Montevideo

August, 1921, 24, No. 8

- *Thrombophlebitis of Sinus Cavernosus. F. Abente Haedo.—p. 333.
- *Febrile Syphilitic Hepatitis. A. Alvarez Mouliá.—p. 337.
- *Antityphoid Vaccination in Uruguay Army. A. Anselmi.—p. 342.
- Tuberculous Meningitis; Two Cases with Hemiplegia. Alice Armand Ugón.—p. 359.
- Intensive Vaccine Therapy in Typhoid. A. Pereda Valdez.—p. 364.

Thrombophlebitis of Sinus Cavernosus.—The previously healthy man of thirty-three pricked with a needle a small furuncle in the right eyebrow region, and the same day he had headache and fever and vomited, and the next day the right eye protruded and a few hours later the other. Meningeal symptoms developed, with coma, and death the second day. A fatal termination seems to be inevitable in these cases. In Isola's five, the thrombophlebitis was secondary to otitis media, an abscess in the gums, neck, brow or eyebrow region; in Charlin's four and Alonso's three cases, none recovered. But Abente refuses to accept that these patients are inevitably doomed, and urges intervention. Alonso cured one patient with primary thrombophlebitis of the jugular vein, applying the Grunert operation. In conclusion he mentions that the pricking of some lesion with a needle, supposedly sterilized in the flame, is recorded in several of the case histories as having preceded the onset of symptoms.

Febrile Syphilitic Disease of the Liver.—Alvarez relates that the set of symptoms in the woman of 35 had been ascribed to gallbladder disease and then to amebic hepatitis, during eight months. No permanent benefit had been derived from treatment; then the discovery of a Wassermann reaction and treatment as for syphilis resulted in a complete cure in two weeks. The fever was the main symptom, with its evening rise and morning drop, and its irregular course, days of normal temperature being interspersed among days with fever up to 39.5 C. (103 F.). She had lost 22 kg. in weight during these months. The liver was enlarged. In one of Castaigne's cases the fever had persisted for twenty months. No effect was apparent on the fever from quinin, salicylic acid or any medication except that which is specific for syphilis.

Antityphoid Vaccination in the Army.—Anselmi is surgeon general of the Uruguay army and he relates that 40 per cent. of the army have been vaccinated against typhoid. He urges to have it made compulsory, and repeated after a two year interval. There have been thirty-four cases of typhoid in the army during the two and a half years since vaccination was introduced, including four cases in persons who had been vaccinated. The vaccinated all recovered; in only one of these cases was the diagnosis certain. Morquio advises against antityphoid vaccination in the midst of an epidemic in an endemic focus, telling of a physician who had his three other daughters vaccinated when a daughter contracted typhoid. They each developed the disease, the second daughter the day after the vaccination and the other two the day after they had been vaccinated a second time. They probably would not have developed typhoid, he thinks, if they had not been vaccinated. This evidently roused the latent infection.

Archiv für Kinderheilkunde, Stuttgart

Sept. 17, 1921, 70, No. 1

- *Action of Hypnotics on Infants. A. Eckstein and Rominger.—p. 1.
- *"In Observatione de Lue." E. Steinert.—p. 23.
- *Conservative Treatment of Diphtheria. P. Widowitz.—p. 30.
- *Tuberculin Diagnosis in Children. K. Dietl.—p. 35.

Study of Respiration in Children.—In this third communication on the physiology and pathology of the respiration in children, Eckstein and Rominger report the results of administering chloral, urethane and hedonal to healthy and sick infants. This gives a basis, they say, for estimation of their effect in pathologic conditions. The modification of the breathing rate by the action of the narcotic is a sensitive index of its potency, by the length of the interval before the respiration center is modified by it enough to affect the breathing. The article is not concluded in this issue.

Congenital Syphilis.—Steinert states that the infants of 31 women with florid syphilis showed no signs or symptoms of syphilis while they were under observation, except a positive

Wassermann reaction sooner or later in 44 per cent. No treatment had been given 17 of the women, and 23.5 per cent. of their infants reacted to the Wassermann test, and 33 per cent. of the infants of the 3 women given treatment before the pregnancy, and 36.3 per cent. of the infants of the 14 treated during the pregnancy. The treatment had presumably sufficed to prevent development of symptoms, but had not been able to prevent the changes in the serum which entailed the positive response. In 2 in this group the syphilis was a comparatively recent infection. One woman and her infant never showed the least sign of syphilis on repeated examination until the woman gave a positive response at the fifth test, but never afterward. When the infant was a few months old it presented unmistakable signs of congenital syphilis, although both mother and infant were persistently negative to serologic tests. Two other infants also showed the first signs of the disease when several months old. On account of the mother's syphilis, these children had been given an early course of inunctions, but it had not warded off the eruption at the age of 3 and 5 months.

Conservative Treatment of Diphtheria.—Widowitz relates that 25 per cent. of the last series of 145 cases of diphtheria were of the croup form, and 68 per cent. of these recovered without intubation or tracheotomy. The fatally toxic cases of diphtheria were almost always those that started in the nose, and had got great headway before the infection was suspected.

Tuberculin Tests in Children.—Dietl reviews the present status of tuberculin diagnosis, saying that a negative response to all the tests is the only really dependable outcome. In older children, the skin tuberculin test is not reliable alone; in dubious cases, it should always be supplemented with the puncture reaction.

Deutsche medizinische Wochenschrift, Berlin

Aug. 25, 1921, 47, No. 34

- *Hematin or Porphyrin in Stools. I. Snapper and J. J. Dalmeier.—p. 985.
- A Steinach Rejuvenation Operation; Failure. K. Mendel.—p. 986.
- Infected Hydronephrosis in Horseshoe Kidney. Karewski.—p. 989.
- Roentgenographic Diagnosis of Colic Intussusception. Karewski.—p. 990.
- Hypopituitarism Following Influenza Encephalitis. Fendel.—p. 991.
- Malignant and Leukemic Tumors Under Roentgen Rays. E. Saupe.—p. 991.
- *Gastric Secretion with Gallbladder Disease. M. Behm.—p. 993.
- Cancer of the Uterus; Favorable Results of Local Heat plus Radiotherapy. S. Weinstein.—p. 994.
- Case of Interstitial Pregnancy. P. Eckhard.—p. 996.
- Active Treatment of Pertussis. O. Meyer-Housselle.—p. 996.
- Death from Roentgen Ray "Burn." E. Liek.—p. 999.
- Development of Roentgen Plates in a Light Room (the Safranin Procedure). K. Glass.—p. 1000.

Significance of Decomposition of Blood Pigment in Intestine into Porphyrin in Determination of Occult Blood in Feces.—Snapper and Dalmeier state that, after sufficient practice and if a good extraction method is used, the spectroscopic method is just as sensitive as the color tests. They prefer the spectroscopic method because other substances besides blood pigment may give positive color reactions. They describe the spectroscopic procedure they use: The stool is rubbed up in a mortar with an excess of acetone. It is then filtered and the remaining fluid is pressed out with the pestle. The dry substance is returned to the mortar and brayed with a mixture of one part glacial acetic acid and three parts ethyl acetate. After filtration, one part pyridin and two drops of ammonium sulphid are added to four parts of the filtrate. If hemochromogen is present, the spectrum of hemochromogen is produced, with the characteristic band between yellow and green. Another portion of the filtrate is spectroscoped without addition of other reagents. One may possibly find in the filtrate a spectrum of acid hematin, of chlorophyll or alkaline porphyrin. If to four parts of the filtrate one part 10 per cent. hydrochloric acid and a small quantity of ether are added, upon shaking, two distinct layers are formed. In the upper, ethereal layer the spectra of chlorophyll and hematin may be demonstrated; in the lower, hydrochloric-acid layer the two bands characteristic of acid porphyrin. The demonstration of porphyrin is thus very simple. They found that in a number of cases (16 per cent.) of gastric and intestinal carcinoma all the blood in the feces was decomposed into porphyrin; the color and the hemochromogen tests would thus be negative in such cases, and only a clearly defined

spectrum of porphyrin would reveal the marked blood content of the feces. The decomposition of the blood pigment into porphyrin is more marked in malignant than in benign affections of the stomach and intestine. Absence of the porphyrin spectrum testifies against malignant disease of the stomach or intestine. The reverse, however, is not true; the presence of such a spectrum does not necessarily prove the existence of a malignant growth.

Disturbance of Gastric Secretion of Hydrochloric Acid in Affections of the Gallbladder.—Behm reports, on the basis of a series of observations, that a disturbance in the hydrochloric-acid secretion of the stomach usually accompanies gallbladder affections, which fact is of significance as regards differential diagnosis, especially in chronic cases. After cholecystectomy and cholecystostomy the diminished gastric secretion of hydrochloric acid usually persists. Thus it would appear that the gallbladder does not usually regain its physiologic function even after a conservative operation. However, this disturbance of gastric secretion seldom causes any subjective symptoms of importance.

Medizinische Klinik, Berlin

Aug. 28, 1921, 17, No. 35

- *The Constitution and Tuberculosis. J. Bauer.—p. 1045.
- Minor Surgery on Hand and Foot. M. Strauss.—p. 1047. Conc'n.
- *Percutaneous Protein Therapy. C. Funk.—p. 1049.
- Steinach's Theory of the Interstitial Cell. Kyrle.—p. 1050. Conc'n.
- *Treatment of Auricular Fibrillation with Quinidin. G. Bock.—p. 1052.
- Spirochetes and Fusiform Bacilli in Pleural Puncture Fluid. A. Luger and Draga Superina.—p. 1055.
- Albumin Urinary Calculi in Girl of 15. Meyer and Herzog.—p. 1056.
- Appendicostomy in Colitis. H. Brossmann.—p. 1058.
- Scabies and Furunculosis in Infants. Gatersleben.—p. 1058.
- Oeynhausien Thermal Baths in Gynecologic Disease. Fenchel.—p. 1059.
- Erysipeloid from Handling Spoiled Meat. A. Greussing.—p. 1060.
- Malaria in Ex-Soldiers. P. Neukirch.—p. 1060.
- Disturbances with Breast Feeding. K. Blühdorn.—p. 1060. Cont'n.

The Constitution and Tuberculosis.—This was the address to open the discussion on this subject at the recent tuberculosis congress in Germany. Bauer explains that the new science of immune biology enables us to comprehend the mechanism and course of the defensive forces of the organism, and thus the kind of battle it is waging with the invading tubercle bacilli, but why the battle takes such individual different forms, and why the outcome differs so materially can be estimated only by considering the individual constitution, and especially what he calls the constitutional ductless glands constellation. It seems to be established, he adds, that persons with a natural tendency to hyperfunctioning of the thyroid are less liable to contract tuberculosis than others. On the other hand, symptoms of hyperthyroidism may develop in the course of tuberculosis, which may be merely by-effects of some salutary defensive process. Hypogenitalism seems to have a favorable influence on tuberculosis; Warnekros has noted this with castrated women and Mauthner with castrated guinea-pigs. Bauer has never diagnosed a tuberculous pulmonary process in a eunuch but once, and this proved to be a mistake as all the symptoms soon subsided. The predisposed constitution is usually of the universal asthenia type, while the lymphatic and arthritic are less susceptible than the average. Their tendency to proliferation of connective tissue is a potent aid in the battle with the Koch bacillus. The closest resemblance between two individual constitutions that he ever noticed was in a pair of twins, a univitelline pregnancy. Both developed a mild torpid form of tuberculosis, one in the lungs and one in the foot. Both were physicians, and casual circumstances determined the location of the process, but the twin constitution determined the similar, benign course.

Percutaneous Protein Therapy.—Funk recalls that the production of antibodies is a secretion process, and that it is possible to stimulate this secretion in various ways. An effectual means to accomplish this is by inunction, his experimental and clinical experience having demonstrated that Witte peptone and casein in colloidal form, in a salve vehicle, are taken up by the skin and induce nonspecific immune processes in the organism. He sensitized the skin beforehand by measures to draw the blood to the skin and redden it (heat, sweating, mustard paste, etc.). The effect of this percutaneous absorption of foreign protein is manifested in the

leukocytosis (which may reach 21,000 by the third day after the inunction), and the increase in antibody production. The reports by various writers cited of instances of improvement in diabetes under the influence of an intercurrent disease led him to try this percutaneous protein treatment on some diabetics. He selected six diabetics presenting symptoms of toxic action which he ascribed to absorption of alien protein through the abdominal walls. Also some diabetics with symptoms indicating insidious disease in or around the gallbladder. Of these thirteen diabetics eight were so much improved by the percutaneous protein therapy that their tolerance was increased from two to sixfold for the same diet, modified only by larger proportions of carbohydrates. The combination of this nonspecific immune treatment with the utilization of the special immunity forces of the skin cells, he continues, is particularly beneficial when a disease is passing into a chronic phase. The forces of the organism are not powerful enough to throw off the disease without help. And the help supplied by the percutaneous treatment is often just what is needed, especially in rheumatic joint disease, gout, neuralgia, neuritis, colitis, pyelitis and proteotoxicoses. This harmless method of treatment is free from danger of anaphylaxis or paralysis. It differs from other parenteral protein therapy in particular by its utilization of the vital function of the skin in the production of antibodies. This is demonstrated by the effects of heliotherapy. Funk's work in this line dates from 1905 when he reported the increase of antibodies after parenteral administration of non-specific drugs, etc. His work on diabetes was published in 1913.

Quinidin in Treatment of Arrhythmia.—Bock reports that auricular fibrillation was transformed to a regular rhythm in 45 per cent. of his 35 cases, and in 2 this effect has persisted for a year to date. In 2 others it lasted for over two months, but as a rule the effect ceased when the drug was suspended. In 2 cases quinidin restored the lost compensation, displaying greater efficacy than digitalis. He says that, with the necessary caution, quinidin can be regarded as generally harmless, and that it should be given a trial in cases of absolute arrhythmia, although he advises trying digitalis and other measures first. Peripheral atherosclerosis and hypertonia are special indications for the quinidin. Acute and recurring endocarditis he regards as a contraindication. With 2 exceptions the desired result was obtained with a daily dose of 0.8 gm. In about half the cases the drug induced by-effects which disappeared as the regular rhythm became installed: sensations of oppression, dyspnea, distress and tachycardia. The general condition was aggravated in 4 cases of mitral defect, in 2 of endocarditis and in 2 of multiple valvular defect. Gastro-intestinal disturbance was noted in 6 cases and "hot flashes" in several. One man had a cerebral hemorrhage after 2.2 gm. of quinidin, but the aphasia subsided almost completely in a few weeks; the pulse kept regular. In two women with heart block and auricular fibrillation the quinidin was followed by recurrence of the Adams-Stokes symptoms. One died several weeks later and nothing pathologic was found in the heart. The heart nerves or endocrine system must have been responsible for the peculiar set of symptoms. They had begun in 1919 with the Adams-Stokes syndrome, at first three times a week and later oftener.

Münchener medizinische Wochenschrift, Munich

Aug. 19, 1921, 68, No. 33

- *Trigeminal Neuralgia. E. Payr.—p. 1039.
- Physiologic Treatment of Hallux Valgus. G. Hohmann.—p. 1042.
- Theories of Color Vision. H. Koellner.—p. 1045.
- Koepe Physical Theory of Retinal Vision. Weigert.—p. 1047.
- Etiology and Transmission of Moles. Meirowsky and Bruck.—p. 1048.
- Experiences with Measles Convalescents' Serum. Zschau.—p. 1049.
- Effect of Roentgen Rays on Tubercle Bacilli. H. Haberland and K. Klein.—p. 1049.
- A Simplified Cutaneous Tuberculin Test. E. Feer.—p. 1050.
- Self-Retaining Aorta Clamp for Practitioners. Hoffmann.—p. 1050.
- Present-Day Mercury Preparations. L. Hauck.—p. 1051.
- Treatment of Surgical Tuberculosis by Practitioner. Magg.—p. 1052.
- The So-Called Spirochaetosis Arthritica. A. Stühmer.—p. 1053.

Trigeminal Neuralgia.—Payr emphasizes the importance of the correct order in the choice of therapeutic methods; namely, difficult and dangerous procedures must not be

employed until milder, harmless methods have been tried. The various methods must be chosen in such a manner that a method taken out of its order does not make the following ineffective, or at least of doubtful value. For technically easier methods with poor lasting results, more radical methods should be substituted, even though more dangerous, provided the prospects for a permanent cure are better. Internal treatment combined with the use of cathartics, morphin withdrawal, psychotherapy and antisyphilitic therapy (if there is the slightest suspicion of syphilitic infection) must certainly be tried as the first stage before any more radical methods are considered. Anesthetization and deep roentgen irradiation constitute the second stage, and alcohol injections and operation the third stage. Roentgen irradiation must precede not only alcohol injections but also peripheral extraction, since otherwise it has little prospect of success owing to scar formations about the nerve trunks. It must be admitted that alcohol injections make future surgical intervention more difficult owing to extensive scar formation, which obscures the topographic relationships. Peripheral extraction is indicated only when the neuralgia is confined to the frontal and supraorbital nerves. He states his reasons why he opposes its application to other branches.

Zeitschrift für urologische Chirurgie, Berlin

Sept. 24, 1921, 7, No. 6

*Nephrectomy and Pregnancy. P. Theodor.—p. 187.

*The Verumontanum. J. Heller and O. Sprinz.—p. 196.

*Malformations of the Kidneys. G. B. Gruber and L. Bing.—p. 259.

Nephrectomy and Pregnancy.—Theodor has traced the later history of 31 nephrectomized women and found that they have had a total of 54 pregnancies with 40 viable children. Nephrectomy has been done in Kümmel's service on 95 women in the reproductive age, and in from 75 to 80 per cent. of the cases in which the kidney was removed on account of tuberculosis, a permanent cure was realized. Hence there seems to be no reason for inducing abortion when the woman becomes pregnant unless there are unmistakable signs that the remaining kidney is suffering. The 9 tuberculous women in Theodor's series bore 12 living children, to 9 abortions; and there were no signs of existing tuberculosis in any of the women. Israel has reported that he never had an instance of the other kidney becoming tuberculous in his series of 97 women nephrectomized for this cause. One woman in Theodor's series passed through a normal pregnancy two years after nephrectomy for hypernephroma, but died eight years later from metastasis or sarcoma. A nephrectomized woman should be supervised with special care all through her pregnancy, especially those with a history of tuberculosis.

The Comparative and Pathologic Anatomy of the Verumontanum.—Heller and Sprinz devote sixty-two pages and fifty-one illustrations to this study of the verumontanum under various aspects in man and animals. The complicated structure and the possibility of stenosis contraindicate partial resection, and this is all that can be realized by blind groping in the depths. They say that Rosen's recent description of nineteen symptoms that can be induced by "verumontanopathy" are merely signs of an infectious inflammation in the urinary organs in general plus signs of sexual neurasthenia in particular.

Malformations of the Kidney.—Gruber and Bing give nearly four pages of bibliographic references, set solid, and describe thirteen cases from the Mainz Pathology Institute in which the kidney was lacking or unduly small or unduly large or multiple. Of all the organs, they say, it is the one most subject to anomalies in shape and number and position. They warn that complete agenesis of one kidney is more probable when the sexual glands on that side are rudimentary or lacking. In Ballowitz' compilation of 213 cases of single kidney, it was abnormally large in 116; in five cases, abnormally small.

Zentralblatt für Chirurgie, Leipzig

Aug. 13, 1921, 48, No. 32

Wound Infections, Especially Surgical Diphtheria. Wieting.—p. 1150.
Invagination of Small Intestine into Stomach After Gastroenterostomy. Hartert.—p. 1154.

Blood Changes After Removal of Spleen. H. Hauke.—p. 1156.
Increased Incidence of Congenital Talipes. A. Schanz.—p. 1157.
Case of Cyst in Arm. W. Uebelhoer.—p. 1157.
Use of the Saphenous Vein in the Radical Operation for Femoral Hernia. A. H. Hofmann.—p. 1158.
Aseptic Management of Stump of Appendix. P. Schueider.—p. 1159.

Aug. 20, 1921, 48, No. 33

*Conservative Treatment of Renal Tuberculosis. E. Wossidlo.—p. 1182.
Treatment of Incontinence of Urine by Plastic Operation on Pyramidalis Muscle. M. Cohn.—p. 1186.
Ascarides Obstructing Gastro-Enterostomy. H. Bertram.—p. 1187.
Ileus Due to Ascarides, Cured by Operation. P. Strater.—p. 1188.
"Gastroptosis." A Reply. A. von Rothe.—p. 1189.
"A Contrast Medium for Pyelography." H. Rubritius.—p. 1191.

Conservative Treatment of Tuberculosis of Kidney.—Wossidlo reports that of 35 cases of unilateral tuberculosis of the kidney he operated in only 12. In the remaining 23 cases, treated with old tuberculin, he recounts the results during and at the end of the first nine months or, at the most, 3¼ years. At first a retrogression of the tuberculous processes was seen at the ureter mouth; the continual desire to urinate disappeared; the urine became clearer; the elements indicative of inflammation gradually became less, and after several weeks—two months at the earliest—a slight improvement in the kidney function, measured by the indigocarmin and phlorizin test, could be noted. Later, the subjective symptoms—the sense of fatigue, etc.—became less marked and the patients regained their capacity for work, some becoming so anxious to "pitch in" that they had to be restrained. After from six to nine months, a functioning of the kidneys could be established in all 23 cases that was fully up to normal. The ureteral orifice showed no further tuberculous processes; the urine was free from albumin and structural elements, and tubercle bacilli could not be demonstrated even by attempts at animal transfer. However, even after from six to nine months, the cure is not necessarily complete. There may be small closed tuberculous foci in the kidneys, from which no tubercle bacilli are eliminated, no tubercle bacilli being found in the urine. We may only regard the result as a cure when the negative findings above mentioned have been repeatedly verified over a period of years. He also discusses the indications for conservative treatment.

Zentralblatt für Gynäkologie, Leipzig

Aug. 13, 1921, 45, No. 32

*Early Symptoms of Carcinoma of the Uterus. P. Zweifel.—p. 1126.
*Pneumoperitoneum in Gynecology. Benthin.—p. 1134.
Etiology and Prophylaxis of Habitual Abortion. Greil.—p. 1136.
Treatment of Abortion. D. Kulenkampff.—p. 1142.
Removal of After-Birth. F. Eberhart.—p. 1146.
Treatment of Abortion and Perforation of Uterus. Uthmöller.—p. 1150.

Early Symptoms of Carcinoma of the Uterus.—Zweifel discusses the significance of the various early symptoms of carcinoma of the uterus, which he enumerates as follows: (1) nodules situated at the orifice of the vagina, unless on examination they prove to be follicular cysts; (2) erosions that bleed when only slightly touched and do not yield promptly to treatment, or look suspicious from the start (a piece of the suspected tissue should be examined microscopically); (3) itching of the external genitalia is a suspicious sign deserving of some attention; (4) hemorrhage following coitus; (5) all postclimacteric hemorrhage from the genitalia must be regarded as highly suspicious; (6) irregular hemorrhages, even during the fertile period of life, should not be viewed lightly but should be followed by an examination, and (7) watery or purulent discharges may be the first symptoms of a carcinoma, and in carcinoma of the corpus uteri they are for a long time the only sign. He says that the root of the evil of the long disregard of cancerous growths by the laity is because they do not cause pain at first.

Pneumoperitoneum as Diagnostic Aid in Gynecology.—Benthin has employed pneumoperitoneum in several gynecologic cases but found that palpation gave him better diagnostic aid than pneumoperitoneum, so that he thinks the advantages of the latter method for the gynecologist are slight, at the best. In a few cases in which the differential diagnosis between genital tumor, intestinal tumor and tumor of the omentum does not become plain, even on examination under anesthesia, it may be advisable to have recourse to pneumoperitoneum. It proved to be quite useless for the

differential diagnosis of organic diseases of the pelvis. Even with elevated pelvis, the outlines were so indistinct that nothing certain could be discovered. The procedure, while not dangerous, is often unpleasant for the patient; in one case the pains lasted several days.

Zentralblatt für innere Medizin, Leipzig

Aug. 20, 1921, 42, No. 33

Relation of the Effect of Alcohol on the Organism to the Blood Pressure Quotient. P. Engelen.—p. 658.

Tohoku Journal of Experimental Medicine, Sendai, Japan

Sept. 10, 1921, 2, No. 2-3

- *Quantitative Test for Pepsin. M. Takata.—p. 127.
- *Relations Between Main and Co-Agglutination. VII. K. Aoki.—p. 131.
- Classification of Dysentery Bacilli by Agglutination. K. Aoki.—p. 142.
- Mutation Phenomenon in Paratyphoid Strain. T. Konno.—p. 159.
- *Ether Hyperglycemia and Glycosuria in Rabbit. I. Fujii.—p. 169.
- *Studies in Gastric Juice. II. M. Takata.—p. 209.
- Research on Cetacea. Y. Morimoto, M. Takata and M. Sudzuki.—p. 258.
- The Pigment of the Sea-Ear: *Haliotis*. T. Kodzuka.—p. 287.
- *Changes in Alkalinity of Blood in Fever. M. Yamakita.—p. 290.

Dosage of Pepsin.—Takata avoids the disturbing precipitation in an acid medium by using fuchsin S for the colorimetric test for pepsin. The cut up fibrin is placed for twenty hours in a 5 per cent. solution of fuchsin S and is then passed through fine linen. The residue is rinsed repeatedly in hot water until the water shows no stain. It is then treated with a 0.5 per cent. solution of hydrochloric acid for some time, and is then rinsed with distilled water until the chlorin is eliminated. After pressing out the adherent water the colored fibrin is ready for use or can be kept in glycerin. The gastric juice to be tested has 1 gm. of the colored fibrin added to it, and it is left in contact for thirty to forty-five minutes at 38 C. It is then chilled with ice and is well centrifuged, and the supernatant fluid transferred to the colorimeter. The amount of fibrin dissolved depends on the duration of the exposure. (In French.)

Agglutination of Paratyphoid Group.—Aoki discusses the agglutinating relations between several members of the paratyphoid group. (In German.)

Ether Glycemia and Glycosuria in Rabbits.—Fujii tabulates the findings with fifteen rabbits kept under the influence of ether for from five to seven hours under varying conditions. (In English.)

The Gastric Juice.—Takata's article is devoted to research on the action and properties of the gastric lipase. (In English.)

The Dissociation Curve of the Blood in Fever.—Yamakita found in experimental fever and also in febrile diseases in man that the percentage saturation of the blood with oxygen decreases in fever. This lowering of the alkalinity of the blood is caused not only by the toxic breakdown of body tissue but by the rise in temperature itself. He found that the percentage saturation of the blood with oxygen increased in rabbits after intravenous injection of sodium carbonate, and this suggests, he says, that treatment as for acidosis might prove beneficial in fevers. The alkalinity declines with toxic fevers when the temperature is not very high; but with nontoxic (heat puncture) fever it does not decline unless the temperature is quite high. (In English.)

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 6, 1921, 2, No. 6

- *Sequels of Epidemic Encephalitis. E. A. D. E. Carp.—p. 684.
- *Hilus Tuberculosis in Adults. J. Lankhout.—p. 691.
- *Ice Cream Poisonings at Meppel. C. W. Broers.—p. 697.
- Cure of Subphrenic Abscess with Dakin Treatment. Rath.—p. 700.
- History of Invention of Meniscus Lenses. F. M. G. de Feyfer.—p. 705.
- History of Invention of Percussion. J. J. van der Kleij.—p. 711.
- *Distribution of Sugar in the Blood. S. van Crefeld.—p. 779.

Sequels of Epidemic Encephalitis.—Carp reports three cases of parkinsonian symptoms in young men after an attack of epidemic encephalitis. The condition has been stationary or has grown worse during the more than a year since.

Tuberculous Bronchial Glands in Adults.—Lankhout regards as instructive an area of dulness near the spine, usually to the right, with hilus tuberculosis. Also the lack of crepitation or its abnormal location. Shortness of breath on exer-

tion also points to hilus tuberculosis, and pain in the chest is frequently mentioned. There may be a subfebrile temperature for weeks and months, not modified by bed rest. When the process is in the bronchial glands and adjacent lung tissue, percussion and auscultation may be negative. He warns that the hilus tuberculosis may occur without an apical lesion, but that an apical lesion practically never develops without the bronchial glands being involved. In some of his cases asthma and bronchitis accompanied the hilus tuberculosis; the derangement in the circulation readily explains them, but they render the differential diagnosis difficult. Rapid loss of flesh, familial predisposition, prolonged slight rises in temperature, weakness, and lassitude might suggest the possibility of hilus tuberculosis when nothing else can be found. The process can smoulder for years, flaring up occasionally. By neglecting roentgen examination, hilus tuberculosis is often mistaken for malaria, typhoid or gastric fever, weak heart or general debility. In conclusion, Lankhout warns that a tuberculous process centrally located is not a rarity, and that the saying, "No tuberculosis without physical signs in the lungs," is incorrect and misleading.

Poisoning from Ice Cream.—Over 200 persons developed symptoms suggesting paratyphoid poisoning at Meppel the afternoon of Sunday, July 10, 1921, and 5 died. The poisoning was traced to some ice cream, and the serum of 6 of the 10 persons examined agglutinated Gaertner's bacillus and did not affect any other micro-organisms. The source of the contamination of the cream could not be ascertained. In another instance of wholesale poisoning from cream, Broers succeeded in tracing the paratyphoid infection to a pool in the meadow. The cows drank the water and the paratyphoid bacilli passed into their milk.

The Free and the Bound Sugar in the Blood.—In the Society Proceedings are published in detail the results of S. van Crefeld's research on the form in which the glucose appears in the blood. He presents evidence that the blood corpuscles of man and rabbits are impermeable to glucose, while, at the same time, there is more glucose present than is found free in the serum. Part of the sugar in the plasma is bound in some way, and he is now seeking whether it is bound to the albumin, the phosphatids or the cholesterin. This conflicts with the general view that the glucose is merely dissolved in the serum. Few now accept Lépine's distinction between the free, "real" sugar and the bound, "virtual" sugar, although Bierry and Ranc in 1914 called attention to what they call proteidic sugar, that is, sugar derived by hydrolysis from the serum protein.

Hospitalstidende, Copenhagen

Sept. 7, 1921, 64, No. 36

- *Pseudosclerosis Without Liver Disease. A. Wimmer.—p. 561.
- Spontaneous Pneumothorax in Adult Brother and Sister. E. E. Faber.—p. 573.

Extrapyramidal Syndromes.—Continuing his study of extrapyramidal syndromes, Wimmer analyzes a case of degeneration of the parenchyma in the cortex, with gliosis, in which the clinical picture was that of a slowly developing nervous affection in a young clerk, with disturbance in speech and gait and jerking movements, some stiffness and discoloration of the cornea, but there was no paralysis, no nystagmus and no sensory or bladder disturbance, and necropsy showed the liver apparently normal. This pseudosclerosis without changes in the liver does not fit into the frame of Wilson's disease or "torsion spasm" although, like these, some intoxication or autointoxication may have been instrumental in its development. The only thing suggesting such in this case was a few weeks of jaundice six months before. The first symptoms appeared at the age of about 18½. The jaundice may have been febrile, but there was no very severe gastrointestinal disturbance.

Sept. 14, 1921, 64, No. 37

- Technic for Film Roentgenography. V. Stockfleth and H. Waagø.—p. 577.
- *Syphilitic Hemisyndromes. A. Wimmer.—p. 584.

Syphilitic Hemisyndromes.—Wimmer describes here another extrapyramidal syndrome. In this case a syphilitic origin is unmistakable. The symptoms are paralysis of the left arm with choreiform movements, difficulty in speech, etc., the whole indicating disease in one half of the striatum.

Hygiea, StockholmSept. 16, 1921, **83**, No. 17

***Virus of Epidemic Encephalitis in the Cerebrospinal Fluid.** C. Kling, H. Davide and F. Liljenquist.—p. 566.

Presence of Epidemic Encephalitis Virus in Cerebrospinal Fluid.—The research reported by Kling, Davide and Liljenquist confirms that the virus of epidemic encephalitis seems to be a glycerin resistant, filtrable and uncultivable, invisible, living micro-organism. They here describe experiences which demonstrate the presence of the virus in the cerebrospinal fluid. Four rabbits inoculated with the lumbar puncture fluid from a woman of 40 with a typical case of epidemic encephalitis, showed no symptoms and no macroscopic lesions when killed the thirty-eighth and fortieth days. The brain of two of the rabbits seemed normal under the microscope, but the two others showed pronounced and characteristic lesions typical of epidemic encephalitis, a round cell infiltration around the vessels in the pons, among the other changes. The photomicrograms from these rabbits resemble in every respect those from some human cases of epidemic encephalitis. It was most remarkable that such pronounced lesions could exist without the animals presenting appreciable symptoms. Five other rabbits were inoculated with brain tissue from these two, and two killed the twenty-fifth day presented the same microscopic characteristic changes. By inoculation of rabbits with lumbar puncture fluid we thus have a means of diagnosing epidemic encephalitis, but a negative result is not conclusive.

Norsk Magazin for Lægevidenskaben, ChristianiaOctober, 1921, **82**, No. 10, and Supplements

- ***Erythema Nodosum and Tuberculosis.** H. J. Vetlesen.—p. 689.
- Juvenile General Paresis; Two Cases.** S. Dahlström.—p. 710.
- ***Operative Treatment for Chronic Glaucoma.** S. Holth.—p. 717.
- ***Goiter in Norway.** S. Kjølstad.—p. 729.
- ***Danger for Young Children in Tuberculous Homes.** T. Schram.—p. 740.
- Fractures in Ski Sport.** O. Usland.—pp. 1-76.
- ***Hemorrhage on Separation of Placenta.** T. Hesselberg.—pp. 1-182.

Erythema Nodosum.—Vetlesen does not theorize but merely states that 13.3 per cent. of his 45 patients with erythema nodosum have developed tuberculosis, and the suspects bring the proportion to 26.6 per cent. On the other hand, 5.1 per cent. of his 350 cases of pleurisy had had erythema nodosum at some previous time, and 6 per cent. of 1,317 tuberculous patients. The work issues from the public hospital.

Treatment of Glaucoma.—Holth reports six new cases of a subconjunctival fistula developing from five months to a year after successful sclerectomy or iridocleisis for chronic glaucoma. His extralimbal tangential technic for sclerectomy he thinks would avoid this, as he explains.

Goiter in Norway District.—Kjølstad found goiter in 57.54 per cent. of 537 girls and 55.88 per cent. of 510 boys—all of school age in the Telemark district.

Danger for Small Children in Tuberculous Homes.—Schram found from 53.1 to 80 per cent. giving a positive tuberculin skin reaction of 500 children under 9 in homes where there was some tuberculous inmate. Among 168 children in homes in which the tuberculosis was particularly contagious, positive reactions were obtained in from 67.5 to 100 per cent. in all over 5. The experiences related demonstrate that it is impossible to preserve young children from the contagion when some member of the family has open tuberculosis.

Hemorrhage on Separation of the Placenta.—Hesselberg's 181 page monograph discusses the physiologic and pathologic hemorrhages, diagnosis and treatment. In 15 of the 18 cases of premature separation of the placenta with no signs of the intrauterine hemorrhage, only a small part of the placenta had become detached. In only 3 had most of the placenta separated, and one of these children was saved by cesarean section. Treatment with hemorrhage of this kind can thus usually be subordinated to the interests of the child. An increase in the blood issuing from the vagina indicates that more of the placenta has become detached. In one case this gave the signal for cesarean section, saving the child. In 11 cases with unmistakable signs of intrauterine hemorrhage, most of the placenta had become detached in 8 of the cases, and the 8 children were all dead. In the 3 other cases the contracted, tender and painful uterus indicated intra-uterine

hemorrhage, but only part of the placenta had separated, and these 3 children were saved by prompt cesarean section. The details of 35 cases of premature separation of the placenta are given and compared.

Ugeskrift for Læger, CopenhagenSept. 22, 1921, **83**, No. 38

- ***Sarcoma After Foreign Body in Conjunctiva.** P. Møller.—p. 1239.
- Operative Treatment of Ozena.** N. R. Blegvad.—p. 1243.
- Quadruplet Birth: One Boy, Three Girls.** K. Jensen.—p. 1249.

Sarcoma from Injury of Eye.—A papillomatous tumor was removed from the eye of a previously healthy man of 47 and a wooden splinter was found in it, probably from an injury two or three months before. A recurrence of the sarcoma was removed likewise, and the metastases in glands around the ear then subsided under roentgen ray treatment, but multiple metastases elsewhere continued to develop.

Sept. 29, 1921, **83**, No. 39

- ***Tetanoid Neuroses.** P. Levison.—p. 1259.
- ***Fatal Bee Sting on Leg.** A. Hansen.—p. 1268.
- Sweat-Band Dermatitis.** B. Pontoppidan.—p. 1271.
- ***Obstetric Turgidization of Placenta.** G. Moltved.—p. 1272.

Tetanoid Neuroses.—Levison remarks that nowadays the diagnosis of hysteria or neurasthenia is made comparatively seldom as we have learned to recognize the incipient and abortive cases of organic nervous or endocrine disease. These used to be labeled neurasthenia or hysteria. He here describes some cases which establish that the parathyroid glands may be responsible for a similar incomplete or abortive set of symptoms. The clinical picture is that of a neurosis, but with a trend to tetany. In one of three such cases described there were signs of other endocrine derangement. He describes several groups with lassitude, restlessness, depression, insomnia and pains and paresthesias, and various objective findings, loss of weight, falling of the hair, goiter, polyuria, and the Chvostek, Erb and Hoffmann signs. The diagnosis is easy if these signs and symptoms are sought for. The disturbances are liable to be mistaken for mild exophthalmic goiter or myxedema, and in fact these tetanoid neuroses may be associated with either. Treatment as a rule is quite effectual, that is, calcium in large doses, best in the form of calcium chlorid, 2 gm. three times a day. This is kept up till the symptoms disappear which is usually not long. Possibly phosphorus might answer the purpose, but this drug is not taken very well by adults. Levison never saw any benefit from parathyroid treatment.

Death from Bee Sting.—The woman had been stung two or three times before and had presented a severer reaction each time. This time the sting on the left leg was followed in twenty minutes by respiratory paralysis. After revival from this, with artificial respiration and massage of the heart, profound coma followed and the woman died the fourth day with no signs of sepsis.

Turgidization of Placenta.—Moltved reports the successful application in two cases of Gabaston's method, namely, hastening the casting off of the placenta by injecting fluid into it through the umbilical vein when conditions call for manual intervention otherwise. The placenta was expelled after 400 c.c. or 1,000 c.c. of fluid had been introduced.

Upsala Läkareförenings Förhandlingar, UpsalaSept. 1, 1921, **26**, No. 5-6. Festschrift. First half indexed, p. 1457

- ***Embryology of Optic Nerve, Etc.** C. Lindahl and A. Jokl.
- ***Racial Inter-marriages.** H. Lundborg.
- Development of Bile Capillaries in Rabbit.** C. Löwenhjelm.
- ***Internal Nervous System of the Intestines.** E. Müller.
- Origin of the Sympathetic in Amphibia.** E. Müller and S. Ingvar.
- ***Cystin Calculus in Bladder.** C. T. Mörner.
- ***Hydrogen Ions of Vitreous Humor in the Fetus.** J. W. Nordenson.
- ***Banti's Disease and Jaundice.** G. Pallin.
- ***Clinical Import of Accessory Renal Vessels.** G. Petré.
- ***Cancer Cells in Blood Stream.** U. Quensel.
- ***The Java Pithecanthropos.** M. Ramström.
- Retrogression and Retention in Embryonal Human Kidney.** C. Sundberg.
- ***Sensibility in Friedreich's Disease.** C. G. Sundberg.
- The Eminentia Arcuata or Jugum Petrosum.** I. Syk.
- ***Acute Typhoid Cholecystitis.** G. Söderlund.
- ***Creosote Poisoning of Infant.** I. Thorling.
- ***Duodenum Shares in Pylorospasm.** I. Thorling.
- ***Tuberculous Bronchial Glands in Children.** A. Wallgren.
- Agglutination of Plague Bacilli.** C. Kling and S. Hesser.
- Roentgen Diagnosis of Perinephritis and Paranephritis.** H. Laurell.

Closure of Fetal Ocular Cleft.—Lindahl and Jokl's photomicrograms trace the development of the optic cup, etc., in vertebrates. In this article they discuss fowls only.

Changes in Facial Types from Blending of Races.—One of the special features of the results of intermarriage between races seems to be that the face is long drawn out, especially the upper part of the face. Lundborg gives illustrations of a few types of the kind from different parts of the world, and urges study of these mixed races.

The Nervous System of the Intestines.—Müller gives a number of fine photomicrograms to illustrate his study of the nerves in the intestinal wall which seem to have a peculiar position in the autonomic nervous system, as Langley has pointed out.

Cystin Calculi in Bladder.—Mörner reports the third case of this kind to be published in Sweden, saying that it is one of the ten largest cystin calculi ever found. It was removed by a suprapubic incision and except for moderate enlargement of the prostate and chronic cystitis the man of 69 has had no further disturbance. The urine reexamined five years later shows no trace of cystin. Research is now under way to determine the prevalence of cystinuria in Sweden.

Hydrogen Ions in Vitreous Humor in the Fetus.—Nordenson regards the pupil membrane of the mammal fetus as an interesting object for study as it completely retrogresses at birth. The tail of the tadpole is almost the only other formation that undergoes this spontaneous retrogression. His research on the cow fetus indicates that the number of hydrogen ions in the vitreous humor keeps at about the same figure during fetal existence, a figure higher than that after birth.

Banti's Disease and Jaundice.—Pallin found moderate jaundice, a much enlarged spleen, moderate anemia of the secondary type and pronounced leukopenia in the unmarried woman of 28 who for two years had had digestive disturbances, with jaundice constantly except for two brief intermissions. Abdominal pains occurred at times, sometimes very severe. There was no indication of hemolytic jaundice, but examination of the spleen on removal showed the findings typical of the second stage of Banti's disease although jaundice is not an element of the Banti clinical picture, nor are digestive disturbances. Eppinger has described a form of pseudo-Banti's disease with both digestive disturbance and jaundice. The symptoms a year since the splenectomy confirm the assumption that chronic enteritis is responsible for the digestive disturbances and also for the changes in the spleen. After the splenectomy, the jaundice, the anemia and the leukopenia disappeared, but the abdominal symptoms persisted. The benefit from the splenectomy, however, amply justifies this operation in such cases.

Accessory Renal Vessels.—Petrén concludes from his own experience and study of the literature that about every fifth kidney has some vascular anomaly, and it is usually in the form of an accessory vessel. He describes four cases of different types, and warns to think of the possibility of disturbance from a supernumerary or otherwise abnormal vessel whenever there are repeated attacks of pain suggesting kidney colic or recurring pyelitis, and roentgenoscopy is negative, and the catheter can be passed smoothly into the pelvis, pyelography showing the latter dilated. There may be no disturbance in voiding urine, and the urine may be normal. As soon as the diagnosis of hydronephrosis from an accessory vessel is at all certain, the kidney should be exposed for examination without delay. Another danger from the accessory vessel is that it is liable to set up severe hemorrhage during an operation; a number of such cases are on record. In Liek's case the accessory vessel had been noted at the operation but had been assumed to be a fibrous band. The patient collapsed six hours after the nephrectomy, from the hemorrhage traced to the tear in this vessel. Petrén cites a number of such cases from the records, saying that his first case belongs in this category, the hemorrhage occurring as an abnormal vessel was torn during the drawing out of the kidney. It should always be borne in mind in operating on the kidney, even in merely drawing it out, that every fifth kidney has some anomaly in respect to its vessels.

Cancer Cells in the Blood Stream.—Quensel discovered cancer cells in the circulating blood in four cases of gastric cancer, in one of carcinoma of the lung, and one of a malignant hypernephroma, all with numerous metastases. These were the only positive ones in 50 cases of malignant disease in various organs, and he accepts this as proving that cancer cells often pass into the blood stream and are destroyed there in large numbers. This probably contributes considerably to the cancer cachexia. He took the blood for the purpose from the right auricle at necropsy.

The Java Pithecanthropos.—Ramström compares the Java pithecanthropos with the Aurignac skeleton, and shows that although the skull of the former is like that of the chimpanzee, its femurs are exactly like those of the Aurignac human being. His conclusion is that the latter originated in the Orient.

Sensibility in Friedreich's Disease.—Sundberg gives a detailed account (in English) of the sensory disturbances which were recorded in all of the ten cases of Friedreich's disease analyzed.

Acute Typhoid Cholecystitis.—Söderlund operated in four cases of acute cholecystitis in the course of the epidemic of typhoid at Göteborg, 1918-1919. In one of the cases the gallbladder complication developed four days after the woman had returned home from the hospital; in another case eight weeks after the beginning of the typhoid, a mild attack during the second week having spontaneously subsided. In the two others the cholecystitis developed early in the typhoid with grave symptoms from the first, and one died. In this case the whole brunt of the disease seemed to be borne by the gallbladder and liver throughout the entire course. The diagnosis at first had been acute recurring cholecystitis, with no suspicion of typhoid, until the exceptionally severe toxic condition was realized. Great improvement followed cholecystectomy but then the condition grew worse and the patient succumbed to the typhoid intoxication. As there were 1,900 cases of typhoid during the epidemic, he remarks that probably some of the cases of cholecystitis that will be encountered during the next few years may be of typhoid origin, in chronic carriers. He has already had a case of the kind as he describes, typhoid bacilli being cultivated from the gallbladder which contained a few gallstones, and there was a history of a few mild attacks suggesting gallstone colic in the last few years, but no jaundice.

Creosote Poisoning in an Infant.—The two months infant had been given creosote by mistake for a laxative, and the symptoms it developed resembled very closely those of Winckel's disease. The analogy was much closer than usual in sepsis in children. Thorling comments on this case that such experiences warn to think of the possibility of some chemical injury in obscure clinical pictures in children, instead of assuming always an infectious origin. This is particularly important on account of the peculiar susceptibility of young children to chemicals which have a destructive action on the blood. In the case reported the dose of creosote was not over 1 gm. at most, but the child died in two and a half days. There was little indication of local caustic action; the mouth soon cleared up and the child took the breast readily. There was only a little vomiting at first, and no bowel symptoms at any time; hemolytic jaundice, hemoglobinuria and leukocytosis were the main symptoms. By the twelfth hour the erythrocytes numbered only 1,800,000, the leukocytes 25,600.

Hypertrophic Stenosis of the Pylorus in a New-Born Infant.—In the case described by Thorling the upper duodenum felt hard and enlarged, the same as the pylorus. The pylorospasm evidently included the upper duodenum, and the necropsy findings confirmed this.

Tuberculous Bronchial Glands in Children.—Wallgren urges detection of tuberculous processes in the glands, and prompt treatment for all children in whom they are discovered. He says that Germany is on the right track. It has already 175 sanatoriums exclusively for children (for adults 168), with 14,300 beds. The Swedish legislature has appropriated funds to provide a children's department in a number of the sanatoriums. He devotes sixty-seven pages to discussion of the early diagnosis, etc.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 21

CHICAGO, ILLINOIS

NOVEMBER 19, 1921

SARCOID AND SYPHILIS *

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Since the description of multiple benign sarcoid by Boeck¹ in 1899, and the gradual restriction of the name to the disease described by him, followed in 1904 by the addition of the subcutaneous type,² the tuberculous etiology of these conditions has been the only one finding any considerable acceptance. Their connection with tuberculosis has been based mainly on their histologic resemblance to tuberculosis of the skin. In addition, the superficial type has some clinical resemblance to lupus vulgaris, and the deep variety approaches erythema induratum in its clinical appearance at times. The considerable resemblance between superficial sarcoid and lupus erythematosus cannot be cited in this connection, as the latter is itself in the same position etiologically as sarcoid. Few cases of sarcoid have shown a local reaction to tuberculin or improvement on tuberculin therapy. Inoculation of guinea-pigs with portions of the tumors has been done in many cases, rarely with success.³ In the thorough attempt of Kren and Weidenfeld⁴ to obtain this confirmation of the tuberculous nature of their case, twelve pigs were inoculated, and after from one to two months showed neither a reaction to tuberculin nor any sign of tuberculosis at necropsy.

In no case has there been recorded the demonstration of undoubted tubercle bacilli. Many cases have had a family history of tuberculosis or tuberculous foci in other parts of the body, but in the light of the great frequency of such, they do not carry much more weight than the fact that in many cases of sarcoid no such lesions can be found, nor any such history elicited. While the evidence, therefore, of their relationship to tuberculosis seems slight, it must be granted that such is also true with some of the accepted tuberculids, in which bacilli are seldom found, inoculations seldom successful and local reactions to tuberculin often wanting.

Pautrier, in 1914, reported two cases, one of multiple benign sarcoid of Boeck, the other of the Darier-Roussy variety, in both of which the Wassermann reaction was strongly positive, and both of which yielded promptly to antisyphilitic treatment:

The first case was that of a woman, aged 24, who had had for two months nodules on both sides of the bridge of the nose, gradually increasing in size. On the right side was a flat nodule a little larger than a 50-centime piece, irregularly oval, with the long diameter vertical. The border of this lesion was slightly elevated, especially at the top and bottom, with a slightly warty, grayish yellow surface, not scaly. The center was rose red, with an interlacing network of deeper red dilated blood vessels.

The lesion on the left side was even more sharply defined and showed signs of beginning regression. It was the size of a 2-franc piece, and consisted of papules from 2 to 3 mm. in diameter, firm, reddish yellow, with a slight infiltration. The center was like that of the other lesion. Histologic section from the larger nodule revealed thinning of the epidermis, and, in the true skin, "puddings" and "sausages" of infiltrate, some localized about the follicles and sebaceous glands, some independent. They were made up largely of epithelioid cells, with only a few fixed connective tissue cells and lymphocytes and a very few giant cells.

The serum of this patient gave a strong positive Wassermann reaction, and one dose of neo-arsphenamin caused a marked improvement in the sarcoid within eight hours, only a slight infiltrate and some central redness and telangiectasis being left. A general examination of the patient revealed typical serpiginous syphilids on the right forearm and both thighs, and a history was obtained of a syphilitic infection six years before the examination. Further treatment with neo-arsphenamin caused the disappearance of all these lesions, leaving only part of the central telangiectasis to mark the site of the sarcoids.

The second case of Pautrier was that of a man, aged 35, on whose left arm, six months before coming for treatment, deep nodules had appeared and had slowly increased in size. On examination, a mass 10 cm. in vertical diameter and 5 cm. wide was seen opposite the acromion process. It was hard, and was adherent to the muscles and at two points to the skin. The skin was of normal color and texture except at these two points, where it was reddish violet and showed punctate depressions like those in orange skin. On the lower posterior surface of the same arm was a second node the size of a pigeon's egg, slightly adherent to the somewhat reddened overlying skin. In the left subspinous fossa was a gumma as large as a 5-franc piece. It had a central ulcer "in every respect like a scrofulotuberculous ulcer."

For two years the patient had had an area of consolidation in the apex of the left lung. Biopsy of one the deep nodes revealed an infiltrate in round or irregular masses, few and small in the upper corium, larger and more numerous in the lower corium and subcutaneous layer. In the latter location, typical "growth atrophy" was seen, the fat cells replaced by infiltrate. Epithelioid cells made up by far the greater part of this infiltrate; many giant cells were present, and few lymphocytes and connective tissue cells. Inoculation of guinea-pigs with tissue from the deep nodes and the gumma was without result.

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* This paper and those by Drs. Brown and Pearce, Irvine and Fraser, which follow, are part of a symposium on Syphilis. The remaining papers, together with the discussion, will appear next week.

1. Boeck, C.: Multiple Benign Sarcoid of the Skin, *J. Cutan. Dis.* 12: 543, 1899.

2. Darier, J., and Roussy, J.: Des sarcoïdes sous-cutanées, *Ann. de dermat. et de syph.* 1904, pp. 144 and 347.

3. Volk: *Wien. klin. Wchnschr.* 26: 1425, 1913.

4. Kren, O., and Weidenfeld, S.: Ein Beitrag zum Lupoid (Boeck), *Arch. f. Dermat. u. Syph.* 99: 79, 1909.

The patient was lost sight of, and after two years returned, with the ulcerated gumma and the upper mass on the arm in the same condition as when first seen, but with a remarkable change in the lower node. It had grown to cover an area 15 by 10 cm., had become adherent to the muscle and skin "and perhaps to the bone," and had become dull red in seven or eight places, where fluctuating nodes had formed, three of which were discharging a thick, clear yellow fluid.

Sporotrichosis was now suspected, but cultures on sugar mediums were negative. Roentgenograms did not reveal any bone change. The Wassermann reaction was strongly positive. Because of the known action of arsphenamin on some tuberculids, the action of calomel on some sarcoids and of iodine on the mycoses, mercuric benzoate in doses of 0.01 gm. intramuscularly was the only medication. After two series of injections, fifteen in each series, all lesions had become nearly clear.



Fig. 1.—General view, elastic tissue stain.

The diagnosis of sarcoid made at the time of the first examination was accepted by Darier, Brocq and Thibierge. Pautrier feels justified in classing as syphilitic rather than tuberculous a lesion that occurs in a patient with a positive Wassermann reaction, and heals on injections of mercuric benzoate. He concludes that sarcoid is of varying etiology, sometimes syphilitic, sometimes tuberculous, perhaps sometimes of still other etiology.

Against these views, Civatte and Vigne⁵ have recently presented the report of a typical case of Boeck's sarcoid studied by them. The patient gave no history or signs of tuberculosis, but said that her husband had chronic bronchitis. She gave a general reaction to 4 drops of a 1:1,000 dilution of tuberculin, but there was no local reaction. The Wassermann reaction was negative both before and after the injection of neo-arsphenamin. The histologic picture showed

more lymphocytes in the upper corium than is usual in sarcoid, and in places signs of degeneration. After three injections of neo-arsphenamin the lesions disappeared clinically, but a second biopsy revealed persistence of the deep foci, only the lymphocytes in the papillary layer having yielded to the treatment. Their experience has shown that syphilids show considerable changes in histologic structure after one dose of neo-arsphenamin, while this sarcoid, which was clinically well after three doses, still persisted histologically. This argues, they think, rather against than for its syphilitic etiology.

At a recent meeting of the French Society of Dermatology and Syphilography, Laplane⁶ presented a woman, aged 51, with a subcutaneous tumor 16 cm. long and 2 cm. thick, in the upper part of the right calf. Its consistency was between that of a sarcoma and that of a fibroid; the mass was adherent to the muscles in places and also in part to the skin, which was lilac color over part of the surface, and normal skin color over the rest. The orange skin phenomenon was noted in places. This tumor had been developing slowly for seven years. It was slightly tender. Another node, nut size, was round on the inner surface of the lower part of the thigh, the skin over it being adherent and violaceous. The inguinal glands on the same side, both vertical and horizontal groups, were large and tender. There was no genital lesion to account for these glands. Histologic examination of the large mass revealed an infiltrate composed of epithelioid cells, giant cells and lymphocytes forming typical tubercles in places. The infiltrate formed a thick band between the corium and the hypoderm, and in places showed considerable necrosis without caseation. The patient had latent apical tuberculosis, reacted to tuberculin given subcutaneously, and had a strongly positive Wassermann reaction. Tuberculin therapy for two months had not improved the lesions, but they cleared up promptly on neo-arsphenamin, leaving some infiltrate, probably a scar.

REPORT OF CASE

In April, 1919, a janitor, born in Germany, aged 40, was referred to me by Dr. Willard Brode of Chicago. He had been in the German navy, and when in Africa, about 1909, had had blackwater fever. A blood test at that time was negative. He had never, to his knowledge, had a genital sore or a skin eruption. During the winter of 1918-1919 he had lost considerable weight without any apparent cause. In December, 1918, a hard mass the size of a half dollar (3 cm.) appeared suddenly under the skin on the inner side of the right elbow, followed soon by several smaller lumps on the back of the arm, and then a deep, hard mass appeared about the middle of the inner surface of the right leg. For many months before these lumps appeared, a tender swelling had been present on the right shin, following an injury. This was the only tender lesion, and there were no other subjective symptoms.

Examination of the chest gave no indication of a pathologic condition, but the roentgenogram showed slight linear shadows radiating from the hilum on both sides, and several small punctate shadows. The shadow of the aorta showed decided dilatation. The abdomen showed no abnormality, blood counts were normal, and the Wassermann reaction was strongly positive.

About the middle of the right shin was a fusiform, hard swelling, tender on pressure, adherent to the bone, the skin over it brownish red. On the inner surface of the same leg at the junction of the middle and upper third was a flat, round mass about 6 cm. in diameter, adherent to the skin.

5. Civatte, A., and Vigne, P.: A propos du traitement de le sarcoid de Boeck-Darier, *Ann. de dermat. et de syph.* 1: 254, 1920.

6. Laplane, L.: Un cas de sarcoïde hypodermique de la jambe, *Bull. Société franç. de dermat. et de syph.*, 1921, No. 3, p. 75.

and at its lower border to the deep tissues. On palpation it felt as hard as cartilage, the border uneven. At the upper border the cake, which seemed about 1 cm. thick, could be lifted by the fingers under its edge. The skin over the slightly depressed center was brownish red, with a pale violaceous ring about it, and the skin beyond this of ordinary color.



Fig. 2.—Detail of infiltrate especially rich in round cells, showing a giant cell replacing a fat cell.

On the internal surface of the right arm just above the elbow was a partial ring of pink to light red papules with convex tops, moderately hard. Within this ring, which was about 4 cm. in diameter, the skin was a pale bluish red, and under it the tissues gave a feeling of soft infiltration without any definiteness. At the middle of the posterior surface of this arm were five nodules, the largest about 1 cm. in diameter, forming part of a small circle deep under the skin. In other places on the posterior, inner and outer sides of the arm were six more deep nodules, from 0.5 to 1.5 cm. in diameter, of cartilaginous consistency, visible only by the dimpling of the skin to which they were attached. No change of color was noted in the skin, nor any orange skin phenomenon over any of the nodes. In front of the right ear, at the border of the hair, was a crescentic group of brownish red smooth papules of split pea size.

One of the deep nodes on the back of the arm was removed and sectioned. The epidermis was practically normal. In the papillary layer a few groups of infiltrating cells were seen about the hair follicles, sweat ducts and blood vessels. Round cells predominated in these groups, with a few epithelioid and spindle cells, and the groups were not sharply defined. The capillaries were moderately dilated. Below this, occupying the whole reticular and subcutaneous layers, was a dense infiltrate forming round or cylindric masses separated by bands of connective tissue. Many of the cylindric masses paralleled the surface of the skin. Some of these groups, especially the smaller ones, showed a central or eccentric blood vessel. In the deeper portion the typical picture of growth atrophy was presented, small foci of infiltrate taking the place of the fat cells, with here and there an empty chamber which had not yet been invaded.

This infiltrate consisted of small, deeply staining round cells with a small amount of protoplasm, large spindle shaped or oval cells with pale vesicular nuclei and an often indistinct protoplasm, and giant cells with their nuclei arranged for the most part at the periphery. The protoplasm of the giant cells, like that of the epithelioid cells, often stained poorly and gave a glazed appearance. Typical oval or round epithelioid cells were seen, but were outnumbered by long cells with

spindle or sausage shaped nuclei, staining faintly. Among these cells mitotic figures were often seen. The small foci in the former fatty layer sometimes consisted of a single large giant cell occupying the whole space of the original fat cell, or, more often, of a giant cell surrounded by epithelioid cells. Many of the giant cells looked as though they had been formed by the melting together of the protoplasm of a number of the epithelioid or long pale cells.

The connective tissue surrounding this infiltrate and forming septums between its lobules was dense, stained normally, and its elastic fibers were well preserved. Within the infiltrate no elastic tissue was found except a few short fragments. In the main body of the infiltrate, round cells were relatively few, plasma cells very few, and no mast cells present. Below the main mass of infiltrate was a looser network of pale staining connective tissue containing small groups of round and plasma cells, with fewer epithelioid cells and spindle cells than in the main mass.

The veins of both plexuses were dilated, the lower more than the upper. Some of the veins contained recent or organized thrombi. Both veins and arteries had thickened walls, infiltrated in places with epithelioid and connective tissue cells. Many of the vessels were partly or wholly surrounded by cuffs of infiltrate, which differed from that of the main tumor in containing more round cells, fewer epithelioid cells and no giant cells. A search for tubercle bacilli in sections stained with carbolfuchsin, and for *Spirochaeta pallida* in a portion of the tissue stained by the Levaditi method was fruitless in both cases.

In view of the positive Wassermann reaction, the evident periostitis, and the suggestive circinate arrangement of the papules on the arm and temple, inunctions of mercury and small doses of potassium iodid three times a day were given, with the astonishing result of clearing nearly all the lesions within a week. Only traces of the nodules remained. The periostitis and the large mass on the leg were much slower to yield, requiring several months for a complete cure. The patient did not receive any arsphenamin. At one time he neglected the treatment for a long time and suffered a recur-

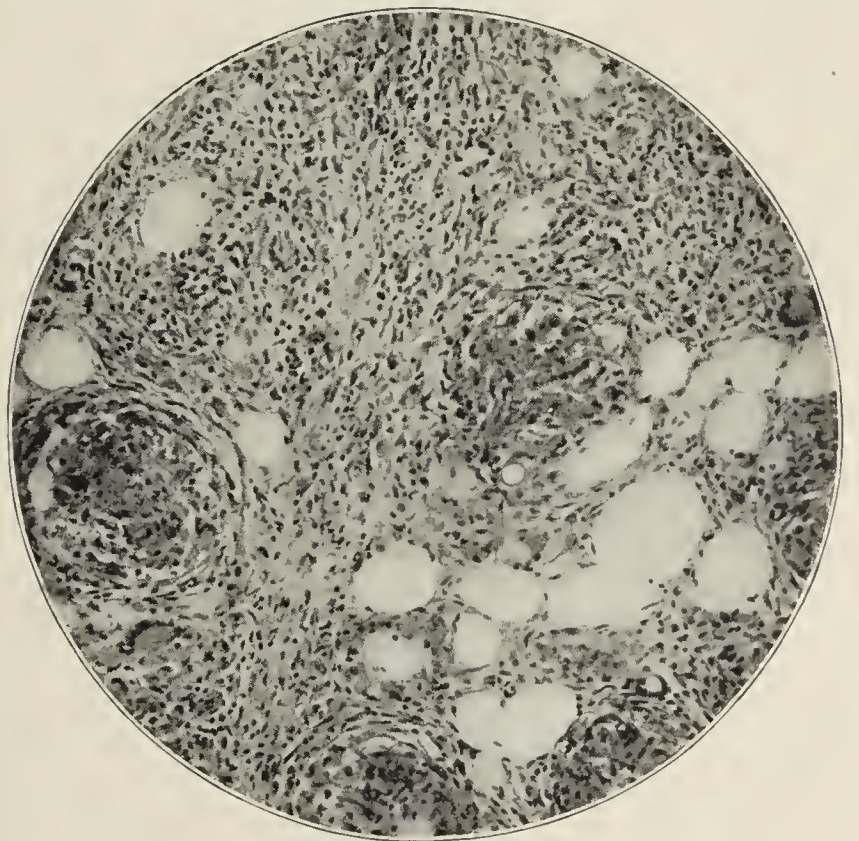


Fig. 3.—Detail of infiltrate, showing two lobular groups of degenerated cells and several giant cells.

rence, several small, hard nodules appearing in the skin of the right ankle. These cleared up promptly on resumption of the treatment.

Histologically, these nodes suggested sarcoid more than gumma, in the preponderance of epithelioid and giant cells, the scarcity of plasma cells, the slight signs of degeneration, the absence of endarteritis, and the sharp definition and lobulation of many of the masses of infiltrate. Clinically,

also, the nodules were of cartilaginous hardness with only slight involvement of the skin after four months' presence, which is not the ordinary evolution of a gumma. In their number, size, grouping and association with papules in circinate formation, as well as their slow evolution, they may better be called deep nodules than gummas. The histology too, fits the nodular syphilid better than the gumma.

COMMENT

These three cases, Pautrier's second (the subcutaneous sarcoid), Laplane's and mine, were all unilateral and located on the extremities. There are many other cases in the literature that might well be ranged along with these if the data were sufficient. The evidence of a syphilitic etiology for these deep sarcoids is very strong. Ravaut, before Pautrier's report, had emphasized the complete analogy of the histology of skin lesions of tuberculosis and syphilis, and stated that sarcoid seemed to be associated as often with syphilis as with tuberculosis. The similarity of the histologic picture of tertiary syphilis with that of tuberculosis has been pointed out by Nicolas and Favre,⁷ Ehrmann and Fick,⁸ Fordyce⁹ and others. More recently, the histologic similarity of paraffinomas, petrolatum and camphorated oil tumors has been shown by Heidingsfeld¹⁰ and by Mook and Wander.¹¹ Clinically, the deep, indolent syphilitic gumma or nodule has long been known as a rare form of tertiary syphilid, but has not obtained the recognition that it deserves.

The restriction of the term sarcoid to Groups 1 and 2 of Darier's classification, as suggested by Pusey¹² and others, would rule out these manifestations of syphilis, for in my opinion they fall into Group 3—



Fig. 4.—Widely dilated veins outside main infiltrate, with infiltrate about them, and loose connective tissue poor in cells outside this; organized thrombus in one vein.

the erythema-induratum-like group—because of the large, cakelike infiltrations and their occurrence on the extremities rather than on the trunk. This distinction applies only to the cases so far reported, and the versatility which distinguishes syphilis makes it very probable that it is an unsafe one.

Sarcoids of the Boeck type in syphilitic patients offer a different problem. The fact that they clear up

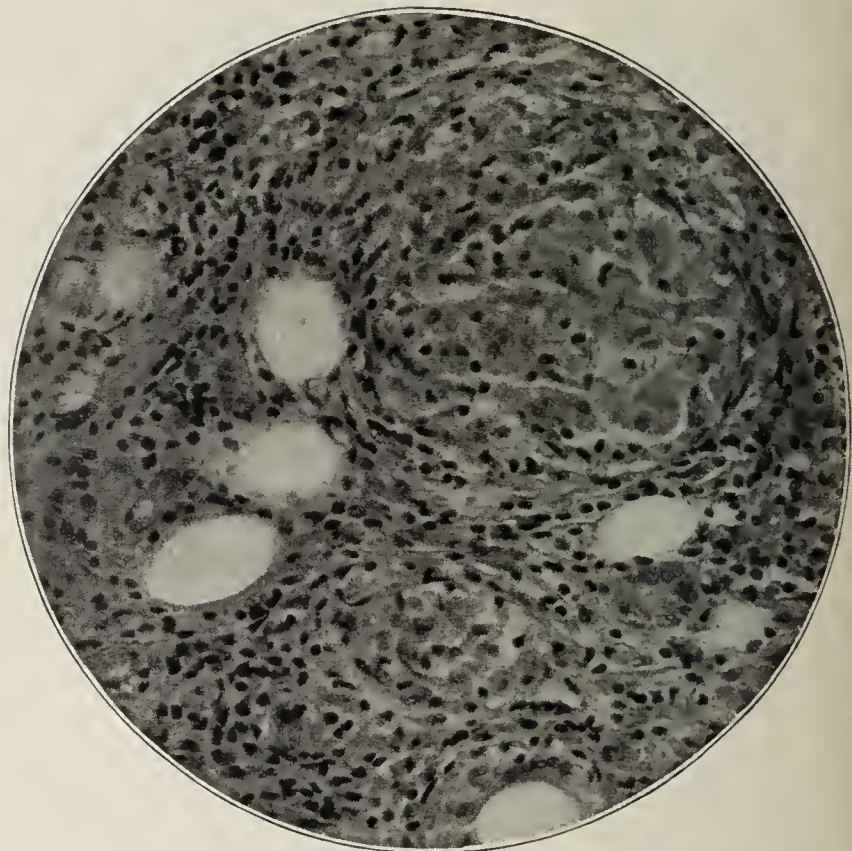


Fig. 5.—Detail showing epithelioid and large sausage shaped nuclei.

promptly on arsphenamin has no weight as an argument for their syphilitic nature, for the prompt disappearance of some tuberculids on such treatment is a familiar phenomenon. We are offered the choice between accepting a new tertiary syphilid and considering these cases sarcoids in syphilitic patients. With the information available at the present time, the latter seems decidedly the easier alternative. Instead of treatment of these cases with arsphenamin, a search for spirochetes in the tissue and a trial of mercury, or mercury and iodids, would shed more light on the problem.

CONCLUSIONS

Sarcoid of Boeck is a definite clinical type. There is no evidence that it can be caused by syphilis.

Sarcoid of Darier-Roussy, if limited to those cases with roughly symmetrical lesions on the trunk, has not been shown to have been caused by syphilis.

Sarcoid of the erythema-induratum-like type is sometimes caused by syphilis.

Uses of the Giant Electromagnet.—Buchholz has found the value of the giant electromagnet to lie not only in the fact that by its aid steel and iron foreign bodies can be removed, but that they can thereby be more accurately localized. If the magnet is brought near to the part of the body in which the needle or other foreign body lies (that is, provided, it lies near the surface), the skin just over the foreign body will protrude. In the greater or lesser bulging of the skin and in the greater or lesser strength of the current passing through the magnet we have a measure for the deeper or the more superficial position of the foreign body.—*Zentralbl. f. Chir.* 48:1079 (July 30) 1921.

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THE DEFENSIVE REACTIONS OF
ANIMALS INFECTED WITH
SPIROCHAETA PALLIDA *

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AND

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Syphilis in the human subject is a disease which presents the most varied clinical manifestations but through all of its diverse forms preserves a sufficient degree of continuity to enable one to recognize certain conditions as fundamental characteristics of the disease. Much the same conditions prevail in the experimental animal, but with the advantage that one may exercise a considerable measure of control over all of those elements which contribute to the production of the disease. Thus, by inoculation of rabbits with *Spirochaeta pallida* one may obtain an infection which progresses no further than the production of a lesion at the site of inoculation with a local and general lymphadenitis, or, following the initial lesion, a variety of conditions may occur, including affections of the skin and the mucous membranes, the bones and the eyes with or without constitutional disturbance; and in still other instances, infection may take place without the production of a lesion at the portal of entry and there may be little or no clinical evidence of any kind to indicate that an infection exists.

Such occurrences are not to be regarded as matters of chance but as orderly expressions of an interaction between two sets of forces and, since it is possible to vary these forces, one may analyze the results of their action with the hope of being able to determine something of the general principles or laws which govern the reactions, as well as conditions which tend to influence the results in one direction or another.

This we have attempted to do; and while it is not possible to enter into the details of the experiments which have been carried out, some of the conclusions thus far reached may be presented in the form of brief statements covering certain fundamental conceptions as to the nature and mechanism of syphilitic reactions as they are observed in the experimental animal. In carrying out these experiments and in formulating our conclusions, we have made use of the lesions or clinical manifestations of disease as a standard of measurement. In the rabbit, all processes of reaction tend to be accentuated and are more clearly defined than in the human subject; hence relationships are more readily detected, and the occurrence or nonoccurrence of lesions, as well as the character of the lesions present in any given instance, may be assigned a definite value in the measurement of processes of reaction.

NATURE OF DEFENSIVE REACTION

From a consideration of the phenomena which characterize both human and animal infection, there are three conditions which possess a peculiar significance on account of the insight which they give into the nature and mechanism of defensive reactions; these

are latency, relapse, and progression or the sequence observed in the evolution of the disease.

The phenomenon of latency in syphilis is one of the most striking examples in all medicine of the distinction between infection and disease; but the significance of this phenomenon has not been fully appreciated. A rabbit once infected with *Spirochaeta pallida* harbors virulent organisms for the remainder of its life, and yet active manifestations of disease may be difficult to detect at any time and are rarely observed after the first few months of the infection.

The fact that infection may exist over long periods of time with no appreciable manifestation of disease indicates that there are two elements in the defensive reaction of the infected animal which bear no fixed relation to each other. One of these is directed against the spirochete itself but is apparently of less consequence from the standpoint of the evolution of disease than the other, whose object is the neutralization of toxic or harmful effects.

These two reactions proceed in parallel directions but are not developed to an equal extent. In the animal, the prime object of the defensive reaction is the prevention or repair of harmful effects; and, as a rule, this is accomplished within a comparatively short period of time. In like manner, growth and multiplication of spirochetes are inhibited to an unknown extent so that the infection itself is brought under control. It is significant, however, that while the defensive reaction is carried to the point of complete neutralization of the power of the organism for the production of disease, infection is never abolished.

The distinction drawn between these two elements of the defensive reaction is of fundamental importance, and the failure to draw a clear line of demarcation between the two processes has caused some confusion—notably, in our conceptions of syphilitic immunity.

A second feature of syphilitic reactions which is deserving of especial consideration is the relapsing course of the disease. In the experimental animal, periodicity is observed in the development and resolution of individual lesions of all classes as well as in the evolution of the disease as a whole; relapse of healed lesions and relapse associated with the development of new lesions are also observed, but not as often as in man.

If one may regard a lesion as primarily an expression of toxic injury on the one hand and of a defensive or protective reaction on the other, an analysis of the phenomena of periodic development and resolution of individual lesions leads to the conclusion that there is a quantitative relationship between the injury produced by the spirochete and the reaction of the host; that when the injury has been checked, the reaction tends to decline; but, as not all spirochetes are destroyed in this process, the cycle is repeated, the state of resistance mounting with successive repetitions until the surviving organisms are incapable of producing further injury.

This process is multiplied many times over in the progress of the disease, with long or short intervals of quiescence or freedom from active lesions. Relapse is prone to occur, however, and it can be shown experimentally that the resistance acquired is definitely related to the extent or severity of the injury which the organism causing the infection is capable of pro-

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* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

ducing. Moreover, the margin of resistance above that required for protection against this organism may be very slight and wholly insufficient to protect against one of greater virulence. In fact, for reasons which are not as yet clear, an animal infected with an organism of low virulence may be less capable of defending himself against one of high virulence than a normal animal.

A study of the phenomena of relapse, therefore, brings out the fact that the defensive or protective reactions of the animal are directly related to injury—that the resistance acquired may be transient or relatively enduring, but tends to increase as the infection progresses until it is sufficient to afford a safe margin of protection against the organism causing the infection.

LAWS GOVERNING SYPHILITIC REACTIONS

With this general statement as to the nature and mode of development of defensive reactions, we may refer briefly to certain principles or laws governing their action which are especially applicable to the evolution or progression of the disease. Among the conditions affecting the evolution of disease in the experimental animal, there are two which appear to operate with the force of definite laws. These may be designated as "the law of inverse proportions" and "the law of progression or sequence." The circumstances which gave rise to the formulation of these laws have been presented elsewhere,¹ and only a few words of explanation are necessary to indicate their bearing.

The idea of proportion and the idea of an orderly progression in the evolution of disease are parts of a general conception of the mechanism of syphilitic reactions. It was first found that, under normal circumstances, the duration of any active manifestation of disease (lesion) was inversely proportional to the intensity and extent of the local reaction. Later, it was found that this principle was equally applicable to the disease as a whole, and that in general, the probability of the occurrence of manifestations of disease at any stage in the course of the infection as well as the severity and duration of the lesions diminished with the intensity and extent of the reaction developed during preceding stages.

By applying this principle to the experimental infection in the rabbit, one may modify the course and general character of the disease almost at will, subject to the second general principle of reaction which we have designated as "the law of progression." This is based on the fact that when allowed to pursue an undisturbed course, syphilis tends to preserve an orderly progression with varying degrees of intensity and extent. This characteristic of the disease appears to be attributable to the fact that different groups of tissues are not equally adapted to the growth and multiplication of spirochetes, on the one hand, and that they are not equally sensitive or reactive to the toxic effects of the organisms, on the other. Moreover, there is a natural order of susceptibility and of involvement, and the protective influences arising from reactions taking place in one group of tissues is extended to others in an equally orderly fashion. Under normal circum-

stances, therefore, the sequence observed in the occurrence of manifestations of disease may be regarded as an orderly progression whose direction is determined by the relative susceptibility of different tissue groups and whose limits are fixed by the sequence and extent of the defensive reactions.

According to the conceptions which have been presented, the animal organism must be regarded as possessing definitely organized lines of defense which operate in accordance with certain general principles or laws. If one inoculates a series of animals, therefore, under a given set of conditions, a definite type of disease should follow except so far as differences may be introduced by variations in the defensive mechanism of individual animals. On the other hand, it is equally apparent that, as the mode and force of the attack are varied, corresponding shifts in the defensive reaction must take place; that is, if the conditions of infection are varied, corresponding alterations may be expected to occur in the resulting disease. Hence, it may be said that the manifestations of disease presented in any given instance depend not only on the general laws which govern syphilitic reactions but also on a number of other circumstances, which include any and all conditions affecting the initiation of the infection, the resistance of the host or the pathogenic properties of the organisms themselves.

These factors are concerned primarily with the subject of variation rather than with the principles of syphilitic reactions, and will be reserved for future consideration.

TWO HUNDRED AND FIFTEEN CASES OF SYPHILIS AFTER FIVE YEARS *

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The literature on various phases of syphilis has been very large during the last few years. Much has been written on experimental syphilis, the serology of syphilis, various methods of treatment and some on the pathology. The studies on treatment have for the most part been limited to ascertaining how quickly a given drug or combination of drugs given in various ways would clear up objective symptoms or bring about a negative Wassermann reaction. There has been practically no attempt made, at least so far as the literature shows, to follow any series of cases over a period of time sufficiently long to have real significance as to just what the various methods of treatment have accomplished. Such a study presents many difficulties: where there are large clinics a fair percentage of patients are among that class that do not remain in one place very long, and hence opportunity is given neither to treat nor to study for an extended period. Another group comes in reasonably early, with active symptoms which are rapidly cleared up; and these patients

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* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of case reports. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

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are prone to lapse shortly after their lesions are gone, because their knowledge of the disease is limited to their own experience, and their natural conclusion is that the disease disappears with the lesions. Another group is made up of those with chronic ailments who go to a new place or undertake a new treatment with enthusiasm, but are likely to transfer their affections to another clinic or physician when there is apparent failure to bring about "wonder cures."

During the past few years the war has also done its part in interrupting the routine in clinics, not only by claiming many patients for service but also by removing clinicians; the personal contact so necessary to the successful management of this type of patient was lost, and patients lapsed.

Notwithstanding the difficulties, it has seemed to me that there might be much to gain by attempting to make a study of old cases. One needs to study old records to improve on present ones, and particularly is it valuable to point out to clinicians how useless their records are for a study of this kind, if improperly or poorly kept. From time to time cases have been cited indicating that a patient may be serologically well for an even longer time than we have thought observation needed to cover, and later relapsed. This again indicates the need for extended observation, or for a review of old cases.

In 1915 and 1916, I made a survey of a part of the material going through the university clinic for the primary purpose of ascertaining what proportion of patients were remaining under treatment. The first survey covered a period previous to any social service, and the second a period when a social worker was included in the personnel of the clinic. In contemplating the present study, it seemed apropos to use this series of cases, and 215 clinic records were studied. At first consideration, one inclined to the idea that a large percentage of the cases could be gotten track of; then as the actual work started and the many difficulties became apparent, one despaired of getting a sufficient number to make it worth while. Forty-three of these patients have actually been located and either reexamined or at least sufficient information obtained to judge of their present status. Eleven private patients are added to this group. Although this is only a small number, it seems to me that I have gathered enough information about our records and methods, about the group as a whole and from certain individual cases, to make the effort worth while.

Of the 172 lost patients, 114 were male and fifty-eight were female. One hundred and five of these patients presented active objective symptoms at the time they were admitted to the clinic, and of these, seventy-two had a positive Wassermann reaction the last time it was taken. Unfortunately, and this is one of the lessons of the study, the records do not show by any notation in many cases just whether these lesions were cleared up or not, but it can be assumed that relapses would be probable with the Wassermann reaction positive. Thirty-three patients had negative tests, but a small percentage of these did not show positive tests on their admission.

Sixty-seven of this "lost" group had no active lesions so far as skin or mucous membranes are concerned. Of these, twenty-six showed their last Wassermann reaction positive and forty-one negative. In both the groups having active lesions and those having none,

absolute conclusions from the blood tests cannot be drawn relative to any change, since in many cases the last test was made a number of weeks before the last visit, and might have been different if actually taken at the conclusion of whatever treatment the patient had.

Of the entire group of 172, the large majority, 139, attended less than six months. Twenty-nine made only one visit, and eighty-eight made less than five visits, so that more than one half did not attend long enough even to get one average course of arsphenamin. Sixteen patients attended for more than six months but less than a year; eleven attended just over a year; two attended two years, and four attended three years. We still hope to get in touch with some of these last thirty-three who attended for longer periods. The entire group made a total of 1,874 visits, an average of about eleven per patient.

Assuming that our clinic at that period was as good as the average—and from a survey that I made at about that time of a number of the clinics of the country in Class A schools, I know it was—a number of important points should be emphasized. Most important of all, as I see it, is the need of keeping patients coming to the clinic. Even mediocre treatment, if given over a period of several years, will do a lot for the average case, whereas even the best treatment if applied for less than six months can accomplish little for the average case. Keeping the patient coming means a careful first examination, with plenty of time not only to get a medical history but also to get acquainted with that patient and obtain an idea of his or her problems, and finally to give a brief but sufficient talk to the patient on what syphilis means and some information relative to the necessary treatment. There is no use expecting to keep a syphilitic patient coming for a long period if only a superficial examination is made, and he is quickly dismissed with the bare statement that he has syphilis and needs to come a long time. Physicians must realize the importance of these things if they are going to cure syphilis—specific medical treatment is only a small part of the job. Of course, with the addition of modern social service, great assistance has been added.

The need of making a diagnosis of active cases at the first visit and starting treatment preferably on arsphenamin is also to be emphasized, as there were quite a number of patients with active lesions who made only one visit, were examined, sent for a Wassermann test, and who did not return for treatment. Many of the patients came a few times but were given mercury because they could not afford arsphenamin, and at that time we had no free arsphenamin. If they could have been given the arsenic at once it would, of course, have been much better from a public health standpoint. Chart after chart shows that only superficial examinations were made, because there is practically no history and no record of any examination made at the beginning, nor any notations made as to the progress. Patients came in with active lesions, and during several months' treatment no notation is made as to when these lesions cleared up, if they did clear up. How are we ever to learn of the value of treatment if clinicians keep such records? Yet I know these are typical of many outpatient departments, not only then but even yet. Unless we bring our syphilitic patients somewhere near to what may be regarded as cure, we haven't done much for them, and I cannot

but feel that in the large majority of this group of 172 patients, our work was a flat failure. We need to point this out to ourselves if we are going to improve it.

By way of contrast, let us consider the figures from a more recently organized clinic that has had many of the advantages that the other lacked:

The night clinic at the university was organized in 1918 under my direction as head of the division of venereal diseases of the state board of health, and has been under the charge of Dr. H. E. Michelson from the beginning. This clinic is limited to men, has had reasonable social service, patients have been carefully studied, literature distributed, arsphenamin furnished free, and finally, where necessary, delinquency has been checked and opposed with the police power of the board of health. There have been 526 admitted directly and 249 transferred, a total of 775, of which 107 were found negative on examination. Of the remaining 668, 193 are lost and 475 are under treatment or discharged. There is therefore every indication that here the majority of patients are going to be treated long enough, and we hope well enough to accomplish real results.

ANALYSIS OF CASES

In this series of fifty-four cases, one started treatment in 1910; three in 1911; one in 1912; five in 1913; three in 1914; twenty-one in 1915; nineteen in 1916, and one in 1917, so that all except one have been under observation for a minimum of five years.

The treatment in general has been of the chronic intermittent type, courses of mercury and arsphenamin alternately. Mercury was given as mercuric salicylate twice weekly for six weeks, or as rubs five times weekly for six weeks. Occasionally mercuric chlorid has been used as noted, and occasionally the patient has had mercury internally for brief periods. Potassium iodid was frequently given in rest periods. Arsphenamin was generally given at weekly intervals in courses of four to six. Neo-arsphenamin was used almost exclusively except where arsphenamin is noted. The average dose has been 0.6 gm. In some of the earlier cases, larger doses were given when original German neosalvarsan was available. Many times, courses of the arsphenamin were interrupted on account of lack of supply during the war.

Where noted, it has not been possible to make examinations, although reliable information was secured. It has also been impossible to secure spinal punctures of many patients, and I realize this deficiency; but further studies of these cases will be made. When examinations were negative, skin and mucous membranes were examined, nerve reflexes, and Wassermann tests were made with acetone insoluble and cholesterinized antigens.

These patients received treatment as outlined in the accompanying table.

Patients have been roughly divided into four groups: First Group (nine): Cases 2, 5, 15, 27, 30, 34, 35, 50 and 53. These patients were admitted early in their disease, and for the most part received a much smaller amount of treatment than would ordinarily be advocated. It is of particular interest that practically every one of these patients is still well after a period of several years. This would suggest that in a majority of cases seen within the first few months of infection,

from six months to a year of intensive treatment will suffice. On the other hand, attention is directed to Case 23, in which the patient relapsed after one year of fairly good treatment, although treatment was instituted within six weeks of infection.

Second Group (twenty-nine): Cases 1, 3, 4, 6, 7, 8, 9, 14, 18, 22, 23, 24, 25, 26, 29, 31, 32, 36, 38, 39, 40, 42, 45, 46, 47, 48, 51, 52 and 54. These cases were well established although comparatively recent, and have received two to four or five years' treatment, have become negative and have remained negative for from one to five or six years.

TREATMENT		
MERCURIC SALICYLATE INJECTIONS		
Number of Patients		Injections
6	.....	under 12
6	.....	12
8	.....	13 to 24
5	.....	25 to 36
6	.....	37 to 48
3	.....	49 to 60
6	.....	over 60
Total, 40		Total, 1,375
MERCURY RUBS		
1	.....	under 30
3	.....	30
5	.....	31 to 60
1	.....	90
4	.....	90 to 120
4	.....	121 to 150
5	.....	181 to 210
Total, 23		Total, 2,543
ARSPHENAMIN		
9	.....	5 or under
13	.....	6 to 10
13	.....	11 to 20
7	.....	21 to 30
4	.....	31 to 40
1	.....	over 50
Total, 47		Total, 718

Third Group (eleven): Cases 11, 12, 16, 17, 19, 20, 21, 33, 43, 44 and 49. These cases were old ones with chronic ailments or mental and nervous involvement which were for the most part treated four or five years, have had large amounts of treatment and which still present some symptoms of one kind or another. Several of these patients present only a persistently positive Wassermann reaction and are clinically well. Further study is needed to settle definitely their status.

Fourth Group (five): Cases 10, 13, 28, 37 and 41. In one case (13), the patient died before any extended observation after treatment. The others are questionable for one reason or another, doubtful diagnosis or doubtful outcome, or are still under treatment.

CONCLUSIONS

Further studies of this kind on larger groups, if possible, should be made. Looking toward such studies, every effort should be made to keep accurate and detailed case histories. Patients receiving treatment for more than an ordinary length of time should pass through the hands of competent consultants to check carefully visceral syphilis and nerve involvement.

The value of social service and personal contact in keeping patients under observation should be emphasized.

Good medical service cannot be rendered if the patients do not attend the clinic.

Finally, I believe that this study, although limited, indicates that present accepted methods of treatment are adequate and, with the increased number of clinics with their better facilities, the increased educational activities and the new public health program, the outlook in this field is decidedly hopeful.

THE VISCERAL CHANGES IN CON-
GENITAL SYPHILIS *

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We know very little concerning the initial stage of congenital syphilitic infection, for we have not had an opportunity to observe the course of its development; but if primary lesions do occur, it is reasonable to assume that the site of such lesions will be as in the case of acquired disease at the point of entrance of the invading organisms. I shall begin, therefore, the consideration of the visceral changes to which the scope of this paper is limited, by describing first the anatomic alterations found in the placenta, the organ which may properly be regarded as the most important to fetal economy, performing, as it does, the functions of stomach, lungs and kidneys for the growing fetus. Formerly an attempt was made to divide these morbid changes into two groups. In one, the alterations were found in the maternal portion of the organ, and were supposed to correspond to those cases which had their origin in maternal infection. In the other were placed the changes found in the villi and their vessels; and when these changes alone were found, it was supposed that the disease had originated in paternal infection. It is now generally admitted that such a grouping is not warranted by the facts.

A syphilitic placenta is larger and heavier than normal, the weight often being to that of the body of the fetus as 1 to 4, whereas in the absence of syphilis the relation is 1 to 6. The consistency of the organ is softer than normal and at times is even friable. The color is usually a pale red mingled with yellowish white patches.

Sections studied under the microscope reveal changes which affect chiefly the vessels and stroma of the chorionic villi. The latter, when teased out in salt solution, lose their characteristic arborescent appearance and become club shaped. This appearance was first described by Frankel, and the condition is known as Frankel's disease. Histologically there is an endarteritis of the vessels often resulting in their obliteration and proliferative changes in the stroma, the normal stroma cells being replaced by closely packed round cells, plasma cells and fibroblasts. Williams¹ considers this microscopic picture to be characteristic of syphilitic infection. In an examination of 547 placentas he found that the microscopic examination tallied with the clinical and necropsy findings in

the child in from 80 to 90 per cent. of cases, which was in marked contrast with the maternal Wassermann reaction, which tallied with these findings in only about 40 per cent. These figures would seem to justify Williams' conclusion that "the demonstration of the so-called Frankel's disease of the placenta offers twice as great a probability of gaining correct information concerning the condition of the child as a positive Wassermann in the mother, and that in the absence of a carefully conducted autopsy, it constitutes the most reliable means of diagnosis at our disposal."

Nevertheless, it must be remembered that these changes in the placenta cannot always be demonstrated and possibly when they are present, are not always pathognomonic. Of thirty-three cases of Williams' series, for example, in which the placentas were normal, twenty-two showed visceral syphilis at necropsy, while eleven showed conclusive clinical signs of the disease, and in thirteen cases the placentas showed definite syphilitic lesions while the necropsy findings in the fetus were negative. In a few cases in which

frank syphilitic lesions were present in the liver, pancreas and lungs, I found it impossible to determine on histologic evidence alone whether the morbid changes in the placenta could be attributed to specific infection. If, then, we give the name of "syphilis of the placenta" to these changes, it should be with the reservation that, while they are highly suggestive of syphilitic infection, they may not be absolutely pathognomonic thereof.

THE LIVER

Of the postnatal organs, I shall first take up the liver, in which there occurs a variety of lesions. The

organ is nearly always larger, firmer and heavier than normal, but very frequently the only histologic changes found are edema and evidence of retarded development, the latter being represented by large numbers of hematopoietic islands consisting of myeloblasts, lymphocytes and nucleated red cells, together with embryonic forms of liver columns. The edema is frequently of a myxomatous type, causing wide separation of the liver columns and suggesting an early stage of pericellular cirrhosis. In many parts of such livers the only conclusive evidence of syphilis may be the presence of large numbers of spirochetes in the edematous stroma; but, as a rule, careful search will reveal some foci of characteristic lymphocytic and plasma cell infiltration in the portal spaces. The lesion, however, which, though not of so common occurrence, is more generally known as the characteristic type of congenital syphilitic liver, is the so-called "pericellular" cirrhosis either with or without miliary gummas. In this type the liver is large, smooth with rounded edges, and very firm, giving the sensation on section of cutting rubber. The color may vary from a normal dark

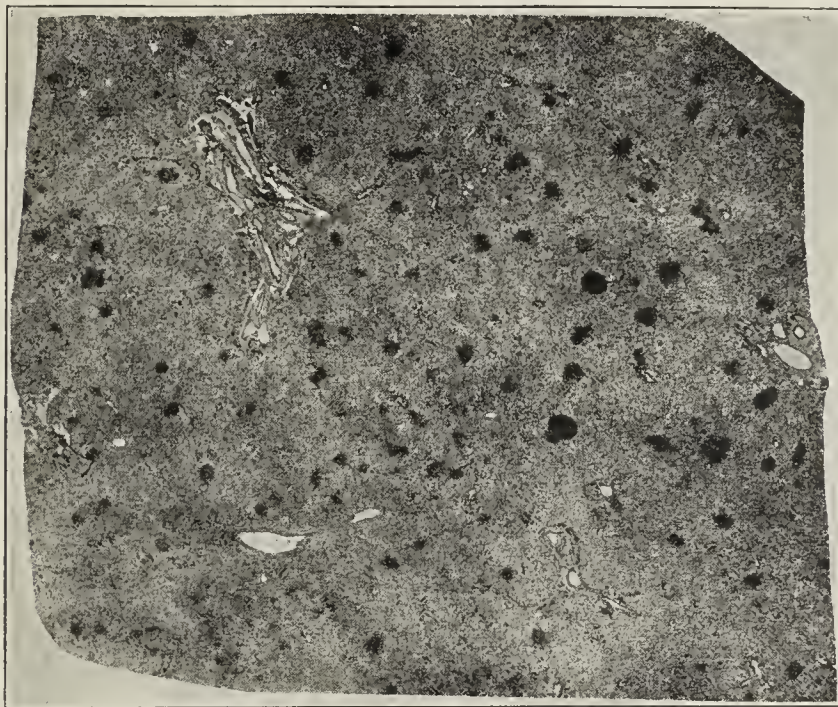


Fig. 1.—Section of liver, very low magnification, showing whole section without histologic detail. The dark spots are miliary gummas.

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* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Williams, J. W.: Bull. Johns Hopkins Hosp. 31: 335 (Oct.) 1920.

red to a brownish red or a pale, grayish brown, and sometimes the organ is completely green from saturation with bile pigment. The color has been compared by the French writers to that of flint (the *foi silex*).

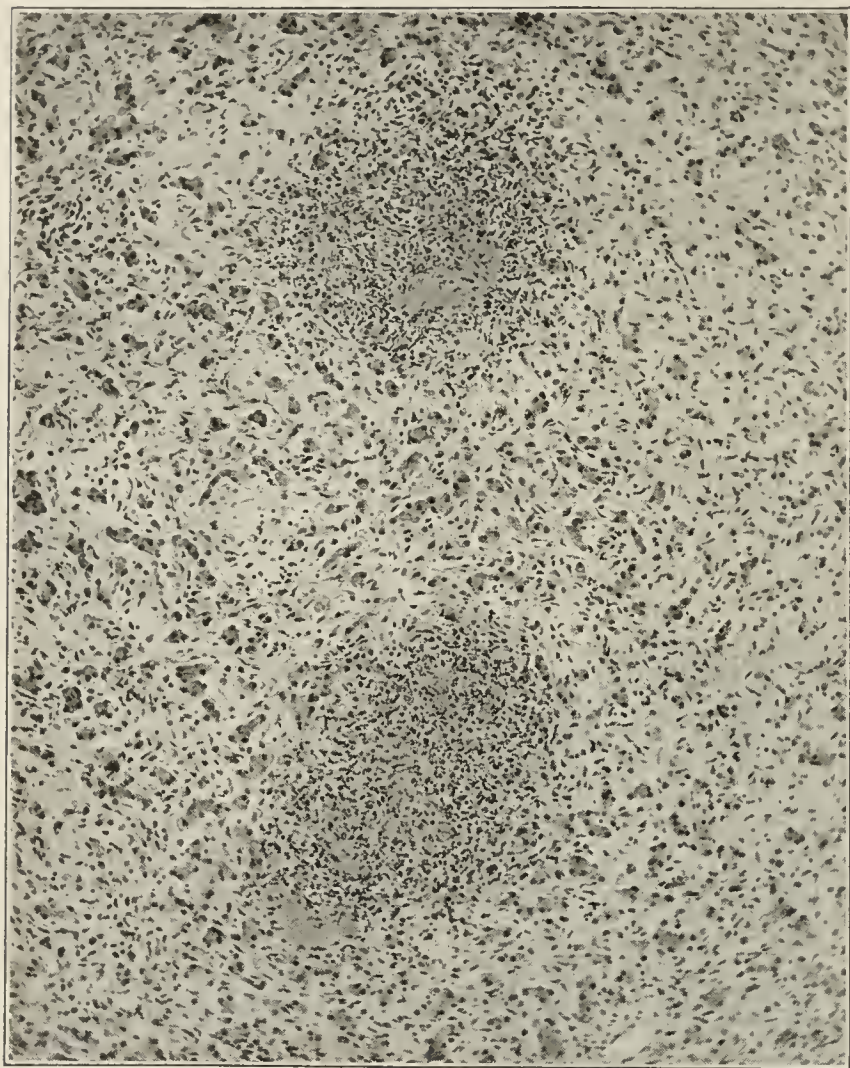


Fig. 2.—A higher magnification of Figure 1, showing diffuse pericellular cirrhosis and two miliary gummas.

This flint appearance may be generalized, or it may be associated with a brownish red (*foi silex partiel*). Frequently the surface of the flint liver is diffusely covered by opaque, yellowish white spots which have been named by the French "semolina grains" because they resemble grains of flour (*les grains de semoule*). On sectioning the organ these are usually distributed throughout the liver substance, and microscopic examination shows that these dots or grains which appear scarcely more than pin points in size to the naked eye are made up of collections of round cells with central necrosis. In other words, they are miliary gummas differing in structure from the large gumma nodules found in the acquired disease only in that in the latter the necrosis is large enough to be seen by the naked eye, while in the former it can be seen only with the aid of the microscope.

Attention should be called to the fact that the gross appearance of the flint liver with the semolina grains may simulate tuberculosis. In the course of routine postmortem investigations at the New York Foundling Hospital, I recently encountered a case in which areas resembling the so-called semolina grains were rather evenly distributed throughout the liver tissue. The macroscopic appearance resembled that of syphilitic infection, but the histologic picture was that of miliary tubercle, and tubercle bacilli were demonstrated in the stained sections. If one remembers that the lesions in the case of syphilitic infection are smaller and of a

more regular shape than the miliary and conglomerate tubercles, mistakes in diagnosis may frequently be avoided.

The section pictured here (Figs. 1 and 2) is of a liver removed at necropsy in the case of a child, aged 2 months. The gross appearance was that of the flint liver rendered green by saturation with bile pigment. On section the semolina grains stood out sharply from the liver tissue, giving the appearance of minute particles of gray sand. Microscopic examination of sections disclosed the presence of miliary gummas and an overgrowth of embryonic connective tissue separating the liver columns and individual cells (pericellular cirrhosis). The absence of epithelioid and giant cells in these lesions is strong evidence that these microscopic areas are syphilitic lesions and not tuberculous. In tubercle formation, epithelioid and giant cells make their appearance at the very beginning, and always precede the necrosis; while in the development of a miliary syphiloma, they follow or come after the necrosis. Thus, it may be possible in the case of early lesions to differentiate between a syphilitic and a tuberculous process on the histologic findings, a point which I regard as of considerable importance especially in those cases in which, from delay in gaining permission for postmortem examination or other causes, it is impossible to demonstrate the presence of the infective organisms.



Fig. 3.—Intracellular edema of heart as seen with high power.

The larger forms of gumma of the liver are not common in congenital syphilis, only a few cases being reported in the literature. In one case of the series studied, that of a boy, aged 7 years, the liver showed the characteristic deep scarring known as "hepar lobatum" so commonly seen in adult cases. However,

as one cannot be sure that this boy did not contract the disease during childhood, we are not justified in placing the case on record as congenital syphilis.

In the Bellevue Hospital series, diffuse amyloid infiltration was found in the liver in three cases, two of which were in children aged 1 and 2 years, respectively; the other in a boy aged 19.

THE HEART

It is now well known that the heart and large vessels are quite frequently the seat of changes which do not differ from those found in the acquired disease. Disease of the endocardium has been observed in a few of the cases examined postmortem at Bellevue Hospital, and Fordyce quotes Rach and Wiesner as having found changes in the aorta and pulmonary artery in 67.4 per cent. of their cases.

Changes in the myocardium, giving themselves expression in the usual perivascular round-cell infiltration and miliary gummas and rarely in the large necrotic lesions (naked eye gummas), have long been looked on as the one and only type of reaction to the presence of *Spirochaeta pallida*; but of late years, and more especially since the publication of Warthin,² a new type of reaction (nonvascular) has been recognized. Warthin believes that the heart is one of the most frequently affected organs in syphilis. He reports his findings in a study of fifty cases of congenital disease, and describes parenchymatous changes, such as pale degeneration, focal fatty degeneration, simple atrophy, necrosis and interstitial lesions consisting of a peculiar form of edema (myxedema), vascular and perivascular infiltration and localized myxoma-like formations.

Possibly on account of not having had the opportunity of studying a sufficient number of cases, I have to report that I have not observed the focal fatty degeneration and myxoma-like areas described by Warthin.

The most frequent findings other than the usual perivascular exudative changes in the cases which came under my observation were an interstitial edema in practically all of the cases examined, and in a few of the cases a sample of which is pictured here (Fig. 3) an edema, or perhaps a better term would be a hydrops of the muscle fibers. In cross sections taken from below or above the plane of the nucleus, the fibers appear as empty tubes; and in sections made through the plane of the nucleus, the latter is seen lying in an empty space surrounded by a thin rim of myofibrillae.

In a comparative examination of the hearts of young fetuses, especially those of premature birth in which there was no evidence of syphilitic infection, interstitial edema was a rather constant finding, which fact gives rise to grave doubt as to its value as an indication of syphilis. The parenchymatous edema, however, is more significant, and even when postmortem changes render impossible the demonstration of spirochetes, it is extremely suggestive of syphilitic infection.

LUNGS

Gummatous lesions of the lungs have been described,³ but they must be very rare in the congenital type of the disease. I have not seen them in the material examined at the New York Foundling and Manhattan Maternity hospitals, nor found any reference to their occurrence in the records of Bellevue Hospital. The usual picture found in fetal syphilis corresponds fairly well to that described under the caption of pneumonia alba. In the cases which I studied, the predominating changes observed were interstitial fibrosis and associated desquamation of alveolar epithelium. In a remarkable case which I reported last year, I⁴ described an appearance in the visceral pleura which, as far as I am aware, was never before described in syphilis. The pleura was markedly thickened and the histologic picture was strikingly similar to that seen in typhoid fever, namely, the presence in distended



Fig. 4.—High power drawing from the interlobular pleura, showing a distended lymph vessel containing large mononuclear phagocytes with ingested lymphocytes.

lymph vessels of large phagocytic cells holding large numbers of lymphocytes in their cytoplasm (Fig. 4).

PANCREAS

As in the case of the lungs, frank gumma is a rare lesion in the pancreas. I have seen one case (owing to the kindness of Prof. James Ewing), and Hazen refers to cases reported by Krebs. The usual changes found in the organ, and they are common, are interstitial and resemble in many respects those described as found in the liver, namely, interlobular and intralobular round-cell infiltration and fibrosis, causing wide separation not only of lobules but also of the individual acini, changes which make the organ

2. Warthin: Am. J. M. Sc. 147: 667, 1914.

3. Hazen, H. H.: Syphilis: A Treatise on Etiology, Pathology, Diagnosis, Prophylaxis and Treatment, St. Louis, C. V. Mosby Company, 1919.
4. Fraser, J. F.: Pathology of Congenital Syphilis, Arch. Derm. & Syph. 1: 491 (May) 1920.

in the gross appear large and whitish, firm and nodular, and on section somewhat gritty.

It is of interest to note that although the lungs and pancreas are almost always involved in congenital syphilis, these organs are rarely attacked in the acquired form of the disease.



Fig. 5.—Amyloid infiltration of splenic nodule, high power.

SPLEEN

According to Veeder and Jeans, enlargement of the spleen in infants under 6 months is almost pathognomonic of either tuberculosis or syphilis. Hazen refers to three types of lesion: the simple hyperplasia, the diffuse fibroid changes and true gummas. Amyloid infiltration was observed in two cases in the Bellevue series, one showing diffuse infiltration of the pulp and the other the characteristic "sago grain" appearance (Fig. 5).

BRAIN, CORD AND MENINGES

Nonne⁵ states that the occurrence of tabes and paresis is not rare in congenital syphilis, and he relates having found in his own experience tabetic children in ten different families. At the suggestion of Dr. Pollitzer, I examined all cords removed at necropsy in cases of fetal syphilis but with invariably negative findings. Cerebral syphilis is more common. In a case occurring in my own experience in which numerous spirochetes were demonstrated in the meninges, the brain, pia-arachnoid and dura were matted together in a diffuse gummatous mass. In localized areas the process involved the frontal bones (gummatous osteitis).

GASTRO-INTESTINAL TRACT

Although Wile⁶ mentions that the early writers of the nineteenth century recognized congenital syphilis of the stomach as a pathologic and clinical entity, the experience of present day observers would seem to point to the conclusion that congenital lesions in the stomach are exceedingly rare. In the Bellevue records consisting of protocols of forty-seven postmortem examinations, I cannot find a report of a single case, and I have myself examined material from Dr. Ewing's collection, the New York Foundling Hospital and the Manhattan Maternity dispensary with uniformly negative results.

Lesions of the intestine, however, are not so infrequent, and syphilitic antenatal peritonitis was regarded by Sir J. W. Simpson⁷ as long ago as 1838 as a cause of death in the case of children dying in the latter months of pregnancy. Hazen refers to two forms of lesion, one involving Peyer's patches or solitary follicles, and the other that in which the lesions are generally distributed throughout the whole of the small intestine. In a case of ulcerative enteritis and colitis observed at Bellevue Hospital, the ulcerated areas in the ileum were confined to a portion of the intestine 6 inches from the cecum. They were irregular in outline with thickened, elevated and hemorrhagic margins,



Fig. 6.—Thymus (low power), showing diffuse fibrosis with obliterating endarteritis and one abscess containing hyaline masses, multinucleated giant cells and numerous pus cells.

the bases being irregularly roughened and covered with necrotic material, and the long axes of the ulcers arranged transversely to the long axis of the intestine. The serosa over these areas was not thickened, and

5. Nonne: Syphilis and the Nervous System, translated by Ball, 1913.

6. Wile, U. J.: Syphilis of Liver, Arch. Dermat. & Syph. 1:413 (April) 1920.

7. Simpson, J. W., cited in Ballantyne's Text Book, 1902, p. 236.

the remaining portions of the small intestine were not involved. In the large intestine, at a point about 8 inches from the anus, there was an irregularly elevated and thickened area parallel with the long axes of the intestine. As spirochetes were demonstrated, there can be no doubt about the syphilitic nature of these lesions.

THYMUS

Pathologic alterations in the thymus have long been recognized in fetal syphilis, but the lesion which has attracted the greatest attention and caused so much disagreement in regard to its pathogenesis is the so-called Dubois abscess. Chiari, Schlesinger, Simmonds, Ribbert and Tuve all agree that these lesions are of the nature of cysts and lined by epithelium, but they do not agree as to the manner of their origin, Chiari and Schlesinger claiming that they arise from the Hassall bodies, while Simmonds and Ribbert believe that they are the result of defective development of the primary cavity of the developing thymus. Tuve holds the view that they arise by necrosis of the medullary tissue, and Pappenheimer describes two cases, in one of which cysts were present. In the other "the change consisted entirely in the presence of reticular epithelial cells and a few lymphocytes."⁸

In a case which I have studied histologically of a male child stillborn, the thymus was enlarged and the surface of the organ was deeply congested and irregularly hemorrhagic. On section the upper half presented a spherical cavity a little larger than a dime, distended with fluid blood. The lower half on section presented a cavity about the size of a quarter which was occupied by a grayish white, pasty, puslike material. Microscopic study of sections reveals no evidence of cyst formation. The picture is that of multiple granulomas for the most part in the cortex and rather definitely outlined by the boundaries of the lobules. In the apparently earlier stages they are composed of small round cells, many epithelioid cells and a few multinuclear giant cells which are evidently formed by fusion of phagocytes around masses of hyaline substance very like the central portions of Hassall's corpuscles. An occasional degenerating Hassall corpuscle may be present. The later stages show the same background infiltrated with polymorphonuclear leukocytes and the whole undergoing liquefaction necrosis. These areas generally retain the shape of the lobules, and have a well marked cellular periphery composed of large cells which might be mistaken for epithelial cells, but which, on close inspection, prove to be mononuclear phagocytes and large fibroblasts (Figs. 6 and 7).

KIDNEY AND SUPRARENALS

The pathologic changes most commonly found in my experience in the kidneys of congenital syphilis were represented by the presence of foci of lymphocytes in and underneath the capsule and in the interstitial tissue between the tubules. The picture was that of acute interstitial nephritis. Hazen gives an excellent summary of the various lesions that have been described in the kidneys and suprarenals, and those interested in following the subject are referred to his book³ as a valuable reference to the latest and best work.

The lesions described may all be found in congenital syphilis, but at times those which might well be regarded as pathognomonic of the disease may be absent. Osteochondritis of the long bones (not discussed here because it is a skeletal lesion), for example, was not present in a case in which spirochetes were demonstrated, and characteristic lesions were found in practically all of the visceral organs. In the majority of cases, however, there will be found some lesion, if not in one organ in another, which will be sufficiently

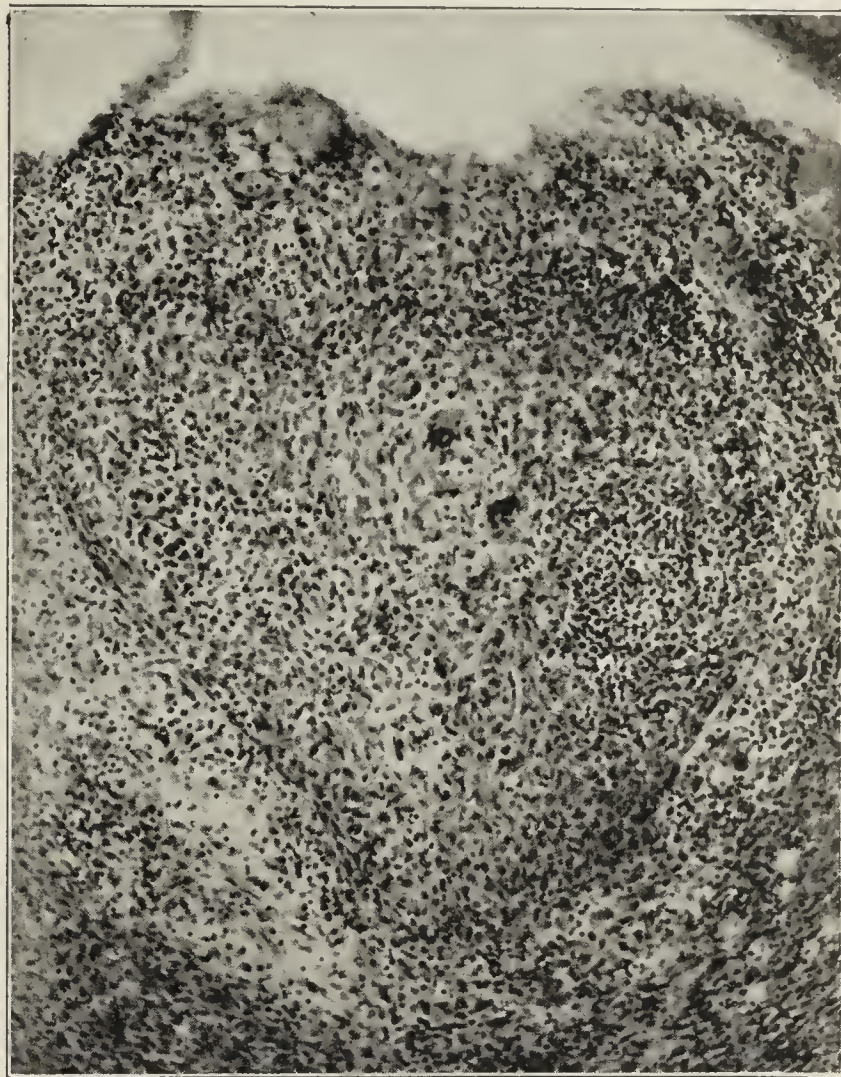


Fig. 7.—Early stage of a lesion in a thymus lobule (high power); numerous epithelioid and giant cells with small foci of pus cells.

characteristic to enable the pathologist to come to a definite conclusion even before he receives a report on the bacteriologic examination.

Tuberculosis in Poland.—The American Red Cross Commission to Poland reports that in spite of the enormous spread of tuberculosis during the war, the number of cases is now actually less than in 1914. Up to that time Warsaw could boast that its tuberculosis percentage was less than that of Paris, Vienna or Moscow. Then the situation in Poland rapidly grew worse. Mortality rose rapidly. In 1917, four out of every 100 of the inhabitants of Warsaw died, and one fourth of the deaths were ascribed to tuberculosis. Sixty per cent. of the child mortality in 1917 was ascribable to tuberculosis. Every third child examined in hospitals or in private practice was tuberculous. At the end of the war the curve of tuberculosis took an immediate and abrupt turn downward. Mortality decreased from the day of departure of the German army and the cancellation of the disastrous food requisitioning which had accompanied the German occupation. In 1920 the conditions were approximately the same as in 1914. Improved food and living conditions had begun to make themselves felt; likewise the antituberculosis measures taken by the Polish government and various relief organizations—the Hoover food relief and the American Red Cross.

8. Oliver, Jean: Syphilitic Disease of the Thymus in Infants and the Mode of Origin of the Dubois Abscesses, *Am. J. Dis. Child.* 13: 159 (Feb.) 1917.

CORRECTION OF CICATRICIAL ECTROPION BY USE OF TRUE SKIN OF UPPER LID*

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In 1597, Tagliacozzi,¹ who was interested in plastic surgery, laid down a rule which he considered fundamental. It was that a flap must keep its connection with adjacent living tissue by means of a pedicle, and that this pedicle must not be severed until union between the flap and the raw surface on which it is planted had taken place. Reverdin² disproved this theory by successfully transplanting small particles of skin to a raw surface, and in 1869, gave a report on skin grafting by his method of handling detached grafts. In 1870, Lawson³ grafted for the treatment of ectropion, and it would seem that he should be given credit for priority. Ollier,⁴ in 1872, found it possible successfully to graft pieces of true skin larger than those used by Reverdin.

The development of the use of detached grafts of true skin occurred within the ranks of ophthalmologists. DeWecker⁵ wrote in 1872 on "La Greffe dermique en chirurgie oculaire." He advocated a mosaic of small dermic grafts from the inner surface of the forearm or arm to cover the raw surface on the eyelid after dissection.

In the year 1876, J. R. Wolfe,⁶ surgeon to the Glasgow Ophthalmic Institution, under the title "A New Method of Performing Plastic Operations," reported two cases of lid repair by the use of free dermic grafts from the forearm for the correction of deformities of the eyelid. In doing so, he said, "the pedicle has, in my opinion, been a source of great embarrassment to surgeons, and the constant employment of it has tended rather to retard than advance

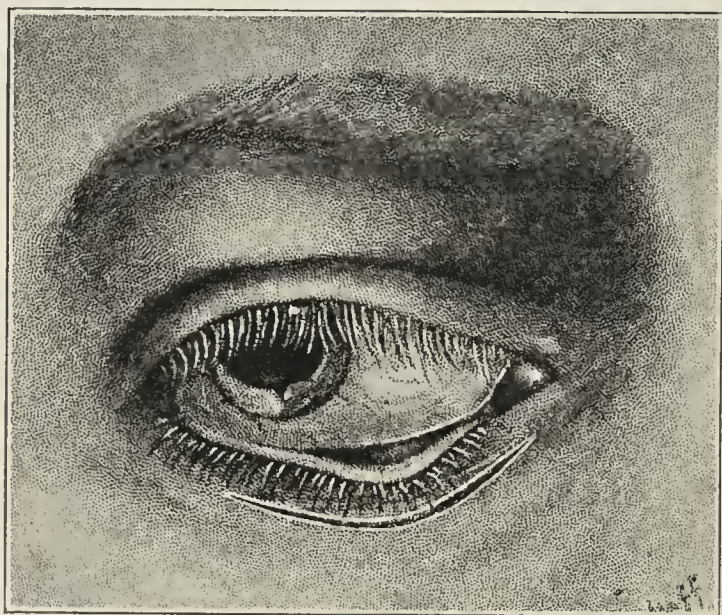


Fig. 1.—Operation for cicatricial ectropion of lower eyelid; primary incision parallel to lower lid margin.

the progress of plastic surgery." In one case, Wolfe took three grafts of true skin. On one of these, he left

subcutaneous tissue, but from the other two he removed all adherent tissue, leaving only skin. The two pieces thus prepared took, while the graft with subcutaneous tissue sloughed in large part. Wolfe, very wisely, came to the conclusion, which has since been sustained, that "if we wished a skin flap to adhere to a raw surface by the first intention or by agglutination, we must be sure that it is completely cleared of all areolar tissue, and properly fixed in its new place." Wolfe's method

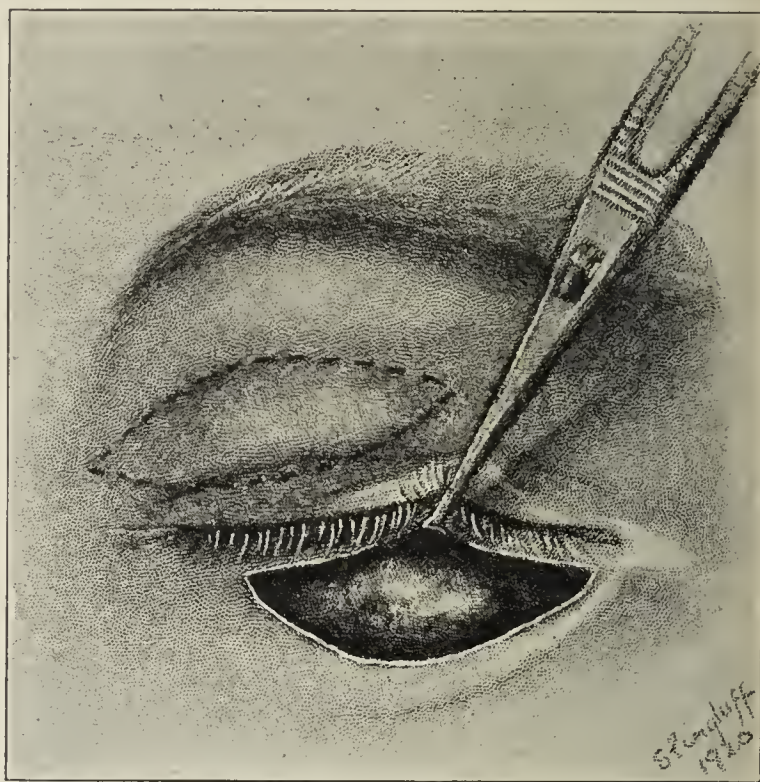


Fig. 2.—Dissection in lower lid completed; graft from upper lid outlined.

was promptly taken up, and operations for ectropion by the use of detached flaps of true skin were reported by Wadsworth,⁷ Aub,⁸ Howe,⁹ Noyes,¹⁰ Zehender,¹¹ Benson,¹² Tosswill¹³ and others. Partial success rewarded many of the early efforts, but contraction of the graft was annoying, and there were many failures due to the fact that "agglutination" did not take place. Obviously, improvement in technic was called for.

In 1919, I¹⁴ presented a paper entitled "Free Dermic Grafts for the Correction of Cicatricial Ectropion." In this paper a number of suggestions were made in regard to the technic of carrying out successfully the method propounded by Wolfe. All the details of the technic will not be reiterated at this time. In 1920, I¹⁵ read a paper before this Section entitled "Restoration of the Margin and Neighboring Portion of the Eyelids by a Free Graft From the Lower Part of the Eyebrow and the Skin Directly Below It." Both before and since this paper was read, I have been operating in suitable cases of cicatricial ectropion by using a detached graft

7. Wadsworth: Case of Ectropion Cured by Transplantation of a Large Piece of Skin from the Forearm, Tr. Internat. Ophth. Cong., New York, 1876, p. 237.

8. Aub: Ectropion Treated by Transplantation of Flaps Without Pedicle, Arch. Ophth. 8: 95, 1879.

9. Howe: The Treatment of Ectropion by Transplantation of Skin, Tr. Am. Ophth. Soc. 3: 46, 1880.

10. Noyes, in a discussion of Howe's paper, Tr. Am. Ophth. Soc. 3: 52, 1880.

11. Zehender: Tr. Am. Ophth. Soc. 3: 47, 1880.

12. Benson: On Restoration of the Eyelid by Transportation of Skin from Distant Parts of the Body, Med. Press, April 26, 1882, p. 353.

13. Tosswill: A Case of Ectropion Successfully Treated by Transplantation of Skin from the Arm, London, Churchill, 1882; Brit. M. J. 1: 9 (Jan.) 1882.

14. Wheeler: Free Dermic Grafts for the Correction of Cicatricial Ectropion, Am. J. Ophth. 3: (April) 1920.

15. Wheeler: Restoration of the Margin and Neighboring Portion of the Eyelid by a Free Graft from the Lower Part of the Eyebrow and the Skin Directly Below It, J. A. M. A. 75: 1055 (Oct. 16) 1920.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Tagliacozzi, Gaspard: Ventilio, 1597. De curtorum chirugia per institutionem libri duo.

2. Reverdin, J. L.: Bull. et mém. Soc. de chir., Dec. 10, 1869.

3. Lawson: Lancet 2: (Nov. 19) 1870.

4. Ollier: Bull. de l'Acad. de méd. 1: 7, 1872.

5. DeWecker: La Greffe dermique en chirurgie oculaire, Ann. d'ocul., 1872.

6. Wolfe, J. R.: A New Method of Performing Plastic Operations, Med. Times & Gaz. 1: 608, 1876.

of skin from the upper lid for ectropion of the lower lid, or for ectropion of the fellow upper lid. As far as I can learn by search of the literature, this idea was original with me, and after many trials by myself and by other eye surgeons with whom I have been associated I can confidently recommend this procedure as being by far the best yet devised for cicatricial ectropion in cases in which it can be applied, and there are surprisingly few to which the method is not applicable. For ease of taking and handling the dermis, and for beauty of result, no other graft can compare favorably with it. The accompanying illustrations show the scheme for handling ectropion of the lower lid and of the upper lid by this method.

TECHNIC OF OPERATION

Cicatricial Ectropion of the Lower Lid.—This is far more common than that of the upper lid. That full correction of this deformity has always been considered difficult there can be no doubt; but we should aim at absolute correction, even to the proper conduction of the lacrimal secretion, if the drainage system is still intact.

The primary incision (Fig. 1) should be parallel to the distorted lid margin. Cicatricial tissue should be so thoroughly and painstakingly removed that there will be no tendency of the lid to evert or lop, and that there will be scarcely more than normal resistance to upward traction at the lid margin (Fig. 2). In making the preparatory dissection, the tissues should not be handled roughly. Artery clamps should not be used unnecessarily, and no ties should be used on bleeding vessels.

Either two or three firm adhesions between the upper and lower lids are made by dissecting off epithelium at corresponding positions on the upper and lower lid

insure firm apposition of the opposing raw surfaces. Union of these raw surfaces causes the formation of adhesions for the support of the lower lid. Later, these adhesions stretch somewhat and are covered with a growth of epithelium. This stretching allows of very slight separation of the lids, so that the patient can see

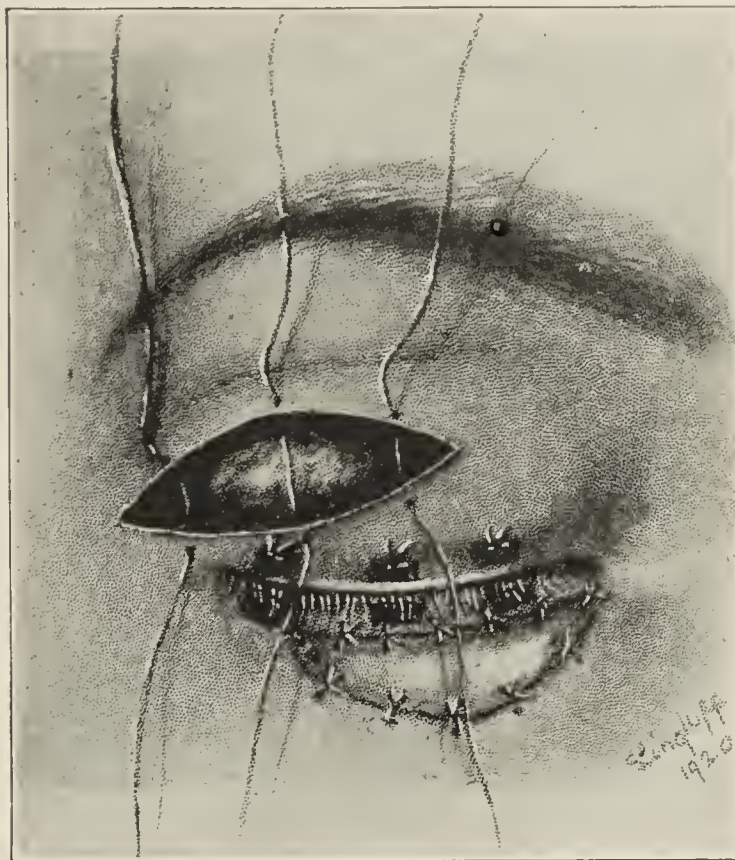


Fig. 4.—Skin graft from upper lid sutured in place in lower lid; sutures ready to tie to close wound in upper lid.

between the margins, a thing to be encouraged as elevation of the upper lid stretches the lower. With this in view, it is well to avoid making an adhesion directly in front of the pupil.

Removal of the True Skin Graft From the Upper Lid.—This is very simple as compared with the dissection of a dermic flap from the arm, thigh or elsewhere. Almost no allowance need be made for contraction. In fact, a graft exactly the dimensions of the raw surface to be covered will answer. This graft can be taken from either upper lid, or, if need be (if each upper lid will afford skin) two grafts may be taken to cover the raw surface. I have never found it necessary to take more than one for a single exposure of raw surface. From the upper lid of a young adult, a piece of skin measuring from 20 to 25 mm. wide and 50 mm. long can be taken. From an elderly person, usually greater width can be obtained without danger of lagophthalmos. In removing the graft, I do not use a grasping forceps of any kind for fear of bruising the graft. Outlining incisions are made through the dermis of the upper lid. A fusiform or semilunar shaped graft will almost always be needed, and a graft of this design is convenient to take. A cataract knife is slid under the skin from the lower incision to the upper. The knife is carried by careful sliding motions nearly to one end of the graft. Then it is turned about and carried to the other end, freeing it. The piece of skin is picked up with the fingers and set free.

By placing the graft, epithelial surface downward, on a pad wet with warm (body temperature) normal salt solution, any fragments of subcutaneous tissue can be quickly snipped off with the scissors. This is not a tiresome process as it is in the case of an arm graft.

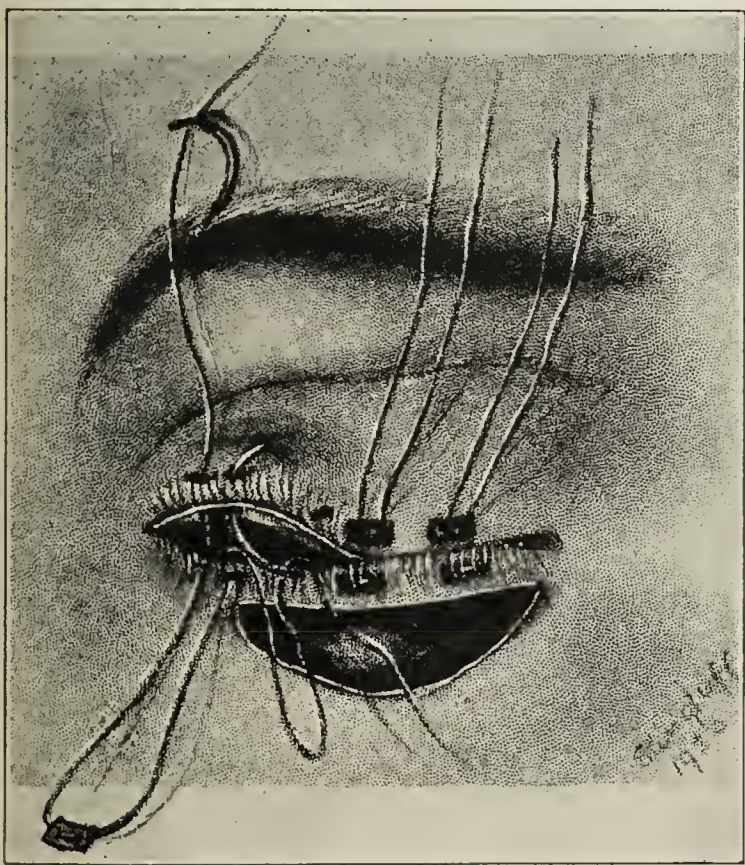


Fig. 3.—Preparation of lids for the intermarginal adhesions; rectangular denuded areas of upper and lower lid margins held in apposition by sutures tied over small rubber plates.

margins and carrying mattress sutures through the little raw surfaces. They are passed through small plates of rubber (cut from sterile rubber tubing) overlying the skin of both upper and lower lids near their margins (Fig. 3). These sutures are tied snugly to

Fine silk sutures (No. 1, twisted) impregnated with paraffin are used to stitch the graft in position (Fig. 4). The ends should be secured first, and then the margins should have as many sutures as may be needed to hold them in place.

No undermining is necessary in order to bring the wound edges together in the upper eyelid. The raw



Fig. 5.—Operation for cicatricial ectropion of upper eyelid showing deformity of left upper lid, with dotted line to indicate position of primary incision.

surface is easily closed over by fine silk sutures, and there need be no fear of subsequent opening of this wound.

Cicatricial Ectropion of the Upper Eyelid.—If only one upper lid is deformed, a piece of skin from the fellow lid makes an ideal graft. Obviously, skin should never be taken from a lower lid for an upper one. The technic of the operation is the same for the upper lid as for the lower. Figures 5, 6 and 7 show the steps.

Dressing.—The graft should be covered with rubber tissue, having the slightest smear of sterile petrolatum.

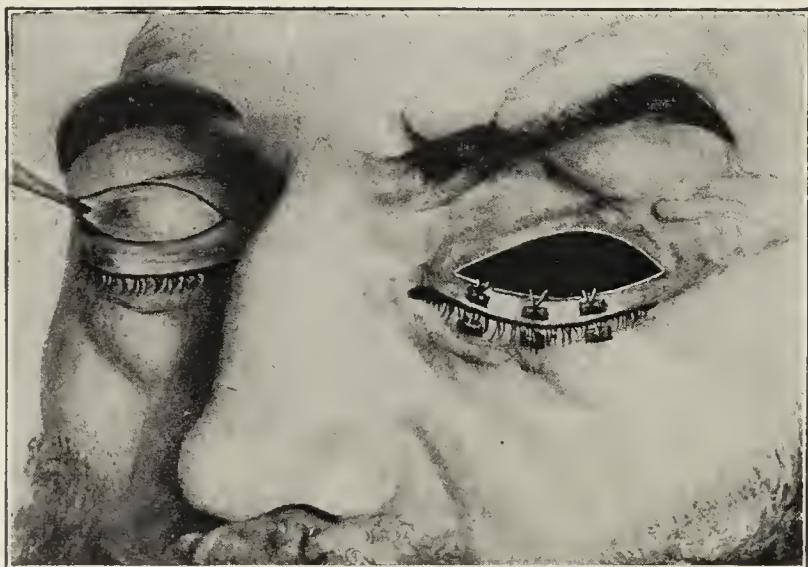


Fig. 6.—Dissection in left upper lid completed, and lids sutured together at denuded areas of upper and lower lid margins; dermic graft being taken from right upper lid.

I prefer to put the tissue on in two layers with the grains running at right angles, to guard against the possibility of perforation through separation of the tissue fibers. The rubber tissue will prevent the skin graft from getting dry. "Greasy tulle," as recommended by Morax is not suitable for covering this

delicate graft.¹⁶ If a covering other than rubber tissue is chosen, it should be of smooth surface, pliable and without perforations. Over the tissue, gauze fluff is packed and secured firmly by adhesive plaster, and then by pressure bandage, which in turn should be secured by adhesive plaster. It is well to put a separate dressing over the other eye, to be left for two or three days, and then to be cut down without disturbing the main dressing and bandage. This should be left for six days at the end of which time it is removed with the utmost care, and the graft painstakingly cleansed with damp (not wet) boric acid sponges, and all sutures taken out. At the first dressing the grafted skin will appear pink, not anemic like a graft from the arm. The outlines of the beautiful inlay are hardly seen even at the first dressing. Rubber tissue, gauze dressing and bandage, changed every two days, are continued for another week; then dressing is no longer necessary, and the graft is kept smeared with a little sterile petrolatum.

About three weeks after operation, it is prudent to start massage with petrolatum. This is kept up daily for several weeks. The adhesions between the lids should remain for at least three months. They should be left until all tendency to malposition of the lid has

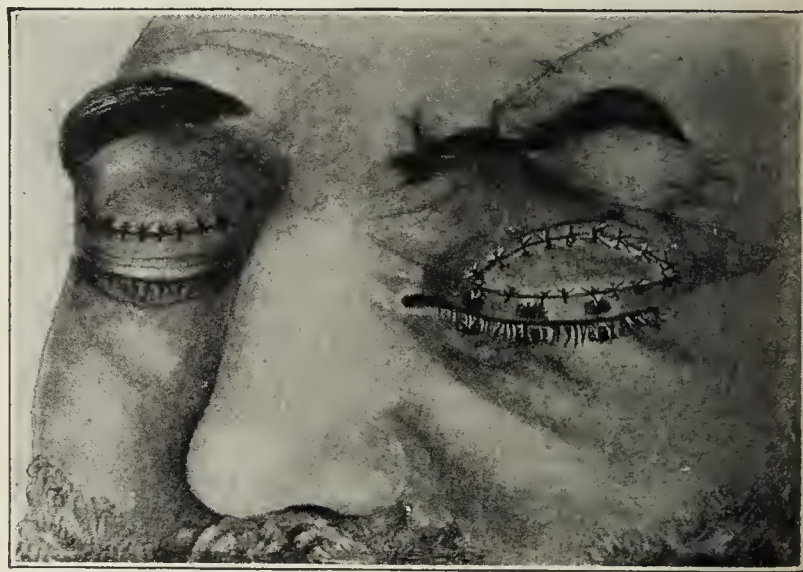


Fig. 7.—Graft from right upper lid sutured in position in left upper lid; wound in right lid closed with sutures.

passed. They are then cut with the scissors, and no deformity results from them.

If properly handled, this lid graft will "take." It will match in color, texture and pliability almost from the start, as no other graft will. It will not grow hairs, and will not be a disfigurement in any sense. Furthermore, one may remove this graft of skin from the upper lid with the assurance that no deformity will result. A few weeks after operation, there is nothing to arouse the suspicion that the upper lid has been robbed of skin.

30 West Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

DR. WALTER B. LANCASTER, Boston: A survey of the literature of plastic work on the eyelids shows that for a long time there has been a discussion between those who favor sliding flaps and those who favor free grafts. In this connection I might mention the report of Kuhnt, who did over 100 cases by the pedicled flap method and then compared his results with nearly an equal number of cases in which the free graft was employed. They were almost equally good; that is, it was a drawn contest. In certain cases the pedicled

16. Morax: Plastic Operations on the Orbital Region, Transactions of the Ophthalmological Society of the United Kingdom 39:5, 1919.

flaps were best, in others the free graft. The chief objections to the flaps are in the first place the very thick and disfiguring appearance that often follows. The graft becomes thicker and more disfiguring, requiring further operation. The skin of the lid is naturally thin, free from fat. In making a sliding graft you have to make it thick if you want to secure good nutrition. The result is a thicker lid than you need. In making a free graft, the skin, of course, does not match in color and quality if you take it from the arm or leg and use it for an eyelid. But by following Dr. Wheeler's plan of taking skin from the other lid you have ideal material; indeed, as he says, the skin is so well matched that even at the first dressing you can hardly see where the graft leaves off and the original skin begins. One of the most important factors in all this surgery is the cosmetic effect; therefore I feel very enthusiastic about the possibilities of the method which Dr. Wheeler has presented. If you want to get Dr. Wheeler's results, it is necessary that you closely follow his very careful technic. For instance, in dissecting the graft from the other lid he does not touch it with forceps, and he is careful to avoid all mechanical injuries and similarly all chemical or other injury of the tissue. All bleeding must be stopped, the bed of the graft must be carefully prepared, perfect apposition or contact secured, the lids immobilized, and the subsequent treatment must be very thoroughly followed up, including massage.

THE PHENOLTETRACHLORPHTHALEIN TEST FOR LIVER FUNCTION*

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AND

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BUFFALO

Phenoltetrachlorphthalein, hereinafter designated as tetrachlor, was first prepared by Orndorff and Black¹ of Cornell University, in 1908. Its properties were described by Abel and Rowntree,² in 1909. "Like phenolphthalein, it is an odorless, tasteless crystalline compound, insoluble in water and forming deeply colored hydrolizable salts with alkalis. Its ionization constant has not been determined, but its avidity as an acid cannot be far removed from that of phenolphthalein." Its intravenous injection as a disodium salt, well diluted, produces no untoward disturbances. It does not affect the rate of flow of either the pancreatic juice or the bile. It is excreted principally through the bile into the duodenal contents by the activities of the hepatic epithelium, and is absorbed only by the large intestine.

In 1913, Rowntree, Hurwitz and Bloomfield³ advocated its use to determine the functional activity of the liver in man. In dogs with biliary fistulas, they demonstrated that the dye appeared free in the biliary secretion in fifteen minutes; also in the collected feces of forty-eight hours, from 35 to 55 per cent. of it could be recovered. A similar corroboration of these facts has been made in man. Whipple⁴ conclusively showed that

by producing liver injury through phosphorus poisoning, prolonged chloroform administration, the induction of inflammatory processes or by alterations in circulatory balance, there was a decided fall in the tetrachlor output—that the percentage of output corresponded inversely to the amount of injury produced and, as repair took place, the tetrachlor output proportionately increased.

The test as carried out on man consisted in the intravenous injection of a freshly prepared physiologic sodium chlorid solution containing 400 mg. of the disodium salt of phenoltetrachlorphthalein. Following the intravenous injection, brisk purgation was established, and all the feces passed in forty-eight hours was collected and by chemical and colorimetric methods the amount of dye excreted was determined. This test was given a thorough trial by McLester and Frazier,⁵ and Kahn and Johnston,⁶ who reported unfavorably on it owing to the variation in figures they found between the normal and definitely pathologic hepatic cases. On the other hand, Sisson,⁷ and Chesney, Marshall and Rowntree⁸ conclude that outspoken changes in the liver can be demonstrated by the test. Krumbhaar⁹ also believes that the test has considerable possibilities for determining the functional capacity of the liver.

The disadvantages of this method of applying the test are: (1) the necessity of a fresh preparation for each test, owing to the instability of the dye; (2) the difficulty of collecting all the feces passed in forty-eight hours; (3) the absorption of some of the dye by the large bowel, and (4) the elaborate technic associated with the injection of a large amount of fluid into the veins.

In 1916, McNeil¹⁰ modified that procedure in an important and valuable manner. He inserted the duodenal tube, injected the tetrachlor intravenously, collected the contents, and estimated the time of the first appearance of the dye, and the percentage recovered over a period of two hours. He emphasized the ease and lack of objections to this method of conducting the test, and also the disadvantages of the intermittent outflow of the bile and the effect of fear, nervousness and hunger on biliary secretion.

It is our desire to introduce a stable preparation of the dye and a modified duodenal technic which, we believe, will enhance the test and render it more easily applied and valuable in determining liver function.

PREPARATION OF THE STABLE SOLUTION OF THE COMPOUND

Two and five tenths grams of the tetrachlor is placed in a 200 c.c. flask with 5 c.c. of a twice normal sodium hydroxid solution and 45 c.c. of triple distilled water. This is boiled for twenty minutes under a reflux condenser and then filtered into a 100 c.c. flask. The final result is an aqueous solution of the disodium salt of phenoltetrachlorphthalein, which is an intense purplish red and decidedly unstable in character. This is due to the fact that the alkali of the salt tends to unite with the silicate of the glass container, producing a precipi-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Orndorff, W. R., and Black, J. A.: Phenoltetrachlorphthalein and Some of Its Derivatives, *Am. Chem. J.* **41**: 349, 1909.

2. Abel, J. J., and Rowntree, L. G.: On the Pharmacological Action of Some Phthaleins and Their Derivatives, with Especial Reference to Their Action as Purgatives, *J. Pharmacol. & Exper. Therap.* **1**: 231, 1909.

3. Rowntree, L. G.; Hurwitz, S. H., and Bloomfield, A. L.: An Experimental and Clinical Study of the Value of Phenoltetrachlorphthalein as a Test for Hepatic Function, *Bull. Johns Hopkins Hosp.* **24**: 327, 1913.

4. Whipple, G. H.; Mason, V. R., and Peightal, T. C.: Tests for Hepatic Function and Disease Under Experimental Conditions, *Bull. Johns Hopkins Hosp.* **24**: 207, 1913. Whipple, G. H.; Peightal, T. C., and Clark, A. H.: *Ibid.* **24**: 343, 1913.

5. McLester, J. S., and Frazier, Blanche: Phenoltetrachlorphthalein Test of Liver Function, *J. A. M. A.* **65**: 383 (July 31) 1915.

6. Kahn and Johnston: The Phenoltetrachlorphthalein Test of Liver Function, *New York M. J.* **102**: 848, 1915.

7. Sisson, W. R.: A Clinical Study of Two Hepatic Functions as Tests, *Arch. Int. Med.* **14**: 804 (Dec.) 1914.

8. Chesney, A. M.; Marshall, E. K., and Rowntree, L. G.: Studies in Liver Function, *J. A. M. A.* **63**: 1533 (Oct. 31) 1914.

9. Krumbhaar, E. B.: The Present Status of Liver Functional Tests, *New York M. J.*, 1914, p. 719.

10. McNeil, H. L.: The Quantitative Estimation of Phenoltetrachlorphthalein Excreted in the Fresh Bile in Disease of the Liver, *J. Lab. & Clin. Med.* **1**: 822 (Aug.) 1916.

tate. If the solution is exposed to the air, it unites with the carbon dioxide again, forming a precipitate.

In order to obviate this, ampules containing a low percentage of silicate are placed in cleaning fluid for one hour, after which they are rinsed in six changes of tap water. They are then placed on an ampule washer, and washed until entirely free from the cleaning solution. The ampules are then washed in three changes of distilled water and allowed to dry. They are then plugged with nonabsorbent cotton and placed in a hot air sterilizer at 220 C. for one and one-half hours. This entire procedure must be carried out under absolutely aseptic conditions.

One and five tenths cubic centimeters of this solution, representing 75 mg. of tetrachlor, are poured into these ampules and sealed. These ampules have undergone no changes whatsoever in a period of eight months.

PASSAGE OF THE TUBE.

The tube is passed into the fasting stomach and all gastric residue is withdrawn. It is then allowed to pass on into the duodenum. This procedure takes from one-half hour to eight hours, using all methods of posture, the partial withdrawal of the tube and the administration of water by mouth.

In view of the possibility of confusing our reactions, certain methods of demonstrating the presence of the tube in the duodenum were omitted, such as the drinking of milk or colored solutions by mouth. Only the following were used:

1. The inability to secure an immediate return flow of water after its oral administration.
2. The failure to obtain an intermittent flow of golden yellow, alkaline, typical duodenal contents.
3. The fluoroscopic location of the bulb.

Normally the return flow of duodenal contents from the tube is a slow drip, intermittent in character, varying from a thin watery to a viscid fluid. Using a tube the capacity of which was 4.5 c.c. and considering the foregoing rate and character of flow, it required from two to five minutes for a given drop to travel from the duodenum to the distal end of the tube.

In order to obtain a constant drip, it was necessary at the beginning of the test to give the patient 500 c.c. of cool water by mouth. With the patient lying on his right side, a continuous drip of from 60 to 80 drops a minute of bile stained rather thin flow is obtained over a period of from a half to three quarters of an hour. This gives ample time to carry out the test.

At intervals of approximately two minutes, the character of the flow changes and there is an ejaculation of thicker, darker bile stained contents. With the establishment of this constant drip, the dye was injected in the following manner and the time of injection recorded:

Intravenous Injection of the Solution.—This was performed with a tuberculin syringe containing 1 c.c. of the solution, representing 50 mg. of the dye. As the color of the dye masks the appearance of the blood in the syringe, it was found best to insert the needle only into the lumen of a prominent vein of the forearm and then connect the syringe and slowly inject its contents.

Collection of the Contents.—The drip is allowed to run into a white porcelain dish containing a 40 per cent. solution of sodium hydroxid. In order to remove any uncertainty in deciding at what time the color change occurred, fresh alkaline solution was used in a clean

dish every two minutes. The initial appearance of the dye is indicated by a faint purplish red ring at the point of contact of the contents and alkali. This color change became more marked and intense with the elapse of time, until it reached its maximum. At this time our readings were taken.

PATHOLOGIC CASES

CASE 1.—S. K., a woman, aged 46, who had typhoid at 25, with no complications, had complained for three months of lack of appetite, loss of ambition, of being easily tired, dull headache, malaise and transient jaundice. The pulse was 80, the temperature 100.8, the respiration 20. She had severe headache, pain of a dull character in the right hypochondriac region, chills, sweats and anorexia. The liver edge was palpable 3 inches below the right costal margin, very tender to deep palpation and to hammer percussion. Blood examination revealed leukocytes, 6,000. The blood culture was negative. The Widal test was negative. A pure culture of *B. typhosus* was found in the duodenal contents, and later a pure culture was obtained from the stool. Tetrachlor appeared in thirty minutes; on repetition of the test in eight weeks, the dye appeared in twenty-six minutes. The patient's physical condition remained the same. The diagnosis was: chronic cholecystitis and cholangitis of typhoid origin; carrier.

CASE 2.—A. S., a woman, aged 46, who had typhoid at 30, with no complications, complained for the last four years of pain in the right hypochondriac region through to the right scapular region, never severe or of colicky type. There was belching of gas, distress and discomfort after eating, and flatulence. One year before, she had slight jaundice. The liver extended 2 inches below the right costal margin; there was marked tenderness to deep palpation and hammer percussion over the liver. Laboratory findings were all negative; one pus cell was found in the duodenal contents; there were no organisms. The duodenum was lavaged with 25 per cent. magnesium sulphate six times in eight weeks. At the first tetrachlor test, before treatment, the dye appeared in thirty minutes. At the second tetrachlor test, during treatment the fourth week, the dye appeared in twenty-two minutes. At the third test, the ninth week, the dye appeared in twenty minutes. When she was discharged, the patient was greatly improved in all respects. The diagnosis was: chronic cholecystitis and cholangitis.

CASE 3.—A. L., a woman, aged 54, complained of nausea, pain in the epigastric region referred to the right shoulder, and attacks of biliary colic requiring morphin. Physical examination revealed deep jaundice, marked tenderness over the liver and gallbladder regions, and right rectus spasm. There was typical putty stool, with occasional traces of bile on some days. The urine contained bile. The leukocytes numbered 10,000. The duodenal contents were very slightly bile stained; they contained no organisms, but an occasional pus cell. At the tetrachlor test, a very faint trace of dye appeared at seventy-five minutes. Operation revealed a common duct stone causing partial obstruction. The diagnosis was cholelithiasis.

CASE 4.—M. W., a woman, aged 26, was seized ten days previous to entering the hospital, with a sharp, severe pain in the epigastric region, referred to the right shoulder, chills, nausea and vomiting. Later she developed a constant dull pain in the right hypochondriac region. Physical examination revealed jaundice and marked tenderness over the liver and gallbladder regions. The liver edge was palpable 3 inches below the right costal margin. There was upper right rectus spasm. The urine contained bile. There was a typical putty stool. The leukocytes numbered 11,000. This case was diagnosed as one of acute cholecystitis and cholelithiasis, and operation was performed accordingly. The gallbladder and ducts were normal. The liver was greatly enlarged, was smooth, and resembled the liver found in acute infections. The possibility of syphilis as an etiologic factor was advanced by the surgeon. Cholecystotomy was performed. A four plus Wassermann reaction was obtained on the blood. The first tetrachlor test was made one week after operation; the dye appeared in thirty-five minutes. In the interval of three weeks, three injections of arsphenamin of

0.5 gm. each were administered, and eight hypodermic injections of 0.01 gm. of mercuric chlorid were given. At the end of this time the dye appeared in sixteen minutes. There had been a complete subsidence of all symptoms and signs.

CASE 5.—J. G., a man, aged 42, complained of general pruritus, dyspnea, a sensation of fulness in the abdomen, dark urine, and cough. He had drunk considerable liquor for many years. Physical examination revealed jaundice. The liver extended 7 inches below the right costal margin. The edge was firm and sharp, not tender. The spleen extended 2 inches below the left costal margin. The knee jerks were absent. The hemoglobin was 65 per cent.; erythrocytes, 3,600,000. Gastric fractional examination revealed slightly diminished secretion. The duodenal contents, spinal fluid, colloidal gold test and blood Wassermann test were negative. The urine contained one plus albumin and frequent casts. Renal functional tests were negative. The gastro-intestinal roentgen-ray examination was negative. The diagnosis was cirrhosis of the liver, possibly of a syphilitic type. Six injections of arsphenamin of from 0.4 to 0.5 gm. were administered; also mercuric chlorid by injection. The abdominal distention diminished; the size of the liver decreased about 1½ inches, and the spleen 1 inch. The jaundice faded considerably. The tetrachlor test was made at this time and the dye appeared in forty-two minutes.

CASE 6.—M. G., a man, aged 18, complained of jaundice and occasional nose-bleed. The father and sister had yellow tinged sclerae; the uncle (paternal side) was jaundiced. The patient had pneumonia three years before, complicated by empyema, for which drainage was performed. The sclerae had been jaundiced as far back as the patient could recall. It varied in intensity, but was not associated with alterations in the general health. The stools were never of putty-like consistency. There was occasional indefinite pain in the abdomen. The temperature was 97, pulse 80, respiration 20. The skin was dark and slightly icteric; the sclerae, yellow. There was enlargement of the cervical, epitrochlear and inguinal lymph nodes. The liver was enlarged, the edge palpable 3 inches below the right costal margin, smooth, not tender. The spleen was enlarged and the edge palpable 2½ inches below the left costal margin. Hemoglobin was 65 per cent.; erythrocytes, 3,900,000; leuko-

CASE 7.—H. K., a man, aged 31, had diabetes for two years; he never received treatment. He had never had attacks of biliary colic. He complained of distress in the epigastric region immediately after the taking of food; distention of the abdomen; loss of weight and polyuria. Physical examination revealed slight jaundice. There were evidences of loss of subcutaneous fat. The skin was dry and scaly. The abdomen was slightly distended. The liver edge extended 2 inches below the right costal margin; it was tender to deep

TABLE 2.—RESULT OF TEST IN THREE OPERATIVE AND FOUR NONOPERATIVE CASES

Operative					
Case	Age	Preoperative Clinical Diagnosis	Operative Findings	Liver*	Dye Time
17. A. L.	54	Cholelithiasis	Stone in the common duct	T	75—Faint trace
18. M. W.	26	Acute cholecystitis	Syphilitic hepatitis	S-T	35—16†
19. M. G.	18	Hemolytic jaundice	Splenomegalia	S	15
Nonoperative					
Case	Age	Clinical Diagnosis	Liver	Minutes of Time of Appearance of Dye	
20. S. K.	46	Typhoid cholecystitis; cholangitis	T-S	30—26‡	
21. A. S.	46	Chronic cholecystitis; chronic cholangitis	T-S	30—22§—20¶	
22. J. G.	45	Syphilitic cirrhosis	S	42	
23. H. K.	31	Diabetes mellitus; hemochromatosis	S-T	23	

* S signifies increase in size of liver; T signifies tenderness over liver elicited by deep palpation and moderate hammer percussion.

† Sixteen minutes is time of dye appearance three weeks later after antisyphilitic treatment.

‡ Twenty-six minutes is time of dye appearance eight weeks later with no change in condition of patient. Pure growth of B. typhosus secured in the duodenal contents.

§ Twenty-two minutes is time of dye appearance four weeks after treatment.

¶ Twenty minutes is time of dye appearance nine weeks after treatment.

palpation. There was moderate ascites. The spleen was not palpable. On admission, the urine contained 119 gm. of sugar in twenty-four hours. The blood sugar was 400 mg. per hundred cubic centimeters. Three months later, at time of discharge, the urine was sugar free; the blood sugar, 110 mg. per hundred cubic centimeters. Gastric analysis and the Wassermann reaction were negative. In the tetrachlor test the dye appeared in twenty-three minutes. The diagnosis was diabetes mellitus with a possibility of hemochromatosis.

CONCLUSIONS

1. The fecal tetrachlor test is a disagreeable and difficult procedure to carry out.
2. For some reason the duodenal time tetrachlor test has been neglected, especially when we consider the importance that is attached to the time of the appearance of the phenolsulphonephthalein or indigocarmin in the catheterized renal functional test.
3. We have prepared a stable preparation of tetrachlor which has undergone no deterioration in eight months.
4. The establishment of a drip by the administration of water by mouth in no way interferes with the test, as the experimental figures on animals showed that when water by mouth was excluded or allowed, it did not alter the time of appearance of the dye. Fear and nervousness were partially eliminated as a factor by the length of time the tube was inserted, thereby giving the patient ample opportunity to become accustomed to it.
5. The end-reaction is clear and distinct, and makes it a simple matter to decide at which point the dye is maximum.
6. The nonpathologic cases give the following averages: two cases, fourteen minutes; five cases, fifteen minutes; two cases, sixteen minutes; one case, seventeen minutes; three cases, eighteen minutes; two cases,

TABLE 1.—RESULT OF TEST IN SIXTEEN CASES *

Case	Age	Clinical Diagnosis	Minutes of Time of Appearance of Dye	
1. U. M.	45	Chronic myocarditis.....	14	} 2
2. G. P.	54	Chronic interstitial nephritis.....	14	
3. F. K.	19	Chronic appendicitis.....	15	} 5
4. I. G.	23	Epidemic encephalitis.....	15	
5. L. W.	28	Convalescent pneumonia.....	15	
6. G. H.	57	Chronic myocarditis.....	15	} 3
7. H. L.	28	Gonorrheal arthritis.....	15	
8. J. C.	48	Malarial fever.....	16	} 2
9. A. M.	54	Infective arthritis.....	16	
10. J. M.	34	Hypo-acidity.....	17	} 1
11. M. W.†	39	Convalescent typhoid.....	18	
12. B. S.	26	Follicular tonsillitis.....	18	} 3
13. G. L.	34	Gonorrheal arthritis.....	18	
14. G. P.	52	General arteriosclerosis.....	19	} 1
15. C. P.	25	Sacro-iliac subluxation.....	20	
16. V. S.	33	Malingering.....	20	} 2
Total cases, 16			Average time, 17.2 minutes	

* Condition of liver, negative; free edge not palpable; no tenderness on deep palpation, or moderate hammer percussion.
† Unable to elicit any pathologic condition of liver. Pure growth of B. typhosus obtained from duodenal contents.

cytes, 22,000; differential, negative. The Wassermann reaction was negative. In the urine an occasional hyaline cast was noted. Fragility test of the erythrocytes revealed: Initial hemolysis at 0.52 per cent. (normal, from 44 to 46); complete hemolysis at 0.40 per cent. (normal, from 34 to 36). Red cells were more fragile to a moderate degree than normal, suggesting hemolytic jaundice. In the tetrachlor test the dye appeared in fifteen minutes. The preoperative diagnosis was hemolytic jaundice. At operation an enlarged, smooth spleen was removed. The liver, gallbladder and ducts were negative. The pathologic report on the spleen stated that there was a resemblance to thyroid structure except that the acini were very irregular in outline. "Conclusion, probably lymphangioma."

twenty minutes. Total cases, sixteen. Average time for all, seventeen and two-tenths minutes.

7. The pathologic cases, not including the common duct obstruction case, definitely give delayed figures, the average being thirty-two minutes. We believe that the estimation of the dye excreted in a given time is of no value on account of the leakage of contents into the intestine below.

8. If the time of the first appearance of the dye is more than twenty minutes, we believe one should be suspicious of hepatic involvement.

9. In surgical cases it may be of value in determining how much parenchyma damage has been done to the liver, which is one of the important factors in estimating shock liability.

10. In our cases it has been an indication of improvement of liver function and corresponds to Whipple's experimental findings.

11. The appearance of the dye in fifteen minutes in the contents shows that, despite which procedure for fractional duodenal analysis is followed, bile from the liver is present from that time on.

12. If the dye fails to appear within thirty minutes, it is necessary to give additional water by mouth to maintain the drip.

13. It demonstrates the presence of the tube in the duodenum.

We regret the small number of cases presented, but we present what data we have in order to call attention to a readily performed liver functional test and to stimulate the collection of further observations.

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ABSTRACT OF DISCUSSION

DR. GEORGE B. EUSTERMANN, Rochester, Minn.: This paper is of interest to me because a colleague, Dr. Rowntree, in collaboration with Dr. Whipple and others, has fathered this particular test. As Dr. Aaron has pointed out, this earlier work involved a cumbersome technic which made the procedure impracticable for general clinical purposes. As a result of his investigations Dr. Rowntree, among other things, concluded that the factor of safety in the liver, as in most other glands, was great; chiefly in those cases in which large portions of the liver parenchyma were replaced by metastatic deposits did functional tests give definite information, and in those cases the clinical evidence was often sufficient. Inasmuch as Dr. Aaron has mentioned McNeil's work in 1916 I shall not go into the results of his observations here. In view of the fact that this work was done along lines similar to Dr. Aaron's it seems to me that we have been indifferent in not developing the method sooner. I would like to ask Dr. Aaron how practical the procedure is in cases of common duct obstruction by stone, stricture or new growth. It is this type of case in which tests of the functional capacity of the liver are most important because of dangers connected with surgical interference. It might be of interest here to state that Dr. Rowntree and his colleagues have for some time been carrying out other hepatic tests, several of which seem to be promising. Among these are the gelatin and glycocholic test first reported by Dedichen of Christiania, the provocative amino-aciduria test of Kimberg, the residual nitrogen test of Poxilli, and the camphor test of Roger; the latter determines the detoxicating function of the liver measured by the decreased elimination of conjugate glyceronates; and finally the hemoclasia crisis test, which I understand, however, has been recently discontinued by Widal himself. The conception of "dissociate icterus" will undoubtedly serve as a basis of future progress in the clinical studies of jaundice. We have not routinely adopted the method of Hoover and Blankenhorn in the clinic. But I can see the important practical application in helping to solve the pathologic process or source of obscure cases of jaundice when the usual clinical procedures,

in addition to examination of the duodenal contents, are not sufficiently informative.

A discordance of opinion as to the mechanism of the production of jaundice in various conditions was revived, as shown by McNee, in studies connected with spirochetal jaundice. I hope that this newer method will help solve an ever recurring diagnostic problem in connection with that type of severe icterus in which the preoperative evidence strongly suggests obstruction of the larger bile ducts but exploration or necropsy shows the condition to be entirely confined to the liver (hepatogenic) and the ducts practically free of bile. A second problem about which much controversy is centered, and much conflicting evidence has been submitted, is the pathogenesis of late jaundice following arsphenamin therapy, and invariably terminating favorably. In this connection, in addition to the researches of Stokes, my attention has been called to the investigations of Bailey and MacKay. The latter showed that bile pigment was retained by the blood plasma in large amounts long before its appearance in the tissues. Their conclusions with respect to the cause of the jaundice—in their opinion a cumulative toxic hepatitis—and the explanation for its delayed appearance are instructive.

DR. ABRAHAM H. AARON, Buffalo: If there is a blockade of the duct I doubt that there would be any value to the test. Crile has brought out the question of the liver in shock, and this test may be of value in ascertaining the activity of the liver. In enlargement of the liver and spleen it might help in demonstrating whether or not the liver was primarily involved. The dye appears in the duodenal contents fifteen minutes after injection. We are now working on cases in which the gallbladder has been removed. We are getting bile from the liver all the time. We believe our tests prove that bile from the liver reaches the duodenum fifteen minutes after the test is begun.

PREGNANCY AFTER NEPHRECTOMY*

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It has long been considered a settled fact that after recovery from the operation of nephrectomy has been complete and the compensatory changes taken place in the remaining kidney, the expectancy of life is the same as for a person who possesses two good kidneys. But, in the case of a woman in the child-bearing age who is nephrectomized, what happens if pregnancy supervenes? This becomes a very important question particularly, nowadays, when the urologic as well as other surgeons are very keen on the diagnosis of kidney lesions and very eager to perform nephrectomy. Indeed, nephrectomy is done from three to four times more frequently today than it was ten years ago. However, notwithstanding this fact, pregnancy is of rare occurrence, owing, it would seem, to a general lack of knowledge regarding the capability of the remaining kidney. It has long been thought by the average physician, as well as by many specialists of obstetrics, that nephrectomy should preclude pregnancy; and therefore, they have without further investigation or thought on the subject persistently recommended the termination of the pregnancy, as soon as the diagnosis could be established. In what is to follow I shall endeavor to show that such advice in the majority of instances is erroneous and that in properly selected cases pregnancy after nephrectomy is a perfectly safe proposition.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Most obstetricians are agreed that pregnancy is a pathologic process; and that there is an increased load thrown on the kidneys during pregnancy and labor, is at present universally recognized. Whether these statements are accepted in toto or not, the fact remains that a woman on whom nephrectomy has been performed and who subsequently becomes pregnant undoubtedly subjects her remaining kidney to a certain amount of excess work. But, it may be argued, the remaining kidney compensates for the loss of its mate, becomes hypertrophied, and within from twenty to twenty-five days, as determined by Tuffier,¹ Paolo-Fioro, Simon² and others, gives the individual all the services required of two kidneys. In fact, in a large number of nephrectomized subjects, hypertrophy of the remaining kidney is already developed even before the ablation of the diseased kidney; and urinary function is therefore not materially decreased for any length of time. This explains why nephrectomy for "pus kidney," for example, where no parenchyma remains, does not cause an immediate appreciable decrease in the urinary output, whereas, in early unilateral renal tuberculosis where there may be considerable parenchyma remaining, there is a marked decrease in urinary function until the remaining kidney is able to compensate for the loss of its diseased fellow. Physiologists have known for many years that the total amount of renal tissue possessed by each individual is considerably in excess of his dire needs, three or four times, which is another reason why otherwise healthy nephrectomized subjects "carry on" in such a remarkably efficient manner.

Pousson³ called attention to the fact that:

There exists only a very small number of histologic examinations of the remaining kidney, but all those which have been made show that the increase in volume relates less to the interstitial tissue than to the glandular tissue, so that we have under consideration a condition of true hypertrophy. And furthermore, chemical and histologic examination of the urine, as well as the tests with methylene blue, phenolsulphonephthalein, phlorizin and with other substances designed to give information as to the renal permeability reveal in the majority of cases a complete return of renal function; and this is just as true when nephrectomy has been performed for the infectious diseases, e. g., tuberculosis, as when it is performed for conditions which do not affect the anatomic elements of the kidney, e. g., trauma. Urea, the chlorids, the phosphates and uric acid are eliminated in normal quantities and undergo all the variations which elimination, exercise, fatigue, etc., are capable of causing. The urine is free of albumin. In the sediment examined there can be found no leukocytes, blood clots or renal epithelium.

But such is not always the case, for in a goodly number of subjects that have been nephrectomized one can find, even many years after the operation, urinary trouble both quantitative and qualitative. Crabtree⁴ and Cabot, for example, observed that twenty-nine patients out of ninety-nine cases of nephrectomy for renal tuberculosis showed albumin in the urine—twenty-five a trace and four a large amount—from five to fifteen years after nephrectomy. In fact, the same authors state that in about 35 per cent. of their cases of renal tuberculosis there remained legacies of the disease in the form of abnormal urine and per-

sistent symptoms, e. g., pus in urine, traces or cloud of albumin, irritable bladder, etc. But it must be remembered that renal tuberculosis is in many respects the most serious of all kidney affections, which fact would lead one to look on renal tuberculosis with grave suspicion in those cases in which pregnancy is likely to supervene. In fact, such authorities as Hartmann,⁵ Bar, Baldwin,⁶ Spire and Boeckel,⁷ Stoeckel⁸ and others are agreed that a woman who has had nephrectomy for renal tuberculosis must be looked on with apprehension if pregnancy supervenes, but state that if a period of from two to four years has elapsed without the reappearance of symptoms, pregnancy may be allowed to take place with safety. Likewise, Kummel⁹ of Hamburg maintains that the same may be said regarding pregnancy after nephrectomy for malignant tumors of the kidney; but other authorities, notably Israel,¹⁰ hold that pregnancy should never be allowed to progress after nephrectomy for renal malignancy. Believing, as I do, that malignant disease of any organ will, in all probability, recur "sometime, somewhere," it would seem wise to recommend the termination of a pregnancy occurring after nephrectomy for unilateral malignant disease of the kidney.

Thus far we have considered pregnancy after nephrectomy only in those cases in which there may be recurrence of the trouble for which nephrectomy was performed, therefore contraindicating the continuance of the pregnancy; but there are conditions for which nephrectomy must be done and in which there remains no likelihood of a recurrence of the trouble, such, for example, as pyonephrosis, nephrolithiasis, trauma cysts and nonmalignant tumors. In this class of cases the prognosis, particularly as to pregnancy, is much better than after unilateral tuberculosis or malignant disease of the kidney. As has been stated above, the compensatory hypertrophy of the good kidney in these cases has usually already taken place to a considerable extent when nephrectomy is performed, so that the total urinary function is not materially decreased for any length of time following operation. It thus becomes very evident that the remaining kidney is physiologically competent and, therefore, pregnancy may supervene without danger. But suppose that a severe toxemia (pre eclampsia) or pyelonephrosis or pyelitis or an acute infection develops during the course of pregnancy after nephrectomy. Will the remaining kidney be able to carry the extra load superimposed by these pathologic states? Certainly not. Such a proposition demands immediate interference with the pregnancy and if, as in the case reported by Broadhead,¹¹ the pregnancy is progressed to or beyond the seventh month, cesarean section and sterilization should be done. Where such a procedure is not feasible, the pregnancy should be terminated by that method best suited to the case in question, and instructions given to the patient for the prevention of future pregnancies. There are certain types of the toxemia of pregnancy occurring in the woman with both kidneys that clear

1. Tuffier: Thesis Montville, Paris, 1905.

2. Simon, quoted by Hartman (Footnote 5).

3. Pousson: *Am. J. Urol.* **9**: 113, 1913.

4. Crabtree, E. G.: *Surg., Gynec. & Obst.* **21**, December, 1915.

5. Hartmann: *Rev. prat. d'obst. et de pediat.* **25**: 259, 289, 1912; *Travaux de chirurgie anatomoclinique*, Series 4, 1913, p. 455; *Ann. de mal. gén.-urin.*, January, 1911.

6. Baldwin, H. A.: *Ohio State M. J.*, Nov. 15, 1912, No. 11.

7. Spire, A., and Boeckel, A.: *Ann. de gynec. et d'obst.* **40**: 129-192 (March) 1913.

8. Stoeckel: *Deutsch. Ges. Gynec.*, Halle, May, 1913; *Surg., Gynec. & Obst.*, **17**, 1913.

9. Kummel: Berlin letter, *J. A. M. A.* **60**: 1474 (May 10) 1913; *Therap. d. Gegenw.* **6**: 529 (Dec.) 1913.

10. Israel: *Arch. f. klin. Chir.* **47**: 392, 1894; *Folia urol.*, 1911, p. 529.

11. Broadhead, G. L.: *New York M. J.* **111**: 974 (June 5) 1920.

up after the delivery of the fetus and which do not recur with subsequent pregnancies; but in the subject possessing only one kidney, it does not seem wise to permit subsequent pregnancies. Obviously enough, there may be, at any time during a pregnancy, superimposed an acute infection whose toxins would be sufficient to cause permanent serious damage to the remaining kidney, or death may supervene.

TABLE 1.—DATA IN THIRTY-SEVEN CASES COLLECTED FROM COLLEAGUES IN GREATER NEW YORK *

No. of Cases	Indications	Time Between Operation and Pregnancy	Kidney Removed		Side not Indicated
			Right	Left	
7	Pyonephrosis.....	2 to 12 yrs.	4	1	2
11	Tuberculosis.....	1 to 5 yrs.	6	4	2
1	Congenital cystic.....	2 yrs.	..	..	1
4	Multiple abscesses.....	2 to 3 yrs.	3	1	..
1	Acute hematogenous infection	2 yrs.	..	1	..
1	Suppurative nephritis.....	3¼ yrs.	..	1	..
2	Pyelonephritis.....	1½ to 2¼ yrs.	1	..	1
15	Not given.....	.....	..	..	15

* It will be noted that the right kidney was removed fourteen times and the left eight times, a ratio of almost 2:1 for the right. In six cases the side was not indicated. In fifteen cases no data were given.

In the thirty-seven collected cases herewith reported (Tables 1 and 2), cesarean section was done at the seventh month for a severe toxemia of pregnancy plus a pyelitis; three were induced between the seventh and eighth months for impending eclampsia; and one was aborted at three months for a severe pyelitis. There are three women out of the five whose remaining kidneys show, after one to three years, permanent damage in the form of a persistent nephritis. Obviously, there can be no argument as to the proper procedure in such cases.

Castaigne ¹² reports the case of a woman who had a nephrectomy as a child, grew to womanhood, married, became pregnant, and was delivered without complications. Some weeks after delivery she died from severe grip infection. At necropsy her one kidney weighed 35 gm. The renal substance was much altered and there were many diffused sclerotic lesions. Thus, despite this small sclerotic kidney, only one-third its normal size, this woman had been able to live for many years, and went through pregnancy and labor with-

TABLE 2.—ALBUMINURIA IN THIRTY-SEVEN CASES *

None.....	1+.....	2+.....	3+.....	4+.....	Boiled solid.
15.....	12.....	4.....	3.....	2.....	1.....

* Of these thirty-seven patients there were five women who had more than one pregnancy after nephrectomy: one had four with 1+ to 2+ albumin each time; two had two with 2+ to 3+ albumin each time; two had three with no albumin. Thus, there were forty-three pregnancies in the thirty-seven cases. There were five cases in this series whose pregnancies were terminated because of severe toxic symptoms. There were only eleven cases in this series that had blood pressure readings recorded, and only six of these had both systolic and diastolic.

out showing any evidences of toxemia; but when the grip infection was added, she succumbed because of the renal insufficiency.

Henri Hartmann of Paris has reported seventy-four cases of pregnancy after nephrectomy. Seventy-two of these women had from one to four pregnancies after their nephrectomy, with and without complications. Two cases aborted—one after repair of ureteral fistula, one during the course of a severe pneumonia. Two patients died—one of eclampsia and one of renal insufficiency. The remaining seventy patients went to

term and, in spite of prolonged labor in several cases, due to contracted pelvis and cervical dystocia, the single kidney sufficed.

Pousson compiled sixty-six cases of pregnancy after nephrectomy, in seven of which the patients aborted and fifty-nine went to full term. Of those going to full term there were several who had to be delivered with forceps or by craniotomy. There were no maternal deaths. All the mothers nursed their babies, and one mother acted as a wetnurse.

Baldwin of Columbus, Ohio, has reported six cases of pregnancy after nephrectomy without complications. One mother died three months after labor of acute pulmonary tuberculosis.

Andrews of Paris has reported the case of a woman who passed through five successful pregnancies without complications following a nephrectomy.

Spire and Boeckel have reported three cases of pregnancy after nephrectomy without complications. There was no albuminuria at any time during their pregnancies, and delivery was accomplished without difficulty. Pregnancy occurred within from twenty months to three years after nephrectomy. Lactation was not interfered with, and consequently nursing was

TABLE 3.—TWO HUNDRED CASES COMPILED FROM THE LITERATURE *

	No. of Cases	Complications	Died
Hartmann ⁵	74	2	2
Pousson ³	66	7	0
Israel ¹⁰	29	0	0
Kümmel ⁹	17	0	0
Baldwin ⁶	6	0	0
Spire and Boeckel ⁷	3	0	0
Andrews.....	1	0	0
Castaigne ¹²	1	0	0
Broadhead ¹¹	1	1	0
Schramm [†]	1	0	0
Tredondani [‡]	1	0	0

* In the twenty-nine cases reported by Israel there occurred thirty-nine labors without complications. The patient of Andrews passed through five pregnancies without trouble. Thus, in 200 cases there occurred 215 labors, in ten of which there were complications and two patients died.

† Berl. klin. Wehnsehr., 1896.

‡ Ann. d'Obst. et gynec.

continued without detriment to mother or child. The authors conclude that nephrectomy for unilateral renal tuberculosis is undoubtedly the correct procedure, and that if the remaining kidney remains healthy for two or more years after operation, it is perfectly safe to allow pregnancy.

Israel, observing thirty-nine labors in twenty-nine nephrectomized women for renal tuberculosis, comes to the conclusion that pregnancy follows its normal course, that labor proceeds in a normal manner, and that lactation is not interfered with.

Kümmel investigated the late fate of 386 patients, male and female, following nephrectomy, and found that of this number there were seventeen women who had borne children after the removal of one kidney. One of these patients had a severe nephritis, and one had premature labor. The remaining fifteen women passed through pregnancy and labor without complications. He states that permission to marry may be given to women after nephrectomy for tuberculosis and for malignant tumors if they have remained free of symptoms for from two to four years, respectively.

There is little to be said regarding the progress of labor in the nephrectomized subject for, naturally, other conditions being normal, we would expect labor

12: Castaigne, quoted by Pousson (Footnote 3).

to take place in the usual manner. This it does. Furthermore, nephrectomized patients stand morphin and ether anesthesia exceedingly well, and therefore the labor may be managed in a painless manner, just as any labor should be conducted.

Chloroform should never be used for reasons which need no elucidation. It is claimed by some authorities, notably Kummel, that such patients bear chloral hydrate, barbitol and kindred drugs badly, which would to some extent inhibit the conservative treatment of eclampsia in the nephrectomized subjects.

Judging from published reports, personal communications from my colleagues, and from personal experience, lactation in the nephrectomized subject is not interfered with and consequently the mother may nurse the baby in the usual manner. If the nephrectomy was done for unilateral tuberculosis and the mother is below par as regards her general health or signs of tuberculosis develop elsewhere in the body, then, of course, nursing should be prohibited.

The question of marriageability of the young woman on whom nephrectomy has been done may come up for consideration. What shall determine the answer? If sufficient time has elapsed since the nephrectomy to insure proper function of the remaining kidney, marriage may be allowed. If the nephrectomy was for unilateral renal tuberculosis and a complete cure has been accomplished as shown by freedom from symptoms for a period of three years or more, marriage is still permissible. If symptoms of tuberculosis in the remaining kidney or elsewhere should appear after marriage, pregnancy should not be allowed until such symptoms have disappeared and the patient has remained well for three or more years. When a nephrectomy has been done for malignant tumor of the kidney, marriage is permissible; but it is very doubtful whether pregnancy should be allowed to take place. There is great likelihood of a recurrence of the malignancy at some future time, in which case the mother's life is lost and the child's future happiness materially jeopardized.

REPORT OF CASES

CASE 1.—Mrs. L. E., aged 40, German-American, tall and thin, whose family history was negative and whose menstrual history was normal in every respect, had been married eighteen years and had had two children, the oldest aged 14 years and the youngest 3 weeks. The labor and puerperium had been normal. Two miscarriages had occurred, the first in 1906 when she was curetted at the eighth week of pregnancy because her physician thought a woman with only one kidney should not continue her pregnancy, and the second in 1908 for the same reason. One operation had been performed twelve years before for acute appendicitis and chronic right ovaritis, at which time she had an appendectomy and right oophorectomy. Six months later she was operated on for right hydro-nephrosis. Nephrectomy was done. The wound became infected and drained for about four months. Three months later, that is, in July, 1903, the right kidney was removed and pathologic examination proved it to be tuberculous, which explained the fistulous drainage after her first operation, six months previous. The wound after this operation healed by primary union, and following this she had a severe chronic nephritis of the left kidney which persisted for several years and finally entirely cleared up. She probably did not have pulmonary tuberculosis, for she had many physical examinations of her lungs and no signs were ever found. Twelve years after her nephrectomy (right), that is, June 15, 1914, the patient was seen by me, for the first time, eight weeks pregnant. She was very anxious to have a child, and I thought it would be safe to let her continue until some signs

of kidney disturbance showed itself. The urine was negative. The blood pressure was: systolic, 135, diastolic, 100. Her general condition was good. The urine was examined every two weeks during the entire pregnancy and was negative until eight and a half months, after which there was a trace of albumin. The systolic blood pressure remained between 130 and 135, the diastolic between 90 and 100. She was confined by her family physician at full term, Feb. 4, 1915, after having three and one-half hours of labor. The delivery was perfectly normal and she remained in bed ten days. A follow-up examination, February 26, showed her to be in excellent general condition and the urine negative.

CASE 2.—Mrs. K., aged 32, Jewish, came to me with a history of having had the right kidney removed for tuberculosis eight years before by Dr. Victor C. Vaughan of Ann Arbor, Mich., and presenting a letter from Dr. Vaughan substantiating her statements. She was at this time seven months pregnant. Her urine showed: specific gravity, 1.020; trace of albumin; no sugar; no casts; pus in large quantities; no tubercle bacilli as determined by guinea-pig inoculation. She had a normal labor and an uneventful puerperium. In December, 1916, I again saw her, and at this time she had a temperature of 99.4, night sweats, loss of weight, a severe tuberculous cystitis and questionable signs of pulmonary tuberculosis. She was sent to the country and advised to remain until well. She presented herself to me, March 2, 1919, three years later, again pregnant at the eighth month. During the interim, almost three years, she said she had been in good health. The urine at this time showed a heavy trace of albumin, which persisted some weeks after delivery, but was otherwise negative. The blood pressure was: systolic, 130; diastolic, 90. She was confined, April 14, and had a normal labor and a normal puerperium. A follow-up examination, September 30, showed her to be as well as usual, her only complaint being pain in the left kidney region and general malaise. There was no cough or fever, and no loss in weight. The urine showed a heavy trace of albumin, few casts, and considerable pus. I have examined her many times since, and her urine still shows a heavy trace or cloud of albumin and many hyaline and granular casts. The blood chemistry, taken June 5, 1921, shows: urea nitrogen, 50; urea, 107; sugar, 83; uric acid, 4.15; creatinin, 1.76 per hundred cubic centimeters, which means that she has a badly damaged kidney and certainly should not become pregnant again.

CASE 3.—Mrs. M. S., Irish-American, aged 24, married, mother of three children, who had had no miscarriages, and who had always been well except that she had severe bronchopneumonia four months before, was admitted to the genito-urinary department of the Long Island College Hospital, March 3, 1917, with a diagnosis of chronic nephritis. After a careful survey, a diagnosis of right suppurative nephritis was made and nephrectomy performed, March 9, 1917, by Dr. Henry Morton. She was about five and a half months pregnant at this time. She made a good recovery and was discharged in good condition, April 3. She went to term and was confined at the Long Island College Hospital, July 20. The urine remained negative until the last three weeks of her pregnancy, when she had a faint trace of albumin but no casts. The baby weighed 3,820 gm. The puerperium was afebrile, and her condition on discharge was excellent. She was again admitted to the Long Island College Hospital, Oct. 23, 1918, pregnant at term and in labor. The urine showed a trace of albumin. The systolic blood pressure was 120; diastolic, 80. After six and one half hours of labor she had spontaneous delivery. The baby weighed 2,380 gm. and measured 50 cm. in length. The puerperium was afebrile and her condition was excellent on discharge. Nov. 1, 1920, she presented herself at the prenatal clinic of the Long Island College Hospital in the fourth month of her second pregnancy since the right kidney was removed in 1917. The urine was negative and her blood pressure, systolic, 115; diastolic, 85. On her return visits every two weeks the urine remained negative until Jan. 18, 1921, when she showed a heavy trace of albumin, with pain and tenderness over left ureter and kidney. January 22, four days later, she was admitted in labor to the Long Island College Hospital with a diagnosis of acute pyelitis on the left side. The urine showed a heavy

trace of albumin and few pus cells but no casts. The systolic blood pressure was 100; diastolic, 48. Blood count revealed: red blood cells, 3,704,000; white blood cells, 13,940; polymorphonuclears, 86 per cent. A culture from a catheterized specimen of urine showed a small growth of *Staphylococcus aureus*; intravenous phenolsulphonephthalein, 60 per cent. in one hour. Blood chemistry showed: urea nitrogen, 10.7; urea, 22.9; uric acid, 3.33; creatinin, 1.50; sugar, 100 per hundred cubic centimeters. She continued in labor, having weak, irregular pains. Eight hours later she began to have good strong labor pains, and in two hours she delivered a premature female child, seventh month, weighing 2,344 gm. and measuring 44.5 cm. in length. Her highest temperature was 100.6 on the third day, and following this she had no further trouble. Mother and baby discharged in good condition on the nineteenth day postpartum. The mother's urine was negative on the day of discharge. A follow-up examination, May 30, 1921, revealed the urine negative and the mother in excellent health.

CASE 4.—Mrs. M. N., aged 31, admitted to the Methodist Episcopal Hospital, July 18, 1916, at term and in active labor, had had a left nephrectomy in July, 1912, for tuberculosis of the left kidney and ureter. On admission the systolic blood pressure was 132, the diastolic 70, and the urine showed ++ albumin, no casts or pus. Examination revealed the breech presenting in the left sacro-anterior position, fetal heart 132 left upper quadrant, and regular. After five hours of good labor a live baby weighing 8 pounds was delivered by the breech. Six days after the confinement the urine showed only + albumin and no casts. She was discharged in good condition on the thirteenth day after delivery, at which time her general condition was excellent and the urine negative. No follow-up examination has been made since her discharge from the hospital.

Tables 4 and 5 show in condensed form the important data collected from the four personal cases.

TABLE 4.—ALBUMINURIA IN FOUR PERSONAL CASES

1+	2+	3+	4+
1	1	1	1

Of the four personal cases there was one woman who had three babies and one who had two babies after their nephrectomy. With each pregnancy there was an albuminuria of from + to + + + +. These four women had a total of seven pregnancies with seven living babies, all of which nursed.

TABLE 5.—INDICATIONS FOR NEPHRECTOMY IN FOUR PERSONAL CASES

No. of Cases	Indications	Time Between Operation and Pregnancy	Right Kidney Removed	Left Kidney Removed
1	Tuberculosis.....	12 years	1	..
1	Tuberculosis.....	8 years	1	..
1	Suppurative nephritis.....	1½ years	1	..
1	Tuberculosis.....	4 years	..	1

TABLE 6.—BLOOD CHEMISTRY

Case	Pregnant	Mg. per 100 C.e.	Case	Nonpregnant	Mg. per 100 C.e.
1	Urea nitrogen.....	18	1	Urea nitrogen.....	17.6
	Sugar.....	100		Urea.....	37.7
	Creatinin.....	1.5		Uric acid.....	3.55
				Sugar.....	125
				Creatinin.....	1.2
2	Urea nitrogen.....	10.4	2	Urea nitrogen.....	18.2
	Sugar.....	80		Urea.....	38.9
	Creatinin.....	1.3		Sugar.....	100
				Creatinin.....	1.2
3	Urea nitrogen.....	10.7	3	Urea nitrogen.....	50
	Urea.....	22.9		Urea.....	107
	Uric acid.....	3.33		Sugar.....	83
	Sugar.....	100		Uric acid.....	4.15
	Creatinin.....	1.5		Creatinin.....	1.76

In the four personal cases the right kidney was removed three times, the left once—a ratio of 3:1 for the right.

Table 6 shows the result of the blood chemistry in three pregnant and three nonpregnant nephrectomized women. Basal metabolism determinations were not done in any of these cases.

Of the three pregnant women, Patient 1, four months pregnant, shows a normal urea-nitrogen, while Patients 2 and 3, pregnant seven and eight months, respectively, show a characteristic low urea nitrogen.

Of the nonpregnant women, Patient 3 shows marked renal insufficiency and therefore should not become pregnant again.

SUMMARY OF TABLES

In the 200 cases compiled from the literature, there were 215 labors, in ten of which there were complications and two patients died; in the thirty-seven cases compiled from Greater New York City there were forty-three labors, in four of which there were complications and no deaths; in the four personal cases there were seven labors with no complications and no death, thus making a grand total of 265 labors occurring in 241 nephrectomized women. In the 265 labors, there were fifteen complicated and 250 normal, with only two deaths.

From this study the following conclusions may be formulated:

CONCLUSIONS

1. Pregnancy after nephrectomy follows its normal evolution.
2. Pregnancy after nephrectomy is but little more hazardous to mother or child than pregnancy under normal conditions, provided the remaining kidney is functioning properly.
3. Albuminuria of slight, moderate or marked degree occurs in a certain proportion of the cases of pregnancy after nephrectomy, during the last four or six weeks, which under appropriate treatment usually clears up. In the thirty-seven collected and four personal cases herewith reported, 60 per cent. showed an albuminuria of from + to + + + + during the latter weeks of pregnancy.
4. When nephrectomy has been performed for unilateral renal tuberculosis, it is imperative that the patient be free from symptoms of tuberculosis in the bladder, ureter, remaining kidney and lungs or elsewhere for three years or more before pregnancy is allowed to supervene.
5. Pregnancy after nephrectomy for malignant tumors of the kidney should not be allowed under any circumstances.
6. Pregnancy after nephrectomy should be terminated immediately on the advent of frank renal insufficiency, as shown by the relation of the nitrogenous products in the blood and urine.
7. The likelihood of a severe "pregnancy pyelitis" or pyelonephrosis in the remaining ureter or kidney must be kept in mind, particularly if the remaining kidney be the right, and on the appearance of either condition immediate termination of the pregnancy is demanded.
8. Labor in pregnancy after nephrectomy takes place without complications referable to the remaining kidney.
9. Lactation is not interfered with and therefore, except for special reasons, nursing should be carried on in the usual manner.

10. Marriage is permissible in nephrectomized women, provided the remaining kidney has functioned in a normal manner for one year or more. If the nephrectomy was for unilateral renal tuberculosis and a complete cure has been accomplished, as shown by the absence of symptoms in the remaining kidney or elsewhere for three years or more, marriage is still permissible.

11. Finally, there is urgent need for a more scientific and systematic study of the nephrectomized woman, both in the nonpregnant as well as in the pregnant state. A well "worked up" report, including all laboratory methods for the determination of kidney function and urinary excretion, should be published of every case of pregnancy after nephrectomy.

643 St. Mark's Avenue.

ABSTRACT OF DISCUSSION

DR. JOHN O. POLAK, Brooklyn: That nephrectomy has increased, there is no question. As a result, these women are brought to us pregnant, and the question is asked, Shall the pregnancy continue? In deciding about what shall become of the pregnancy, one very important point has to be determined: What pathologic condition was the original nephrectomy done for? The kidney is competent to take on the work of the other kidney, unless the disease for which the kidney was removed has a tendency to be bilateral. This assumption of the work of the other kidney is gradual. And there, again, an interval should occur before a woman becomes pregnant after nephrectomy. How are we to test these cases as to the competence of the remaining kidney? It is not by the phenolsulphonephthalein test, because, while there is an excess of kidney tissue in all kidneys, yet when a kidney has been diseased, if that disease has been of long standing, there has been gradual compensation, but we are not cognizant of the amount of reserve that that kidney has after it has compensated. Therefore, not only shall we have to resort to the kidney concentration tests which show the reserve of the kidney, but we must also find what is retained by the blood. Another point one must remember is that normally in pregnancy the basal metabolism is materially increased; that the basal metabolism drops again when the baby is delivered, or when the baby dies. Is this kidney competent to maintain this metabolism? Statistics are of very little importance. In the cases in which the work was done thoroughly, it was interesting to note the comparison in the study of the blood chemistry in the women now pregnant and those not pregnant. And this is a very important point in determining whether this particular woman should become pregnant, because these women who have a disturbed blood chemistry, notwithstanding the fact that the kidney may have been removed for some cause which was not a bilateral condition, are in constant jeopardy because of the insufficiency of the kidney to function.

DR. GORDON G. COPELAND, Toronto, Canada: My own investigations have shown that infections are evident in about 75 per cent. of cases. Dr. Matthews has just mentioned the fact that when one is doing abdominal delivery of a viable child for preeclamptic conditions, it would be advisable to sterilize the woman. I have not had sufficient experience to criticize that, but I should just like to draw his attention to the fact, and ask his opinion, that if in view of the fact that the removal of foci of infection has so frequently been followed in subsequent labors by a comparatively normal pregnancy and labor, might it not be permissible to leave that woman for a subsequent pregnancy, instead of sterilizing her at that point? Because if that woman is toxic, seriously toxic, or in a preeclamptic condition, and that is her only baby, its chances of survival are small. Since the toxemia of subsequent pregnancies may become very much less, might it not be wise, if there is a reasonable doubt, to give the woman the benefit of the chance of a subsequent pregnancy?

DR. HARVEY B. MATTHEWS, Brooklyn: I would call your attention again to the importance of blood chemistry, and the accurateness with which it gives information regarding the efficiency of the kidney. Why sterilize in these preeclampsies? We have to remember that is the only kidney the woman has got. It is true we know that with two kidneys we have eclampsia, which does not occur with another pregnancy, depending on the type. If the proposition is put up to the woman, if she is a young woman with an only child, and she wants another one, she will take the chance. But as a general rule, I maintain that a woman with severe toxemia or preeclampsia should be sterilized.

FOUR YEARS' PROGRESS IN PUBLIC HEALTH ORGANIZATION IN OHIO

ALLEN W. FREEMAN, M.D.

COLUMBUS, OHIO

Since July 1, 1917, both the state and local systems of health administration in Ohio have been completely reorganized, and the new system has been in operation sufficiently long to appraise, at least provisionally, the success of the plan.

The state health department as now organized is composed of a public health council of five members, whose duties are legislative and judicial, and a commissioner of health who is charged with all executive and administrative responsibility.

The state department, in addition to performing the usual primary functions of control of water and sewage, collection of morbidity statistics, sanitary control over state institutions and the like, is charged with broad and complete supervisory powers over local organizations. The commissioner can issue orders to local boards and commissioners, require the keeping of standard reports and records, and, with the consent of the public health council, remove commissioners and board members from office, take over the powers of local boards in emergencies, and, through the power to give or withhold the state subsidy, control the general amount and character of the work of local organizations.

HEALTH DISTRICTS

For the purposes of local organization, the state is divided into 168 health districts. Of these eighty are municipal districts and eighty-eight are general districts. Each city, which under the state constitution includes any incorporated place of 5,000 population or over, constitutes a municipal district. The general districts are coextensive with the eighty-eight counties of the state, excluding any cities which are located in them. A general health district is essentially a federation for health purposes of the townships and villages in any county.

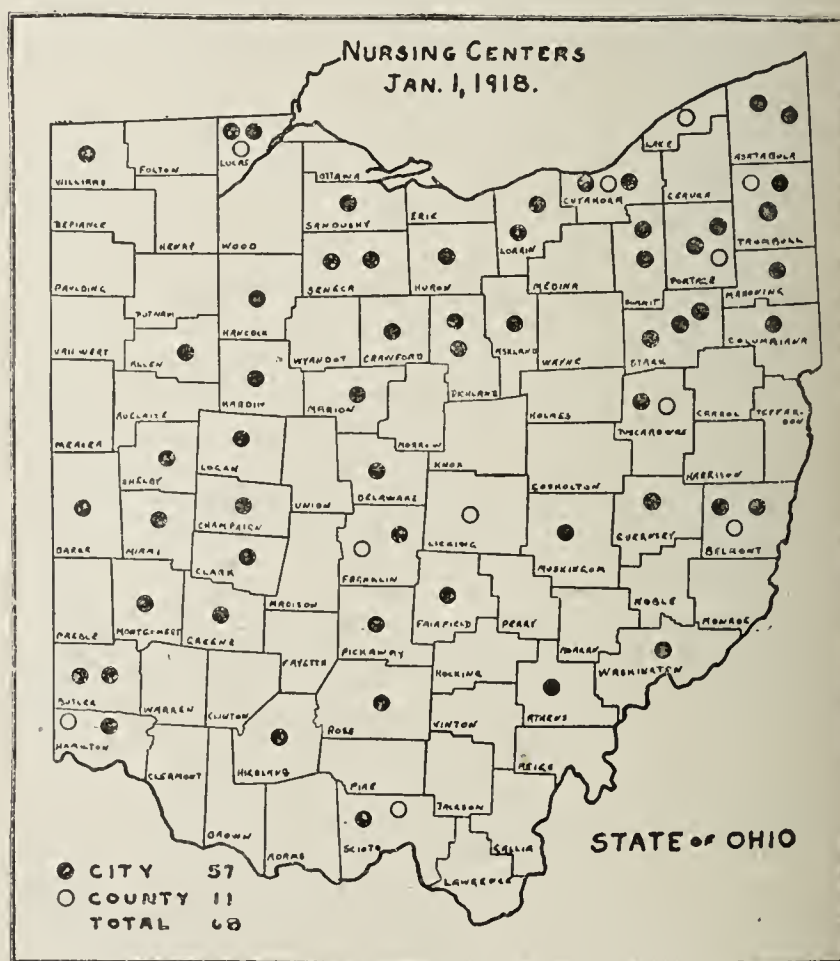
Health organization in municipal health districts is entirely within the control of the local authorities. In most cities there is a board of health of five members, appointed by the mayor and confirmed by the council, and a health commissioner, elected by the board, who may or may not be a physician and who may or may not be employed for whole-time service. In certain cities with so called "home-rule" charters, the health commissioner is appointed directly by the mayor or the welfare director or by the city manager. Funds in municipal districts are provided by council as part of the city budget. The only change made in municipal administration by the new laws has been to give the

trict is that of Mahoning County, \$46,350; the smallest, that of Richland County, \$300. The average budget amounts to \$8,343.75, and the total for the eighty-six counties is \$717,564. This may be compared with an expenditure in the townships and villages, during 1918, of approximately \$170,000.



The new law, passed early in 1919, was radically amended late in December, 1919, and went into practical operation in the early months of 1920. It has, therefore, been in operation less than eighteen months. In that time, eighty-six of the eighty-eight counties of the state have been organized and funds have been provided for the prosecution of the work of the district boards. In two districts, no funds have as yet been made available. The largest budget for a general dis-

Only two districts have provision for the employment of a sanitary policeman, but in thirty-three coun-



ties provision is made for the employment of part time deputies, these being usually the old-time township and village health officers, carried as deputies in the new organization.

The crux of the new organization is, of course, lodged in the character, ability and experience of the new commissioners. The men at present employed are almost without exception local physicians who have given up their practice to enter health work or who do part time work, and practice also. Eighteen are men who took the three months' extension course which was given by the state university and the state department of health prior to the taking effect of the new law. Fifteen of these are whole time officers. The difference between the work of these men, with even the slight training which could be given in an extemporized course of this kind, and that of the men who took up

the budget of the district board could be levied as a county tax, but this is impossible under the present taxing system of Ohio.

The system as it stands has placed exactly half the counties of the state under whole time health service and has vastly improved the service of the remainder. It has increased the number of cities under full time service from five to fifteen.

EXTENSION OF PUBLIC HEALTH NURSING

The remarkable extension of public health nursing is shown graphically in the accompanying charts. Jan. 1, 1918, there were sixty-eight nursing centers in Ohio, fifty-seven in cities and villages and eleven in rural communities. Jan. 1, 1921, there were 135 nursing centers, seventy-four in cities and villages and sixty-one in rural districts.

Many organizations and individuals have worked in harmony to get the new organization over the stormy and critical days of its beginnings. There is every reason to believe that this period has been passed, and that the organization will continue to grow and develop until every citizen of Ohio will be under the protection of an efficient and well organized health department.

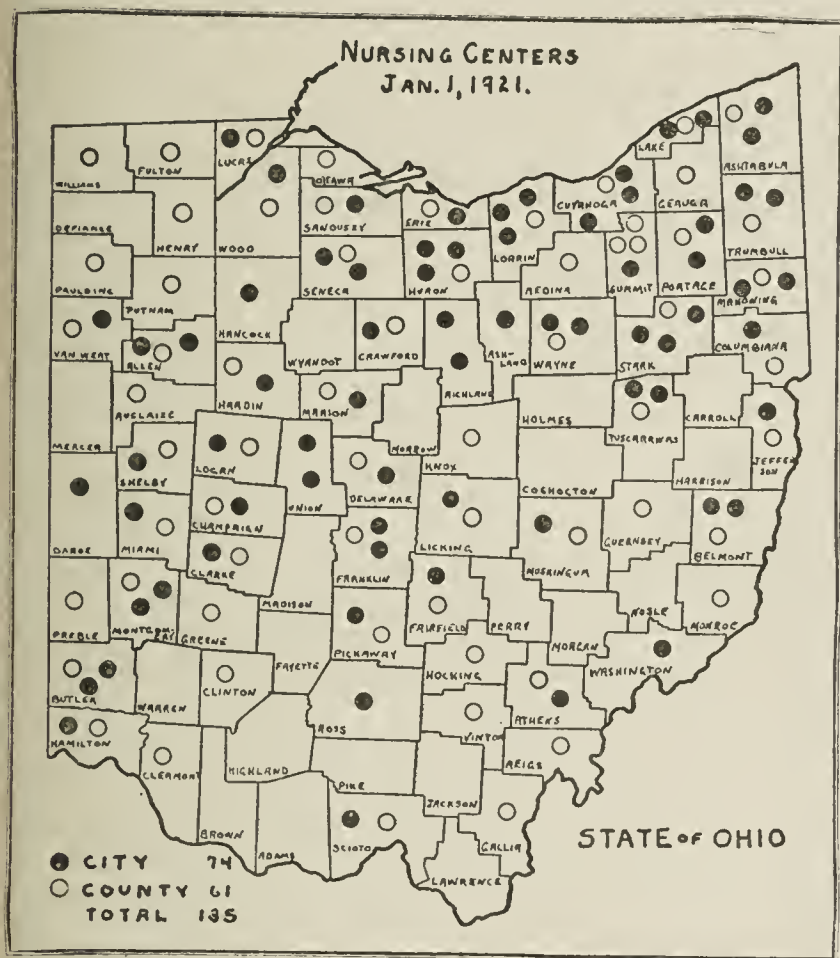


Chart 3.—Nursing centers, Jan. 1, 1921.

the work without training, is very marked. In general, the commissioners have done good work. Some have done excellent work, and all have shown great interest in it. The character of the work being done has steadily improved and is still improving. Many mistakes have been made, but with almost constant supervision by the state department and a little help in critical times, the system has commended itself to the people and to the public officials. At the last general assembly, meeting exactly one year after the new law became effective, only one attempt to change the law by limiting the salaries to be paid in the smaller counties was made, and that was ignominiously defeated.

FEATURES OF THE SYSTEM

The system of finance is the weakest point in the law. It was admittedly a makeshift, designed to evade the very manifest and serious limitations of the Ohio constitution and statutes. As it stands, however, the expenditures for the district board of health stand out as a separate item in the budget of each township and village; and as the work cannot be conducted by townships and villages, some of the more prosperous taxing districts complain of the size of the bill, which represents a service rendered to all parts of the county and not to them especially. It would be far better if

THE USE OF CARBON TETRACHLORID FOR THE REMOVAL OF HOOK-WORMS

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Recently I published the results of tests of carbon tetrachlorid on dogs for the removal of parasitic worms, with especial reference to the effect of this drug on hookworms. Thirty dogs were given carbon tetrachlorid, and in all cases except one, a test of toxicity, all feces were carefully examined for worms passed daily up to the time of death, when the animal was examined postmortem and all worms present were collected. The results were very gratifying. In the case of animals given 0.3 c.c. of this drug for every kilogram of live weight, a dose of 3 c.c. for an average-sized dog (10 kg., 22 pounds), all the hookworms originally present were expelled, a result I have never been able to obtain in any series of tests of anthelmintics on hundreds of dogs during the last six years.

Among the drugs previously tested were thymol, chenopodium, chloroform, and combinations of chenopodium and chloroform. The expulsion of all hookworms present was also obtained by the use of a mixture of carbon tetrachlorid and thymol in the proportion of 1 c.c. of carbon tetrachlorid and 0.648 gm. (10 grains) of thymol, and by the use of a mixture of carbon tetrachlorid and oil of chenopodium in the proportion of 3 c.c. of carbon tetrachlorid and 1 c.c. of chenopodium, the dose rate for the mixture being the same as for the carbon tetrachlorid alone. These mixtures, as well as the carbon tetrachlorid alone, were given in hard gelatin capsules, without purgation, to dogs after fasting eighteen hours. The carbon tetrachlorid is also very effective in removing ascarids, being only slightly less effective than chenopodium, which in my experiments has proved practically 100 per cent. effective in removing ascarids from dogs when given in doses of 0.1 c.c. per kilogram of live weight and

immediately preceded or followed by 30 c.c. of castor oil.

The experiments on dogs have been followed by a series of experiments on horses and swine. The results of these experiments are not yet published; but the results indicate that the drug is very effective against the blood-sucking strongyles and moderately effective against ascarids.

SAFETY

While the anthelmintic value of carbon tetrachlorid as indicated by these experiments warrants bringing it to the attention of the medical profession as worthy of attention in connection with the treatment of human beings for hookworm infestation, and possibly for ascarid infestation as well, the question of safety naturally deserves equal consideration. In the earlier article¹ I summarized briefly the available medical literature in regard to carbon tetrachlorid. This drug received considerable attention about half a century ago by Sanson, Simpson, Protheroe Smith, Morel, Laffont and others, for the most part as an anesthetic when administered by inhalation. It appears from their work that the first stage of anesthesia is one of excitation comparable to ether; this is followed by insensibility and finally by collapse if continued. Laffont notes that the pupil of the eye is constantly dilated throughout the first and second stages of anesthesia. Simpson regarded it, on evidence that is not entirely conclusive, as more depressing to the heart than chloroform, and this statement, reiterated subsequently in the dispensaries, is perhaps responsible for the neglect of this drug for half a century. Protheroe Smith found the drug useful in overcoming pain, especially headache, dysmenorrheal distress, tic douloureux and toothache, and of value in mitigating the suffering during labor, as it alleviated the pain without diminishing the uterine contractions. One death from inhalation was reported² in *THE JOURNAL* in 1909, in which carbon tetrachlorid was used as a shampoo on a woman 29 years old, a subject of status lymphaticus, the carbon tetrachlorid having been previously used for this purpose in 30,000 cases with no untoward results other than one or two cases of fainting. It might be noted that carbon tetrachlorid, like chloroform, may develop phosgen (carbonyl chlorid) under certain conditions, and that such an impurity might have been present in this drug as used for shampooing. In the *British Medical Journal*, Sept. 25, 1920, a correspondent³ reports a case of carbon tetrachlorid poisoning in a girl employed in painting golf ball molds with a paint containing this substance. The symptoms were vomiting, headache and anemia. It is noted by the editor that the frequent inhalation of this substance may ultimately cause a toxic jaundice, which suggests that the drug might act on the liver in a manner similar to the action of chloroform in delayed chloroform poisoning.

So far as dogs are concerned, no macroscopic changes were noted in the liver after the oral administration of carbon tetrachlorid in doses up to 1.5 c.c. per kilogram of live weight, though the acute yellow necrosis due to chloroform is unmistakable in dogs after doses of 0.3 c.c. per kilogram. However, this is a matter which deserves further consideration in connection with the use of this drug as regards its safety.

One dog in the series of thirty was given 1 c.c. of carbon tetrachlorid per kilogram of live weight and kept alive for more than eight months, being recently killed in connection with another experiment. The dog appeared well and active at all times during the eight months, and showed no evident lesions postmortem.

DISCOMFORT AND SUBJECTIVE EFFECTS

Another feature to be considered in connection with campaigns for the eradication of hookworms from man is the matter of discomfort and subjective effects on the patient. Opposition to treatment must be avoided whenever possible, and the production of headache, nausea, burning sensation in the stomach, etc., by such drugs as thymol and chenopodium, frequently makes it difficult to give a second treatment or to bring in new patients after the word has passed around that a first group have been made ill by the treatment.

In order to obtain first-hand information on this point in regard to carbon tetrachlorid, I tested the drug on myself, using the dose found effective in freeing dogs from hookworms, since the dose of most drugs, aside from such as strychnin and morphin, is the same for man as for dogs. The dosage for man and dogs is practically identical for almost all anthelmintics. Three c.c. of carbon tetrachlorid was swallowed in hard capsules, three hours after a light breakfast and after smoking a cigar. The pulse at the time was 90. Forty minutes later, Dr. Walter H. Chapin, a physician of Springfield, Mass., found the pulse to be 78, with apparently a normal pressure. I did the usual day's work at the office during the morning and spent the afternoon making a postmortem examination of some horses. Meals were taken at the usual time and in the usual amounts, and more than the usual amount of exercise was taken. After the treatment, I smoked three cigars and a pipe during the day. Seven minutes after taking the drug, there was an eructation of carbon tetrachlorid, and during the first half hour, there was a sensation of warmth, not sufficient to be called a burning sensation, in the abdomen. This sensation passed away after a short time. There was no evidence of constipation, the drug apparently having a mild laxative effect.

While this one test is not conclusive, it apparently bears out the indications from the experiments on animals, that the drug administered by mouth in therapeutic doses produces no evident symptoms. If it can be taken by a man 40 years old, without any precautions as regards food, smoking and exercise, without producing any symptoms of discomfort and without interfering in any way with the day's work, it would appear to be reasonably safe for the average human being. Anthelmintics in general cannot be taken with equal impunity. Following such drugs as thymol, chenopodium or male fern, it is advisable for the patients to rest, at least, to lie down if feasible, and to go to bed preferably. The list of deaths from thymol, chenopodium or male fern is long enough to warrant further study of any drug that holds out promises of greater safety.

Through the courtesy of Dr. McCoy, director of the Hygienic Laboratory of the U. S. Public Health Service, I have had the opportunity to make some toxicity tests of carbon tetrachlorid on monkeys, in cooperation with Dr. Gleason Lake of the Hygienic Laboratory and Dr. J. E. Shillinger of the Bureau of Animal Industry. Assuming that the indicated dose of the drug for man is the same as that for the dog of average

1. Hall, M. C.: Carbon Tetrachloride for the Removal of Parasitic Worms, Especially Hookworms, *J. Agric. Research* **21**: 157-175, 1921.

2. A Fatal Shampoo, *London Letter, J. A. M. A.* **53**: 392 (July 31) 1909.

3. Carbon Tetrachloride Poisoning, *Letters, Notes, and Answers, Brit. M. J.* **2**: 497 (Sept. 25) 1920.

size, 10 kg. (22 pounds), these animals were given from two to five times that dose, or 6, 9, 12 and 15 c.c. These monkeys weighed from 2.5 to 3.5 kg. (4½ to 7½ pounds). One monkey weighing 2.5 kg. (4½ pounds) received the dose of 12 c.c., or approximately 6 c.c. per kilogram of live weight. Aside from the fact that one or two monkeys ate less than usual for a day or two, no symptoms of injury were noted. After holding the animals for a month, with no evidence of delayed poisoning developing, we released them for other experiments. In the opinion of Dr. McCoy, toxicity tests in monkeys are excellent indications of probable toxic effects of drugs on man, and the apparent safety of carbon tetrachlorid is distinctly indicated by this experiment.

EXPENSE

A final word in regard to this drug is on the score of expense. Carbon tetrachlorid is cheap, much cheaper than chenopodium or thymol, and can be purchased almost anywhere, at any time. It is very easy to make. Finally, the fact that it does not depress unstriated musculature or lessen peristalsis, so far as it has been studied in this respect, would permit of an immense saving by the omission of a purgative in carrying on hookworm campaigns involving millions of people.

It is not my intention to urge the use of this drug clinically on the basis of the evidence at hand. Due precautions are indicated in using any drug in a new manner and for a new purpose. The intent in this article is to call the attention of physicians, and especially of those interested in hookworm work, to the possible usefulness of carbon tetrachlorid for the removal of hookworms and ascarids. It may be said in passing that it is apparently of no value for removing tapeworms, so far as experiments show, and is as unreliable as other anthelmintics for removing whipworms, sometimes removing them and more often leaving them. A chemically pure drug must be used precisely as in the case of chloroform, or any other drug for that matter. In this respect the definite chemical composition of carbon tetrachlorid gives it a definite advantage over oil of chenopodium, which is a mixture of a number of compounds in very variable proportions, which fact may account for some of the bad effects following its use. So far as can be judged at the present time, carbon tetrachlorid is apparently more effective, safer and cheaper than the drugs used at present to remove hookworms.

Hospital Organization and Management.—The most important feature in the organization and management of hospitals is a wisely selected committee or commission on hospitals consisting of persons of broad hospital knowledge. They should be ultimately responsible to the local government, although not necessarily directly appointed to that body. In fact, it would seem more reasonable that they should hold appointment under a council of hospital workers, organized along similar lines to the medical, legal, dental and other councils. Such a commission would have authority to inspect and examine closely into the methods and working of all hospitals, large and small, public and private, within its territory. It should, above all things, be sympathetic and constructive in its criticism. It would naturally decide on certain standards. These standards would necessarily be graded according to the capacity or special object of each hospital, but should be such as would ensure every patient admitted the best possible treatment. This might involve the transference of certain patients to institutions where more highly specialized equipment would be available.—H. C. Wrinch, *Modern Hospital* 12:384 (Nov.) 1921.

"PSEUDOTUMORS" OF THE BRAIN

A REMARKABLE COMBINATION OF PSYCHIC, NEUROLOGIC AND AUTONOMIC SYMPTOMS*

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LONDON, ENGLAND

The case which I wish to present to you today belongs to that category which, while exhibiting signs of cerebral tumor, shows no gross lesion on subsequent examination. By some writers these cases have been termed "pseudotumors" of the brain.

Hughlings Jackson referred to such conditions in 1871, and at a necropsy in a series of cases found only a slight congestion of the brain. Oppenheimer mentioned as symptoms in his cases headache, vomiting, pain on percussing the skull, pupillary stasis, aphasia and hemiplegia. Other observers have noted inequality and sluggishness of the pupils, exaggerated reflexes (tendinous and cutaneous), presence of the Babinski sign and, associated with these symptoms, a marked hebetude.

In the case which came under my observation there existed a combination of striking psychic, neurologic and autonomic symptoms.

Among the psychic signs were noted stupor, confusion, hebetude, acute depression and epileptic attacks.

The neurologic symptoms included difficulty of speech, and sometimes tremors of the arms and legs, at other times slow, stiff movements. There was difficulty in walking. Frequently the patient crossed his feet and stumbled, and sometimes there was almost a spastic gait. The reflexes were altered and varied at different examinations; the Babinski sign was now present, now absent.

Among the autonomic signs were diffuse edema of the skin of the head and neck, and dilatation of the vessels with cold and blue extremities similar to those so often seen in dementia praecox. The pupils were sluggish and unequal; the tongue was furred; there was excessive salivation and incontinence of urine and constipation. Some of the autonomic symptoms were almost constant; the neurologic signs varied a little and the psychic disturbances a great deal, from stupor through a slight hebetude to comparative clarity of mind. The fits of depression were temporary.

THE PATIENT'S MENTAL STATE

The patient's own description of his mental state is interesting and instructive. He expressed it as follows: "I cannot control my mind; unpleasant dreams of a dark man disturb me a lot. The Germans did awful things to the Belgians, and when we got German prisoners we made up for it. I did more than bayonet them. My mind wanders; I cannot explain myself. I cannot say I have memories, I cannot say I have not; I am confused. I see the incidents again; it disturbs thinking. I want to tell you." Then he gave me a few details.

At another interview he became very emotional while telling me of the maltreatment of the women and children by the Germans. Then he described the finding of the sergeant of his company in the crucified posi-

* Read before the Section on Nervous and Mental Diseases at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

tion and added, "Very often I see that sergeant." He also said, "That is what I wished to talk to you about." Going into the ward a short time after I found that he had had a strong convulsion, and he has told me that on one occasion after telling his mother about the sergeant incident he went upstairs and had a strong convulsion. He added, "I get a mixed feeling of terror and revenge."

At a later interview he told me of his getting drunk and being condemned to seven days' No. 1 field punishment. This incident has an important relation to many of his symptoms. For instance, many of his convulsive attacks commenced with a feeling of intense cold and shivering. This condition is connected with the fact that he endured his field punishment in Flanders in the month of March during a spell of cold weather. He said "The being bound with cords was a terrible sensation, frightfully cold."

The slow, stiff movements of the limbs were a reproduction of his efforts to find a comfortable position while tied up. In his description of it he said: "When you are tied up, no matter how you tried to shift your position you could not get comfortable; when released I could not walk and had to be carried to the hut. At the first time of being tied up I went unconscious." The movements and the difficulty in walking were always exaggerated during the stuporous attacks.

After a simple explanation of mental mechanisms and also of the possible relation between the punishment and the movements which still persisted had been given to him, he remarked, "Now you have explained it, I can see how it all came about."

The duration of the stuporous attacks increased, and the depression, the convulsions and all the other symptoms continued for several months, and at last he had a very severe attack. The depression was more intense, the stupor deeper, the convulsions more numerous. He lay in bed for days staring at the ceiling and not responding when spoken to; he had to be fed and generally attended to; there was marked incontinence of urine and constipation. His tongue was brown and thickly furred; all the other symptoms were exaggerated.

When he revived after about a fortnight, he was asked as to what he had been thinking about during that period. The reply was, "Bayoneting Belgians who were helping the Germans." Following an inquiry as to whether there had been another subject prominently before him, he became distressed and said, "It is all a mist." Gradually he told me of an incident more serious than any already mentioned. He also said, "This last month I could not keep from thinking of it."

From this time rapid improvement followed. Two months later there is a note to the effect that he had been a little depressed for a day or two but there had been no convulsive attack of any sort for six weeks. He said, "I know that if I gave way to the thoughts I should go back again." Some stiffness of the arms and legs remains, and there is still some difficulty of speech, but there have been no convulsions. The reflexes have become normal, the pupillary reactions are normal, the tongue is clean, the appetite is good, the salivation has ceased, the edema of the skin and the cold extrmeities no longer exist, and the incontinence of urine and constipation have both completely disappeared. He has now for eight months been learning

a trade and taking great interest in doing so; there has been no recurrence of the attacks. About a month ago he became a little depressed and had some headache at night which prevented sleep. With this there was a slight anxiety as to what it might mean, but the origins of the attack were soon discovered and the disturbance ceased. He is now quite comfortable again and the speech and the movements have improved. At the last interview he said he felt better in every way.

CONVULSIVE ATTACKS

The convulsions in this case were numerous, ten or twelve frequently being registered in the twenty-four hours. They were of two types. In one, consciousness was not always lost and, if it were, it would be only for a few seconds. There was a certain amount of rigidity of the body and limbs; the attack ended with a snorting noise. The other type illustrated a real major attack. The eyes were deviated to the right; the rigid phase was long; the twitchings were bilateral; he bit his tongue, sometimes badly, and he passed his water under him.

EXPLANATION OF THE CONDITION

This case was under observation for several months, and during that period many interesting features presented themselves for discussion. Among these we may mention: (1) the difficulty of diagnosis; (2) the extraordinary combination of psychic, neurologic and autonomic symptoms; (3) the two types of convulsive attack; (4) the variation in the reflex responses at different times and even before and after a convulsion; (5) the failure of medicines to produce any noticeable result; (6) the disappearance of all the symptoms after psychic explanation and exploration, and (7) the necessity for continuing the reeducative treatment for a long period.

It is not proposed to discuss all the points mentioned, but rather to offer an explanation of the condition and to suggest the mechanisms underlying it.

In the first place, a definite diagnosis was for a long time impossible. When seen in the earlier stages in consultation with a neurologist, the symptoms pointed to the existence of a tumor in the brain, possibly in the frontal region; but further observation showed that this was improbable. But although the presence of a cerebral tumor was negatived, there can be little doubt that there was some organic disturbance in the nervous system and that this became exaggerated during the stuporous periods.

It will be remembered that Alzheimer in his work on the morbid anatomy in cases of general paralysis of the insane has figured a section of a brain in which one convolution appeared to be much swollen and exhibited a condition of acute edema, but the adjacent convolution showed no sign of such change. And in our own experience cases have occurred in which the symptoms, including convulsive attacks and various focal signs, have suggested the presence of a cerebral tumor but at the postmortem examination no growth was found. The most striking change discovered was an acute edema of the brain.

Conditions of this nature have been produced by Dr. David Orr and myself in a series of experiments on animals. In these experiments a celloidin capsule containing a culture of *Staphylococcus pyogenes-aureus* was placed in the abdominal cavity in a number

of dogs and rabbits. The results indicated an intense vasomotor disturbance of the vessels of the spinal cord. The blood vessels were much dilated; there was present also a hyaline degeneration of the walls of the capillaries and sometimes of their contents, so that a hyaline thrombus had occurred. With these changes were associated a considerable edema of the spinal cord and a primary degeneration of the myelin sheath of the nerve fibers.

Similar alterations were found in the brain when a capsule was placed by the carotid artery. But in the brain a further stage of the lesion existed in the form of a coagulation necrosis of the nerve cells and also of definite softenings in the cortex cerebri and in the cornu ammonis. In none of these experiments were there any evidences of a proliferative inflammatory reaction such as had arisen in the nerve sheaths when a capsule was placed in contact with a peripheral nerve, e. g., the sciatic nerve. Inflammatory changes were present in some of the ganglions of the abdominal cavity, but not in the sheaths of the nerves between the ganglions and the central system or in the central nervous system itself.

These morbid changes were due to altered function of the sympathetic nervous system which was produced by the action of toxins on the ganglions situated in the abdominal cavity. But it is probable that besides the alterations in the functions of the sympathetic nervous system there were some changes in the activity of those small but important organs, the endocrine glands.

In the case under consideration in this paper there were many evidences of altered function in both the autonomic and sympathetic divisions of the nervous systems and in the endocrine glands, viz., the edema of the skin and the cold blue extremities, the intense salivation, the unequal and sluggish pupils, the incontinence of urine and the constipation.

It is now known that while the functions of the endocrine glands are largely under the control of the central nervous system, its activity, on the other hand, is much influenced by their secretions. It is possible, therefore, that the combined disturbances of the sympathetic and autonomic systems and of the endocrine glands may have led to a slight, but recoverable primary degeneration of the nervous structures and to an alteration in their sensitivity and reactivity.

But all the symptoms of this case, taken together, indicate an alteration in the functional activity of the whole organism. In all mental as well as physical processes the organism works as a whole. Disturbances of the sympathetic and autonomic systems, of the endocrine glands or of the other organs of the body can affect the functions of the mental mechanisms, and also the organs of the body can be influenced by changes which accompany mental states. It is possible, therefore, that the physical changes, suggested as having occurred in the central nervous system, may be the result of psychic activities and that, while those changes may have had something to do with the persistence of the symptoms, they are really secondary effects and not original causes, and by themselves they provide no explanation for the illness as a whole.

During the progress of this case it was of interest that no obvious alteration of symptoms was produced by drugs, such as atropin and pilocarpin, which are known to influence the sympathetic and autonomic systems, or by the administration of thyroid extract or

bronids. No improvement was observable until a series of disturbing incidents in the patient's past life had been unraveled by psychic investigations and the mechanisms of mental processes had been explained to the patient. By means of the explanation he was enabled to understand not only that all stimuli which cross the threshold of consciousness give rise to an intellectual appreciation of what has happened, but also that each is accompanied by its own specific emotional reaction. Further, that when the memory of a stimulus, e. g., one of his experiences in Flanders, is revived, an emotional reaction similar to that felt at the time of the original incident is reproduced. When, therefore, after prolonged and fruitful investigation and simple explanation he was able to comprehend what had been said and to recognize the significance of the incidents which had happened in Flanders, he was in a position to say, "Now you have explained it, I can see how it all came about."

We are all familiar with the results which follow varying degrees of emotional disturbance, results ranging from the blush with slight mental confusion to the condition of unconsciousness. The intimate connection between emotional stress and alterations of the circulatory, respiratory, digestive, genito-urinary, motor and nervous systems is demonstrated by our everyday experience. It is also frequently recognized by our patients. The statement of one man illustrates this extremely well. Without the subject being suggested in any way he said, "I know that if I get excited I shall have those swellings come on me." Those swellings were patches of edema, local erythema, which appeared under his left eye, on his chin, on his left shoulder and on two or three areas on his chest wall. They developed time after time while the patient was in the hospital, and gradually faded away again in the course of a few hours so that the association between excitement and swelling was fully appreciated by him.

This case is of the utmost significance because it demonstrates that small, discrete patches of disturbance can occur in the sympathetic system and give rise to limited, local symptoms.

ASSOCIATION BETWEEN EXPERIENCE AND LATER DISTURBED FUNCTION

The intimate association existing between a past experience and a later disturbed function, mental or physical, is clearly evidenced in the patient, the subject of this paper:

1. The first attack of unconsciousness occurred when he was tied to the wheel while undergoing the No. 1 field punishment, and, as he has informed us, many of the subsequent attacks were ushered in by a feeling of intense shivering and cold similar to that experienced at that time.

2. His peculiar movements of the trunk, arms and legs suggested movements which might naturally be made in attempting to find relief from the great strain while tied up.

3. At the end of the period on the wheel he had great difficulty in walking, and sometimes could not walk at all but required to be carried to the guard-room.

4. It will be remembered that on his being asked what had occupied his mind during the last period of stupor he replied, "Bayoneting Belgians who were helping the Germans," and that subsequently it was discovered that the most serious of all the incidents had also exerted an absorbing influence on him.

That the incidents discovered during the process of exploration were very terrible to him and aroused intense emotional reactions there can be no doubt. This intensity was increased by repeated reflection on them together with the repeated emotional outbursts associated with them. These repetitions, spread over a considerable time, led to the development of a series of conditioned reflexes so that special mechanisms were facilitated by the frequently recurring and adequate stimuli, and other mechanisms were inhibited. But a conditioned reflex is a temporarily acquired reaction and disappears when the requisite stimulus is withheld or when some other stimulus is applied which can inhibit the reflex already established. The remark of the patient, "I know that if I gave way to the thoughts I should go back again," means possibly that by applying other inhibitory stimuli in the course of treatment the former reflex failed to appear, although the original stimuli, the thoughts, recurred from time to time.

But while the original stimuli, thoughts of past incidents, were free to act, they seriously disturbed the patient's mental mechanisms. The functions of perceiving, thinking, feeling, judging and acting, the power of attention and of assessing values were so interfered with that he developed an acute mental illness. This was characterized by severe epileptic attacks, by depression, by confusion and repeated periods of stupor, and by intense emotional disturbances.

The neurologic and autonomic symptoms were probably secondary results produced partly as reproductions of past experiences and partly under the influence of altered organic functions. These in turn depended for their origin on alterations which may be considered as physical manifestations accompanying emotional reactions. And as psychic experiences were the cause of the disabilities mentioned in this paper, so these disabilities were recovered from under the influence of psychic treatment.

18 Cadogan Court, S. W. 3.

ABSTRACT OF DISCUSSION

DR. MORTON PRINCE, Boston: As I listened to Dr. Rows' keen analysis I could not help thinking how far we have progressed in scientific thought since the day when the subconscious was first brought to light, as far back as 1886, by Pierre Janet in France. I was particularly interested in the fact that Dr. Rows, in the explanation of certain of his phenomena, made use of the autonomic system, for our knowledge of which we are so much indebted to Dr. Cannon. We are now able to understand the physical source of many psychoneurotic phenomena of which the pathology was previously obscure. Regarding, however, one of the phenomena manifested in Dr. Rows' case, perhaps he will permit me to present a little different interpretation. It is quite possible that the stupor may have been due to edema of the brain as occurred, as I understood him, in other parts of the body. I would offer another interpretation. It is quite possible, if not probable, that the stupor was really a defense reaction in the sense that it was due to an inhibition of consciousness brought about by conflict. I have produced the same phenomenon experimentally. For instance, a patient entertained certain ideas which were so repugnant to her that she was unable to discuss them. When she attempted to do so at my solicitation she was taken with spasm of the lips, tongue and throat, making it impossible to speak; then, as she continued the attempt, her thoughts became confused, and, as I still insisted, she finally went into a condition of apparent unconsciousness, a condition similar to stupor. It was very simple to demonstrate that this condition of apparent unconsciousness

was produced by the conflict, a determination of the idea to prevent all disclosures by means of the stuporous condition. I could reproduce the "unconscious" state every time I repeated the experiment. As to the question of treatment, I was very much interested in the point of view presented, which I think is entirely correct. I believe the basis of all therapeutic measures, whether that of psychoanalysis or mind cure or Christian science or reeducation or other forms of mental therapeutics, is what I have called "complex building," the building of new points of view, new sentiments, new meanings of ideas and attitudes of mind. Reeducate the person, give him a new attitude of mind and new points of view toward the causal factor, and you will dispel the symptoms.

EFFECT OF UNDERNOURISHMENT ON MAMMALIAN OVARY AND THE SEXUAL CYCLE*

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The effect of undernourishment on various bodily functions is, at the present time, a subject so prominent in medical literature that it might be useful if a short summary were presented of the investigations bearing on these problems, which we have published in the last ten years in various periodicals, and particularly also of the investigations which have been published in biologic journals, not always accessible to writers on medical subjects.

1. In the course of experiments in which we analyzed the effect of the internal secretion of corpus luteum on ovulation in the guinea-pig,¹ we found that a complete excision of the corpora lutea led to a notable acceleration of ovulation, which took place soon after some of the follicles had reached the stage of maturation.² The process of follicular maturation was not thereby accelerated, but merely ovulation. These results made it possible to arrive at a theory as to the sexual cycle which was well founded on facts, while previously mere hypotheses had existed, and even those, as we demonstrated in the case of Beard's opinion, had been only in part correct. In experiments, however, in which, instead of excising the corpora lutea, we burnt them out, we found that, notwithstanding their complete elimination, ovulation was not accelerated. This was due to the fact that the process of burning caused an injury of the remaining ovarian tissue and particularly of the follicles. As a result of this injury, young follicles remained alive and even began to develop, but their vitality was markedly diminished. They never matured and usually became atretic before they reached medium size. Thus a condition intermediate between active life and tissue death or latent life had been established, which in general we designated as tissue shock. In particular in the case of the ovaries we designated such organs, characterized by the presence of only small and small to medium size follicles, at a period of the sexual cycle at which there should have been present large ones,³ as hypotypical ovaries.⁴ In these, of course, ovulation can not take place.

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1. In the past year we have again taken up our investigations on the effect of internal secretion on ovulation, and we have extended our previous work in various directions.

2. Loeb, Leo: *Deutsch. med. Wchnschr.*, 1911; *Virchows Arch. f. path. Anat.* **206**: 218, 1911.

3. Ovaries of the rat and rabbit and probably of other animals differ from those of the guinea-pig; in the latter an almost general atresia of all but the smallest follicles is characteristic of ovulation. In the rat and rabbit such a general atresia does not occur.

4. Loeb, Leo: *Zentralbl. f. Physiol.* **25**, No. 9, 1911; *Virchows Arch. f. path. Anat.* **206**: 278, 1911.

2. Soon afterward we found that a hypotypical condition of the ovaries may occur spontaneously in certain guinea-pigs; we observed it, for instance, in animals which had remained sterile for a considerable period, although they were at an age when normally ovulation should occur regularly. On examination of the ovaries in serial sections, we found in such animals a hypotypical condition of the ovaries, which was absent in normal controls. From these and other results, we concluded that a hypotypical condition of the ovaries is one of the causes of sterility in the female sex.

3. The latter observations suggested that there must be still another rather common cause underlying the hypotypia of the ovaries, and it occurred to us that unfavorable nutritional conditions, due either to outside factors or to a pathologic state within the animal, might be responsible for it. Accordingly we carried out, five or six years ago, a considerable number of experiments in which we exposed guinea-pigs to pronounced undernourishment.⁵ They received the usual kind of food (mainly grain and fresh vegetables or grass), but in a quantity so much reduced that they lost approximately from 20 to 30 per cent. of their initial weight, usually in the course of from two to three weeks, or in a shorter period. In all of these animals definite changes were found. In none did the development of follicles proceed so far that mature follicles developed; but in a considerable number the changes went much further. While the follicles began to develop and could reach from small to medium size, and in some cases the development proceeded even as far as to the production of medium follicles, the development ceased prematurely, and the follicles began to retrogress without reaching medium or a large size.

4. The intensity of the ovarian changes depended not only on the degree of underfeeding, but also on the time which had elapsed between the onset of the experiment and the time when the required loss of weight had occurred. At least six or seven days were required for the establishment of these pathologic changes in the ovaries. Furthermore, the weight and age of the animals were of importance. Younger animals were much more readily affected than older ones. The change could, however, be produced in older animals. This is in accordance with the greater susceptibility of younger animals to reduction in the quantity of food, which, again, is the result of the relatively greater surface and, therefore, the greater metabolism of these animals in proportion to their volume or weight. Possibly the needs due to the process of growth are a contributory factor.

5. In the living follicles of such hypotypical ovaries, mitoses still occur in the granulosa cells and, as Dr. Walsh found in our laboratory, the number of such mitoses is almost normal, if figured out on the basis of the number of preserved granulosa cells.⁶ These follicles retrogress, because the degeneration of isolated granulosa cells sets in at an early stage, and this degeneration is so pronounced that the loss of cells far exceeds their new formation. Thus a condition develops analogous to that we had previously found in the case of retrogressing tumors.

6. From these observations it follows that the underfeeding as well as other injurious agencies affect primarily the epithelial elements (the granulosa) of the follicles and, furthermore, that the smallest follicles

prove to be the most resistant. The effect of underfeeding is, however, not entirely limited to the epithelial elements; to a minor degree the connective tissue is also affected. Thus we often notice that, instead of growing into the cavity of the follicles deprived of their granulosa, the connective tissue of the theca interna remains inactive, and in consequence of the inactivity a cystlike body results. In one very marked case we could show that even the perifollicular connective tissue may suffer under those conditions, and that, owing to the intra-ovarian pressure, smaller follicles may be pressed into large ones, or follicles of equal size may be joined together. Thus follicles with two or more eggs result.⁷ This is one mode of origin of such plurioval follicles. However, in all cases the granulosa is affected primarily by the underfeeding, and the connective tissue seems to be much more resistant to the lack of foodstuffs and other injurious agencies.

7. In the guinea-pig, during the process of atresia, the first, usually irregular, segmentations of the ova occur not infrequently; these changes are not prevented by the underfeeding, and this observation raises an interesting question as to the significance of the ovum in the hypotypical condition of the ovary.

8. In order to understand the causes responsible for the cessation of growth and atresia of follicles, it is necessary to analyze the factors which normally call forth the follicular growth. In the course of former studies on the cyclic changes in the ovary of the guinea-pig, we observed that the majority of the follicular mitoses were found in the granulosa cells directly surrounding the ovum. This suggested to us the possibility that from the eggs might emanate a stimulus of a chemical nature which calls forth the proliferation of the granulosa cells, and thus the growth of the follicles and, ultimately, of the whole ovary. This conception was substantiated through the quantitative measurements of the ovarian follicles which were subsequently carried out in our laboratory by Dr. L. S. N. Walsh. Dr. Walsh determined the growth curves of the follicles as related to their size and the seat of the greatest mitotic activity.⁶ The results obtained can be understood if we assume that the egg is responsible for the growth of the follicles and, ultimately, of the whole ovary.

If, then, the ovum is responsible for the growth of the follicles, might it not be that injury of the ovum as a result of the application of a moderate degree of heat or of marked undernourishment might prevent the further growth of the granulosa and, correspondingly, of the whole ovary? This is possible, and perhaps the recent observations of Reynolds and Macomber⁸ and previous observations of some Russian writers might be interpreted as supporting such a conclusion. It is, however, probable that, even if this factor should be active, there is in addition a direct injurious influence of heating or undernourishment on the granulosa itself. The continued proliferation of the granulosa cells in animals suffering from these pathologic effects suggests such an interpretation; it indicates the activity of the ovum. The separation of these two factors, however, needs further study, and we intend to continue our investigations.

10. If a marked loss of weight is produced through means other than underfeeding, would the effect on

5. Loeb, Leo.: *Science* **45**: 591, 1917; *Biol. Bull.* **33**: 92, 1917.

6. Walsh, L. S. N.: *J. Exper. M.* **26**: 245 (Aug.) 1917.

7. Loeb, Leo: *Biol. Bull.* **33**: 187, 1917.

8. Reynolds, Edward, and Macomber, Donald: *Defective Diet as a Cause of Sterility*, *J. A. M. A.* **77**: 169 (July 16) 1921.

the ovaries be similar to that produced through direct underfeeding? The results of experiments carried on in our laboratory by Mr. W. B. Hoover indicate that a loss of weight called forth through thyroid feeding, combined with a diet which in itself almost permitted the guinea-pig to maintain its weight, may likewise produce a hypotypical condition of the ovary. Mr. Hoover will report on these experiments more fully at a later date.⁹

11. It is clear that a hypotypical condition of the ovaries is incompatible with ovulation and the normal course of the sexual cycle. The uterus in such cases usually is found to be thin and inactive. The structures corresponding to the so-called interstitial gland in the ovaries of other species are, however, well developed in these animals, owing to the large number of atretic follicles in such guinea-pigs and to the diminution in intra-ovarian pressure, which permits the elements of the theca interna to expand.

12. Our experiments illustrate very well the primary significance of growth stimuli, as exemplified in the effect of substances emanating from the ovum on the growth of the ovarian follicles and of the ovary as a whole. There is added to this, as a secondary requirement, a supply of foodstuffs. But the supply of the latter cannot initiate growth nor can its lack prevent it, at least temporarily.

THE SO-CALLED PRESYSTOLIC MURMUR *

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In a recent paper,¹ I pointed out that the murmur heard over the cardiac apex, and generally termed presystolic, is really early systolic in time and caused by ventricular systole. Since then, as has been aptly said,² "A great deal of water has run under the bridge," and we now have additional facts which tend to confirm and amplify the earlier assertions.

The detection of a presystolic murmur is commonly held to be evidence pointing to stenosis of the mitral orifice due to actual change in its valve curtains; and this condition is a certain indication of rheumatic heart disease. The latter, with the damage of the myocardium which we now know to be associated with this type of valve lesion, is, from the standpoint of prognosis and treatment, one of the most important of heart diseases. It makes for clear thinking that our interpretation of the auscultatory phenomena of the heart should be accurate. Also I have seen instances in which an incorrect understanding of this murmur has led to an erroneous diagnosis, such as rheumatic mitral stenosis in a case of chronic vascular hypertension.

The murmur is usually described as crescendo in type, often loud and rough in quality, and ending in a sharp first heart sound or frequently being merged into a systolic murmur, which may mask the first heart sound at the apex. It has long been attributed to a stream of blood passing through the mitral valve in presystole as a direct result of the contraction of the auricle; and Mackenzie is credited with having pointed out the disappearance of the presystolic murmur with the onset of auricular fibrillation (in which the normal auricular contraction is in abeyance).

PRODUCTION OF THE CRESCENDO MURMUR

There are a few points which should be raised against the acceptance of this crescendo murmur as truly presystolic and, therefore, due to auricular systole:

1. The intensity and roughness are often so marked as to be inconsistent with the force of auricular systole, whereas they are in agreement with that of ventricular origin.

2. The murmur occurs before the systolic sound but not before the beginning of contraction (or systole).³

3. The absence of a pause between this so-called presystolic murmur and that of true systole. If the former were due to auricular systole, the current must reverse before the murmur of regurgitation through the mitral valve can be produced. It is inconceivable that this can occur without the presence of an appreciable pause.

4. The crescendo murmur under discussion may remain in the presence of auricular fibrillation. I have observed this in some instances in which the clinical diagnosis of auricular fibrillation was confirmed by the electrocardiograms.

The foregoing must not give the impression that it is urged that this crescendo murmur is unaffected by the change from the normal rhythm to that of fibrillation. On the contrary, the murmur generally lessens or disappears. Probable reasons for this are the great variations in the amount of the blood contained in the ventricle at the onset of its systole and the resulting variation in the level of pressure and output achieved, and consequently in the sounds and murmurs produced. In addition, the lowering of the tone of the myocardium, which can be assumed in many hearts affected by fibrillation, lessens the cooperation of the muscle in the closure of the mitral orifice. The latter conditions tend to a freer mitral insufficiency and not to the early regurgitation with its crescendo murmur.

5. There is a true presystolic murmur. It is low-pitched, often faint, and usually noted⁴ merely as an accentuation of a murmur beginning earlier in diastole. It is separated from the succeeding sound or murmur. In quality, time and duration, it is consistent with auricular systole and lacks other reasonable explanation. It may exist with the crescendo, so-called presystolic, murmur. In auricular fibrillation, the true presystolic murmur is absent.

To deny that the "crescendo murmur ending in a sharp first sound, etc.," is the result directly or indirectly of auricular contraction is contrary to what may be termed the orthodox explanation of its production. But I fully appreciate that the earlier men who held the view that the murmur was caused by auricular

9. In this connection we may briefly refer to some other observations which Mr. Hoover made in the course of these experiments. If a guinea-pig is markedly underfed for a certain period of time, a limited amount of edematous fluid is usually found in the peritoneal cavity at the time of death. If, on the other hand, a similar loss of weight is induced through thyroid feeding, the peritoneal cavity is found in a dry condition in the large majority of cases. The thyroid counteracts the tendency toward edema in certain cases, a conclusion which agrees with the recent investigations of Eppinger, which owing to the war, became accessible to us only after our observations had been made.

* From the Heart Clinic of the Boston Dispensary and the Heart Service of the Boston City Hospital.

1. Reid, W. D.: The First Heart Sound and the Presystolic Murmur, *J. A. M. A.* 76: 432 (Feb. 12) 1921.

2. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Acapnia Theory, *Now, J. A. M. A.* 77: 424 (Aug. 6) 1921.

3. The data on which these two assertions are based, I believe, have been sufficiently presented in a previous paper (Footnote 1) and will not be repeated here.

4. Reid, W. D., and White, P. D.: *M. Clin. N. Am.* 4: 383 (Sept.) 1920.

systole formed this opinion before the recent advances in our knowledge of the physiology of the auricles and of the nature and time relationships of the heart sounds, previously discussed.¹ The onus of believing differently from the majority of the profession is somewhat lessened by my discovery, recently, of a number of articles which tend to support my contention. A brief outline of these is of interest.

Although Fauvel,⁵ in 1843, clearly described the presystolic murmur and urged that it was a most probable sign⁶ of mitral stenosis, the credit of emphasizing its importance as evidence of mitral stenosis is generally conceded to Gairdner.⁷ The interpretation of this eminent Scotchman that the murmur was "auricular-systolic" and indicated mitral stenosis was generally accepted and apparently is yet the opinion of the majority.

Not all of the profession, however, have been content with this orthodox reasoning. Omerod,⁸ in 1864, held that the auricular contraction was too weak and brief to cause so loud a sound, which was really produced by ventricular systole. Again, in 1872, Barclay⁹ resumed the discussion and came to similar conclusions, at one place stating that it is "scarcely possible that one of the loudest and roughest murmurs ever heard in cardiac disease should be produced by the contraction of the auricle."

In his clearly written paper, in 1887, Dickinson¹⁰ urged that if the presystolic murmur were due to auricular systole it should be separated by an appreciable interval from the true systolic murmurs since the current of blood causing the murmurs must reverse its direction of flow. Brockbank,¹¹ too, in 1909, was convinced that it is early systolic and not presystolic. In addition, he gives a critical discussion of the views of Sir James Mackenzie on the subject. He states that the latter admits that a slight regurgitation through the mitral orifice at the beginning of ventricular systole may produce the brief crescendo murmur. Brockbank points out that Mackenzie has found crescendo murmurs in cases in which the phlebograms showed no wave due to auricular contraction at the normal time. Brockbank also quotes Thomas Lewis as having reported the disappearance of the crescendo murmur with the persistence of a wave in the venous pulse which he (Lewis) attributed to auricular contraction. And further, in 1911, Hart¹² records the persistence of the crescendo murmur in four cases in which the clinical diagnosis of fibrillation of the auricles was confirmed by graphic methods.

In view of the observations of the various writers quoted above, and more particularly of the persistence of the crescendo murmur in some cases of auricular fibrillation, i. e., when the normal auricular contraction is in abeyance, reported by Hart and which I¹³ observed independently, it no longer seems tenable to attribute this crescendo murmur, ending in a sharp first sound or merging into a systolic murmur, to the effect of auricular systole. That it is due to a stream of blood regurgitating from the left ventricle to the left auricle

is the contention of the several authors (Omerod, Barclay, Dickinson, Brockbank and Hart) whose papers have been referred to, and some of the more technical details in support of this conception I have presented in an earlier paper.¹

That the crescendo murmur herein discussed is pathognomonic of mitral stenosis was the belief of the earlier writers, as well as some of those who refused to accept its auricular origin (Barclay, Dickinson). More recent experience, however, has shown that there are exceptions. Thus, Phear,¹⁴ in an analysis of forty-six necropsies in which no stenotic change of the mitral valve was demonstrated, although the presence of a presystolic murmur had been recorded, found that in seventeen there was aortic regurgitation; in twenty, adherent pericardium, and in nine, dilatation of the left ventricle. In addition, Sewall¹⁵ has emphasized that in the structurally normal heart the first sound frequently begins with a crescendo tone, simulating closely the faint and brief presystolic murmur or acute accent initiating the first sound in certain stages of mitral stenosis. It is the occurrence of these exceptions and the possibility of errors in diagnosis, as mentioned earlier in this paper, which make it necessary to judge accurately as to the nature of the murmur.

From the foregoing data, it is obvious that there are two murmurs and that they have been confused. One is the true presystolic murmur further described above under the fifth heading; the other is that to which the expression presystolic murmur is intended to refer. It would seem clear that the latter, the so-called presystolic murmur, is a crescendo murmur occurring during the early part of ventricular systole. That it is so frequently present in mitral stenosis is to be expected when it is remembered that the rheumatic infection producing stenosis of the mitral orifice commonly causes a thickening and shortening of the chordae tendineae, which will readily delay or prevent the full closure of the valve.¹⁶ The crescendo quality of the murmur seems most probably due to the rising intra-ventricular pressure and to a lesser extent to the increasing degree of closure of the mitral orifice.

CONCLUSIONS

1. The crescendo murmur ending in a sharp first sound or merging into a systolic murmur is wrongly designated as presystolic, since in reality it is early systolic in time.

2. This so-called presystolic murmur is due to a regurgitant stream of blood, impelled through the mitral valve by ventricular systole.

3. The writings of a number of previous observers support this interpretation.

4. Against the conception that it is due to the contraction of the auricle, there are, in addition to the data presented in an earlier paper,¹ its quality, time, absence of a pause between it and the succeeding sound or murmur, its persistence in some cases of auricular fibrillation, and the occurrence at times of another murmur in true presystole.

5. While the murmur is frequently observed in hearts whose mitral valve is stenosed, it may be present in conditions in which the mitral orifice is not narrowed.

5. Fauvel, M.: *Arch. gén. de méd.* 1:1, 1843.

6. "Le signe stéthoscopique le plus probable d'un retrecissement de l'orifice auriculo-ventriculaire gauche."

7. Gairdner, W. T.: *Clinical Medicine*, Edinburgh, 1862, p. 574.

8. Omerod, E. L.: *Med. Times & Gaz.* 2:154, 1864.

9. Barclay, A. W.: *Lancet* 1:283, 1872.

10. Dickinson, W. H.: *Lancet* 2:650, 1887.

11. Brockbank, E. M.: *Quart. J. Med.* 3:345, 1909-1910.

12. Hart, T. S.: *Med. Rec.* 80:2, 1911.

13. The writer entertains no doubt that the same phenomenon has been observed by other electrocardiographers.

14. Phear, A. G.: *Lancet* 2:716, 1895.

15. Sewall, H.: *Am. J. M. Sc.* 88:10, 1909.

16. The mechanism of the closure of the mitral valve will be more readily appreciated by those interested if they consult the paper on this subject by Henderson, Yandell, and Johnson, F. E.: *Heart* 4:69, 1912-1913.

6. A misunderstanding of the true nature of the so-called presystolic murmur has resulted in errors in cardiac diagnosis.

7. There are two distinct murmurs, the so-called presystolic and a true presystolic. The latter is less common and more difficult to detect. It would appear that the two murmurs have been confused.

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A METHOD FOR THE DETERMINATION OF DEATH BY DROWNING*

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The medicolegal expert is often confronted with the problem of determining whether a person whose body is found in water met death by drowning or by some other cause. Although many tests and pathologic signs have been suggested, there is at present no specific or reliable one. The following conditions have been suggested by various observers as aids in determining whether death was the result of drowning.

SURFACE SIGNS

1. Excessive coldness of corpse (of no value).
2. Extreme whiteness (of no value).
3. When the body is brought into contact with the air, it changes from brown to dark green more quickly on the breast than on the abdomen. The reverse occurs in all nondrowning cases (this sign is of no value).
4. Wrinkling of the skin (of no value because this may happen to a body thrown into the water after death).
5. Goose skin (this is not specific, because it is found in other conditions; it may also form after death).
6. Contraction of penis, scrotum and breast (these may contract if the body is thrown into the water after death).
7. Foam in mouth and nose (this is found very often, although it is not a constant sign; it may, however, occur from other causes, as in pulmonary edema).
8. Ecchymoses in the conjunctivae and in the skin of the face (a rare finding).

INTERIOR SIGNS

9. Dark and fluid blood (this is found in many other conditions).
10. Dilated thorax and distended abdomen (of no value).
11. Epiglottis relaxed (this is found in many other conditions).
12. Bladder empty (of no value).
13. Congestion of all organs (of no value; characteristic of all forms of asphyxia).
14. Excessive oozing of blood when skull cap is removed (of little value; characteristic of asphyxia in general).
15. Drowning fluid in stomach (Liman proved that water can get into the stomach after death, but in a small amount).
16. Large, pale red ecchymoses on surface of lungs (this is not a constant finding).
17. Drowning fluid in duodenum, jejunum, and even in the ileum (Kolisko). This finding is more specific than water in the stomach. There are numerous drowning cases, however, in which the water does not get into these parts of the alimentary tract. The presence of fluid in the ileum is typical of drowning because it cannot get there after death except by enormous pressure. However, it must not be overlooked that the absence of drowning fluid in the ileum does not mean that the case is not one of drowning, because in many cases the water does not reach the ileum.

18. The presence of fluid in the middle ear is significant only if the ear drum is intact; it has, however, been proved that this may happen after death.

19. Drowning fluid and foam in the trachea and lungs.¹ The fluid does not seem to get into the lungs until the third stage; then it goes to the bronchi and alveoli. The amount depends on the length of the terminal inspirations (there are exceptional cases in which there is no third stage). It is important in this connection to bear in mind the presence of foamy fluid in the lungs in cases of pulmonary edema.

20. Balloon-like lungs, increased in volume (this is not a constant finding).

21. Pieces of lungs sinking when thrown into water (of no value).

22. Inflation of lungs with colored liquids or gases to determine whether they will penetrate throughout (non-drowned lungs) or only partially (drowned lungs). This contention has been proved erroneous.

23. The presence of foreign bodies (present in the water) in the alveoli (Lesser). This is not a constant finding in drowning cases.

It is evident that most of the conditions named above are misleading and useless. Several of these conditions, taken collectively, will aid greatly in deciding the cause of death, but they are by no means positively specific. The following three are of the most value:

1. Foamy fluid in the trachea, bronchioles and lung cells.
2. Microscopic finding of foreign bodies (from the water) in the bronchioles and alveoli.
3. Water in the stomach, duodenum, jejunum and ileum.

Not finding specific and reliable means of diagnosing this condition, the workers in this field then turned their attention to chemical and physical methods, based on the well known physiologic fact that blood from the lungs passes to the left heart and then through the organism, whereupon it goes to the right heart, and then back to the lungs. Water entering the lungs will quickly reach the left heart and dilute the blood therein, while the blood of the right heart remains relatively undiluted. L. Wachholz has proved experimentally, both in man and in animals, that no water can get into the left heart if the individual is thrown into the water after death. The following methods have been advocated to determine this dilution of the blood in the left heart:

1. The estimation of the total solids in the blood of the left and right heart chambers (Brouardel and Loye).
2. The cell count (Brouardel and Vibert).
3. The hemoglobin content (Paltauf).
4. The freezing point determination (Carrara).
5. The specific gravity (Carrara).
6. The ash (Carrara).
7. The iron content (Carrara).
8. The conductivity of the blood (Carrara).

Freudenberg, Paltauf, Strassman, Carrara and others have shown that all the foregoing methods fail in many cases. Autolysis, hydrolysis, diffusion, hemolysis and putrefaction will alter the composition of the blood so as to offset the true values present at the time of death. The longer the interval between death and the analysis, the greater is the change in the composition of the blood.

I have made a comparative study of these methods and have also found great discrepancies, due to

1. The time interval between submersion and death in cases of drowning may be divided into three stages: First, the period in which respiration is held back. This lasts only a few seconds and is instinctive; it may be reflex and may result in prolonged respiratory suspension. Second, the stage of dyspnea, which consists in short but deep inspiration, quickly followed by expiration. This is followed by convulsive expiration. Third, the stage of asphyxiation. Here we have unconsciousness and lost reflexes and deep inhalation at long intervals.

* From the Pathological Laboratories of Bellevue Hospital and of the Office of the Chief Medical Examiner.

postmortem changes. The solids, cell count, hemoglobin, freezing point, specific gravity and conductivity of the blood were all materially altered. Furthermore, the changes occurring in the right chamber and in the left chamber did not run parallel. Therefore, one cannot use even the relative values in the two chambers. The value of the ash is not affected by postmortem changes, and it could be used were it not for the difficulty in obtaining the true values; this difficulty is due to the volatility, at quite low temperature, of the sodium chlorid during the ashing. The determination of the iron content in the blood of the two chambers is as good as any so far suggested.

An accurately measured or weighed amount of blood is dried and ashed; the ash is moistened with a few drops of nitric acid and reignited, this process serving to oxidize any reduced iron to the ferric con-

developed. These are not affected by postmortem changes; the only possibility of error may be that of unequal diffusion of water from either side of the heart. It occurred to me that a study of the chlorid content would be interesting, as sea water contains a large amount of chlorid, and fresh water a negligible amount. Furthermore, the newly developed micro-chemical methods for chlorids lend themselves admirably to this study; they are accurate and require only a small amount of blood.

THE METHOD IN DETAIL

The pathologist should be supplied with two clean, dry glass bottles of about 30 c.c. capacity, labeled, respectively, right and left (no anticoagulant is used); two clean, dry 25 c.c. pipets from which the tips have been broken off and the ragged edges rounded in a flame (the object of this is to have a large opening so that there is less chance of a small

FINDINGS IN FORTY-ONE CASES

Case	Where Found	Diagnosis	Mg. NaCl in Right Heart	Mg. NaCl in Left Heart	Difference, Mg.	Interpretation
1	Hospital.....	Nephritis.....	485	487	+ 2	Not drowned
2	Hospital.....	Cerebral hemorrhage.....	501	500	- 1	Not drowned
3	Hospital.....	Pneumonia.....	492	492	0	Not drowned
4	Med. exam. case.....	Shooting.....	492	494	+ 2	Not drowned
5	Med. exam. case.....	Alcoholism.....	451	447	- 4	Not drowned
6	Med. exam. case.....	Narcotic poisoning.....	473	470	- 3	Not drowned
7	Hospital.....	Nephritis.....	556	555	- 1	Not drowned
8	Med. exam.	Alcoholism.....	510	506	- 4	Not drowned
9	Med. exam.	Cyanid poisoning.....	489	491	+ 2	Not drowned
10	Med. exam.	Cyanid poisoning.....	480	475	- 5	Not drowned
11	Hospital.....	Nephritis.....	701	698	- 3	Not drowned
12	Hospital.....	Cardiac disease.....	498	493	- 5	Not drowned
13	Med. exam.	Shooting.....	482	482	0	Not drowned
14	Hospital.....	Cardiac disease.....	495	490	- 5	Not drowned
15	Hospital.....	Nephritis.....	525	521	- 4	Not drowned
16	Bottom of ship.....	Suffocation.....	625	497	- 28	Drowned in fresh water
17	Fell from deck into Atlantic.....	Drowning.....	431	725	+294	Drowned in salt water
18	In East River 4 days.....	Drowning.....	375	535	+160	Drowned in salt water
19	Hospital.....	Anesthesia.....	450	455	+ 5	Not drowned
20	Hospital.....	Morphin poisoning.....	341	337	- 4	Not drowned
21	Med. exam.	Shooting.....	512	512	0	Not drowned
22	Hospital.....	Cardiac disease.....	705	700	- 5	Not drowned
23	Hospital.....	Tuberculosis.....	591	587	- 4	Not drowned
24	In New York Bay 6 days.....	Drowning.....	250	380	+130	Drowned in salt water
25	Hudson River.....	Drowning.....	237	275	+ 38	Drowned in salt water
26	Med. exam. (found with head in bath tub)...	Carbon monoxid poisoning...	537	537	0	Not drowned
27	Hudson River.....	Drowning.....	462	587	+ 25	Drowned in salt water
28	New York Bay.....	Drowning.....	617	680	+ 63	Drowned in salt water
29	In bath tub (baby).....	Drowning.....	430	370	- 60	Drowned in fresh water
30	Off Blackwell's Island.....	Drowning.....	675	975	+300	Drowned in salt water
31	In bath tub (child).....	Drowning.....	537	500	- 37	Drowned in fresh water
32	East River.....	Drowning.....	612	731	+119	Drowned in salt water
33	Ocean Parkway.....	Drowning.....	625	668	+ 43	Drowned in salt water
34	Harlem River.....	Drowning.....	556	600	+ 44	Drowned in salt water
35	East River.....	Drowning.....	650	737	+ 87	Drowned in salt water
36	North River.....	Drowning.....	525	563	+ 38	Drowned in salt water
37	Hudson River.....	Drowning.....	501	553	+ 52	Drowned in salt water
38	New York Bay.....	Drowning.....	562	612	+ 40	Drowned in salt water
39	Hudson River.....	Drowning.....	650	725	+ 75	Drowned in salt water
40	Hudson River.....	Drowning.....	581	600	+ 19	Drowned in salt water
41	Hudson River.....	Fraeture of skull.....	525	512	- 13	Not drowned

dition. The residue is dissolved in dilute warm hydrochloric acid and filtered quantitatively. To the filtrate, a solution of potassium ferrocyanid is added, and the colors of Prussian blue thus obtained are compared in a colorimeter. The iron content is not changed by postmortem decomposition, and none is lost during the ashing. It is easily brought into solution, and the development of the Prussian blue color is quantitative. This appears to be a good method for detecting dilution in the blood of the left heart, but inconsistent results were often obtained by this method, so that finally I had to discard it entirely.

As all the organic constituents are affected by post-mortem changes, it is obvious that any method involving them will be erroneous, especially in cases in which autolysis and putrefaction have set in. Methods in which this change in the organic material will influence the physical condition (freezing point, conductivity) must also be discarded; so there remain only the inorganic constituents on which a method may be

clot obstructing the opening); also a rubber tubing with glass mouth piece for attaching to pipets when drawing up the blood. The heart, while still in place in the cadaver, is wiped dry with a clean towel, and a small slit is made with a clean, dry knife in the right ventricle. The pipet with rubber attachment is then inserted into the heart, through the incision, and careful suction is applied. If the blood does not enter the pipet readily, the latter is carefully moved into different positions within the heart chamber until the end of the pipet rests within the blood. When from 5 to 10 c.c. of blood is in the pipet and while suction is still being applied, the rubber tubing attached to it is pinched tightly to prevent the blood from returning to the heart. The pipet is then drawn from the heart and the contents emptied into the vessel marked "right." This vessel should be stoppered, labeled and sealed. With another dry knife, the left chamber of the heart is opened and the contents are put into the bottle marked "left," exactly the same technic being used.

THE ANALYSIS IN DETAIL

Pipet carefully 3 c.c. of the blood into a clean, dry Erlenmeyer flask; if the blood is badly clotted, accurately weigh 3 gm. Add 27 c.c. of distilled water and 30 c.c. of saturated

picric acid. Mix well and let stand ten minutes; then filter through dry filter paper. Pipet accurately 40 c.c. of this filtrate into another dry Erlenmeyer flask and add 10 c.c. of M/29.25 silver nitrate solution.² Mix thoroughly and allow to stand, preferably over night. Then filter and pipet 20 c.c. of this filtrate into a clean casserole. Add 4 c.c. of the starch-citrate mixture² and titrate with the standard M/117 potassium iodid solution.² (Austin and Van Slyke.)

Calculation: $125 \times \left(8 - \frac{\text{c.c. KI used}}{2}\right) = \text{mg. NaCl in 100 c.c.}$

ALTERNATE METHOD

For precipitating the protein and formed elements, tungstic acid is used, and the technic of Folin and Wu is followed. This method is as accurate as the picric acid method:

Pipet 5 c.c. of blood into a dry Erlenmeyer flask; add 35 c.c. of water; mix thoroughly. Then add 5 c.c. of 10 per cent sodium tungstate, mix well, and add 5 c.c. of $\frac{1}{3}$ N.H₂SO₄. Stopper with a well fitting rubber stopper and shake vigorously for five minutes. Filter through dry paper into a dry beaker. Pipet 20 c.c. of the filtrate into another clean, dry beaker, add 10 c.c. of M/29.25 silver nitrate solution, mix well, and let stand, preferably over night. Then filter through dry paper and pipet 15 c.c. of this filtrate into a casserole. Add 4 c.c. of the starch-citrate mixture, and titrate with M/117 potassium iodid solution.

Calculation: $100 \left(10 - \frac{\text{c.c. KI used}}{2}\right) = \text{mg. NaCl in 100 c.c.}$

It is evident from the accompanying table that the chlorid content in the blood of the right and left chambers is the same in the various pathologic conditions so far examined, the greatest difference being 5 mg. in 100 c.c. of blood. In some cases the left is higher and in others the right; but the difference is never greater than 5 mg. In all those cases in which there was no doubt that death was due to drowning, the difference between the chlorid content in the right and left heart chambers was always much more than 5 mg., ranging from 19 to 294 mg. It will be noticed that in all those cases in which the drowning occurred in salt water, the chlorid content is higher in the left heart chamber; the difference between the chlorid content in the left and right heart chambers is, therefore, marked plus. In those cases in which drowning occurred in fresh water, the left heart chamber always showed the lower chlorid content, and the difference is marked minus in the table. The reason some cases have as high a difference as 294 mg., while others have only from 25 to 50 mg., depends on the amount of water going into the lungs and also on the time interval between the entrance of water into the lungs and death. The longer this time interval, the more water passes to the left heart chamber. Whenever the chlorid content in the two chambers is so close as to give a difference of only 25 mg., it is advisable to repeat carefully the determination. If the same results are obtained a second time, one can safely assume that the case is one of drowning.

The table shows the results in forty-one cases. Of these, eighteen were cases of drowning, as substantiated by the history. In each of the eighteen cases, the difference in the chlorid content was demonstrated. Fifteen of the eighteen were drowned in salt water, and the result of the analyses showed a higher chlorid

content in the blood of the left chamber. Three of the eighteen were drowned in fresh water; here the analyses showed a lower chlorid content in the blood of the left chamber. Although a change in the chlorid content of the left chamber could be demonstrated in each of the eighteen cases, it must be remembered that it is possible, in exceptional cases, for a person to die through shock as soon as he hits the water, or he may die in the first of the three drowning stages. If this is the case, then the chlorid content is not altered. In all those cases in which the foramen ovale was open, the change in the chlorid content could also be demonstrated, but usually the difference between the left and right was not striking.

SUMMARY AND CONCLUSIONS

The new method for demonstrating the presence of drowning fluid in the left heart, given in the foregoing, depends on the microchemical determination of the chlorid content in the heart chambers.

Forty-one human cases have been investigated by this method. Eighteen of these were actual drowning cases; three of the eighteen persons were drowned in fresh water and fifteen in salt water.

A difference in the chlorid content of the two heart chambers exceeding 25 mg. indicates that the individual was drowned.

Persons who are submerged while alive and die of shock during the first stage of drowning may not show this difference in chlorid content. Such cases, however, are rare.

This method is the most specific so far devised for proving that death was due to drowning.

Clinical Notes, Suggestions, and New Instruments

NONDESCENT OF THE CECUM AND APPENDIX

REPORT OF A CASE

W. CLIFFORD GARDNER, M.D., CRISTOBAL, C. Z.

It may not be amiss to report the case of undescended cecum and appendix which I had this year, to supplement, in a way, the cases reported in THE JOURNAL by Jonas.¹

REPORT OF CASE

A negro, aged 21, whose history was negative, had for a year had frequent attacks of pain in the upper right quadrant lasting about a day at a time. The present attack began about three days before I saw him, with pain strictly localized in the gallbladder region and gradually increasing in severity. The patient had fever with sweats the night before admission. The pain at that time was so severe that it made him vomit.

There was slight jaundice of the conjunctiva. The spleen was palpable. There was tenderness on deep pressure over the gallbladder, but none over McBurney's point. There was slight rigidity over the upper right rectus. The temperature was 99 F., pulse, 60; leukocytes, 10,600.

A diagnosis of trouble with the gallbladder or a retrocecal appendix, tip, high up, was made and operation performed through a right rectus incision. The ascending colon was U shaped, with the base of the U in the normal position of the cecum. The ileum entered the colon just above this base. The colon was completely covered with peritoneum. After thorough search for a retrocecal appendix, the colon was traced upward. The cecum was adherent under the

2. The silver nitrate solution contains, per liter, 5.812 gm. of AgNO₃ + 250 c.c. of concentrated nitric acid. The starch-citrate solution is made as follows: Dissolve 2.5 gm. of soluble starch in 500 c.c. of warm water; then add 446 gm. of sodium citrate and 20 gm. of sodium nitrite and heat until all are dissolved. Filter while still hot through cotton; allow to cool and make up to 1 liter. The potassium iodid solution contains 1.419 gm. in 1 liter.

1. Jonas, A. F.: Undescended Cecum and Vermiform Appendix, J. A. M. A. 76: 1821 (June 25) 1921.

liver, above and lateral to the hepatic flexure, the appendix extending medially and posteriorly, the tip being adherent near the neck of the gallbladder. It was removed. The gallbladder emptied readily and showed no evidence of stones or inflammation.

COMMENT

It will be observed that in this case the cecum had failed to descend, although there had developed an ascending colon of almost twice the normal length with two loops, one continuing at the hepatic flexure into the transverse colon and the other forming a blind pouch about $4\frac{1}{2}$ inches long ending in the cecum. Why the cecum should have failed to rotate or descend, while an abnormal length of colon developed, I am unprepared to say. The complete investment of the ascending colon by peritoneum, giving it a mesocolon, is another anomaly, because, although this sometimes does occur, it is more rare than a mesocolon for the descending colon.

This case did not bear out Pottenger's statement that "no matter where the appendix lies, whether on the left side or on the right side of the body, or high or low, the natural place for the pain is in the lower right quadrant." No tenderness could be elicited, even on vibratory pressure over McBurney's point.

Colon Hospital.

ELECTRIC HEADLIGHT WITH TWO PERISCOPES

DEVICE BY WHICH TWO STUDENTS CAN OBSERVE EXAMINATION OR OPERATION OF EAR, NOSE, THROAT, LARYNX, AND OTHER CAVITIES *

W. PERRY REAVES, M.D., GREENSBORO, N. C.

In Figure 1 are illustrated the head band, light units, projected light and periscope. The apparatus is worn on the head the same as the head mirror; two direct light units illuminate all parts of cavities similar to the head mirror. Centrally between the light units is an aperture through which the operator sees the operative field just as he does through the opening in the head mirror. The "operator's field of vision" is determined by the size of the aperture and

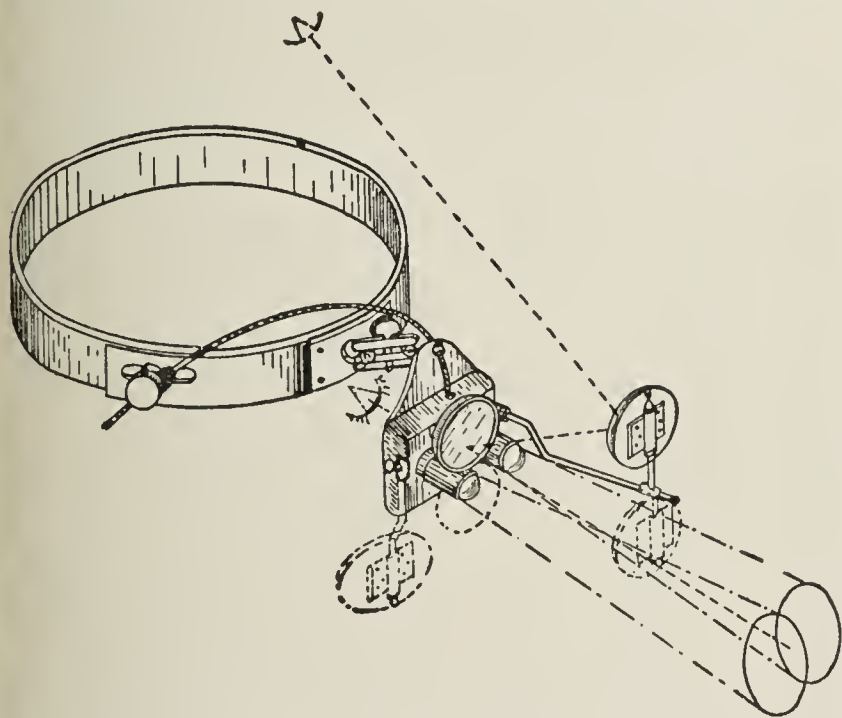


Fig. 1.—Perspective view of periscopic headlight.

the distance from the surgeon's eye. In Figure 2, the dotted circle shows the field of vision for nose or ear work. This field of vision maintains a relative fixed position to the surgeon's line of vision and the light units. The light units have three adjustments—rotary, axial and focal; rotary, to place the filaments vertically; axial, to place the area of illumination giving compound light on the center of the field of vision; focal, to give the desired area of illumination. The field of vision, double illumination on center of field of

vision, surgeon's line of vision through aperture, and light units all maintain a relative fixed position to one another. A periscope mounted on and under the light units, adjusted to reflect any object in the surgeon's field of vision, enables two students to observe the examination or operation.

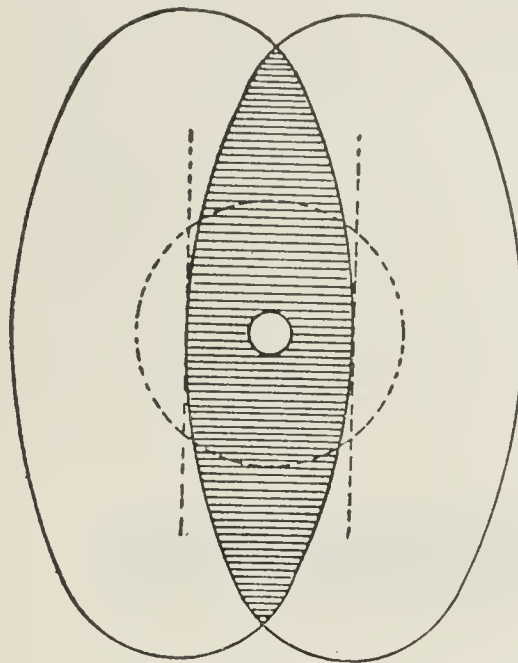


Fig. 2.—Field of vision (shown by dotted circle) for nose or ear work.

A periscopic headlight, to be practical, must meet certain requirements: It must (1) be light enough to wear with comfort; (2) be compact enough to be usable; (3) give illumination equal to the requirements of the head mirror, and (4) have a periscope to project the object in the field of vision without shadows or reflexes.

The apparatus will be useful for teaching in medical colleges, hospitals, clinics, and the clinician's office, the students or assistants observing examinations or operations through the

periscope in the examination and operation by the instructor, surgeon or clinician.

RETAINED SPONGE SIMULATING CARCINOMA OF CERVIX UTERI: REPORT OF A CASE

FREDERICK C. SMITH, M.D., PHILADELPHIA

Mrs. A. W., aged 65, colored, whose chief complaint was vaginal bleeding, which had continued for six weeks, had been married twice. The second husband had died of apoplexy seven years before. The patient had one child, who died twenty-three years previously in infancy, from unknown cause. There had been no miscarriages.

The patient had had the usual diseases of childhood; otherwise the history was negative. She had reached the age of puberty at 15, the menses occurring at twenty-eight day intervals, regular, with little or no pain, three napkins required daily, and the flow continuing from three to four days. The menopause was established at the age of 50.

The present illness began six weeks before, with irregular vaginal bleeding, an increasing, foul leukorrheal discharge, and a dull, constant pain throughout the pelvis. No weight had been lost. The appetite was good. The bowels were regular. There was a nocturia that necessitated getting up four or five times at night.

The patient was well nourished, and weighed about 170 pounds (77 kg.). The heart, chest, and abdomen were entirely negative. Pelvic examination revealed that the cervix uteri was involved in a mass which bled at the slightest touch, and there was a leukorrheal discharge so foul as to be almost unbearable. The broad ligaments were not involved, and the pelvis was otherwise negative.

July 23, 1921, we anesthetized the patient with the intention of destroying the supposed carcinoma with the Percy cautery. When the mass was grasped with a tenaculum, some of it came away and looked suspiciously like an ocean sponge. More was then pulled away, and the diagnosis was clear. An ocean sponge had been inserted into the vagina at some time and, through long retention, had involved the posterior vaginal wall and the cervix in a growth that strongly resembled carcinoma. Microscopic examination revealed that the sponge was infiltrated by a cellular exudate.

The patient had never been operated on and denied any recollection of ever inserting a sponge for any purpose. She made an uneventful recovery and was discharged from the hospital at the end of two weeks, symptom free.

6247 Haverford Avenue.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

UNIQUE CASE OF FOREIGN BODY IN THE RECTUM

MARCELL HARTWIG, M.D., LOS ANGELES, CALIF.

This case is, I think, unique in the annals of medicine. If I had not had a witness, the report would be in danger of being taken as a hoax.

Three years ago, in Buffalo, one of my patients brought to my office a man from a small hamlet of Pennsylvania, with the story that two loafers had attacked the man, forcing a stick into the rectum. It broke off, and he asserted that it seemed to be in the region of the gallbladder. On examination, I felt exactly in the location of the gallbladder a tumor, which, bimanually, was one with the ragged end of the stick, in the hollow of the sacral rectum. Fearing, naturally, to exert pressure, I manipulated very carefully and succeeded, with two fingers in the rectum, in bringing the lower end forward; then, with almost no pressure from above, the stick slid out. The ragged end was, of course, a fracture of a longer stick, which broke while the patient fought with the assailants.



Stick, 11 inches (28 cm.) long, removed from rectum.

My explanation, which Prof. H. D. White deems correct, is that the man had an extreme mobility of the sigmoid, due to a long mesion and the presence of a quantity of mushy fecal matter. This condition permitted the high ascent of the stick, without rupture of the intestine, as the course showed, since the patient, aside from the constant futile desire to move the bowels, had had no trouble worth mentioning, and he felt and remained well after removal of the stick. Professor White stated that such high mobility of the sigmoid is not rare. In a case in which I performed a cecosigmoid anastomosis, I observed the same condition.

One more interesting point is a report of Prof. A. L. Grover, a year later, about the nonpersistence of the colon bacillus in feces dried at room temperature on the stick, which was 11 inches (28 cm.) long, quite rough, and irregular in shape.

341 South Alvarado Street.

Special Article

REPORT OF THE COMMITTEE ON ESTIMATING COMPENSATION FOR EYE INJURIES *

SECTION 1.—The report of this committee deals only with the loss in visual efficiency, the result of injury, and does not attempt to take into account the economic efficiency or competitive ability of the injured from the standpoint of general economics.

SEC. 2.—Compensation shall be estimated on the degree of loss to the following essential functions of vision:¹ Function A, visual acuity; Function B, binocular single vision, and Function C, field of vision.

SEC. 3.—The total economic loss of all of the essential functions of both eyes shall be considered as *total permanent disability*.²

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. An injury may result in the loss or impairment of any or all of the functions mentioned above; consequently, compensation cannot be estimated justly upon visual acuity alone, as is done in the majority of tables. Depth perception is recognized as an essential function of the eye, but is included under Function B for the reason that, for all practical purposes, it exists as long as the visual acuity of either eye is not reduced below industrial blindness, or there is no loss of binocular single vision.

2. Injury to both eyes sufficient to cause bilateral economic loss of vision or industrial blindness is considered as totally incapacitating, and the injured shall be awarded compensation for permanent total disability.

SEC. 4.—The total economic loss of all of the essential functions of *one eye* shall be considered the basis of compensation for ocular injury and shall be reckoned as 100 per cent. loss, entitling the injured to 100 per cent. or the full compensation awarded for industrial blindness, or total permanent disability of one eye.³

SEC. 5.—The complete loss of one eyeball shall entitle the injured to 110 per cent. compensation.

TABLE 1.—(FUNCTION "A", CLASS "a").—VISUAL ACUITY FOR DISTANCE IN PERCENTAGES, CONSIDERING THE FUNCTION OF VISUAL ACUITY ONLY, AND THE COMPENSATION FOR DISTURBANCES OF VISUAL FUNCTION "A" CLASS "a", IN PERCENTAGE

	Visual Acuity at 6 Meters 20 Feet	Height of Letter in Cm. at 20 Feet	Visual Angle at 20 Feet in Minutes	Visual Acuity in Percentage	Per Cent. of Compensation for Visual Acuity Only
6/6	20/20	0.891	5.0	100	0
6/9	20/30	1.337	7.5	95	2.5
6/12	20/40	1.783	10	90	5
6/15	20/50	2.229	12.5	85	7.5
6/18	20/60	2.675	15	80	10
	20/70	3.121	17.5	75	12.5
6/24	20/80	3.567	20	70	15
	20/90	4.012	22.5	65	17.5
6/30	20/100	4.458	25	60	20
	20/110	4.900	27.5	55	22.5
6/36	20/120	5.349	30	50	25
	20/130	5.791	32.5	45	27.5
6/42	20/140	6.237	35	40	30
	20/150	6.682	37.5	35	32.5
6/48	20/160	7.128	40	30	35
	20/170	7.573	42.5	25	37.5
6/54	20/180	8.019	45	20	40
	20/190	8.464	47.5	15	42.5
6/60	20/200	8.917	50	10	45
	20/210	9.355	52.5	5	47.5
6/66	20/220	9.801	55	0	50

TABLE 2.—(FUNCTION "A", CLASS "b").—VISUAL ACUITY FOR NEAR VISION IN PERCENTAGES, CONSIDERING THE FUNCTION OF VISUAL ACUITY ONLY; AND THE COMPENSATION FOR DISTURBANCES OF VISUAL FUNCTION "A" CLASS "b", IN PERCENTAGE

Visual Acuity at 14 Inches	Height of Letter in Cm. at 14 Inches	Visual Angle at 14 Inches in Minutes	Snellen Type Ap- proximate Equiv- alent	Visual Acuity in Percentage	Per Cent. of Com- pensation for Visual Acuity Only
14/14.....	0.051.....	5.....	D=0.37.....	100.....	0.....
14/21.....	0.077.....	7.5.....	D=0.50.....	95.....	2.5.....
14/28.....	0.103.....	10.....	D=0.75.....	90.....	5.....
14/35.....	0.129.....	12.5.....	.....	85.....	7.5.....
14/42.....	0.154.....	15.....	D=1.00.....	80.....	10.....
14/49.....	0.180.....	17.5.....	D=1.25.....	75.....	12.5.....
14/56.....	0.206.....	20.....	.....	70.....	15.....
14/63.....	0.231.....	22.5.....	D=1.50.....	65.....	17.5.....
14/70.....	0.257.....	25.....	D=1.75.....	60.....	20.....
14/77.....	0.283.....	27.5.....	.....	55.....	22.5.....
14/84.....	0.308.....	30.....	D=2.00.....	50.....	25.....
14/91.....	0.334.....	32.5.....	.....	45.....	27.5.....
14/98.....	0.360.....	35.....	D=2.50.....	40.....	30.....
14/105.....	0.386.....	37.5.....	.....	35.....	32.5.....
14/112.....	0.411.....	40.....	.....	30.....	35.....
14/119.....	0.437.....	42.5.....	D=3.00.....	25.....	37.5.....
14/126.....	0.463.....	45.....	.....	20.....	40.....
14/133.....	0.488.....	47.5.....	D=3.50.....	15.....	42.5.....
14/140.....	0.514.....	50.....	.....	10.....	45.....
14/147.....	0.540.....	52.5.....	.....	5.....	47.5.....
14/154.....	0.565.....	55.....	D=4.00.....	0.....	50.....

SEC. 6.—The above estimates for compensation for eye injuries do not take into account any cosmetic defect which may result: for this additional compensation shall be awarded.

SEC. 7.—Certain types of ocular injuries will result in disabilities, the value of which cannot be estimated by any established precedent. These are disturbances of color vision,

3. Modifications of this will be found in Sections 5, 6 and 7. In view of the fact that the majority of state laws have taken the loss of vision of one eye as a basis for compensation, this committee has adopted as the basis for estimating compensation the total loss of all of the essential functions of one eye.

disturbances in adaptation to light or dark, metamorphopsia, entropion, ectropion, lagophthalmos, and epiphora. In such cases, compensation must be based on the loss of efficiency in the occupation in which the injured was engaged and shall be additional to the compensation which may be computed because of the partial or because of the total loss of the essential functions of vision.

SEC. 8.—Compensation shall not be computed until all adequate and reasonable operations and treatments known to medical science have been attempted to correct the defect;

TABLE 3.—(FUNCTION "B").—VALUE OF BINOCULAR SINGLE VISION IN PERCENTAGE OF COMPENSATION

	Compensation Per Cent.
Presence of binocular single vision.....	0
Total loss of binocular single vision.....	25

further, at least three months shall elapse after the last visible trace of inflammation has disappeared before the examination, on which final compensation is to be estimated, shall be made, except in cases of optic nerve atrophy, sympathetic ophthalmia, and traumatic cataract. In such cases, at least twelve months and not more than sixteen months shall intervene before the examination shall be made on which final compensation is to be estimated.

SEC. 9.—The best possible visual acuity for distance or for near (with correcting glasses if necessary) shall be used in the estimation of compensation. If there exists a difference of more than four diopters of spherical correction between the two eyes, the best possible acuity of the injured eye with-

TABLE 4.—(FUNCTION "C").—VALUE OF CONCENTRIC CONTRACTION OR THE EQUIVALENT THEREOF OF THE VISUAL FIELD OF ONE EYE IN PERCENTAGE OF COMPENSATION *

Contraction to 65 degrees equals	0.00 per cent. compensation
Contraction to 60 degrees equals	2.08 per cent. compensation
Contraction to 55 degrees equals	4.16 per cent. compensation
Contraction to 50 degrees equals	6.25 per cent. compensation
Contraction to 45 degrees equals	8.33 per cent. compensation
Contraction to 40 degrees equals	10.40 per cent. compensation
Contraction to 35 degrees equals	12.50 per cent. compensation
Contraction to 30 degrees equals	14.58 per cent. compensation
Contraction to 25 degrees equals	16.66 per cent. compensation
Contraction to 20 degrees equals	18.75 per cent. compensation
Contraction to 15 degrees equals	20.83 per cent. compensation
Contraction to 10 degrees equals	22.91 per cent. compensation
Contraction to 5 degrees equals	25.00 per cent. compensation

* To obtain the amount of concentric contraction of the visual field of one eye, determine the amount of contraction for form at each of the four principal meridians (Axis 0, Axis 90, Axis 180, Axis 270). The mean of the four represents the concentric contraction or equivalent thereof of the visual field of one eye.

out glasses, or with lenses of not more than four diopters spherical difference from the fellow eye, shall be the visual acuity on which compensation shall be estimated.

SEC. 10.—The proportionate value of the essential functions of one eye shall be:

	Compensation ⁴ Per cent.
Function A { (a) Industrial loss of visual acuity for distance or (b) Industrial loss of visual acuity for near	.... 50
Function B—Total loss of binocular single vision...	25
Function C—Total loss of field of vision.....	25
Total loss of all of the above functions or the award for industrial blindness for one eye.....	100

SEC. 11.—Visual acuity of 20/20 shall be standard or normal for distance.⁵

4. Compensation shall be estimated upon the loss in visual acuity for distance in those occupations in which the working distance is greater than an arm's length. Compensation shall be estimated upon the loss in visual acuity for near in those occupations in which the working distance is at arm's length or less.
5. Visual acuity for distance shall be determined at 20 feet, using any test conforming to the Snellen standard, the chart having an illumination of not less than 3 foot candles and no direct light to be within 26 degrees of the line of vision.
Visual acuity for near shall be determined at 14 inches, using any test conforming to the Snellen standard, the chart having an illumination of not less than 3 foot candles.
The unit for standard visual acuity for distance has been established

Visual acuity of 20/220 shall be total economic loss of visual acuity or industrial blindness for distance.

Visual acuity of 14/14 shall be standard or normal for near.

Visual acuity of 14/154 shall be total economic loss of visual acuity or industrial blindness for near.

SEC. 12.—In injuries involving both eyes, compensation shall be estimated on a basis of loss of the essential functions of each eye separately according to Section 10. Total compensation due shall be the sum of the compensation estimated for each eye alone. If the compensation for each eye is greater than 70 per cent., the above rule shall be modified and additional compensation shall be awarded; such compensation shall be increased in proportion to the increased seriousness of the visual loss, reaching that awarded for total general disability or total industrial incapacity.

SEC. 13.—In case of an injury to an eye in which the vision has been defective prior to such injury, compensation shall be awarded only for such portion of the disability as may be reasonably attributed to the accident.

NELSON M. BLACK, Chairman,
HARRY S. GRADLE,
ALBERT C. SNELL.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

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The unit for industrial blindness for near is based on the same ratio as that for distance; i. e., a character subtending an angle eleven times as great at 14 inches, or V = 14/154.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address : : : - "Medic, Chicago"

Subscription price - - - - : Six dollars per annum in advance

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SATURDAY, NOVEMBER 19, 1921

NATIONAL HEALTH INSURANCE IN ENGLAND STILL AN EXPERIMENT

As our readers will have noticed from our recent London letters, the proposition to repeal the Health Insurance Act is a live question now before the English profession and the public. The act has been in force for some nine years, but in actual operation for about eight years, during five years of which time the English were engaged in war. The three-year postwar period has been one of economic difficulties, industrial unrest and high taxation. The general demand for a reduction of government expenses in order to lessen the burden of taxation has led to a critical discussion of governmental activities. Among others, the national insurance scheme has come under consideration, and its abolition is being discussed in both the medical and the lay press. In a recent article in the *British Medical Journal*, Dr. Alfred Cox, secretary of the association, asks: "Does the medical profession wish the national health insurance system to continue?" "This question," he says, "has been deliberated upon for a considerable time and there is good reason to believe that in a very short time we shall be forced to answer it." Dr. Cox states that national health insurance "is a costly piece of machinery," and believes that it is unnecessarily costly because of the administrative methods laid down by the act. He says, however, that the government "would never have got its bill through" without these arrangements. In 1919, for which complete official figures are available, it cost the taxpayers of England approximately £7,230,000; it cost the employers £7,091,000; a total approximating \$70,000,000.

From the politician's point of view, the system has apparently no friends. The approved societies—that is, the old Friendly Societies which bought physicians' services at wholesale and retailed them to their members—object to the insufficient allowance made them for administrative purposes and the disproportionate amounts which they claim are paid to doctors, whom they accuse of poor work. The president of the Friendly Societies, in the national conference in September, said: "It was patent that they [the Friendly Societies] were not getting value for the enormous

sum paid to the medical profession. No one was satisfied, unless it was the doctors, with the present system."

The doctors, on the other hand, claim that too much money is paid for administrative work and not enough for medical services. The insured person also is dissatisfied. The *Daily Express*, one of the leading English newspapers, recently asserted that after a large amount of correspondence on the subject it could not find any one who approved the system. On the other hand, the *Lancet* believes it is more probable that the scope of the insurance act will be extended than that the act will be abolished. A plan for providing additional services and care has already been put into effect in Brighton and Sussex, under the name of the National Providing Act for Hospitals and Additional Medical Services. The *Lancet* goes on to say that arrangements have been made with three of the London hospitals by which an annual subscription of one or two pounds will insure an individual or family against all expenses incurred in connection with special treatment or home nursing. The *Lancet* considers that the objection of the medical profession has dwindled to small proportions, and that insurance practice in industrial areas is sufficiently remunerative to attract men and women of high professional education. The *Birmingham Post* admits the need of reducing expenditures for health insurance, but suggests that it may be possible to economize in other directions than on physicians' fees. It holds that the medical service under the insurance act is a great improvement on the service rendered under the old voluntary charity practice system (that is, under the Friendly Societies system) when the remuneration to physicians was only four, and sometimes only three, shillings annually for each patient. One proposition is that the capitation system be abolished, and that each patient pay the physician for actual services rendered, partly out of his own pocket, and partly out of his insurance funds. Such a plan would, of course, be simply a reversion to the traditional plan of personal medical attention, the only difference being that the patient would be subsidized by the state in paying his doctors' bills.

It must always be remembered, in discussing health insurance in England, that the British medical profession for generations has carried on to a large extent an accepted form of contract practice with the so-called Friendly Societies, under which the position of the physician, and the compensation, were much inferior to those under the health insurance plan. Health insurance, therefore, has improved the financial condition of some physicians.

As we stated editorially some months ago, "while compulsory health insurance may be a good thing in England, conditions in this country at this time are such that there is neither a need nor a desire for it. It is not worth while to take a nauseous medicine to cure

a disease that does not exist." That opinion is now confirmed; for the unavoidable conclusion from the entire mass of evidence is that health insurance, even in England, after being in force for nearly ten years, is still an experiment, and a costly and by no means a universally satisfactory experiment at that. It has not bettered public health conditions. The two chief arguments of its proponents in this country—that its adoption would improve both public and individual health conditions—have not in any way been substantiated by the trial of the plan in England.

MONILIA PSILOSIS AND SPRUE

An inspection of the medical literature of the last quarter century reveals a noteworthy list of micro-organisms which had not previously been suspected as parasitic invaders of the human alimentary tract but which have now been discovered there under conditions demanding serious consideration. The list includes certain species of *Monilia*, the generic name used in the literature of fermentation for certain forms of molds in which the conspicuous development consists of chains of cells like strings of beads. They are commonly found in breweries and in bread, cereals and other foods. Thrush has been attributed to the activities of a monilia in the body.

Several years ago, Bahr expressed the opinion that sprue is due to a monilia. This disease, also known as psilosis, which has been defined by Manson as an insidious, chronic, remitting inflammation of the whole or part of the mucous membrane of the alimentary canal, occurring principally in Europeans who are residing or who have resided in tropical or subtropical climates, occurs in the Southern states of this country. Etiologically, it has been likened in the past to a number of formerly unexplained conditions, such as pellagra and scurvy, apparently because dietary changes which produce relief in these diseases occasionally are helpful in the treatment of sprue. Ashford, who has devoted much attention to the etiology of this disease, particularly in Porto Rico, has championed the view that a specific *Monilia* assumes a determining part in it. Furthermore, he has described *Monilia psilosis*, an organism isolated from indigenous cases of sprue.¹

Hannibal and Boyd² of the University of Texas Department of Medicine have also been conducting laboratory investigations on the monilias of the gastrointestinal tract. *Monilia psilosis*, conforming to Ashford's reports, has been isolated by the Texas microbiologists from five sprue patients; but the same or a highly similar monilia has likewise been discovered in a much larger number of control persons who could scarcely be regarded as suffering from sprue. The results of experimental feeding on laboratory animals,

though by no means conclusive, suggest that in some instances this monilia may produce an acute gastroenteritis, and reproduce some of the clinical manifestations of sprue. Since cultures were not made from the heart's blood, the existence of a mycotic septicemia is undetermined. The results correspond with the feeding experiments reported by Ashford in 1916. Nevertheless, by reason of the fact that 50 per cent. of their control human subjects, including some with thrush, were harboring what appeared to be the same organism that was recovered from patients presenting the symptomatology of sprue, Hannibal and Boyd are not convinced that *Monilia psilosis* is the cause of this disease. The animal experiments are, it is true, highly suggestive that this organism may exhibit pathogenic properties; yet unless one assumes that many persons are acting as healthy carriers for a pathogenic monilia, it seems more likely that there are factors other than the presence of the organism in the gastro-intestinal canal that are of decisive causative importance in the genesis of sprue.

RECENT DEVELOPMENTS CONCERNING ACIDOSIS AND ALKALOSIS AND THE MISUSE OF ALKALI THERAPY

It is a truism that advances in pure science cannot be applied directly to practical problems with safety; they should first undergo a process of digestion and assimilation. This truism is illustrated by the accumulating experience gained by the application of those principles of physical chemistry which control the acid-alkali balance of fluids—that is, the hydrogen-ion concentration (commonly called p_H)—to the problems of clinical medicine. Following the valuable service of L. J. Henderson in presenting these principles in abstractly correct form, they were for some years applied clinically with an unphysiologic crudeness. The living body with all its intricate and delicate self regulation was treated as little more than a beaker. If its contents were supposed to be too acid, the obvious corrective was administration of sodium bicarbonate. The invention by Van Slyke of his instrument for the determination of the carbon dioxide capacity has given this unfortunate tendency free play. It was supposed for a time that the finding of a low alkali reserve in the blood of a patient constituted an absolute demonstration of acidosis and a clear indication for alkali therapy. The profound difference between physiologic equilibrium and the conception of equilibrium which the physical chemist employs was not appreciated.

It now appears, however, that a low alkali reserve is by no means always an indication of acidosis. It may occur with quite the contrary condition. Nor does it follow that acidosis is necessarily an indication for administration of alkalis. It may possibly be rather an effort on the part of the body, through the regulative influence of carbon dioxide, in calling alkali into the

1. Ashford, B. K.: Am. J. M. Sc. 154:157 (Aug. 1917).

2. Hannibal, Edna A., and Boyd, M. F.: The Monilias of the Gastro-Intestinal Tract in Relationship to Sprue, Am. J. Trop. Med. 1:165 (May) 1921.

blood, to increase the bicarbonate of the blood, and may best be assisted in some other way than by administration of alkalis. The reaction of the blood (the p_H) is not dependent solely on the alkali but on the ratio of alkali to carbonic acid. Thus, as Yandell Henderson and H. W. Haggard¹ have shown, a reduction of alkali reserve may be due to either of two almost diametrically opposite processes. The acidotic process consists in the formation of an excess of strong acids which neutralize alkali. According to their experiments alkali therapy may be advantageously given in any condition of low alkali reserve which is demonstrated with certainty to be due to this process. The other, or acapnial, process occurs whenever respiration is augmented so that the carbon dioxide content of the blood and tissues is abnormally decreased. This leaves the alkali in relative excess, and the consequent alkalosis is met by the body by a withdrawal of part of the alkali from the blood. The condition is then one of alkalosis along with low blood alkali. Experimentally it is found that animals in this condition are adversely and even fatally affected by administration of sodium bicarbonate; but, when given inhalations of carbon dioxide, diluted with air, they respond by a recall (presumably from the tissues) of a normal alkali reserve into the blood. These investigators even suggest that acidosis (in the physicochemical sense of high ratio $H_2CO_3:NaHCO_3$) is always an indication of an effort on the part of the body to call alkali into the blood. If alkali is present in the body, this physiologic effort is best assisted, not by administration of alkali, but by inhalation of carbon dioxide. Among the conditions of low blood alkali thus far induced experimentally, more have been found due to the acapnial than to the acidotic process. For instance, the adjustment to altitude,² by which the blood alkali of people in Colorado is normally lower than in inhabitants of the sea coast, is evidently effected through the acapnial process, and is brought about through alkalosis, not acidosis.

Nine possible combinations of normality, acidosis and alkalosis with high, low and normal alkali reserve have been shown theoretically or produced experimentally by Henderson and Haggard; Van Slyke³ likewise accepts this view of the theoretical possibilities as a form in which future clinical observations may be arranged, although not all of these nine conditions have as yet been definitely identified in man.

Particular importance attaches to the low blood alkali following anesthesia and surgical operation. The administration of sodium bicarbonate after operation has become a routine procedure in a number of hospitals. But, if Henderson, Haggard and Coburn⁴ are

correct, it is the acapnial, not the acidotic, process by which this low alkali is produced. According to these investigators, therefore, the condition should be treated with inhalations of carbon dioxide instead of with alkali.

Now Healy⁵ reports a number of cases of tetany and death which he traces to an abnormally large administration of sodium bicarbonate after anesthesia and operation. Similar cases, after the cause was suspected, were found to respond favorably to administration of calcium lactate. Collip and Backus⁶ have shown that tetany may follow excessive (voluntarily forced) respiration in the otherwise normal human subject. Wilson, Stearns and Thurlow⁷ found parathyroid tetany to be associated with alkalosis. Greenwald,⁸ who likewise has found that tetany may be induced in dogs by means of sodium bicarbonate, accordingly infers that in the cases reported by Healy the administration of sodium bicarbonate, combined with the condition induced by anesthesia, was responsible for the disturbance in the balance between the calcium and sodium of the blood which induced the cases of tetany and death.

From these developments it would seem that alkali therapy, when applied indiscriminately to all conditions of low alkali reserve, may in some cases result in the error of counteracting a symptom which is really due to a regulative response of the body and should rather be assisted.

RECENT TENDENCIES IN CHEMOTHERAPY

Since the achievement of Ehrlich in working out, by systematic procedures of chemical synthesis and animal experiment, the arsphenamin group of therapeutic agents, there has been cherished the hope that the time would soon arrive when the therapeutics of infectious diseases could be made an exact chemical procedure. What prospect could be more alluring than the establishment of the chemical properties of the protoplasm of the parasite and the host, and the immediate preparation, on the basis of recognized chemical principles, of the necessary drug which would select and destroy the parasitic substance, leaving unscathed the protoplasm of the host. "Magic bullets" was the characteristically picturesque title which the imaginative Ehrlich gave to these chemical missiles which should drive out invading parasites. Applying the side-chain principle of his immunologic theory, he conceived the possibility of discovering substances that would fix themselves to the receptor groups of the parasites, and introduce a toxic radical to destroy them. As Dale⁹ has pointed out in an illuminating address, this purely

1. Haggard, H. W., and Henderson, Yandell: *J. Biol. Chem.* **39**: 163 (Aug.) 1919; **43**: 3, 15 (Aug.) 1920; **47**: 421 (July) 1921.
2. Henderson, Yandell: *Science* **49**: 431, 1919; *J. Biol. Chem.* **43**: 29 (Aug. 3) 1920.
3. Van Slyke, D. D.: *J. Biol. Chem.* **48**: 153 (Sept.) 1921.
4. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: *The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation*, *J. A. M. A.* **74**: 783 (March 20) 1920; *The Acapnia Theory*, *Now, ibid.* **77**: 424 (Aug. 6) 1921.

5. Healy, W. P.: *Am. J. Obst. & Gynec.* **2**: 164 (Aug.) 1921.
6. Collip, J. B., and Backus, P. L.: *J. Biol. Chem.* **51**: 568 (April) 1920.
7. Wilson, D. W.; Stearns, T., and Thurlow, M. G.: *J. Biol. Chem.* **23**: 89, 123, 1915.
8. Greenwald, I.: *Proc. Soc. Exper. Biol. & Med.* **18**: 228, 1921. Healy (Footnote 5) discussion.
9. Dale, H. H.: *Recent Tendencies in Chemotherapy*, President's Address, Section of Therapeutics and Pharmacology, *Proc. Roy. Soc. Med.* **15**: 7, 1921.

chemical conception does not seem to work as a rule of procedure, despite the success achieved in the discovery of the parasitocidal arsenicals.

Even the earlier successes obtained in Ehrlich's laboratory in the attempt to establish the principles of chemical structure in relation to bactericidal action have been found to be illusory, for no constant laws can be established. Thus, it was at first reported that certain modifications of the phenol derivatives, such as the introduction of halogens, or of methyl groups, increase bactericidal action, while certain other changes have the opposite effect. But it was not long before Ehrlich's collaborator in this work, Bechhold,¹⁰ found it necessary to report that the effect of a chemical on one species of bacteria may not be duplicated with another species, and hence general laws cannot be deduced. In these experiments the conditions were relatively simple, since the bacteria were studied in vitro; when they are in the body the conditions are complicated enormously by the unknown factors introduced by the blood and tissues, and so the establishment of constant laws becomes still less probable for bacteria that are producing disease.

With arsphenamin itself, the explanation of the spirocheticidal action seems to be quite different from what Ehrlich had supposed, which fact, of course, does not lessen the value of his achievement. Arsphenamin has surprisingly little effect on spirochetes outside the body, and apparently the living tissues play a part in the destruction of the organisms in the therapeutic use of the drug. Probably the tissues change the arsphenamin to something that is more toxic to the parasite, as Voegtlin has suggested. That is to say, arsphenamin, which was supposed to act by virtue of its selective affinity for the parasite, its "parasitotropic" property, in the Ehrlich nomenclature, more probably is active because it is "organotropic." Dale also points out that emetin, despite its undoubted effect in human amebic dysentery, showed little or no effect on *Endameba histolytica* obtained from experimental lesions in kittens, nor did emetin influence the course of dysentery produced in kittens by strains of ameba from human cases which were curable with this drug.

Apparently, then, a chemical agent may have a different effect on the same parasite in different hosts, and in this case the effect on the parasite is presumably an indirect one through action on the tissues of the host. A similar case is presented with quinin, which is inefficient in the *Halteridium* infections in birds with an organism closely similar to the malarial parasite. Or, again, we find that antimony and potassium tartrate seems to have a specific chemotherapeutic action on such unrelated parasites as those of kala-azar and bilharziasis. There is certainly no theoretical ground for supposing that a substance which cures kala-azar is likely to remove infection by bilharzia.

Emetin also is said to have at least to some extent a remedial action on these two diseases. It seems difficult to suppose that emetin should owe its efficacy in amebic dysentery, on the one hand, and in bilharzia infection, on the other, to a specific chemical relationship both to *Endameba histolytica* and to the schistosomes and their ova; or that the latter should possess specific receptors both for emetin and for antimony and potassium tartrate. From such considerations as these, Dale reaches the conclusion that, brilliant with promise in its beginning, chemotherapy seems to have reached a point at which its successes are the result of luck and empiric trial; nothing but fuller knowledge can give us that rational basis of theory from which an orderly, scientific progress can result.

THE STUDY OF RELAPSING FEVER—A RECORD OF PERSONAL HEROISM

The records of the United States Army are not lacking in instances of courage and heroism that surpass even the splendid virtue of "devotion to duty." Many persons are accustomed to think of the highest types of self-sacrifice for one's country and fellow man as being confined to the exigencies of combat. The history of the warfare against disease reveals some equally thrilling examples of heroic personal conduct. The sublime self-sacrifice of the group of investigators constituting the Yellow Fever Commission of the U. S. Army, who submitted themselves to inoculation in order to demonstrate the relation of the *Stegomyia* mosquito to the spread of yellow fever, is the pride of the medical profession. One of them, Jesse Lazear, lost his life as a direct outcome of the tests.

To this list may now be added the names of three soldiers, Privates K. K. Glover, O. F. Leukert and L. N. Jourden, commended in a general order of the service of the military police of the Panama Canal Department, as volunteers worthy of the highest commendation from their fellow men. By means of their cooperation and voluntary assistance, it has been proved that the human tick *Ornithodoros talaje* (Guérin-Meneville) is the transmitting agent of relapsing fever in Panama. The army order adds that by their self-sacrifice these three men, selected from thirty who volunteered for the experiment and showed their willingness to imperil their lives in the cause of humanity, have aided in establishing a scientific fact which will aid in the control of disease and result in less sickness and loss of life among our troops operating in the field and on the isthmus.

Under the name of relapsing fever a number of infections are at present included. Accurate accounts of this disease were published nearly two centuries ago. It made its first recorded appearance in the United States at Philadelphia in 1844. Ever since Obermeier, in 1873, detected in the blood of patients suffering from relapsing fever what was formerly designated as a

10. Bechhold: Halbspezifische chemische Desinfektionsmittel, Ztschr. f. Hyg. u. Infektionskr. 64: 113, 1909.

spirillum but is today classed as a spirochete, this malady has been regarded as a spirochetal infection. The spirochetes involved are currently believed to belong to different species, mainly perhaps because experimental animals immune to infection by one of the spirochetes seem to be susceptible to infection by another. All the types of relapsing fever run a similar clinical course.

Accumulated evidence has made it more than probable that suctorial insects, such as bedbugs, ticks or lice, are concerned in the transmission of the organism producing relapsing fever. For relapsing fever in Panama the proof has now been furnished by the army volunteers that the human tick *Ornithodoros talaje* is a transmitting agent. These insects are somewhat similar in habits to the bedbug, remaining secreted in the cracks and crevices of the beds and walls by day and coming out at night to feed on the occupants. After becoming engorged with blood they again return to a hiding place. Typical spirochetes have been found in naturally infected human ticks in Panama by Bates, Dunn and St. John¹ of the Board of Health Laboratory and Ancon Hospital in the Canal Zone. One volunteer was infected with relapsing fever by being bitten by naturally infected ticks; a second, by a hypodermic injection of such insects; a third, by injection of blood from a rat which had been infected with relapsing fever by material from infected ticks. The demonstration was complete; and fortunately the volunteers recovered after treatment with arsphenamin. Thus a new and important chapter has been added to the history of the etiology of one of the spirillooses.

Current Comment

DOCTORS, BEWARE!

We are undone—or possibly it would be more accurate to say that we are about to be undone. The medical profession is to meet its Napoleon. A few days ago those fortunate individuals whose names are on the mailing list of the Palmer School of Chiropractic, Davenport, Iowa, received a three-page letter from Napoleon Hill, the editor of *Napoleon Hill's Magazine*, "A Magazine of Economic Philosophy" having offices in New York City. Napoleon has a secret for the chiropractors—such a vital secret that he can make public only a small part of it at this time. It is this: Napoleon, "in addition to carrying on a systematic propaganda . . . in behalf of Chiropractic" in his magazine, has "arranged with one of the best men in the moving picture business to write a psychological play that will be filmed and shown broadcast over America and in Canada." But let Nap. tell it:

"The name of the film is INTOLERANCE, and plays up Chiropractic, the new profession that is bringing health to millions of people without the use of poisonous drugs and surgeons'

knives. This play is one of the most powerful boosts for Chiropractic. It will show the California martyrs who were sent to jail by the Medical Trust; it will play on the emotions as a master violinist plays on the strings of his instrument, leaving no dry eyes within sight of the screen where it is shown. It will carry the audience down through the 'Valley of Shadow,' back into the dark ages, and on up to the present."

Napoleon says further: "I am producing this play at my own expense, or rather at the expense of the magazine." Nor is that all: "I intend to play one of the leading rolls [*sic!*] in the picture, personally." One finds it difficult to visualize a Napoleon rolling, but stranger things have happened. It must be quite a risky piece of rolling, too; a dashing, dare-devilish, Fairbanksian roll, for Napoleon says that after his rolling: "My life will not be safe, let alone my being welcome when I go back down home where I have two uncles who are M.D.'s." But to get down to brass tacks. Every chiropractor who subscribes for *Napoleon Hill's Magazine* (price \$3.00) will have one dollar of his subscription set aside "as a fund with which to produce this Chiropractic film play."

"There are over 10,000 of you Chiropractors in the field. Each of you is good for a subscription for your own office, and in addition to this you can sell at least half of the patients who pass through your office a subscription."

The film, we are told, "will constitute a whole show, of practically one hour." And Napoleon is going to make a success of it; for "by the eternal there is something more than profits to work for in this world" and, as Napoleon quaintly says, "as I am both the front legs and hind legs of it I naturally aim to make it reflect credit on my efforts." We do not know Napoleon, but from his letter and from a perusal of one copy of his magazine we can admit that he will doubtless reflect credit on both the front legs and the hind legs; but can he make the long ears wag naturally? "When the film is shown in your city it will be followed by a slide with your advertisement on it, without cost to you." Another inkling of Napoleon's great secret is revealed when he says that this chiropractic film "is but one of the steps I am taking to insure a Chiropractor as health counselor to the President of the United States."

THE EVACUATION OF THE BOWEL IN INFANCY

The period of transit for food residues through the alimentary tract of adult persons is fairly well known. In health and under normal conditions of digestion and defecation, the contents of the bowel end their sojourn there within from twenty-four to thirty-six hours, of which the major duration is spent in the large intestine. The comparable facts with regard to infants have not been ascertained with equal certainty, if one may judge from the paucity of published details. Kahn¹ has recently secured data which help to fill the gaps in our knowledge. According to his observation, the stay of residues in the alimentary tract of the nursling is comparatively short. The variations in healthy children ranged from four to twenty hours, with an approach to fifteen hours as the most representative period. The

1. Bates, L. B.; Dunn, L. H., and St. John, J. H.: Relapsing Fever in Panama: The Human Tick *Ornithodoros Talaje*, Demonstrated to be the Transmitting Agent of Relapsing Fever in Panama by Human Experimentation, *Am. J. Trop. Med.* 1:183 (July) 1921.

1. Kahn, W.: Ueber die Dauer der Darmpassage im Säuglingsalter *Ztschr. f. Kinderh.* 29:321 (July 21) 1921.

passage of contents of the bowel seems in general to be more rapid in the morning hours than in later periods of the day; likewise more rapid in breast fed than in artificially nourished infants. In contrast with the conditions recognized for adults, the infant exhibits a briefer retention of alimentary contents in the region of the lower bowel. Why there is less delay in the evacuation of the large intestine during infancy in contrast with adult life remains to be clearly explained.

CONFERENCE OF SECRETARIES OF CONSTITUENT STATE ASSOCIATIONS

The conference of the secretaries of the constituent state associations has become an established annual event in the activities of the American Medical Association. These meetings provide opportunities for an exchange of experiences and views and for mutual encouragement in carrying on the organization work in the various state associations and for correlating it with that of the national organization. The freedom of discussion and the spirit of cooperation which characterized the recent conference not only made evident the value of the activities in which the organization is now engaged, but also suggested fields of opportunity for the further development of the services that the organization may render to its members and to the public. The frank, constructive criticism of those who took part in the discussions was full of suggestions which must be reflected in benefits to the individual members. It is a significant fact, and it proves the value of the conference, that there was a full attendance at each of the meetings.

RECENT OBSERVATIONS ON SYPHILIS

Many physicians have been investigating the causes of toxic effects of arsphenamin and trying to lessen them. The practical value of changing the *dosis tolerata* to the *dosis curativa* can hardly be overestimated. Berman's¹ theory attributing the disagreeable reactions to a precipitation of serum globulins, which are usually increased in syphilis, is strongly opposed by other authors, most recently by Keiichi Tokuda² working in the Dermatologic Research Institute. Among other observations he has confirmed the relative increase in globulins, which occurs in certain stages of syphilis. Interesting changes of their amount take place during treatment, yet Tokuda holds to the opinion attributing the untoward effects either to technical errors in administration of the drug or to the presence of impurities supposed to be unavoidable and unrecognizable. Other authors, however, are more hopeful: Wiesenach³ found that the tolerance for arsphenamin is increased threefold if injected in a 1 per cent. solution of sodium chlorid. He confirmed the good effect of divided doses on the toxic symptoms, giving one tenth of the intended dose one day before the remaining part. For clinical use, Wiesenach mentions the beneficial effects of an injection of 10 c.c. of a

10 per cent. solution of potassium acetate or citrate after the injection of arsphenamin. Though he does not investigate the possibility that the curative dose may be heightened by those methods together with the tolerated dose, there is reason to believe that a standard method may result from his experiments. The old question whether the failure to reinoculate with syphilis is due to the existing disease (Neisser) or to a state of immunity has been brought nearer its solution. Thus, Brown and Pearce,⁴ working in the Rockefeller Institute on experimental syphilis, proved in one of their studies that the presence of the spirochete in the body does not prevent the formation of a typical chancre if reinoculated. In the second place, Eberson⁵ confirms the seemingly opposite theories mentioned above, pointing out by analogies with other diseases that immunity is not incompatible with the life of a parasite, the real relation being a state of balance. This conclusion, which is hardly surprising now, shows how steadily scientific ideas are undergoing changes: the old conception practically gave the choice between infection or immunity. We have since noticed the relativity of both, and the term balance, which has been so well established in biology by the progress of physical chemistry, is the proper expression of modern views. The change is considerable; the new views are not far from denying active humoral immunity without coexistence of infection or its products. Even the long duration of immunity after some diseases cannot exclude this conception, for almost imperceptible traces of foreign proteins can cause immune phenomena, as shown in anaphylaxis.

Association News

CONFERENCE OF SECRETARIES OF STATE ASSOCIATIONS

A conference of the secretaries of the constituent state associations was held at the headquarters of the American Medical Association, November 11 and 12. There were present the secretaries of the constituent associations of Alabama, California, Delaware, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Wisconsin and Wyoming. There were also present President Work, President-Elect de Schweinitz and the members of the board of trustees.

Dr. Hubert Work, President of the Association, in calling the conference to order, commented on the value of the conference in bringing the constituent associations into closer affiliation with the national body. Dr. Frank Billings, Chicago, addressed the conference on the past, present and future policies of the American Medical Association. The subject was discussed by Drs. Rock Sleyster, Wisconsin; D. E. Sullivan, New Hampshire; Edward Hines, South Carolina; L. B. McBrayer, North Carolina; Olin West, Tennessee; Horace J. Brown, Nevada; Mr. G. W. Winfrey, Virginia, and Dr. C. T. Selby, Ohio.

At the afternoon session, Dr. George E. de Schweinitz, President-Elect of the Association, presided. This meeting was devoted to a discussion of cooperation between the con-

1. Berman, Louis: The Nitritoid Crises After Arsphenamin Injections, Arch. Int. Med. 22: 217 (Aug.) 1918.

2. Tokuda, Keiichi: Refractometric Studies in Human Syphilis, with Special Reference to Changes During Treatment with Arsphenamin and Neo-Arsphenamin, Arch. Dermat. & Syph. 4: 512 (Oct.) 1921.

3. Wiesenach, H.: Weitere Versuche über die Herabsetzung der Salvarsantoxizität, Berl. klin. Wehnschr., July, 1921, p. 845.

4. Brown, W. H., and Pearce, Louise: Superinfection in Experimental Syphilis Following the Administration of Subcurative Doses of Arsphenamin or Neo-Arsphenamin, J. Exper. Med. 33: 553 (May) 1921.

5. Eberson, Frederick: Spirocheticidal Properties of Serums in Latent and Experimental Syphilis, with Some Observations on Immunity, Arch. Dermat. & Syph. 4: 490 (Oct.) 1921.

stituent and component branches and the American Medical Association, opened by Drs. Alexander R. Craig, secretary of the Association, N. P. Colwell, secretary of the Council on Medical Education and Hospitals, and Frederick R. Green, secretary of the Council on Health and Public Instruction. A general discussion of the question then followed which was participated in by Drs. Holman Taylor, Texas; W. C. Musgrave, California; Edward Livingston Hunt, New York; W. G. Ricker, Vermont; Wendell C. Phillips, New York; E. J. Goodwin, Missouri; A. T. McCormack, Kentucky; L. B. McBrayer, North Carolina, and T. B. Throckmorton, Iowa.

The sessions continued throughout the day, adjournments being taken for luncheon and for dinner. At the dinner Dr. George H. Simmons presided, and addresses were made by Drs. A. R. Mitchell, Rock Sleyster, W. T. Williamson, Frederick C. Warnshuis, George E. de Schweinitz, W. A. Pusey, Frank Billings and Holman Taylor.

At the meeting held on the morning of the second day, November 12, Dr. Holman Taylor, secretary of the State Medical Association of Texas, presided. Dr. B. L. Bryant, Maine, presented the Maine Medical Association plan for coordinating health activities with the state association. This paper was then discussed along with the subject of the meeting: The Constituent State Medical Association Activities—(1) The Feasibility of Full-Time State Secretaries: (a) Reciprocal Financial Relationship Between the American Medical Association and the State Organizations; (b) Possibility of Grouping States into Districts to Secure Effective Cooperation in Legislative Work, etc. (2) Field Work in Cooperation with the American Medical Association: (a) The Councilor's Place in the Organization; (b) Study Courses in District and County Societies. This discussion was participated in by Drs. Holman Taylor, Olin West, A. T. McCormack, George E. de Schweinitz, N. P. Colwell, D. E. Sullivan, T. B. Throckmorton and L. B. McBrayer. A fuller report will appear later.

DR. BEVAN RECEIVES LEGION OF HONOR MEDAL

Honor Conferred in Recognition of War Work of American Medical Association

November 10, at Chicago, Dr. A. D. Bevan, as President of the American Medical Association during the war, received from the French government the Order of the Legion of Honor. More than 200 physicians assembled at a banquet to witness the conferring of this distinction.

Dr. Frank Billings, who presided, said that the honor conferred on Dr. Bevan was a recognition by the French government of the great service rendered by the American Medical Association.

ADDRESS OF DR. HERRICK

Dr. James B. Herrick, speaking on "The Debt of American Medicine to France," pointed out that France, if challenged, might well place the name of Pasteur and the list of his accomplishments against those of all American physicians. But besides Pasteur, many Frenchmen had achieved distinction in medicine. In a brief historical résumé, he summed up the achievements of such men as Magendie, Claude Bernard, Trousseau and Dieulafoy.

ADDRESS OF DR. WILBUR

Dr. Ray Lyman Wilbur, president of Leland Stanford Junior University and a member of the Council on Medical Education and Hospitals, pointed out that in his belief the work for the improvement of medical education was fundamental to the growth of medical science in America.

PRESENTATION OF THE MEDAL

Mr. Antonio Barthelemy, consul of France at Chicago, said that he felt particularly attached to the medical profession since during his own youth he had walked the wards with the great French surgeon Velpeau. France, he said, could never repay its great debt to America and particularly to the American medical profession for its assistance in the great war. In accordance with the French custom, Dr. Bevan

arose. The Consul pinned on him the insignia of the legion, and kissed him on both cheeks.

ADDRESS OF DR. BEVAN

Dr. Bevan responded with a note of appreciation, saying that he accepted the insignia with a feeling that it was not so much an honor to him personally as a recognition by the French government of what the organized medical profession of the United States had accomplished in medical education and of the great service rendered by the Association during the war. He spoke of America's great debt to France, and paid tribute to the medical men and women of America who answered the call in 1917. Thirty-five thousand physicians had voluntarily enrolled in the service of the government. Dr. Bevan's father studied medicine in France from 1851 to 1853, and as a boy and as a medical student, his first impressions of medicine were obtained from his father's library, where the French medical books of Velpeau, Trousseau, Laënnec, Cruveilhier and others held the honored place. Dr. Bevan then traced the growth of American medical science. "In 1901," he said, "the medical profession of this country did a very wise and very important thing. It reorganized the American Medical Association on a democratic and representative basis, copying the scheme of organization of the United States government, and welding the entire profession of the country into a strong organization which has become an instrument with great possibilities for good both for the profession and the people. Medicine has become a science. It has become, like education, a great function of civilization."

"Simply stated, the great function of the organized medical profession of this country is to secure for all our people the great benefits of modern scientific medicine. The American Medical Association has dedicated itself to this task. Since its reorganization in 1901, it has made wonderful progress. It has in twenty years revolutionized medical education in this country, and placed it on as high and sound a plane as exists in any country of the world. It has through its Council on Pharmacy and Chemistry done much to place drug therapy on a more scientific basis. It has organized the medical men and women in every state and county into a democratic and representative medical organization of more than 80,000 members, which is in fact the organized medical profession of the country. Its journal, the organ of the Association, has become the largest and most influential medical journal in the world."

He then indicated our hopes for the future; the necessity for better plants, and for giving to every community the benefits of modern medicine. "Great as have been the accomplishments of the Association in the past," he said, "its future work will be greater. Remember that you are the American Medical Association; that the Association represents the best in American medicine. Your membership in the Association is of more importance to you than membership in any other medical body. To be a Fellow of the American Medical Association, if you fully realize your duties and responsibilities, is a greater honor, a greater privilege than any medical degree which can be conferred upon you."

His peroration was a dedication of himself to the medical profession and to faith in medical science. "As we grow older," he concluded, "we find that there are compensations which come with the marching years. There is a beauty in the sunset, a golden coloring in the autumn. A wider vision comes, a kindlier feeling toward the comrades who are marching with us along the same road, a great joy, a great pride in the young men we have trained; a keener appreciation of life with all its possibilities; a greater joy in living. We learn to overlook and forget the little things that once irritated and annoyed us. We learn that no one can injure us but ourselves. We learn the simple and wonderful lesson of the Golden Rule. We learn to recognize and bow down before the immutable laws of the universe. We are but atoms in a mighty scheme; but, small as we are, a part of it, and whether we will or not the good and the bad of our lives will live on. Scientists as we are, we learn from science the laws of life, the laws that men must follow for their own good. We learn that the physical law and the moral law are one. Define these things as you will, such knowledge means a religion. Let us make a confession of faith in life, in science, in the future, in our fellow men."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Hospital News.—The Cottage Hospital of Santa Barbara has recently been given \$50,000 by Mrs. William H. Bliss, Santa Barbara. Mrs. Bliss specified that the money is to be used for the erection and equipment of two wings which are needed, one for the care of children and one for contagious diseases. The trustees have accepted the gift and work will begin immediately.

University of California Medical Directory.—A directory containing a list of all graduates of the medical school from 1864 to 1921, arranged by classes, has just been issued by the University of California. A local index indicates where the graduates of the school are now practicing. Sixteen of the graduates are practicing medicine in foreign countries, while 523 have remained in California.

Personal.—Dr. William Henry Buckner, Glendale, former medical director of the central division of the American Red Cross in Siberia, has been made superintendent of the Olive View Sanatorium, a county institution for tuberculous persons. —Dr. John M. Hench, former major, M. C., U. S. Army, at the base hospitals Contrexéville and Gièvres, France, has been made medical examiner for the bureau of war risk insurance for the Stockton district.

Committee Appointed to Consider Drug Hospital.—In accordance with an act of the last legislature, Governor Stephens has appointed a committee to investigate the advisability of the establishment of a state isolation hospital for the care and cure of drug victims. The committee will report to the 1923 legislature. Physicians who will serve on the committee are: Dr. John A. Reilly, medical superintendent of the Patton State Hospital, and Dr. George E. Ebright, San Francisco, president of the state board of health.

Loan Fund for Medical Students.—A loan fund of \$10,000 for the benefit of students in the Leland Stanford Junior University School of Medicine, San Francisco, has been established by Mrs. Sadie Dernham Patek, San Francisco, in memory of her husband, the late Dr. Robert Patek. Under the terms of the fund it is to be loaned to medical students to assist them in completing their medical course, and may be borrowed without interest for six years, after which a rate of 6 per cent. interest will be charged until the loan is repaid.

FLORIDA

Regulation of Automobile Camps.—As a result of poor municipal supervision, many of the touring automobile camps were condemned and abandoned last winter, and the board of health has announced that it will enforce strict sanitary regulations in these camps. The board cites as examples of well-conducted camps those at De Land, DeSota Park, Tampa, Palm Beach and Bradentown. The West Palm Beach ordinance defines the limits of the camp grounds; it creates an office of camp superintendent with police and managerial authority, requiring that all tourists desiring to enter the camp apply to the superintendent, giving name of person in charge of party, number of persons, and permanent home address, make and number of automobile, and length of stay in camp. A fee of 25 cents is charged for use of the camp, this sum to go to a fund provided for the special service rendered the tourists in camp.

GEORGIA

Personal.—Dr. Jarrett W. Palmer, Alley, was elected president of the state board of medical examiners, recently. Other officers elected are: Dr. Alfred F. White, Flovilla, first vice president; Dr. Obie B. Walker, Bowman, second vice president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer.

ILLINOIS

Hospital News.—The cornerstone of the Macon County Tuberculosis Sanatorium, Decatur, was laid, October 20. The site for the new tuberculosis sanatorium at Madison has been purchased.

INDIANA

Negro Physician Found Guilty.—James Otway Puryear, a negro physician of Indianapolis, it is reported was found guilty, November 1, in the federal court, on the charge of violation of the Harrison Narcotic Law. Sentence was deferred.

Respite for Dr. Freshley.—It is reported that Dr. Frederick J. Freshley, Evansville, who was sentenced to serve two years in the federal prison at Leavenworth, Kan., following a conviction on a charge of violation of the Harrison Narcotic Law, has been permitted a short respite in which to dispose of his private affairs, on condition that he give a bond of \$5,000.

IOWA

Radium Stolen.—Fifty milligrams of radium valued at \$6,000, disappeared from the Presbyterian Hospital, Waterloo, recently.

Laboratory in Child Psychology.—The Iowa child welfare research station at the state university, Iowa City, has organized a laboratory in child psychology for experimental work with children from 2 to 4 years of age. The laboratory is under the direction of Dr. Bird T. Baldwin, research professor in psychology, and Dr. Loreli Stecher, research assistant professor, with graduate student attendants. A new four-room building has been provided, and twenty-four children are now in attendance daily.

Orthopedic Clinic.—Dr. Arthur Steindler, professor of orthopedics in the State University of Iowa College of Medicine, Iowa City, demonstrated the work done in the care of crippled children and adults of the state at a clinic for orthopedic specialists, held at the university, November 11. Much of the work is done under the provisions of the Perkins and Haskell-Klaus laws which make it possible for children and adults to secure medical and surgical care at the expense of the state. The children's hospital was established at the university for the accommodation of the large number of children under 16 years of age who take advantage of the provisions of the Perkins law.

MARYLAND

Personal.—Dr. Walter L. Craig, Albany, N. Y., physician and engineer, has been appointed an assistant superintendent of the Johns Hopkins Hospital. The appointment fills the vacancy created by the resignation of Dr. Karl Van Norman. Dr. Craig will rank as second assistant superintendent, the position of first assistant going to Dr. Calvin Goddard, director of the dispensary.

Appropriation to Start Plague Division in Baltimore City Health Department.—An appropriation of \$12,000 for the creation of a plague division at the Baltimore City Health Department has been allowed the health commissioner, Dr. C. Hampson Jones. The staff will consist of eight experienced rat catchers and a laboratory force. The division will have headquarters in the new morgue. The purpose of this division will be to put the health department in position to keep bubonic plague away from Baltimore.

Meetings.—The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held, November 9, at the University of Maryland, College Park. Luncheon was served at the college. The address of welcome was delivered by Dr. Henry B. McDonnell. Dr. Maurice Pincoffs, professor of medicine at the University of Maryland, spoke on the university extension course. Dr. William S. Gardner spoke on "Cancer of the Uterus," and Dr. Thomas S. Cullen gave a talk on cancer problems. Dr. Waitman S. Zinn spoke on "Esophagoscopy." Dr. Anton G. Rytina made an address on "Selected Anesthesia in Urology." Dr. Alan F. Woods, president of the University of Maryland, outlined the needs of the university and the present budget.—The regular lecture of the Johns Hopkins University School of Hygiene and Public Health was held, November 14, at the School of Hygiene and Public Health. Dr. Robert McCarrison, Lieut.-Col., Indian Medical Service, spoke on "Faulty Food in Relation to Gastro-Intestinal Disorders."

Campaign Against Tuberculosis.—According to the records of the state department of health, mortality from tuberculosis has decreased 41 per cent. in the last sixteen years in Maryland. The death rate from the disease is higher than for any other disease in the state. A danger signal is seen in the fact that the tuberculosis death rate among negroes is

roughly two and one-third times higher than for white persons. Because of the constant contact of the two races, officials consider correction of this condition vital to both. The figures explode a notion that tuberculosis is chiefly to be feared by persons under 40. They show that the toll of the disease is practically the same at all ages above 20. A somewhat higher rate is shown for men than for women, and is attributed to industrial employment, with exposure of the lungs to flint, steel, etc. Causes of the decline in tuberculosis mortality are given as:

Establishment of state sanatoriums, which effect cures in many early cases.

Reporting of cases to the state department of health, which furnishes unlimited prophylactic supplies.

Employment of visiting nurses, who show patients how to care for themselves and not menace the health of others.

Public education, emphasizing the essentials for combating tuberculosis—fresh air, good food and proper rest.

Improved living conditions, including sewage disposal, food inspection and water supply protection.

The high rate among colored people is ascribed to unhygienic living habits and personal habits.

MASSACHUSETTS

Conference on Tuberculosis Survey.—A conference was recently held at the Brockton board of health office to plan a survey of the tuberculosis situation in Plymouth County, and form a county organization to attend to the antituberculosis campaign. Dr. Fred J. Ripley, health officer of Brockton, was made president of the Brockton Anti-Tuberculosis Society.

Extension Courses of Harvard Graduate School.—The Worcester Extension Course of the Harvard Graduate School has arranged a fourth annual series of lectures for physicians in the City Hospital. Dr. John L. Morse, former professor of children's diseases, Harvard Medical School, opened the course with an address, November 16, and will be the speaker also on November 23 and 30 and December 14. Dr. Franklin White, Boston, will lecture on stomach diseases, December 7. The course is directed by Dr. Ernest Hunt.

Union Meeting of Medical Societies.—The Essex South, Essex North, Middlesex North and Middlesex East district medical societies held a meeting, November 2, at the Essex County Tuberculosis Sanatorium, Middleton. The meeting was held to bring before the members various educational and legislative measures of interest to all. The guests were: Dr. Eugene R. Kelly, commissioner of public health; Dr. Arthur K. Stone of the Massachusetts Medical Society, and Benjamin Loring Young, speaker of the Massachusetts house of representatives.

MICHIGAN

Osteopath Fined for Violation of Medical Practice Act.—It is reported that F. C. Martin, osteopath of Pontiac, was recently found guilty on a charge of administering medicine in violation of the state medical act. He was fined \$75.

Personal.—Dr. Angus McLean, Detroit, who for two years during the war commanded Base Hospital Unit No. 17, at Dijon, France, has been made corps surgeon of the Sixteenth Army corps of the Sixth corps area, which has headquarters in Chicago.

Hospital News.—Highland Park General Hospital has announced the following reorganization of staff: Dr. Willard L. Quennell is retained as superintendent; Dr. George M. Livingstone was made chief of the medical staff; Dr. Chester A. Doty, chief of dermatology; Dr. William N. Braley, chief of pediatrics; Dr. Hubert E. Northrup, chief of obstetrics; Dr. Frank C. Witter, chief of surgery; Dr. William O. Merrill, chief of ophthalmology, and Dr. Plinn F. Morse, chief of the laboratory.

MISSOURI

Appointments at State Institution.—In accordance with promises that a woman physician will at an early date be named for each of the eleemosynary institutions of the state where women are admitted, Dr. Elizabeth Chaffee has been appointed assistant to Dr. Marion O. Biggs, chief of staff of the hospital for the insane at Fulton.

NEBRASKA

Cancer Meetings.—Lectures on cancer, under the auspices of the American Society for the Prevention of Cancer, were held in over forty counties in Nebraska with from one to eight

meetings in each county, outside of Omaha and Lincoln. Sixteen medical societies held cancer meetings, discussing the various phases of the question. In Omaha thirty-two programs have been held in the churches, before business men's organizations, women's clubs, Y. W. C. A., Y. M. C. A. and Knights of Columbus. One physician made a trip of 150 miles in his aeroplane to deliver the "message of hope" at Imperial.

NEW JERSEY

Fined for Practicing Medicine Without Licenses.—An official report states that Lucia Renga Barbato, a licensed midwife, and Louisa Sarno recently pleaded guilty to charges of practicing medicine without licenses. Each was fined \$200.

Smallpox Epidemic.—An epidemic of smallpox, which seems to be spreading throughout the county, is reported from Haddonfield. All schools, churches, Sunday schools and moving picture theaters have been closed and the public warned against holding social gatherings or public assemblies. The state board of health has ordered that every person in Haddonfield be vaccinated.

NEW YORK

Meeting of Labor Medical Board.—Members of the labor medical board committee, which was appointed at the suggestion of the state industrial commission, held a meeting, November 1, to discuss the problems concerning the medical care and treatment of injured employees. The testimony in the hearings included the following subjects: medical care and treatment of injured employees, including physical therapy; kind of medical evidence and manner of presenting it; method of selection of physicians and payment of medical expenses; hospital service and costs. Dr. Patrick H. Hourigan, president of the New York State Society of Industrial Medicine, and Mark A. Daly of the Associated Industries of Buffalo are members of the committee.

New York City

Joint Meeting of Pediatric Societies.—The annual meeting of the New England Pediatric Society, the Philadelphia Pediatric Society and the section of pediatrics of the New York Academy of Medicine will be held in New York City, December 3. Clinics will be held at various hospitals during the day, and there will be a dinner at the Hotel Pennsylvania in the evening.

Post-Graduate Hospital Memorial to War Workers.—The Post-Graduate Hospital, November 12, unveiled a memorial tablet dedicated to nurses and physicians who served in the war while attached to the Post-Graduate Hospital unit at Savenay, France. The tablet contains the names of the 380 physicians and nurses who made up the staff of the base hospital. Five names are distinguished by gold stars. Addresses were made by Col. Samuel L. Lloyd, director of base unit No. 8, and Miss Amy Patmore, who served as the unit's chief nurse.

Personal.—Dr. John J. Moorhead was recently decorated by General Robert Lee Bullard on Governors Island with the Distinguished Service Medal for his services as commanding officer of an evacuation hospital in France. He has already received the Croix de Guerre, the Medaille d'Honneur and a United States Army citation.—Dr. William C. Sandy, psychiatrist of the New York State Commission of Mental Defectives, has been appointed chief of the division of mental health of the new Department of Public Welfare of the State Advisory Board of Pennsylvania.—Dr. Smith Ely Jelliffe, New York, has just returned from a five months' trip to Europe.

Harlem Health Center Opened.—Governor Nathan L. Miller, Mayor John F. Hylan and Health Commissioner Royal S. Copeland formally opened the East Harlem Health Center, at No. 345 East 116th Street, November 10. This health center is a demonstration planned and financed by the New York County Chapter of the American Red Cross to show the increased efficiency of housing all health and welfare agencies in a given district under one roof. Twenty-one health, nursing, welfare and community organizations have combined to cooperate with the Red Cross in this new health center. At the opening exercises Dr. James Alexander Miller, chairman of the Health Center Council, presided. The speakers were Governor Miller; Miss Lilian D. Wald; Robert de Forest of the National Red Cross; Homer Folk of the

State Charities Aid Association and the local Red Cross, and Dr. Herman M. Biggs, state commissioner of health.

NORTH CAROLINA

Personal.—Dr. Alexander C. Bulla, Forsyth County health officer, has been made health officer of the city of Raleigh and Wake County, to succeed Dr. Everett F. Long, who has accepted the newly created position in the county health division of the state board of health. Dr. Long will have charge of the installation of new health departments in the counties.

OHIO

Unlicensed Practitioner Fined.—Samuel A. Dial, a negro, it is reported, was recently fined \$200 and costs in the municipal court of Cincinnati for practicing medicine without a license.

Scarlet Fever Epidemic.—Of the twenty families in the village of Springville, all except three homes are under quarantine, and physicians and nurses have been sent from Tiffin to help care for the residents of the village. There are twenty-nine cases of the disease, and one death has already occurred.

Chiropractors Not Permitted to Sign Death Certificates.—A report states that, according to an opinion of the attorney general, chiropractors and other limited practitioners may not sign death certificates in this state. Osteopaths may sign such certificates, provided they have met the educational requirements set forth in the statutes.

Meeting of Academy of Medicine.—At a meeting of the Columbus Academy of Medicine, held October 31, Dr. William P. Lucas, head of the department of pediatrics, University of California, spoke on the "Psychology of Childhood." Dr. Lucas gave as one reason for the springing up of so many cults nowadays, that too many physicians are failing to apply psychology in their practice of medicine.

Bond for Fumigation.—As a result of the death of four persons from inhaling hydrocyanic acid gas which was being used to fumigate a restaurant under their apartment, an ordinance prohibiting an unlicensed person from using deadly gases for fumigation purposes and providing a substantial bond for fumigation operators has been prepared by the franchise commissioner and the health commissioner of Cleveland.

Health Board Moves to Check Smallpox Epidemic.—The health department of Fremont has ordered the closing of all public gatherings either indoors or outdoors until further notice, in order to check the smallpox epidemic in Fremont. Both public and parochial schools are closing for a period of three weeks, and all pupils and teachers in the schools must show a certificate of vaccination before they may resume school work.

Tribute to Dr. Oliver.—At the dinner given under the auspices of the faculty of the Medical College of Ohio, Cincinnati, on the occasion of the retirement of Dr. John C. Oliver as head of the surgical department of the University of Cincinnati, College of Medicine, and chief surgeon of the Cincinnati General Hospital, Dr. Martin H. Fisher, on behalf of the faculty of the medical college, presented Dr. Oliver with a large silver cigar container filled with cigars for his den. Dr. Henry Page, dean of the medical college, presented resolutions which the faculty had adopted in honor of Dr. Oliver. The principal addresses were made by Dr. Leonard Freeman, professor of surgery in the School of Medicine, University of Colorado; Dr. Herbert A. Royster, secretary of the Southern Surgical Society and president of the North Carolina Medical Association, and Dr. John U. Lloyd, Cincinnati.

Personal.—The office of Dr. Samuel B. Finney, aged 75, Delta, was recently invaded by four bandits who, after striking the doctor on the head with a revolver and binding him to a chair, robbed him of \$29,000, his life's savings. Dr. Finney kept his savings in a pocketbook which he always carried.—Major Raymond W. Bliss, M. C., U. S. Army, Washington, D. C., is superintending the arrangement and equipment of the Elks' lodge building of Community Group Camp Sherman, which is to serve as a temporary hospital for Chillicothe Vocational School No. 1.—Dr. Henry Kenon Dunham has been appointed head of the department of tuberculosis at the University of Cincinnati College of Medicine, and director of the tuberculosis service of the Cincinnati

General Hospital.—Dr. Henry M. Goodyear has been appointed as attending laryngologist at the General Hospital, Cincinnati.

PENNSYLVANIA

Contingent Bequest.—If there are no grandchildren of Mrs. Amos Hubbard, of Pottstown, living at the death of her daughter, one half of the estate is to be given to the Pottstown Hospital.

Clearing Office for Hospital Beds.—The Allegheny County Medical Society, at a recent meeting, passed a resolution urging that the city of Pittsburgh assume responsibility of obtaining immediate and proper hospital facilities for all sick and injured citizens who are unable to pay for hospital attendance. They also suggested the establishment in the department of public health of a clearing office for hospital beds available for charity patients.

Personal.—Dr. William C. Sandy, psychiatrist to the Commission of Mental Defectives of the State of New York, has been appointed by the state welfare commission at Harrisburg, as head of the division of mental health.—Dr. William E. Park, New Milford, has been notified by the U. S. Public Health Service of his appointment as attending specialist, and is assigned for duty at Pocono Pines, where a large hospital and vocational training school for disabled former service men is located in the heart of the Pocono Mountains.—Dr. Clarence G. Wilson is seriously ill at his home in St. Mary's.

Philadelphia

Result of Hospital Campaign.—The final report of the campaign of the American Stomach Hospital for funds to double its present capacity announced subscriptions amounting to \$52,000.

Personal.—Dr. Wendell C. Phillips, New York City, addressed the section on otology and laryngology of the College of Physicians of Philadelphia, November 16, his subject being "Comments on Atypical Cases of Mastoid Involvement, with Suggestions as to Treatment." A film demonstration of the mastoid operation was made.

Base Hospital Unit Holds Yearly Reunion.—The third annual reunion of the Base Hospital No. 20 Association was held at the Ritz Carlton Hotel November 11. The organization is composed of physicians and nurses who were quartered at Chatel-Guyon for eighteen months during the war under command of Col. J. B. Carnett. The unit was organized at the University of Pennsylvania.

SOUTH CAROLINA

Chiropractor Fined.—It is reported that on October 3 D. Lyman Love, chiropractor of Charleston, was found guilty of practicing medicine without a license. He was sentenced to pay a fine of \$200 or serve thirty days in jail.

TEXAS

Health Work in Mexican Homes.—The Taylor County Anti-Tuberculosis Association has employed the field secretary of the Texas Public Health Association for ten days' work among the Mexican population of Abilene. Lectures will be given in the Mexican schools each evening, and a thorough canvas made of Mexican homes in the interest of better health conditions.

Negro Unit of Tuberculosis Hospital.—The City Tuberculosis Hospital, Houston, opened the new negro unit, accommodating twenty patients, October 25, erected at a cost of \$10,000 out of funds contributed by the city of Houston and Harris County. The unit will be under the personal direction of the hospital director, Dr. A. E. Greer, in cooperation with the clinic. A full quota of patients has already been admitted.

VERMONT

Election of Dr. Frederic W. Sears.—At the one hundred and eighth annual meeting of the Vermont State Medical Association, recently held at St. Albans, Dr. F. W. Sears, Burlington, was elected president. The other officers were announced in THE JOURNAL of November 5.

CANADA

Prescriptions for Liquor.—Only 10 per cent. of the physicians practicing in Manitoba issue their limit of 100 prescriptions for liquor. The records show that thirty-nine physicians used their allotment, and of the remainder, 500

issue only six prescriptions, and in some cases physicians have not exhausted their original pads.

Personal.—Dr. James A. Robertson, medical officer of health for Stratford, Ont., recently celebrated the completion of fifty years of practice in Stratford and vicinity.—Dr. James Coyne, St. Thomas, Ont., was recently elected president of the Ontario Registrars' Association, succeeding Dr. Raymond Reaume of Windsor, the retiring president.

Academy of Medicine, Toronto.—The new auditorium for the Academy of Medicine, Toronto, has been completed and was formally opened recently. The alterations and additions cost \$25,000, and \$23,000 has already been subscribed by members. The new auditorium is surmounted by spacious reading rooms, and subjacent cloak and comfort rooms.

University News.—The final meeting of the old University of Toronto Alumni Association and the first meeting of the new Alumni Federation of the University of Toronto were held recently for the purpose of reorganizing this body into a corporation with scope extended to include membership of the separate college alumni associations. The board of directors for the new association are Drs. George E. Wilson, George H. Locke and Angus McMurphy.

Public Health News.—Dr. Charles J. Hastings, medical officer of health, Toronto, in his monthly report presented recently to the board of health, states that the general mortality rate for the city, for 1921, continues low. Using for the first time the recently published assessment, population figures of 522,666, the rate for October is 9.8, and for the ten months, 11.3. Cancer and heart disease account for the largest number of deaths. Both of the typhoid deaths, and sixteen of the twenty-four cases reported, originated outside Toronto; the other communicable diseases are lower than usual for this time of year. Twelve cases of infantile paralysis were reported during October, with one death. The infant mortality rate continued the lowest yet recorded.

Hospital News.—The conjoint annual convention of the Alberta Hospital Association and the Alberta Association of Registered Nurses was held in the new medical building of the University of Alberta, Edmonton, recently. A number of interesting papers were read by prominent practitioners.—The cornerstone of the new memorial wing of the Public General Hospital, Chatham, Ont., was laid recently by Dr. Tecumseh K. Holmes, a veteran surgeon of Kent County. The new building is of fireproof construction, and all modern services will be installed.—The cornerstone of the new Soldiers' Memorial Hospital, Orillia, Ont., was laid recently by the lieutenant-governor of Ontario. The hospital is being erected at a cost of more than \$100,000 and is the gift of the citizens as a memorial to the soldiers of this community, who fell in the World War. The hospital will contain fifty beds.

GENERAL

Joint Resolution for Monument to Gorgas.—A Senate joint resolution by Senator Heflin of Alabama would authorize that \$50,000 be spent in the erection of a monument in the city of Washington to Major-Gen. William C. Gorgas, former Surgeon-General of the Army, in commemoration of the services rendered by him to humanity.

Personal.—Dr. J. Hedley Scudder, Oakland, Calif., has been awarded the Order of the Rising Sun by the Japanese government in recognition of meritorious work accomplished in Siberia when acting as major in the U. S. Medical Corps. Dr. Scudder went into Siberia with the expeditionary forces in August, 1917, from the Philippine Islands, where he had lived for three years.

New Officers for Medical Society of the Southwest.—At the recent meeting of the Medical Association of the Southwest at Kansas City, Mo., Dr. Cloud Cooper, Fort Smith, Ark., was elected president to succeed Dr. Edward H. Skinner, Kansas City, Mo. The new vice presidents are: Dr. George Wilse Robinson, Kansas City; Dr. Alfred F. O'Donnell, Ellsworth, Kan.; Dr. Curtis R. Day, Oklahoma City, and Dr. Truman C. Terrell, Fort Worth, Texas. Dr. Frederick H. Clark, Omaha, was elected secretary-treasurer.

Status of Sheppard-Towner Bill.—The Sheppard-Towner bill for protection of maternity and infancy, already passed by the Senate, has been favorably reported by the House Interstate Commerce Committee. Chairman Winslow is now engaged in drafting the report of the committee. The bill authorizes an annual appropriation of \$1,000,000 for five years, for use by the states and federal government in efforts to protect infants and mothers. An additional appropriation of \$450,000 for starting the work is included in the bill.

Limit on Beer Prescriptions Set.—Notwithstanding the recent regulations for the prescribing of beer in unlimited quantities by physicians, Prohibition Commissioner Haynes has announced that the old maximum of 100 prescriptions every three months will remain in force. This attitude is based by Commissioner Haynes on the former regulations covering physicians' prescriptions which provide that no doctor shall issue more than 100 prescriptions every quarter, regardless of whether whisky, beer or wine or some other of these intoxicating remedies are given patients. November 18 has been set as the day on which the Senate will finally vote on the Willis-Campbell conference report prohibiting the sale of beer as a medicine. The measure has already passed both houses of Congress, and was held up in the Senate by an amendment prohibiting the search of private property without a warrant. The prohibition of medical beer is not involved in the issue before the Senate.

Red Cross Medical Supplies for Russia.—Medical supplies, including drugs, hospital supplies and equipment, and hospital clothing from Red Cross stock in Europe and the United States are being shipped to Soviet Russia, and by the end of the year Red Cross supplies valued at more than \$1,750,000 will have been placed at the disposal of the American Relief Administration for use in the disease ravaged provinces. Dr. Henry Beeuwkes, in a recent report to national headquarters, states that the present plans contemplate the supplying of existing hospitals and clinics with drugs and hospital supplies essential to their operation, the organization of clinics at food distributing centers in areas without medical facilities, and the inauguration of measures to prevent and combat diseases in areas in which they operate. In order to combat typhus, large numbers of baths and disinfecting units are being installed and controlled by American personnel and operated by the Russians. Installations will be simple and the cost low in comparison with the benefit they will render in areas badly infested and without bathing facilities.

Deductions for Contributions in Tax Bill.—In the final passage of the tax bill in the Senate, there are two provisions which are disappointing to those engaged in the work of raising money by gift or contribution for educational or hospital purposes. The Senate refused to acquiesce in the provision, as passed by the House, allowing deductions to corporations in their income tax for contributions or gifts. The House provision permitted a deduction of 5 per cent. of the net income of any corporation on account of such gifts. The authority to restore this text in the bill now rests with the conference committee. Many hospitals, colleges and organizations like the American Red Cross are expected to request the conference committee to retain the House provision in the final passage of the tax bill. While the tax bill grants no deduction whatever to a corporation for gifts or contributions, it does allow a deduction up to 15 per cent. of an individual taxpayer's net income, made as contributions or gifts. Educational and philanthropic workers endeavored to have this exemption increased to 25 per cent. These efforts, however, failed.

Gorgas Memorial Institute Elects.—The board of directors of the Gorgas Memorial Institute at the national headquarters in Washington elected the following officers: Drs. William C. Braisted, president; Franklin Martin, vice president; Arthur P. Robbins, Burlington, Iowa, executive secretary, and Mr. Edward J. Stellwagen, president of the Union Trust Company, Washington, treasurer. The purpose of the organization of an executive committee is to further a movement to introduce the sanitary methods devised by the late Surgeon-General Gorgas in all the civilized countries of the world. Word was recently received by the institute that Dr. Richard P. Strong, dean of the department of tropical medicine of Harvard University and former director of the biologic laboratory at Manila, has accepted the post of scientific director of the Gorgas Memorial Institute of Tropical and Preventive Medicine, to be built at Panama City on a site presented to the United States by Dr. Belisario Porras, president of the Republic of Panama. The presentation of the site was made recently in Philadelphia by Jose Lefevre, chargé d'affaires of Panama at Washington.

LATIN AMERICA

Women's Medical Association of the Philippine Islands.—This newly organized society is open to all women physicians practicing in the Philippine Islands. The president is Dr. María Paz Mendoza, with Dr. Felisa Nicolás, vice president, and Dr. Anastasia Villegas, secretary.

FOREIGN

Acta Radiologica.—This is the latest periodical to appear in the roentgenologic field. It is the official organ of the societies of Norway, Sweden, Denmark and Finland, and Dr. Gösta Forsell is the editor.

Physician Bequeaths Fund to City.—Dr. Ernst Asch of Frankfurt a. M., Germany, has left his property, estimated at 1,700,000 marks, to the city of Frankfurt for a fund to be used for scientific or sociologic purposes or to promote art.

Prize for Research on Sexual Science.—The German Society for Sexual Science and Eugenics, of which Dr. H. Koerber, Meinekestrasse 7, Berlin, is secretary, announces that Dr. Placzek has given the funds for a prize of 2,000 marks to be awarded for the best work offered in competition on the subject of possible anatomic bases for homosexuality being congenital. Competition is restricted to Germans in Europe.

Abderhalden Fund.—It was mentioned on page 1348 that the Berzelius medal had been conferred on Abderhalden, and the *Medizinische Klinik* relates that the city of Halle has placed the sum of 100,000 marks at his disposal for scientific research in token of appreciation for his decision to stay in Halle when offered a chair in a Swiss university. He is publishing a "Handbuch der biologischen Arbeits-Methoden." Thirty-six parts have already been issued, each by a different research worker.

Treatment for Soldiers with Head Injuries.—A dispensary for this purpose has been organized at Berlin for medical aid and advice for ex-soldiers who had been wounded in the head, and who have not received sufficient treatment. They will be directed to the special school for training those with brain injuries, where medical and pedagogic courses are being given, or they will be treated in the dispensary, or be sent to the nervous diseases department of the Charité Hospital. The dispensary, at Luisenstrasse 14, is open from 12 to 2 Mondays and Thursdays, and is in charge of Dr. M. Liepmann and Dr. Loewy-Nattendorf.

Child Welfare Work in Austria.—The American Red Cross has taken over 100 welfare stations in Austria which were threatened with extinction, being under financial difficulties, and has guaranteed their support for one year. The Red Cross will make use of the stations already established, retaining their staffs where possible. The relief will include provisional rations for children under 4 years of age, cod liver oil for those children whose parents are unable to buy it, and clothing. In Lemberg, the capital of eastern Galicia (Poland) the child welfare work is already cared for by the American Red Cross medical unit stationed there.

Next International Congress for History of Medicine.—The topics appointed for discussion at the next international congress on the history of medicine are: (1) The principal foci of epidemic and endemic diseases of the middle ages in the Occident and the classic Orient, and (2) The history of anatomy. The congress is to be held at London on July 24-29, 1922, Professor Singer of Oxford to preside. The officers of the International Society for the History of Medicine are Giordano of Venice, Singer of Oxford, Jeanselme and Menetrier of Paris, with Tricot-Royer, president. Laignel-Lavastine is the secretary. His address is rue de Rome, 45, Paris.

Deaths in Other Countries

Dr. G. von Merkel, a leading clinician of Germany, residing at Nürnberg, aged 87. He was one of the founders of the German Internal Medicine Congress organization, and one of the editors of the *Münchener medizinische Wochenschrift* as well as of the *Deutsches Archiv für klinische Medizin*.—**Dr. M. Parpal** of Santa Fé, Argentina, a member of the legislature and authority on leprosy.—**Dr. A. L. Fønss**, a dermatologist of Copenhagen.—**Dr. E. Tachard** of Strasbourg, aged 77.—**Dr. Santos Junior**, physician to the Portuguese Hospital at Rio de Janeiro.

CORRECTION

Appointment at Cushman Hospital, Tacoma, Washington.—In THE JOURNAL, October 29, the last personal item under Washington should have read: "Frederick L. Wright has been assigned to succeed Major William Edler, at the Cushman Hospital, Tacoma, who has been transferred to the U. S. Public Health Service in St. Louis." We were erroneously informed that Major Edler was succeeded by Dr. Herman S. Judd.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 24, 1921.

Reduction of Insurance Physicians' Capitation Fee

At the annual conference of representatives of local medical panel committees, a long discussion took place on the government proposal to reduce the capitation fee (reported in a previous letter). The conference reaffirmed the opinion that \$3.25 was the lowest capitation fee that should be offered for an effective service, and asserted that there was no justification for the demand that the arbitration award of \$2.75 (now in force) should be reduced. But the conference recognized the force of the "appeal to citizenship" made by the minister of health to insurance physicians "to make some sacrifice for the common good in a great financial crisis," and was willing to urge physicians to respond to this patriotic appeal to any reasonable extent consistent with the interests of public health. It decided to ask the government to discuss with representatives of the profession the best means of carrying this into effect. The conference authorized the Insurance Acts Committee of the British Medical Association to consider with the government a rebate of 25 cents on the present capitation fee. It also resolved that the measure of success which has attended the experiment of providing medical benefit under the insurance acts should be allowed to work during a number of normal years with only such incidental improvements as experience proved necessary, before any reliable conclusions can be drawn as to their effect on the public health. A deputation from the conference waited on Sir Alfred Mond, minister of health, and laid before him the reply of the conference to his proposal. He declared himself unable to alter the capitation fee of \$2.25 which he proposed when he received the previous deputation. He had then said that he was not bargaining, but laying down a final figure. He pressed strongly on the conference the need of coming to a decision, as the scrapping of the whole system of medical benefit was being urged. The taxpayer desired to be relieved of expenditure at almost any cost and in almost any manner. There was an outcry of a not uninfluential section, both lay and medical, attacking the panel system. Asked for a guarantee that the rate now proposed should last for three years, he said he could not do this but could give a guarantee for two years. The deputation reported to the conference, and after discussion it was decided by a large majority to accept the offer of the minister of health. A desire to help their country in the present serious financial position was one motive in agreeing to accept the offer. But the danger of the whole system being scrapped on refusal also played a part. Approximately \$33,000,000 is paid annually to panel physicians. The value of so much fixed remuneration is relatively greater in the present time of financial stress, when remuneration and prices are falling on all sides.

Novelties in Medicine

In an inaugural address at the one hundred and eighty-fifth session of the Royal Medical Society of Edinburgh, Sir Dyce Duckworth said that a great many novelties had been brought out which had not been sufficiently tried. Young men were trying these new things, and their heads had not been properly filled with the things which were known to do good. He advocated the well-tried remedies. In the wild hurry of today it was not recognized that new methods required long and serious study. These novelties were mischievous in with-

drawing confidence from the old remedies, long approved by the skill and brains of our forefathers. Speaking of alcohol, he said that science had failed to aid the physician in prescribing it in any form of disease, but he would regard the total prohibition as distinctly hurtful to any Christian country. On the other hand, experiment had shown that no man in health could do his work better by taking whisky or beer during its progress. The evidence was that it diminished the output of energy, but an alcoholic beverage might be taken, if desired, in strictly moderate quantity when a man's work was done, and be a refreshment to his body.

Games for Girls

At the Medical Officers of Schools Association, Dr. A. E. S. Clow opened an important discussion on this subject. She thought that the time was past when it could be maintained that field games, such as cricket and hockey, were bad for girls, but there was still some dispute among educational authorities. The outdoor recreations within the reach of schoolgirls were walking, cycling, swimming, drilling and gymnastics, and games—cricket, tennis and rounders in summer, hockey, lacrosse and netball in winter. Cycling was good enough exercise for the legs, but gave no exercise to the abdominal muscles or arms. Walking was a good exercise, but should not be the only one, because the muscles of the back, abdomen, shoulders, arms and neck were only partially brought into play. She praised swimming as one of the most exhilarating of sports. Drilling and gymnastics were excellent in moderation, especially in the open air, but did not take the place of games. She had never seen any ill effects from gymnastics, and saw no reason why they should not be as beneficial to girls as to boys. The best games for schoolgirls were team games—cricket, hockey and lacrosse. The important part played by games in character building had been recognized for generations: girls stood in need of them just as much as boys.

Whether games had a detrimental effect, immediate or remote, on the reproductive organs was in dispute. Dr. Clow had made a special note of their effect on the menstrual function and found that a smaller proportion suffered from any menstrual disorder among those who played games than among those who did not, and that this small proportion was still further reduced if the usual exercise was continued throughout the menstrual period. She advised every girl to continue her warm bath and her games as usual during the period, if she felt so inclined. A great many who formerly suffered from various degrees of dysmenorrhea became free from it. Thus, those who consulted her for dysmenorrhea were usually elder girls reading for examinations, who in their zeal reduced the time for exercise. When they resumed their former daily exercise, their symptoms disappeared. As to the remote effect on pregnancy, childbirth and the child, she doubted whether there were any figures sufficiently large for general conclusions. But coincident with the growing popularity of athletics among girls there had been a diminution in the mortality of childbirth and in infantile mortality. Moreover, centuries had proved that generations of women who hunted had been the mothers of large and healthy families.

In the discussion, in which several women physicians who had medical charge of large schools for girls took part, there was general agreement with the views of Dr. Clow. Mrs. M. Scharlieb pointed out that nature had provided a gigantic experiment in India. The well-born Brahmin girl suffered from want of development of her moral nature and of her abdominal muscles, and suffered proportionately in labor. On the other hand, among the low-caste road makers, the women did hard work in the open air, and were able to return to work immediately after child bearing.

HELSINGFORS, FINLAND

(From Our Regular Correspondent)

Sept. 15, 1921.

Congress of Pathologists

The first congress of the northern pathologists was held, August 29 and 30, at the Karolinska Institute, Stockholm. After President Sundberg of Stockholm had greeted the fifty delegates, Fibiger of Copenhagen gave an account of his experimental production of tar cancer in white mice. A number of slides were demonstrated. American readers are probably familiar with his work, and thus know that Fibiger has succeeded to a larger extent than his predecessors Yamigawa, Ichikawa and Tsutsui in the experimental production of cancer. To what an extent these malignant looking, metastasis-forming, transplantable tumors really are identical with cancer in man remains to be solved.

Henschen of Stockholm demonstrated specimens of tumors grown in the ethmoid bones of horses. During the last few years this disease had assumed an epizootic character in Sweden and were included with diseases which the veterinary surgeon must report. Clinically, the disease started as an acute suppurative rhinitis, which became chronic and assumed a hemorrhagic nature. Later, several tumors became visible. The histologic examination of each growth shows a number of tumors of different character; side by side occur carcinoma, adenocarcinoma and papilloma. The multiple appearance of the tumor, its polymorphism, the clinical history and the presence of lymphoid cell infiltrations make one believe that the etiology may be an organized virus. No attempts to demonstrate this, nor any transplantation experiments have, however, succeeded.

Castren of Helsingfors gave a description accompanied by lantern demonstration of the epithelioid and giant cells in human tuberculous tissue. During the last few years he has been examining the microcentra, reticular apparatus, and other structures in the above named cells. These different structures, which all can be visualized with the help of specially developed fixations and staining methods, form a peculiarly arranged system, with the microcentrum in their center. The fibroblasts present in the tuberculous tissue have a similar, though not quite so much differentiated structure.

Jervell of Christiania had continued examinations started by von Dungern and Hirschfeld in 1910 in regard to the iso-agglutinins and the corresponding receptors, and the agglutinogens A and B. The earlier authors had demonstrated that the presence of the receptors in the blood was a dominant character, while no receptors indicated a recessive character. Jervell has studied these questions in Norwegian families. He was able to confirm the earlier findings. In some cases a cleavage of the two receptors could occur, so that a child had only one or the other of them. On the other hand, both structures could occur in a child, when the parents had only one each. These findings could be of some bearing in legal medicine, especially in establishing the paternity. Thus, if in a child's blood a receptor could be demonstrated which was not present in the mother, it must be present in the father's blood.

De Besche of Christiania, through study of Walker's work on asthma, had become interested in this subject. In a series of twenty-three cases he tried several tests with horse serum, horsehair, and skin tests with his own modification of the ophthamoreaction. The latter consists of rubbing the eye with a finger that has touched a horse. Fifty per cent. of the cases reacted positively to horse serum, 75 per cent. to the horsehair test, and 100 per cent. to the ophthamoreaction; the degree of reaction varied from redness to edema. De Besche then succeeded in transmitting this anaphylactic

state to another human being. This he did by injecting intracutaneously one drop of serum from a horse asthmatic into the arm of a healthy man. Twenty-four hours later he injected some horse serum into the same place and now he got a strongly positive reaction, but only on this place. Control tests with normal serum and sodium chlorid were negative.

ARTERIOSCLEROSIS

On the next day the discussion concerned arteriosclerosis. Reuterwall of Stockholm gave an account of the historical development of the question. Kerppola of Helsingfors suggested this classification of the various forms: A, hypertrophic; B, alterative; C, combined. In the hypertrophic form, no degenerative processes occur. In the B group, degenerative processes alternate with hypertrophic processes. This group he subdivides into (1) the arteritic; (2) arteriotic (true toxins); (3) traumatic; (4) hypoplastic (congenital); (5) atrophic (senile), and (6) nutritional sclerosis. The last named is caused by nutritional disturbances, vasa vasorum being affected, and begins with degenerative processes in the media next to the intima. The etiology of this form is often syphilis, but it may also develop as a secondary process to the arteritic form. Harbitz of Christiania described cases of multiple arteritis and phlebitis on a rheumatic basis.

KIDNEY ARTERIES AND HIGH BLOOD PRESSURE

A. Wallgren of Finland, professor of pathologic anatomy, had undertaken to solve this problem by examining a series of kidneys from patients with high blood pressure. As control cases he had material from 190 successive postmortems. Of these, however, only fifty-one had normal kidneys. In these he finds some interesting changes in the kidney arteries. In the latter half of the first decade, intima proliferations of pure elastic or combined collagen and elastic type are already visible in the larger kidney arteries. These proliferations become more numerous with advancing years, and at 30 years similar changes can be seen in the finer arteries in the inner parts of the cortex. After 30 years there begins a more or less widespread reduction of the media musculature, usually associated with hypertrophy of the connective tissue element. The fine calibered arteries become more and more twisted. At still higher ages undoubtedly regressive processes in the elastic tissue appear. At 70 years hyalin (yellow with van Gieson's stain) can be seen beneath the endothelium of the vessels. Kidneys from forty-four cases of hypertension were now compared with these. Ten cases showed blood vessels conforming with these of the normal age group. Some of these were from persons having suffered from severe neuroses or undoubted endocrine disturbances. In the thirty-four remaining cases the typical picture of nephrosclerosis was found. The condition of the blood vessels in nephrosclerosis differs not in any qualitative but only in a quantitative respect from the changes seen in the normal development and aging. As thus in more than 20 per cent. of the high blood pressure cases there is no nephrosclerosis, high blood pressure can be classified in (1) hypertonia with nephrosclerosis and in (2) hypertonia without nephrosclerosis. That in the first group the sclerosis is primary and the rise in blood pressure secondary, Wallgren considers never to have been satisfactorily shown. On the contrary, he thinks it is probable that the sclerosis is secondary. He reached this conclusion from a study of the arterioles in other organs of thirty-two hypertonic and eighteen normal cases.

Kragh of Copenhagen seemed to have solved the problem of esophageal traction diverticula, a term which he proposes to change to tuberculous diverticula. In his studies of fifty-one cases of fully developed diverticula and fourteen

instances of recent adhesions between lymph glands and the esophagus, found in postmortem examinations of 556 bodies, he always finds tuberculosis. The tuberculous process originates in the lymph glands, extends into the esophagus and causes a stricture and later perforation, through which the esophageal epithelium grows. Thus the diverticulum is formed.

Holsti of Helsingfors had examined a series of twenty pairs of tonsils, removed by operation from patients with various forms of arthritis. In nearly all of them he finds grave inflammatory processes, extending through the capsule; in the latter are thrombosed vessels regularly seen. The examinations are being continued.

BACTERIOLOGY

The last afternoon was taken up by papers on bacteriologic subjects. The type question in regard to meningococci and gonococci was discussed by Thomsen and by Vollmond of Copenhagen. It seems as if both these cocci could be subdivided into at least three types, as Cole has shown to be the case with the pneumococci.

BERLIN

(From Our Regular Correspondent)

Oct. 12, 1921.

Past Results and Future Prospects of Specific
Tuberculosis Therapy

Professor Neufeld, director of the Berlin Institute for Infectious Diseases, one of the most eminent tuberculosis investigators of Germany, publishes in the *Zeitschrift für Tuberkulose* an excellent critical survey of the prospects of specific tuberculosis therapy. He claims to have established that Wright's opsonin hypothesis is entirely deficient in its theoretical basis, since Wright neglected to substantiate his theory by animal experimentation. All clinicians doubtless have become convinced that the treatment of tuberculosis by the Wright method secures no better results than the usual tuberculin treatment. As for the nature of tuberculin treatment, it was formerly regarded as self-evident that its action constituted an active immunization process; but, the fact is, it has only a striking external similarity to the methods of "acute" immunization, since, as a rule, the patient becomes very rapidly habituated to increased doses of the remedy. But all animal experimentation shows most conclusively that old tuberculin exerts no immunizing effect whatever. For this reason, Robert Koch tried to produce new tuberculin preparations from the body elements of tubercle bacilli, and further attempts have been made to use whole killed bacteria subcutaneously and intravenously to effect immunization. The new tuberculins, as well as the whole killed bacteria, show, indeed, in animal experimentation entirely different qualities than old tuberculin, which contains essentially only the soluble product of secretion. On healthy animals, they act as antigens; that is, by their aid, complement-binding antibodies, agglutinins and precipitins can be produced. Since Robert Koch was able to accomplish the same thing in tuberculous subjects by intravenous injection of good-sized doses, it was hoped that in such patients marked improvement would follow. But also these high-flown expectations were doomed to disappointment. The same result was observed also in the treatment of numerous cases of far advanced pulmonary tuberculosis with large doses of bacillary emulsion. With the new tuberculins, not only antibodies can be produced but also, in certain cases, hypersusceptibility and immunity; it is thus not correct to say, in principle, that neither can be brought about other than through treatment with living virus. But in all trials with the killed virus the effect was feeble and irregular. Nevertheless, the fairly good immunization

results that Momose attained in Kassel's laboratory with tubercle bacilli administered to guinea-pigs are worthy of note; but still more interesting are the results that he secured with the same preparations in the treatment of infected guinea-pigs. However, Momose himself is very cautious about drawing conclusions. Robert Koch, during his last years, treated tuberculous subjects with various antigens, sometimes subcutaneously and sometimes intravenously. Concerning these experiments Möllers and Jochmann (*Deutsche medizinische Wochenschrift*, 1910, No. 21, and 1912, No. 16) expressed themselves very reservedly. Neufeld stated that the experimental basis of the treatment with so-called partial antigens inaugurated by Deycke and Much is defective. In his opinion, adequate experimental proof is lacking that Much's preparations are superior to other tuberculins and that with their aid anything essentially different can be accomplished. He agrees with F. Klemperer that partial antigen therapy is probably only "tuberculin treatment with small and minimal doses." Neufeld does not expect much from von Hayek's views. Nor have the attempts to secure better results with the existing preparations by different modes of application (Spengler, Petruschky, Ponnendorf) accomplished anything worth while. The use of living, acid-fast cultures; that is, bacteria which, as regards their staining qualities, are closely allied to tubercle bacilli (Möllers, F. Klemperer, Dieudonné, Behring, Koch) has not satisfied the high expectations entertained by some. Concerning the theoretical basis of Friedmann's procedure, he expresses himself thus: "If, with this, we compare Friedmann's positive results, which are confined to experiments with three guinea-pigs, we are compelled to state that probably scarcely ever have such inadequate experiments been known to enjoy the honor of so much reinvestigation." Neufeld regards it as a fact that Friedmann (like so many others before and since) isolated some acid-fast cultures from cold-blooded animals and with these performed some immunization experiments, almost all of which resulted negatively, thus yielding much worse results than immunization with killed bacteria, which in themselves were modest enough. "The manner in which Friedmann reports his findings in this instance and on other occasions is in marked contrast with the customary methods employed by scientific investigators, and it is a very mild judgment if his method of reporting is referred to as extremely superficial." With regard to the technic of Friedmann's treatment, Neufeld emphasizes that one gets the impression that the application of the remedy required special experience and, if possible, special training. "On closer investigation it became evident that the doses of the remedy that were designated as 'weak' often contained more bacilli than those that were termed 'strong,' and when we clear away all the phantastic nonessentials and disclose the naked facts, there can be no doubt that the Friedmann treatment of tuberculosis follows more closely a fixed routine than has ever before been recommended in this disease." For the purpose of comparison I would refer to the statement of Geheimrat Kruse (Leipzig), the "chief comptroller of the Friedmann remedy," who, in a polemic discussion with Haberland, defends the purity of the Friedmann remedy (*Münchener medizinische Wochenschrift* 68:1256 [Sept. 30] 1921): "All that has been brought out by the controversy over the Friedmann remedy is that (1) it can be wrongly used, and (2) along with a countless number of cases correctly and successfully treated there is here and there a case in which the disease, in spite of all treatment, can no longer be checked." Even genuine living tubercle bacilli, when their virulence has been weakened beyond a certain extent, no longer produce any noteworthy immunity (Kraus and Volk, Römer, Selter, Neufeld). Treatment with Marmorek serum

has been discarded. "No one will maintain that the advocates of this serum displayed any weaker judgment than those who now, for example, report their success with the Friedmann remedy. In fact, the two remedies were favorably reported on by the same institutions; for example, the Kraus clinic." Neufeld emphasized that we have no prophylactic vaccination against tuberculosis that is applicable to man. Children inoculated by the Friedmann method may take tuberculosis and die just as well as those who are not inoculated. Hamburger's recommendation that young children be immunized by the subcutaneous injection of small quantities of living but attenuated human tubercle bacilli is rejected most vigorously by Neufeld. He also condemns injections of bovine bacilli applied to healthy children. Neufeld ends his valuable observations with the statement that in all attempts at immunization against tuberculosis a limit is set beyond which we cannot go: "Let us not forget that in all forms of immunization we are only imitating Nature, which causes antitoxins to appear in the blood of a diphtheria convalescent and bacteriolytic substances in the serum of a cholera patient. To one who has recovered from smallpox or measles, Nature grants an immunity that often lasts his whole life through, but to the patient who has recovered from tuberculosis she denies this boon. He who sets for himself the goal, as many investigators persist in doing, of an immunizing process in tuberculosis comparable with that of smallpox is looking for something that does not exist."

A Testamentary Provision

In a letter addressed to his successor, Professor Fick, Waldeyer stipulated that on his death, his brain, skull and hands should be bequeathed to the Berlin Anatomic Institute. He was influenced to take this action by the desire that anatomic investigations should frequently be conducted on persons who are well known, in order that certain questions may gradually be cleared up. In this connection, it may be mentioned that the brains of Helmholtz; the famous painter Adolph Menzel, and the eminent historian Mommsen were also subjected to an anatomic examination. A treatise on the subject was published several years ago by the late pathologist Professor von Hansemann.

Marriages

ROBERT FRIDENBERG PEREZ, JR., New York City, to Miss Mary Willard White of Poughkeepsie, N. Y., September 18.

THEODORE SENSEMAN to Mrs. Laura Peters Youngman, both of Atlantic City, N. J., in New York City, November 4.

LELAND CARSON MCINTOSH, Henderson, N. C., to Miss Bessie Lee High of Campobello, S. C., November 3.

JOSEPH WINTHROP PEABODY to Miss Naomi Edelen Galloway, both of Washington, D. C., August 10.

WILLIAM E. MUSGRAVE to Mrs. Florence Blyth Hinckly Moore, both of San Francisco, October 31.

D. POWELL JOHNSON, Chicago, to Miss Ione Elizabeth Kneese of Muscatine, Iowa, October 25.

WALLACE EDSON ROSE to Miss Alma Tayler, both of Kearney, Neb., at Omaha, September.

AARON BILLINGS GATES to Miss Anne Henshaw Glover, both of Greenwich, Conn., October 20.

RAYMOND P. CARROLL, Laurel, Neb., to Miss Marie Helen Maney of Omaha, September 20.

GLEN ELMO PETERS to Miss Paula Nordhues, both of Randolph, Neb., September 20.

FRANK G. CRANDALL to Miss Eleanor N. Anderson, both of Woodburn, Iowa, recently.

Deaths

Bingham Hiram Stone ☉ Burlington, Vt.; University of Vermont, Burlington, 1899; pathologist for the state of Vermont; director of the state laboratory of hygiene; professor of bacteriology and pathology, University of Vermont; died, October 27, from cerebral hemorrhage, at the Mary Fletcher Hospital, Burlington, aged 47.

Robert Thomas Irvine ☉ Ossining, N. Y.; McGill University, Montreal, 1885; physician to Sing Sing Prison, 1891-1908; since February connected with the War Risk Insurance Bureau, Washington, D. C.; former health officer of Ossining; died suddenly, November 1, from heart disease at Washington, D. C., aged 63.

William L. Garrison ☉ Toulon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1890; Rush Medical College, Chicago, 1893; died, November 3, at the Francis Hospital, Kewanee, Ill., from injuries received when he fell from his office window in Toulon, aged 53.

J. Anson Smith ☉ Blackwood, N. J.; Jefferson Medical College, Philadelphia, 1897; superintendent of the Camden County Hospital for the Insane, Blackwood; died, October 27, following an operation for appendicitis, in the Cooper Hospital, Camden, aged 50.

George F. Merritt ☉ St. Peter, Minn.; Rush Medical College, Chicago, 1872; former president of the Minnesota Valley Medical Association; coroner for Nicollet County, and for many years city health officer; died, October 26, from chronic myocarditis, aged 74.

Herbert Woodworth Schwartz, Washington, D. C.; Syracuse University, College of Medicine, 1884; lived for many years in Japan, where he occupied the chair of physiology at the Tohoku Imperial University, Sendai, for five years; died, October 28, aged 62.

Bernice Barks Barr, Clinton, Mo.; Bellevue Hospital Medical College, New York City, 1880; member of the Missouri State Medical Association; former coroner of Henry County; died, October 31, from injuries sustained in an automobile accident, aged 64.

Jacob Henry Stewart, St. Paul; University of the City of New York, 1883; served in the Serbian army during the Russo-Serbian War; formerly on the staff of the Bellevue Hospital, New York City; died, October 28, from heart disease, aged 71.

Daniel Castillo, Graham, Va.; Medical College of Virginia, Richmond, 1916; member of the Medical Society of Virginia; died, October 22, at St. Luke's Hospital, Bluefield, from a bullet wound in the brain, presumably self-inflicted, aged 32.

Howard Davidson Harrison, Toronto, Ont.; University of Toronto, 1910; M.R.C.S. Eng., 1912; L.R.C.P. London, 1912; served during the late war on a troopship between India and Europe; died recently, from typhoid fever, aged 33.

J. Eugene Bingham, Elk Mound, Wis.; Milwaukee Medical College, 1905; died, October 23, from the effects of a gunshot wound, presumably self-inflicted, at the home of his brother at Sevastopol, Wis., aged 49.

Thomas Charles White, Jr. ☉ Bobo, Miss.; Jefferson Medical College, Philadelphia, 1900; former county physician; died, October 30, at the Ivy Hospital, West Point, Miss., after a long illness, aged 48.

Neafie Richardson, Philadelphia; Medico-Chirurgical College of Philadelphia, 1906; member of the Medical Society of the State of Pennsylvania; died, suddenly, October 30, from heart disease, aged 49.

William J. Taylor ☉ East Liverpool, Ohio; St. Louis College of Physicians and Surgeons, 1897; British veteran of the Boer war; died suddenly, October 30, from cerebral hemorrhage, aged 68.

Thomas Burnfield Henry, Northville, Mich.; Detroit College of Medicine and Surgery, 1897; served during the World War as major, M. C., U. S. Army, died, October 26, from uremia, aged 46.

D. Webster B. Kupp, Reading, Pa.; University of Pennsylvania, 1882; member of the board of pension examining surgeons since 1898; died, October 30, from cerebral hemorrhage, aged 64.

David P. Weaver, Avon, Ill.; Eclectic Medical Institute, Cincinnati, 1886; died, October 30, at the Galesburg Cottage

Hospital, Galesburg, Ill., from pneumonia, following an operation, aged 72.

Bebbee L. Van Winkle, Belpre, Ohio; Miami Medical College, Cincinnati, 1889; member of the Ohio State Medical Association; died, October 30, from cerebral hemorrhage, aged 59.

Ellwood Patrick ☉ Westchester, Pa.; University of Pennsylvania, Philadelphia, 1880; former president of the school board; died, October 30, from pulmonary congestion, aged 65.

Philip Rankin Koons, Mechanisburg, Pa.; Jefferson Medical College, Philadelphia, 1879; member of the Medical Society of the State of Pennsylvania; died, October 30.

Charles T. McClintock, Sarasota, Fla.; University of Michigan, Ann Arbor, 1894; member of the Medical Society of Virginia; died, October 22, at Jacksonville, aged 61.

Frederick J. Munn, Toronto, Ont.; University of Toronto, 1906; major, R. A., M. C.; died, September 11, from typhoid fever in the Wellesley Hospital, Toronto, aged 39.

James Campbell Andrews, Philadelphia; Eclectic Medical College, Cincinnati, 1868; died, November 2, at the home of his stepdaughter, from paresis, aged 84.

Eli Spear Jones, Gadsden, Ala.; University of Alabama, Mobile, 1883; member of the Medical Association of the State of Alabama; died, October 29.

Eben Jeremiah Russ ☉ St. Mary's, Pa.; National Medical College, Washington, D. C., 1861; died, November 13, from myocardial insufficiency, aged 81.

Isa A. Eberhart, Chicago; Bennett Medical College, Chicago, 1889; also a lawyer; died, October 29, at Riverside, Mich., from senility, aged 87.

Richmond Thompson Story, Burley, Ida.; Missouri Medical College, St. Louis, 1887; died recently in California, following an operation, aged 61.

George W. Bradley, Waverley, Ill.; Louisville (Ky.) Medical College, 1871; practitioner for fifty years in Waverley; died, November 1, aged 83.

Emanuel R. Hershey, Lancaster, Pa.; Jefferson Medical College, Philadelphia, 1880; also a dentist; died recently, at Marietta, Pa., aged 74.

Seth S. McKay, Johnson City, Tenn.; Meharry Medical College, Nashville, 1899; died, October 15, from cerebral hemorrhage, aged 58.

William Wallace Carey, Cuyahoga Falls, Ohio; Eclectic Medical Institute, Cincinnati, 1903; died, November 6, in New York City, aged 56.

Edna May Cowling Robertson, Toronto, Ont.; University of Toronto, 1914; died, September 15, at Wellesley Hospital, Toronto, aged 34.

James Alexander Agnew, Ethelsville, Ala.; University of Alabama, Mobile, 1874; died, October 11, from cerebral hemorrhage, aged 70.

Joseph G. Pettitt, Fannin, Texas (license, Texas, 1885); veteran of the Civil War; died, October 17, after a lingering illness, aged 70.

Thomas J. Potter, Smithville, Tenn.; University of Nashville, 1900; died, October 23, from cerebral hemorrhage, aged 60.

Daniel S. Palmer, Holdrege, Neb.; Eclectic Medical College, Cincinnati, 1890; died, October 25, from chronic nephritis.

Marquis L. McAlilly, Hutchinson, Kan.; Missouri Medical College, St. Louis, 1880; died, October 30, at Cloverdale, aged 69.

Phillippe Edmund Mount, Montreal, Canada; Montreal School of Medicine and Surgery, 1865; died, August 21, aged 81.

David W. Vest, Dallas, Texas; University of Alabama, Mobile, 1891; died, October 31, in a local sanatorium, aged 62.

John Rundstrom, St. Peter, Minn.; Central Medical College of St. Joseph, Mo., 1895; died, October 24, aged 86.

Robert A. Barnes, Marion, Ind.; Curtis Physio-Medical Institute, Marion, 1885; died, October 30, aged 81.

Bascom Lynn, San Antonio, Texas; Kentucky School of Medicine, Louisville, 1898, died recently, aged 57.

William Joseph Brady, Brooklyn; University of the City of New York, 1892; died, October 19, aged 56.

Edgar E. Isenberg, Manhattan, Kan.; Barnes Medical College, St. Louis, 1899; died, October 22, aged 52.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

SELENI-BASCCA

The Cosmopolitan Cancer Research Society, Basic Chemical Corporation, Etc.

In the issue of September 3 THE JOURNAL called attention to a campaign of free publicity that was being instituted by a Brooklyn concern that, apparently, had for sale an alleged remedy for cancer. The press-agent material was of two kinds—for medical journals and for newspapers. That which went to the medical journals was sent out on the stationery of the "Medical News Bureau," 77 Seventh Ave., Brooklyn. The "manager" of the bureau was given as D. E. Woolley. The items sent out to medical journals stated that the "Basic Cancer Research" had been organized to develop a treatment of cancer by the use of selenium and tellurium.

The material received by newspapers was sent out by the "Cosmopolitan Cancer Research Society," 847 Union St., Brooklyn (the same address as the "Basic Cancer Research"). The "Secretary" of the "Cosmopolitan Cancer Research" was D. E. Woolley!

The name of one "Dr. Frederick Klein" loomed large in the matter sent out by the "Cosmopolitan Cancer Research Society." Klein, we were told, is "the eminent authority on urinology and the chemistry of cancer." THE JOURNAL called attention to the fact that Frederick Klein's name was not unknown in the Propaganda files, as he was the gentleman who manufactured "Sulfo-Selene," a product that was widely heralded in the newspapers in 1916 as a remedy for cancer. It was also brought out that Klein, who is not a physician, claims to have evolved certain remarkable urinary diagnostic tests whereby the presence of cancer, syphilis, etc., may be determined.

More than a month after the publication of THE JOURNAL's article, a letter was received (October 8) from Frederick Klein. To quote literally from part of the letter:

"In the above JOURNAL dated Sept. 3th, Vol. 77, on page 805, regarding the 'Cosmopolitan Cancer Research Society' you have amongst others, mentioned my name Dr. Frederick Klein.

"I wish to inform you that I have given my legal adviser the order to write a note to the above Cosmopolitan Cancer Research Society, 847 Union St., Brooklyn, forbidden them to the effect that my name should not be used by above society in any form or writing in any of their transactions, this has been done some time ago to prevent unethical conceptions concerning myself."

Shortly after the article of September 3 another item appeared in the newspapers throughout the country to the effect that the Cancer Research Society was offering a "\$100,000 Cancer Prize" for a "medicinal cure for cancer." Many of the newspapers of the country seemed to bite on this piece of free publicity. This was in the first week of October. In the third week of the same month a Brooklyn paper announced that 3,000 people had submitted formulas for curing cancer to the Cosmopolitan Cancer Research Society. The article containing this announcement gave interesting descriptions of some of the "cures" submitted and closed with the statement that the Cosmopolitan Cancer Research Society was establishing "clinics" in various cities. It ended with the statement:

"All treatments are confidential. In this respect the society had the cooperation of the Brooklyn Bureau of Charities. It also has the cooperation of the American Medical Association."

The closing sentence is, of course, unequivocally false.

At the time of THE JOURNAL's article the name of the particular preparation which the Basic Chemical Corporation of America was putting out was unknown. Shortly after the article appeared it was learned that the product was on the market as "Seleni-Bascca." A physician, himself a sufferer from carcinoma, after reading the article of September 3, sent THE JOURNAL some correspondence he had received from

the Cosmopolitan Cancer Research Society regarding the alleged cure. One piece was a letter signed "F. W. Humphrey, Acting Director; Dictated by Dr. George D. Barney," which read in part:

"Our claim is a very simple one indeed, namely that the use of a proper preparation of Selenium (Seleni-Bascca) restores the Sulphur metabolism to normal; we claim that cancer cannot exist in any form, when the Sulphur metabolism is normal, the results from the proper use of Seleni-Bascca in cases of Carcinoma are quick and lasting, the Medical Profession can hardly realize that in this modest treatment a remedy for the Dreaded Carcinoma has been discovered.

"Seleni-Bascca in it's colloidal form is quickly taken up by the blood stream, reaches the finest tissues and almost immediately resists the further growth of the disease. The research work has been going on since 1901, under the direction of Dr. Frederick Klein, in connection with Medical Men who have proved to their own satisfaction that Seleni-Bascca should be used as a treatment in every case of malignancy."

Seleni-Bascca comes in small vials containing fifty tablets. Each vial bears a label reading:

"SELENIBASCCA. A mixture of Colloidal Selenium in tablet form. Recommended in the internal treatment of Carcinoma and some other cases of faulty metabolism."

Some of the preparation was turned over to the A. M. A. Chemical Laboratory with the request that the tablets be examined to determine whether or not they contained, as claimed, selenium in colloidal form. The laboratory report follows:

CHEMICAL REPORT

"An original vial of 'Seleni-Bascca' (Basic Chemical Corporation of America) was examined in the A. M. A. Chemical Laboratory to determine whether or not the substance contained colloidal selenium. The bottle contained 50 tablets weighing approximately 0.1 gm. (about 1½ gr.) each. The major portion of the tablet was soluble in hot water. Qualitative tests indicated the presence of chlorid, sulphate, small amount of nitrate, potassium, sodium, starch, talc and selenium. Tellurium was not found to be present. The ash was equivalent to 5.5 per cent.; over one-half of the ash consisted of a talc-like substance. The amount of selenium present in the specimen examined was only about 1.3 per cent.

"In the literature sent out by The Basic Chemical Corporation, 'Dr. Frederick Klein' is mentioned as chemist. Several years ago, the Council on Pharmacy and Chemistry investigated 'Sulfo-Selene,' a cancer remedy, with which the same 'Dr. Klein' was connected. The alleged composition of 'Sulfo-Selene,' as given to the Council, was:

"Selenium .....	.25
"Sulphur (partially in colloidal and partially in crystalloid state) .....	.10
"Potassium carbonate .....	.10
"Nitrogen .....	.05
"Bile Salts .....	.50
"To which is added an inert base or vehicle; as sugar of milk or amylum."	

"It was claimed that 'Sulfo-Selene' was prepared by reducing nitro-selenious acid with sulphurous acid, neutralizing with potassium bicarbonate and then adding bile salts. Assuming that the composition claimed for 'Sulfo-Selene' was correct the analysis of 'Seleni-Bascca' shows that the two products resemble each other. The tests, however, failed to reveal in 'Seleni-Bascca' the presence of the bile salts claimed to have been present in 'Sulfo-Selene.'"

"The product is not colloidal as claimed as the selenium can be removed by ordinary filtration."

Use of Natural Forces.—A larger, more wholesome and more permanent service would be rendered the individual and the community by insistently inculcating the doctrine, and following it to execution, of more active participation in the physical labor of the household; of more frequent open air recreations which develop the muscular system, stimulate pride in physical accomplishments; or, better still, where possible, the cultivation of growing things—flowers, shrubs, fruits, vegetables, etc. More difficult is the execution of such a program than the writing of a prescription. On the part of the physician is required the art of persuasion and generalship; on the part of the patient is demanded unwavering faith in the wisdom and sincerity of the medical commander and a firm determination to see the thing through to a successful finish.—F. B. Wynn, *Nation's Health* 3:589 (Nov. 15) 1921.

Correspondence

CORNELL UNIVERSITY PAY CLINICS

To the Editor:—I am enclosing a clipping from the *New York Times*, October 24, which announces the opening of a new clinic, November 1, at Cornell University Medical College in New York City.

Have our medical ethics been revised?

The ethics of the connection of physicians with a commercialized university clinic may be seriously questioned. Pay clinics differ in no particular from group clinics of private practitioners with whom they are going to compete.

That Cornell University, as a private corporation, has a right to break all tradition and enter the field of commercialized practice of medicine is undeniable. But it should in all fairness so state and not do so under the name of social welfare. The graded prices which it announces for the different features of its examinations and treatment would net any private group of individuals that chanced to make investment in such an institution, with physicians working gratis or at minimum gratuities, a very handsome profit.

One notes from the clipping that private physicians are invited to refer cases for diagnosis to those pay clinics. The same request is extended to general practitioners by private group clinics. It seems to me that every physician should resent such a request, no matter where it comes from, because it carries with it an insinuation that the individual physician is deficient in diagnostic skill. When special emergencies arise in diagnosis, we usually know how to meet them without group clinics. Such cases are not at all frequent. Our great masters in medicine did not come from group clinics. I think it is an insult to the intelligence and credulity of the private practitioner to ask him to refer his cases to the Cornell pay clinics or those of private groups. Rather should we insist on an improvement in our teaching methods.

My dear Editor! I dread to contemplate further the effect on the profession that the plan of the pay clinic will have, especially if other Class A medical colleges follow this example.

The present high standard of the medical profession in the United States is due solely to the high code of ethics of the American Medical Association and the high ideals which the practitioner has absorbed during the course of his studies in a first class institution. This high standard has prevailed in spite of great competition which is encountered from graduates of second-rate schools, cults and spurious sciences. Will it withstand the competition of Cornell?

Since that university intends to commercialize the practice of medicine, selling so little for so much, or so much for so little, the public will in its own turn put a value on medical services according to standards which generally prevail in the trades. There the value of an article is determined according to the law of supply and demand; medical service will then obey the same law of economics where the average price of an article is determined by the lowest of price of that class of article. If the galaxy of Cornell "best doctors" serve in a clinic which advertises a dollar a call for *personal* service, according to the clipping, how low will the remuneration of the average physician be?

Even in Soviet Russia the physician's comforts and living standards are recognized as higher than those of tradespeople and the Red soldiers; in the United States it is bound to be the reverse if the plan of Cornell should prevail. With a lowered standard of living for physicians, one would certainly not expect a high standard of ethics to prevail.

As a service to the public, the pay clinic of Cornell will in no way replace the benefits which are derived from a self-respecting profession, because in acute diseases which usually

produce the chronic sufferers who will later visit the pay clinic, the general practitioner is the first line of defense. He usually diagnoses promptly, treats with skill, and prevents complications and their sequels. Will he remain as efficient or become more so in the face of the newly created competition of a medical college?

NICHOLAS LUKIN, M.D., New York.

[NOTE.—A communication from Cornell University has been received outlining the plan, too late, however, for inclusion in *THE JOURNAL* this week.—Ed.]

"MELLON ISSUES BEER REGULATIONS"

To the Editor:—I want to protest against your editorial of October 29 anent beer regulations. Why join the general hysteria? You have not, I am sure, much fault to find with the way physicians have acted with regard to the narcotics. Do you imagine we shall all be damned by the ability to prescribe beer? The subject did not deserve two lines—but you gave a column and over.

I am one who has not taken out a license to dispense alcohol, but my action is based not so much on acquiescence in the dictum that I do not need it in my practice—quite to the contrary, I feel that I often do—but upon the broad policy that when one is parked with a bunch of lunatics one had best make oneself as agreeable as possible until reason returns to them.

I feel that *THE JOURNAL* ought to stay out of it.

EDWIN DAVIS, M.D., Fort Worth, Texas.

To the Editor:—At a meeting of the Washington County Medical Society held, November 9, at Washington, Pa., the following resolution was unanimously adopted:

WHEREAS, We, the Washington County Medical Society of the State of Pennsylvania, do not believe that beer is necessary as a medicine and the organized liquor traffic of our country has ever been and is now willing to sacrifice any individual organization to gain its own selfish ends; and, further, that they are trying to make null and void the judgment and vote of forty-five out of the forty-eight states and that they are trying to accomplish this by dragging our profession into it; therefore, be it

Resolved, First, that we most vehemently protest against such action by the organized liquor traffic; second, that copies of this resolution be sent to the United States Senate and to the House of Representatives immediately; third, that this resolution be published in the daily papers, in the *Pennsylvania Medical Journal* and in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

C. C. CRACRAFT, M.D., Claysville, Pa.

Secretary-Treasurer, Washington
County Medical Society.

"IS CATALASE A MEASURE OF METABOLIC ACTIVITY?"

To the Editor:—Under "Current Comment" (*THE JOURNAL*, Oct. 15, 1921, p. 1259) you cite Morgulis' work as apparently establishing the nonrelationship of catalase and activity. I cannot refrain from calling your attention to the fact that proofs were offered by work done in this department showing that catalase bore no relation to metabolic activity. Such results were published more than a year previous to the appearance of the article by Morgulis.

R. J. SEYMOUR, M.D., Columbus, Ohio.

Assistant Professor of Physiology and
Anatomy, Ohio State University.

[COMMENT.—In our recent comment on a subject which now scarcely requires extended criticism and which we hope has finally been disposed of in a convincing way, we merely referred to Morgulis as "the newest critic" of Burge's theory

of the parallelism of the catalase content of tissues and their metabolic activity. If it will help to bring final conviction, we gladly add our correspondent's conclusion from his investigations at the Department of Physiology, Physiological Chemistry and Pharmacology in the Ohio State University. Seymour noted (The Relation of Catalase to Heart Activity, *American Journal of Physiology* 51:525 [April] 1920) that: "Quantitative determinations by Burge's method of catalase in the ventricular muscle of turtle hearts give no evidence that there is any close relationship between the activity of the heart and the amount of catalase present. Hearts with a rapid rate as the result of warming varied both plus and minus, as compared to controls, in catalase content, the greater number showing less catalase."—Ed.]

"DR. PEPYS' DIARY"

To the Editor:—Please extend my thanks to "Dr. Pepys," not only for his quaint and humorous diary, but also for fairly compelling at least one more to read the original "Diary."

I wonder how many there are in the class who are familiar with any record of a trephine operation as old as the following. It will doubtless be of interest to many, at any rate. And will some of the wise ones, if they can, shed any additional light from contemporaneous medical sources on the diagnosis?

16th Jan. 1667. Prince Rupert, I hear, is very ill; yesterday given over, but better to-day. 2nd Feb. (Lord's Day). To White Hall, and there to Sir W. Coventry's chamber, and there staid till he was ready, talking, and, among other things, of the Prince's being trepanned, which was in doing just as we passed through the Stone Gallery, we asking at the door of his lodgings, and were told so. We are full of wishes for the good success; though I dare say but few do really concern ourselves for him in our hearts. With others in the House, and there hear that the work is done to the Prince in a few minutes without any pain at all to him, he not knowing it when it was done. It was performed by Moulins. Having cut the outward table, as they call it, they find the inner all corrupted, so as it come out without any force; and their fear is that the whole inside of his head is corrupted like that, which do yet make them afraid of him; but no ill accident appeared in the doing of the thing, but all with all imaginable success, as Sir Alexander Frazier did tell me himself, I asking him, who is very kind to me. 5th Feb. Heard this morning that the Prince is much better, and hath good rest. 6th. To Westminster Hall, and walked up and down, and hear that the Prince do still rest well by day and night, and out of pain; so as great hopes are conceived of him: though I did meet Dr. Clerke and Mr. Pierce, and they do say they believe he will not recover it, they supposing that his whole head within is eaten by this corruption, which appeared in this piece of the inner table. 11th. . . . hear that Prince Rupert is still better and better. 13th. The Prince, I hear, is every day better and better. 3d April. This day I saw Prince Rupert abroad in the Vane-room, pretty well as he used to be, and looks as well, only something appears to be under his periwig on the crown of his head.

E. L. KNISKERN, M.D., Muskegon, Mich.

CARE OF HYPODERMIC NEEDLES

To the Editor:—I have a method of taking care of hypodermic needles which I find most satisfactory. I clean the needle carefully after using, and wrap the point tightly with a tuft of cotton. I grasp by the cotton-wrapped point and shake out all the water. The cotton will absorb all remaining moisture and there will be no rusting. I have used a 25 gage needle, taken care of in this way, daily for months, and have had no trouble whatever with plugging of the needle.

GOTTLIEB WERLEY, M.D., El Paso, Texas.

"USE OF HOLLOW TUBE FOLLOWING SUB-MUCOUS RESECTION OF THE NASAL SEPTUM"

To the Editor:—Dr. H. M. Goodyear, in his article on the use of hollow tubes following submucous resection (*THE JOURNAL*, Oct. 1, 1921, p. 1103) said: "The use of the tube is so simple and yet so revolutionizes the after-treatment of submucous resection that one wonders it has not been described before." Professor G. Alexander of Vienna

described this method fifteen years ago, and is still using it. He applies two or three hollow tubes one on top of the other, thus avoiding entirely gauze packing and giving the patient absolute freedom of breath.

OTTO GLOGAU, M.D., New York.

"CANCER AND ITS NON-SURGICAL TREATMENT"

To the Editor:—In a criticism of Dr. L. Duncan Bulkley's book, "Cancer and Its Non-Surgical Treatment" (*THE JOURNAL*, Oct. 8, 1921, p. 1201), the following statement is made: "It is a pity that such medical heresy should be advanced by a member of the American Association for Cancer Research, especially since it will counteract the splendid work which that association is trying to do."

The undersigned members of the Council of the American Association for Cancer Research beg to state that the association, like other medical societies, assumes no responsibility for the views of its members. Furthermore, at its meeting in Cleveland, March 24, 1921, a paper by Dr. Bulkley was severely criticized by several members of the association. Nor was a single voice heard in defense of Dr. Bulkley's views.

JAMES B. MURPHY, M.D., President,
WILLY MEYER, M.D., Vice President,
ROBERT B. GREENOUGH, M.D.,
H. GIDEON WELLS, M.D.,
F. C. WOOD, M.D.,
WILLIAM H. WOGLOM, M.D., Secretary.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF HYPERTROPHY OF TURBINATES IN CHILDHOOD

To the Editor:—In my work on the nose and throat, I run across many cases like the following: A child of anywhere from 5 to 8 or 9 years old who has its tonsils and adenoids removed comes in complaining of nasal obstruction. An examination discloses no tonsils or adenoids but the inferior turbinates puffy so that the nasal passage is obstructed. What can be done for these patients? I do not suppose the inferior turbinates should be touched with a cautery or knife, but do not know just what should be done. If you can give me any information as to the best way to treat these cases it will be greatly appreciated.

F. B. BOGARDUS, M.D., Kalispell, Mont.

ANSWER.—Two possible conditions present themselves based on the description given by our correspondent: First, a simple hypertrophy of the turbinates in which there is no excessive secretion and a normal mucous membrane. This condition is usually treated by "infracture," which is the fracturing downward and laterally of the projecting mass. The procedure produces relief until the child's age permits more radical action. Second, cases of "perennial hay-fever" which show a hyperplastic enlargement, pallor, excessive mucus secretion, sneezing, etc. This condition occurs in eczematous diathesis and protein intoxications. The cases are difficult to diagnose definitely and require, as diagnostic aids, the Wassermann test, determination of the blood sugar, skin tests with food proteins, epidermal proteins (such as horse and dog dandruff, and chicken feathers) and finally, bacterial proteins. The treatment consists of eliminating the offending substance from diet and environment.

MIDOL

To the Editor:—Will you please advise me through the Queries and Minor Notes column of *THE JOURNAL* as to the ingredients of Midol headache tablets?

N. L. HAWKINS, M.D., Watertown, N. Y.

ANSWER.—Midol was analyzed in the A. M. A. Chemical Laboratory in 1912. At that time the chemists reported that Midol was sold in the form of white tablets each weighing,

on an average, about $6\frac{1}{2}$ grains (0.4324 gm.). The tablets were soluble in water, chloroform or benzene to the extent of about 80 per cent. The insoluble portion appeared to be largely composed of starch, with about 4.5 per cent. of some inorganic matter, probably talc. The chloroform-soluble portion was found to consist chiefly of amidopyrin (first introduced as pyramidon). Besides amidopyrin, the chloroform-soluble matter was found to contain a small quantity of caffeine and may have contained small amounts of other substances. It was concluded that Midol depends essentially on amidopyrin for its therapeutic effect. Amidopyrin belongs to the group of pyrazolon derivatives whose preparations are used for their antipyretic and analgesic action. While there is reason to believe that they have less tendency to disintegrate the red blood corpuscles than the phenetidin compounds, in other respects they are open to the same objection. Some susceptible individuals experience nervous and circulatory depression even after small doses of preparations of the pyrazolon group, while after large doses instances of collapse have been reported. Obviously, amidopyrin is a drug that has no place in preparations for self-drugging, that is, in "patent medicines."

CARDIAC FAILURE AND ANTITOXIN IN DIPHTHERIA

A letter from a New Jersey subscriber, too long to publish in detail, relates a case of diphtheria as follows:

A child of 7 years developed a sore throat with a little white spot on one tonsil. The second day of illness, 3,000 units of diphtheria antitoxin were given. The fourth day of illness there was an extensive diphtheritic membrane over the tonsils, pharyngeal wall and nares, bleeding from the nose, fever of 104.2 F., pulse 140, restlessness, and marked swelling under the angles of the jaw bilaterally. Ten thousand units of diphtheria antitoxin were given. On the sixth day, the throat and nares were clear except for a small area on one tonsil, temperature normal, pulse 102. Five thousand units of antitoxin was given. On the seventh day, the tonsils were clear. The patient was kept in bed.

On the thirteenth day after onset, there developed an irregular heart with reduplication of sounds, but no murmur; there was distress in the gastric region and vomiting, and the patient died.

Our correspondent wishes to know the possible part played by the various doses of antitoxin, and whether the 15,000 units was given too late to be of value and could have done any harm.

ANSWER.—The initial dose of 3,000 units of antitoxin on the second day with the exudate limited to one tonsil was a conservative dose. That the disease progressed after it is sufficient evidence that it was not enough, and that the toxin being formed was in excess of that which this amount of antitoxin could neutralize. More antitoxin was then indicated. The 10,000 units given on the fourth day with the symptoms described was not too large; in fact, it was very conservative. If it could have been given a day earlier the outcome might have been different.

The probable cause of death was myocarditis, due to injury to the heart by the diphtheria toxins before sufficient antitoxin had been given to neutralize them. It was not in any way dependent upon the antitoxin. Deaths from cardiac failure in diphtheria were more frequent before the introduction of antitoxin than they are today. Large doses of antitoxin, from 20,000 to 40,000 units, are advocated by persons of the largest experience in the treatment of diphtheria of a severe degree. Such amounts are not harmful. The rule in the administration of antitoxin in diphtheria is to give sufficient antitoxin to control the disease at the earliest possible moment. An excess does no harm. Too little allows irreparable damage to be done.

TEKARKIN—EDWARD PERCY ROBINSON

To the Editor:—I have before me a small publication entitled *Therapeutic Leaves* gotten out by the National Bio-Chemical Laboratory, Mount Vernon, N. Y., which is sent out in the interest of a cancer remedy, "Tekarkin," and some few other things that go with it. Can you tell us who this man Edward Percy Robinson, M.D., New York City, is and what there is to his treatment?

JOHN J. HOSEY, M.D., Dalatha, Fla.

To the Editor:—Is the National Bio-Chemical Laboratory, Mount Vernon, N. Y., an ethical concern?

WILL A. THOMPSON, M.D., Liberty, Ind.

ANSWER.—Edward Percy Robinson's "Tekarkin" was the subject of an article in the Propaganda department of THE JOURNAL, May 28, 1921. A reprint of this will be sent to any of our readers on receipt of a request accompanied by a stamped addressed envelop.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, New Hibernia Bank Bldg., New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. F. J. Crowe, 918-919 Dallas County Bank Bldg., Dallas.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Texas June Examination

Dr. T. J. Crowe, secretary, Texas State Board of Medical Examiners, reports the written examination held at Austin, June 21-23, 1921. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 72 candidates who took the physician's and surgeon's examination, 71 passed, including 3 osteopaths, and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville Medical Dept.	(1910) 83.5,	(1921)	90.5
Tulane University	(1918) 81.3,	(1921) 81.1,	82, 83.6
Harvard University	(1912)		88.5
Minneapolis College of Physicians and Surgeons	(1906)		83.9
Columbia University	(1920)		89.7
University of Pennsylvania	(1921)	89.5,	89.6
Meharry Medical College	(1921)	82.5,	83.1
Baylor University	(1921)		76.6,
	77.5, 81.6, 83.5, 83.6, 83.9, 83.9, 84.5, 84.8, 85.1,		
	85.5, 85.5, 85.6, 86.4, 86.6, 86.8, 87.1, 87.8, 88.1,		
	88.1, 88.2, 88.9, 89.9, 90.1, 90.3, 91.6, 92.3, 92.9		
University of Texas	(1921)		83.6,
	84.3, 85.1, 85.3, 86.7, 87.1, 87.2, 87.6, 88, 88.5,		
	88.6, 88.7, 88.8, 89.2, 89.6, 89.9, 89.9, 91.1,		
	91.1, 91.2, 91.2, 91.5, 92.3, 92.6, 94.6, 95.1		
Osteopaths			75.4, 78.6, 82.9

FAILED

Meharry Medical College.....(1921)*

* No grade given.

Indiana July Examination

Dr. William T. Gott, secretary, Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 12-14, 1921. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 72 candidates examined, 71 passed and 1 failed. Thirty-nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1920)*	(1920)	90
Indiana University School of Medicine	(1920)*	(1921)	75,
	81, 82.7, 83, 83.5, 84, 84, 85.5, 87, 87, 87, 87,		
	87, 87.7, 87.7, 87.8, 88, 88, 88, 88, 88, 88,		
	88, 88.5, 89, 89, 89, 89, 90, 90, 90, 90, 90, 91,		
	91, 91, 91, 91, 91.5, 91.5, 91.7, 92, 92, 92, 92, 92,		
	92, 92, 92, 92.7, 93, 93, 94, 96		
University of Kansas School of Medicine	(1921)		86
University of Louisville Medical Department	(1921)		86
Eclectic Medical College	(1920)		86
Ohio State University College of Homeopathic Med.	(1921)		91.6
University of Cincinnati	(1921)		86
Jefferson Medical College	(1921)		88, 92
Vanderbilt University	(1921)		92
Osteopaths			82, 87, 88, 89.5, 91.8, 92.9

FAILED

Osteopath 82+

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1913)	Colorado
Howard University	(1907)	Dist. Colum.

Chicago College of Medicine and Surgery.....	(1917)	Illinois
Illinois Medical College.....	(1904)	Alabama
Loyola University.....	(1916)	Kentucky
Northwestern University.....	(1891), (1909)	Illinois
Rush Medical College.....	(1908), (1916), (1919,2), (1920)	Illinois
Starling Medical College.....	(1898)	Illinois
University of Illinois.....	(1920)	Illinois
Southwestern Homeopathic Med. Coll. and Hosp.....	(1905)	Colorado
University of Louisville Medical Dept.....	(1905), (1912)	Kentucky
(1915) Delaware		
University of Maryland.....	(1912), (1917)	Maryland
University of Michigan Medical School.....	(1903), (1912)	Michigan
Barnes Medical College.....	(1901)	Illinois
Homeopathic Medical College of Missouri.....	(1891)	Illinois
Missouri Medical College.....	(1897)	Illinois
Washington University Medical Department.....	(1919, 2)	Missouri
Ohio State University College of Medicine.....	(1916)	Missouri, Ohio
Western Pennsylvania Medical College.....	(1900), (1902)	Penna.
Meharry Medical College.....	(1908) Tennessee, (1910)	Kentucky
(1913), (1916), (1918) Tennessee		
Vanderbilt University.....	(1914)	Tennessee
Osteopaths.....		Ohio (2)
* No grade given.		
† Fell below 60 per cent. in two subjects.		

Maine July Examination

Dr. Frank W. Searle, secretary, Maine State Board of Registratoin of Medicine, reports the written examination held at Augusta, July 5-6, 1921. The examination covered 10 subjects and included 90 questions. An average of 75 per cent. was required to pass. Twenty-four candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hering Medical College.....		(1902)	87
Bowdoin Medical School.....	(1921) 80, 82, 83,	84, 85	
Boston University.....	(1920) 86, (1921) 82, 84,	85, 87	
Harvard University.....	(1912) 83, (1921) 85, 86, 87,	87, 87	
Tufts College Medical School...	(1904) 78, (1907) 81, (1921)	82	
Columbia University.....	(1917) 89, (1920)	85	
McGill University.....		(1919)	79
University of Montreal.....		(1920)	84

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Harvard University.....		(1903)	New Hamp.
University of Pennsylvania.....		(1902)	Penna.
University of Vermont.....		(1903), (1906)	Vermont

North Dakota July Examination

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral, written and practical examination, held at Grand Forks, July 5-8, 1921. The examination covered 13 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 4 passed and 3 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College.....		(1921)	78
State University of Iowa College of Medicine.....		(1920)	87.4
University of Maryland.....		(1911)	75.6
School of Physicians, Reykjavik.....		(1917)*	75.1

College	FAILED	Year Grad.	Per Cent.
University of Illinois.....	(1916) 72, (1920)	72.5	
University of Pennsylvania.....		(1917)	71.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University.....		(1917, 2)	Illinois
State University of Iowa College of Medicine.....		(1904)	Iowa
Minneapolis College of Physicians and Surgeons.....		(1903)	Minnesota

* Graduation not verified.

Wisconsin September Report

Dr. J. M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports that 6 candidates were licensed by reciprocity and 6 candidates were licensed on government credentials at the special meeting held at Milwaukee, Sept. 8, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College.....		(1920), (1921)	Illinois
Detroit College of Medicine and Surgery.....		(1918)	Michigan
University of Michigan Medical School.....		(1918)	Michigan
Western Homeopathic College.....		(1868)	Kansas
University of Pennsylvania.....		(1915)	New York

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College.....		(1917)	U. S. Army
University of Illinois.....		(1918)	U. S. Navy
Barnes Medical College.....		(1911)	U. S. Army
Beaumont Hospital Medical College.....		(1897)	U. S. Army
Fordham University.....		(1917)	U. S. Army
Western Pennsylvania Medical College.....		(1901)	U. S. Army

Book Notices

RADIANT ENERGY AND THE OPHTHALMIC LENS. By Frederick Booth. Introduction by Whitefield Bowers, A.B., M.D. Cloth. Price, \$2.25 net. Pp. 226, with 230 illustrations. Philadelphia: P. Blakiston's Son & Co., 1921.

There are thirteen chapters in this book, dealing with the anatomy of the eye, the physics of light, vision and the different phases of refraction. The majority are devoted to definitions in an attempted epigrammatic form, illustrated with schematic drawings that would be given a "B" rating in the eighth grade. The diction is atrocious and the punctuation is haphazard (we found one comma, and that was misplaced). The proof-reading was evidently done under poor illumination, if at all, for the mistakes in spelling are painfully numerous. The frequent use of far-from-clear definitions, contradicted often in the following paragraph or chapter, introduces a monotone into a subject which, under rational treatment, is vitally interesting. From the standpoint of the ophthalmologist, glaring misstatements abound, particularly in that section devoted to the treatment of myopia. The chapter dealing with convergence is unusually offensive and is merely a mass of ill written and poorly illustrated definitions that are confusing. Among the "causes of asthenopia" may be found: "In the case of young unmarried women, a weakness peculiar to their sex; young men may have violated the moral laws." Not more than 85 per cent. of the matter devoted to perimetry is wrong, but the remainder is written so confusedly that, from a practical standpoint, it is useless. Some seven pages are devoted to the ophthalmoscope and its use, but the version is so garbled that it would require far more than the mentality of a three months' night school mechanic to comprehend it. The last chapter deals with mathematics, and is a jumble of mathematical signs, geometric and algebraic problems, one page of logarithm tables, and some miscellaneous data.

OPERATIVE SURGERY. By J. Shelton Horsley, M.D., F.A.C.S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. Illustrated by Miss Helen Lorraine. Cloth. Price, \$10. Pp. 721, with 613 illustrations. St. Louis: C. V. Mosby Company, 1921.

A textbook on operative surgery necessarily must be brought up to date to contain present day operative procedures. This Dr. Horsley has done. He describes operations which are used by prominent surgeons and proved by his own experience to be valuable. Particular stress is laid on the preservation of physiologic function and the interpretation of the biologic processes that follow surgical operations. In view of the interest with which surgery of the blood vessels and nerves following gunshot injuries is now regarded, the chapters on the most recent technic are particularly timely. Credit is given to men who have experimentally and clinically given us improved and better methods in these two important branches of surgery. Plastic surgery is also well covered. Surgery of the various regions of the body is taken up systematically, with an effort to include all of the common operations. The important subject of operations on the tendons, which often receives little space, is considered very well. The illustrations are good.

STUDIES IN DEFICIENCY DISEASE. By Robert McCarrison, M.D., D.Sc., Hon.LL.D., Fellow of the Royal College of Physicians, London. Cloth. Price, \$10. Pp. 270, with 52 illustrations. New York: Oxford University Press, 1921.

This is a valuable contribution to the study of vitamins and deficiency diseases, the most noteworthy feature being the careful study of the conditions of the various organs and tissues in animals that had died from blood deficiency experimentally produced, or killed when the earliest symptoms of such deficiency made their appearance. As stated elsewhere, "in this regard, the present investigation is much more complete than any other with which we are familiar. It is the work of the clinical pathologist as compared with that of the biochemist, and is accordingly all the more important from the physician's standpoint. The biochemist has indeed blazed the trail into the unexplored regions of dietetics, and now the clinical investigator must follow to build a solid

road along which every physician must travel." The book is divided into four parts. Part 1 contains the introduction, a chapter on vitamins, and the description of the experiments. Part 2 deals with the factors concerned in the onset of deficiency disease and with symptomatology. Part 3 is devoted to pathogenesis of deficiency disease and the morbid anatomy of the different organs. Part 4 deals with the practical application of the work described in the other parts, the final chapter on selection of food containing some interesting examples of deficient dietaries, not only of the poor but also of the well-to-do. The illustrations are original. Throughout the book the other properties of diet besides its content in vitamins are taken into full account. The calory value, the proportion of the different food elements and the amount of inorganic salts are all given full consideration. The book will be of real value to the wide-awake physician.

A BOOK ABOUT THE BEE. By Herbert Mace. Cloth. Price, \$2 net. Pp. 138, with 24 illustrations. New York: E. P. Dutton & Co.

There are numerous books about bees, but few that are easily readable and at the same time informative; Mr. Mace has supplied an account which fulfils both of these requirements. The biology of the bee is peculiar and affords much interesting speculation. Mr. Mace supplies enough information of a technical character to arouse the reader's interest and to make him want more. Heredity and evolution in the life of the bee are briefly touched on. Mr. Mace believes that the best treatment for bee stings is the application of ammonia water. But he is quite convinced that prevention is better than cure, and that vicious colonies should be prevented by providing a new queen from a gentle stock. "One characteristic bees have," he says, "which will always enable persons pursued to escape: they will not enter dark places other than their own hives, and by taking refuge in a shed the bees may be outwitted." A chapter on the diseases of bees also has special medical interest. These diseases include dysentery due to unsuitable food, a contagious condition known as "foul brood" caused by a bacillus; another serious epidemic disease produced by a small protozoan parasite which inhabits the digestive tract, and infestation with a large parasite known as the "blind louse." There are also other minor diseases, such as bee paralysis affecting the hind legs, and endemics which appear and disappear without as yet any satisfactory explanation. Mr. Mace is so impressed with the wisdom of the bee colony that he sees "no reason why there should not be bee doctors in the community. Otherwise," he says, "we must conclude that those cases in which diseases have become manifest and then disappeared have been merely good fortune."

URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION. By Louis Heitzmann, M.D. Fourth edition. Cloth. Price, \$4. Pp. 362, with 131 illustrations. New York: William Wood & Co., 1921.

This well-known book of Heitzmann is intended as a purely practical one and, as such, admirably fulfils its function. It is divided into three general divisions dealing, respectively, with the chemical examination, the microscopic examination and the general microscopic urinary diagnosis. In the first part "only those tests are given which can be used with advantage and without the necessity of a completely equipped chemical laboratory by the general laboratory worker and by the practitioner." This section is entirely adequate for its purpose and contains sufficient explanatory matter to enable the worker to interpret his results properly. The section on microscopic examination is especially full and complete, being the distinctive portion of the work. Considerable stress is laid upon the differentiation of the various types of epithelial cells, a matter which is not always as simple as might be supposed from a perusal of this section. As pointed out in the preface, "A careful microscopic examination of the urinary sediment is of infinite value to the practicing physician in helping him at arriving at correct diagnoses in many doubtful cases, and is frequently of much greater value than the most painstaking chemical examination." The third section treats of the various clinical conditions which may be differentiated or diagnosed by microscopic examination of the urine. Chapter XIX, on "Determination of the Functional

Efficiency of the Kidneys," is contributed by Dr. Walter T. Dannreuther. While this is a fairly comprehensive and satisfactory presentation of the subject, it does not mention the exceedingly valuable and easily performed tests of Mosenenthal, an oversight which should be corrected in future editions. This book may be recommended to those who desire a guide to urinary examination. The text is clear and concise, the selection of chemical methods is excellent, the section on microscopic examination is especially comprehensive, and the illustrations clearly show the points brought out in the text.

THE TREATMENT OF ACUTE INFECTIOUS DISEASES. By Frank Sherman Meara, M.D., Ph.D., Professor of Clinical Medicine in the Cornell University Medical College, New York. Second edition. Cloth. Price, \$7. Pp. 806. New York: The Macmillan Company, 1921.

In this edition, several new chapters have been added. Among the more important of these is one on epidemic influenza which is thorough and comprehensive. His review of the literature on the epidemic of measles, streptococcus pneumonia and meningitis, covering the experience with these diseases in army camps, adds much to the value of the book. The new chapters on epidemic encephalitis and trench fever are complete, and embody the recent knowledge acquired in these subjects. New material has been added with regard to rat bite fever and Rocky Mountain spotted fever. The practical value of the book has also been greatly enhanced by the addition of chapters describing the treatment of the more common acute infections of the respiratory tract, namely, coryza, tonsillitis, laryngitis, tracheobronchitis and acute pleurisy. The closed method of treatment of the streptococcus and influenza types of empyema is described in detail by Dr. Alfred S. Taylor. The author has produced a well rounded book and has avoided the slighting of any of the diseases treated. The summarizing of the subject matter in condensed form at the end of each chapter is practical.

LES CARDIO-RÉNAUX. Étude Théorique et Pratique. Par le Docteur O. Josué, Médecin de l'Hôpital de la Pitié, et le Docteur Maurice Parurier. Paper. Price, 12 francs. Pp. 219. Paris: E. le François, 1921.

This is a theoretical and clinical consideration of the important group of cases so often spoken of as cardiorenal or, using the more comprehensive term, cardiovascular-renal. While the book contains little that could be called new, the subject is treated in a fresh, up-to-date manner and with the clearness of style that we associate with the best French medical literature. The author treats of the false cardiorenal disease that is really only a failing heart with manifestations of a congestive lesion in the kidney; the true cardiorenal condition with at times the cardiac, at times the renal, features predominating; the means of diagnosis with emphasis on the laboratory aids, and, finally, treatment. There are no dull pages. Many practical hints as to diagnosis and treatment are to be found. The author's views as to the equilibrium between the kidney and the heart in health and of the disruption of such relation in disease with more or less successful attempts at a restoration of the equilibrium by hypertrophy of the heart, on the one hand, or increase in the concentrating power of the kidney, on the other, are attractive, helpful and well worth perusal.

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY. A treatise on the development of medical institutions, both in Europe and in America, since the beginning of the present century. By Edward F. Stevens, Architect, Member of American Institute of Architects. Second edition. Cloth. Price, \$7.50. Pp. 380, with 480 illustrations. New York: Architectural Record Company, 1921.

The book is described by the author as "a treatise on the development of medical institutions, both in Europe and America, since the beginning of the present century." It contains twenty chapters dealing with construction, administration, heating and equipment of hospitals as well as with ward units, medical, surgical, children's, maternity, psychopathic, tuberculous, laboratory and contagious departments, various sizes of hospitals, nurses' homes, kitchen and laundry, landscape architecture and remodeling. An appendix deals with war hospitals. The illustrations are unusually well selected and there is a complete index. It is a handy and useful volume for any one interested in or contemplating the construction of a hospital.

Medicolegal

Status of Physicians Appointed by the Court

(*Atkinson v. United Railways Co. (Mo.)*, 228 S. W. R. 483)

The Supreme Court of Missouri, Division No. 2, reverses a judgment for damages obtained by the plaintiff for personal injuries, because her attorney, in his address to the jury, directed attention to the omission of the defendant to call as a witness a certain neurologist as the one man who knew best about the plaintiff's neurotic condition, whose acquaintance was well known to the defendant, indicating that he was the defendant's own witness, and asked the jury to draw from the incident an inference most favorable to the plaintiff's story. The court says that the argument was prejudicial, and that it was error to permit it.

When a party fails to call a witness under his control or with whose testimony he is particularly acquainted, and of which the other party is ignorant, it is not improper for counsel on the other side in the argument to comment on the failure to produce such witness. This is particularly true when a party fails to call his own physician. In such cases, of course, the other side could not produce such a witness because the knowledge which the witness acquired by examination of the plaintiff would be privileged—a privilege which could be waived by the plaintiff. On the other hand, the rule seems to be general that no unfavorable inference may be drawn, and no unfavorable comment made by counsel in his arguments on account of the absence of a witness whose evidence is equally accessible to the two parties. It is reversible error to permit an argument of that character. The plaintiff in this case seemed to admit the rule, but contended that, as the neurologist in question was appointed by the court on the application of the defendant, he was the defendant's witness, and the plaintiff had not equal access to what he knew. This rendered it necessary to inquire by what authority the court makes such an appointment.

The law invests the trial court with authority to appoint physicians to make physical examinations of the plaintiff in a physical injury suit. The defendant cannot demand it as a matter of right, but the court in its discretion may do it in the furtherance of justice. When the court makes such an appointment, it does so because it determines in its discretion that the case calls for the opinion of disinterested and unbiased physicians, not friends of either party, whose testimony is likely to be biased. This court has placed the authority of the court in such cases on the same ground as the general power to compel a discovery. The power to make such an appointment involves an order requiring the plaintiff to submit to examination. The court could not compel the plaintiff to submit to such examination by the witnesses for the other side. The physicians appointed in such cases are the officers of the court. The order is made because an exhibition to the jury or the court of the infirmities about which the inquiry is made would not disclose the facts as fully and clearly as the examination of experts would reveal them. There was no ground for saying that the neurologist in this case was a witness of the defendant.

Cannot Require Submission to Major Operation or One for Hernia

(*Henley v. Oklahoma Union Ry. Co. et al. (Okla.)*, 197 Pac. R. 488)

The Supreme Court of Oklahoma says it is apparent that the state industrial commission misconstrued the provisions of the workmen's compensation law of Oklahoma in that the commission had exercised jurisdiction to order the claimant in this case, who had developed a hernia as a result of an accident occurring in the course of his employment, to submit to a major operation under penalty in case of his failure to comply with the order of forfeiting his right to compensation. The law provides for the injured employee proper medical and surgical treatment at the expense of the employer; and the treatment provided for is in addition to the compensation provided for under the Act of 1919, during disability; but nowhere in the act is the commission authorized to require the injured employee to submit to a serious operation involv-

ing a risk of life, however slight, in order that the pecuniary obligation created by the law in his favor may be minimized. The award in the case at bar presupposed that the operation would be successful, and that the claimant would be cured. That was in excess of the commission's authority. The respondents in their brief contended that an operation for hernia is not regarded as a dangerous or serious operation, but is a comparatively slight inconvenience, and results in a permanent cure. The record in this case did not disclose the kind of hernia the claimant was afflicted with, but the court cannot agree with the contention that an ordinary operation for hernia is to be regarded as a slight inconvenience, and the court knows of no medical authority or reputable physician that would class an operation for hernia as a minor operation. On the other hand, ordinary hernia requires the administration of an anesthetic and an incision of the abdominal wall, and in some instances it proves fatal. The rule appears to be supported by the overwhelming weight of authority that no man shall be compelled to take a risk of death, however slight, in order that the pecuniary obligation created by law in his favor against his employer may be minimized.

Joy-Riding by Physician's Chauffeur

(*Lansing v. Hayes et al. (N. Y.)*, 188 N. Y. Supp. 329)

The Supreme Court of New York, Appellate Division, Third Department, in affirming a decision of the state industrial commission denying an award of compensation, says that this was a proceeding under the workmen's compensation law by Mrs. Lansing to recover for the death of her husband, the respondents being Dr. Hayes, a physician and surgeon, and an insurance company as insurance carrier. Lansing was the chauffeur of Dr. Hayes. He drove his employer to a certain place one night, arriving there at about 9:30, and was told to come back for him at 12 o'clock. In the meantime the car was left in the care and control of the chauffeur. He took some friends for a ride, stopping a couple of times for drinks. On the way back, at about 11:25, he met a car, the head lights of which blinded him for the time being, and the car skidded and went into a ditch. Lansing was killed. The physician swore in his first notice of injury that Lansing was in his employ when killed; that he was in the habit of doing what he wanted to with the car so long as he kept his engagements with him, which he always did; that Lansing was in his employment all of the time, day and night, and that he paid him \$20 a week. The physician's conception of his contract with Lansing was shown when, in answer to the question, "On this occasion, what would have been your attitude, supposing he came at 12 o'clock, and you found out later that he took a party and went to Herkimer?" he replied: "I wouldn't have said anything about it. I wouldn't have discussed it. I felt he was worth more money than I gave him." The claim by the physician that Lansing was in his employment all of the time was of the character of the statement that any one can make of his servants hired by the week, month or year. But the liability of the respondent insurance company was founded on contract; this third party was a party to that contract, and could be held only so far as the employment was covered by that contract. The insurance carrier made its contract on the basis of a physician's chauffeur. The duties such chauffeur is to perform and the risks he will encounter in the performance of that duty are known; at least, can be comprehended at their worst. Does it include joy-riding? The court fails to see it.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Surgical Association, Pinchurst, N. C., Dec. 13-15.
Western Surgical Association, St. Louis, Dec. 9-10.

Miscellany

DEDICATION OF THE PEKING UNION MEDICAL COLLEGE

On September 15 the Peking Union Medical College of China was dedicated, the exercises continuing for one week. The American Medical Association was represented at the dedication by Dr. George E. de Schweinitz, President-Elect, who has made the following report to the Board of Trustees:

Report of President-Elect, Dr. George E. de Schweinitz

To the Board of Trustees of the American Medical Association:

The exercises pertaining to the opening of the Union Medical College of Peking began on September 15 and continued for one week. Each weekday morning from 9 to 11 there were largely attended conferences in the hospital in its various departments. These included operations, demonstrations and clinics, followed at 11:30 a. m. by a paper on some medical or surgical subject delivered in the general session. Each evening was devoted to an address of general or public health interest, for example, plague, hookworm, the conquest of yellow fever, biochemistry, hospital organization, and the history of medicine. The afternoons were given up to sight-seeing tours. On Sunday there were religious exercises conducted by the Rt. Rev. L. H. Roots.

The impressive ceremonies of the formal opening took place on Monday, September 19. A procession of delegates, ambassadors and ministers of foreign countries, representatives of the Chinese government, members of the board of trustees and faculty and of the Chinese Medical Board passed

of Foreign Affairs and the Minister of Education of the Chinese government, by Mr. Roger Greene, representing the China Medical Board, and by Mr. John D. Rockefeller, Jr., who recited the history of the Peking Union Medical College and described its organization, development and purposes. The attendance was large; many had come from all over China, some from Japan and not a few from America and Europe—physicians, scientists, educators, public health officers and nurses, as well as members of the laity interested in the problems of medical instruction and practice. The splendid buildings, premedical school, laboratories and hos-



Fig. 2.—A group of laboratory buildings: Physiology Building to the right; Chemistry Building to the left.



Fig. 1.—Members of the board of trustees of Peking Union Medical College: From left to right: Dr. Francis W. Peabody, Harvard Medical School; Dr. Henry S. Houghton, director of the college; Miss Eggleston, assistant secretary of the board of trustees; Edwin R. Embree, secretary of the Rockefeller Foundation; Prof. Paul Monroe, Teachers College, Columbia University; James L. Barton, secretary, American Board of Foreign Missions; Dr. William H. Welch, Johns Hopkins University; Dr. Richard M. Pearce, director, Rockefeller Foundation, Division of Medical Education; George E. Vincent, president, Rockefeller Foundation; John D. Rockefeller, Jr.; Roger S. Greene, resident director of the Rockefeller Foundation China Medical Board; F. H. Hawkins, London Missionary Society; Martin A. Ryerson, chairman, board of trustees, University of Chicago; J. Christie Reid, Medical Missionary Association of London.

pital constructed with due regard to the beauty of Chinese architecture are admirably equipped, and within their walls every opportunity for acquiring a high-class medical education and engaging in research work is presented, as it pertains not only to undergraduate but also to graduate work.

A very large number of universities, medical schools and scientific associations sent formal greetings by accredited representatives—so large a number that it was not possible to find time for a separate announcement. The list was therefore printed, and formed part of the official program.

It so happened, however, that your representative delivered the opening address, and preceded it by a short salutatory, and took that opportunity to convey publicly to the audience and the authorities of the Union Medical College the greeting of the American Medical Association, and later to hand to the director, Dr. Houghton, the credentials. These were received with high appreciation.

During your representative's visit in China he had the opportunity of speaking to the members of the National Medical Association of China in Peking, to the Shanghai branch of the same association, and to a large gathering of physicians, both foreign and native, in Shanghai, and on each occasion the work and aspirations of the American Medical Association were emphasized. The president of the Shanghai branch of the National Medical Association of China formally requested your representative to give to the Board of Trustees and Officers of the American Medical Association the greetings and good wishes of the China Association, and expressed the hope that a closer scientific affiliation might be established between the National Medical Association of the Far East and that of America.

Your representative has on numerous occasions had opportunities of discussing with American Medical Missionaries, earnest men doing splendid work all over China, problems of

to the auditorium. Mr. George Vincent, president of the Rockefeller Foundation, introduced the new director, Dr. Henry S. Houghton. Addresses were made by the Minister

mutual interest pertaining to public health work especially and medical activities in general. Almost without exception these men expressed the hope that some way might be found whereby they could become members of the American Medical Association. Your representative, therefore, desires to bring this matter to your attention, and he hopes to your favorable consideration, and Dr. Welch is in agreement with this recommendation.

While in Japan, your representative's reception by many distinguished physicians in that country was most cordial. Their admirable scientific work is too well known to require description. We suggest that formal invitations shall be sent to a few distinguished Japanese and Chinese physicians to be present at the next meeting of the American Medical Association.

GEORGE E. DE SCHWEINITZ, President-Elect.

The importance of this occasion in the history of the progress of medical science caused THE JOURNAL to request a statement from Mr. E. R. Embree, secretary of the Rockefeller foundation:

Report of Mr. E. R. Embree

To see and to dedicate the Peking Union Medical College, scientists and delegates made their way to Peking at the most alluring period of the autumn, from Japan, from England, Scotland and Ireland, from Java and Korea and the Philippines, from Canada and from France, from the United States and from every important province of China.

THE PROCESSION AND THE PROGRAM

The academic procession of these eminent visitors on September 19, the day of the formal dedication, was striking in its contrast. Scientists from the East and from the West marched together in occidental academic costume, passing in slow procession beneath the great overhanging roofs of green tile, past modern laboratories and age-old water carts, through rows of students of western medicine and past groups of wondering coolies and ever-present beggars. The street cries of the singing craftsmen merged with the martial rhythm of the new great organ—the first to make its appearance in Peking in these thousands of years—

a day—from September 15 to September 22. Each morning clinic sections occupied the first two hours, visiting professors alternating with members of the college faculty in

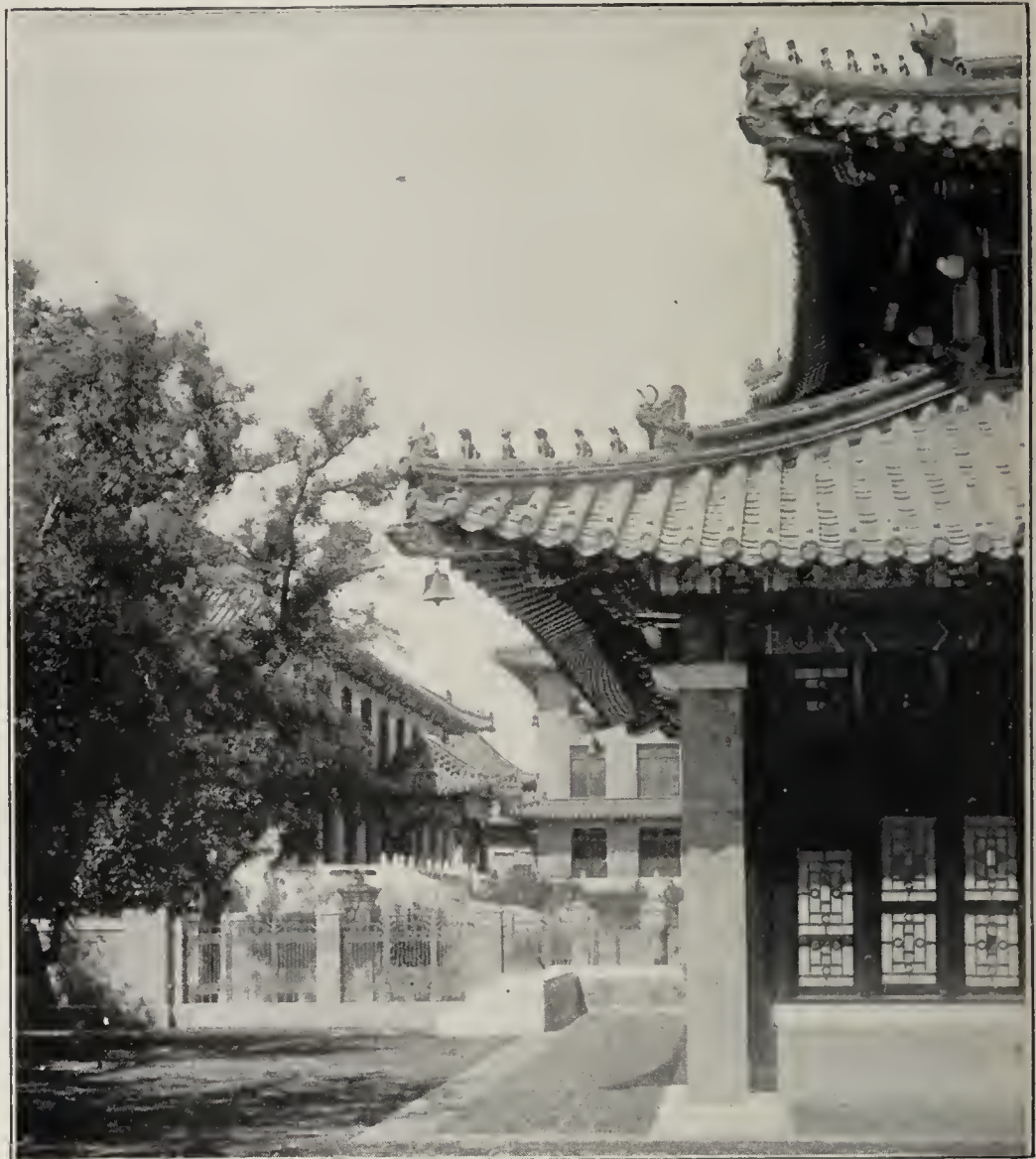


Fig. 4.—A corner of the Auditorium; Anatomy Building at the left.



Fig. 3.—Physiology Building.

as the column swept slowly into the beautiful temple-like building which within proved to be a modern auditorium.

The dedication ceremonies and the medical conference held in connection with these exercises extended over a week and

giving demonstrations in medicine, surgery, obstetrics, pathology and the medical and surgical specialties. The attendance and the interest at these six or seven sectional clinics held each morning throughout the week were a gage of the scientific value of the conference and a prophesy of the significance to individuals and institutions throughout China of the new college and its brilliant faculty.

The last hour of each morning was devoted to a paper delivered in the college auditorium by one of the visiting scientists on some phase of medicine. The afternoons were given over to receptions, to inspection of the new buildings, and to personally conducted sight-seeing tours about Peking.

At nine each evening an address on a medical topic of general interest was given in the auditorium. These evening programs included an introductory survey of medical education in China by Dr. Hume of Changsha; a recount of adventures in public health by President Vincent; moving pictures and demonstrations of health propaganda by Dr. W. W. Peter, of the China Public Health Council; and the valedictory address of the conference by Dr. Welch.

DESCRIPTION OF THE COLLEGE

The institution erected by the Rockefeller Foundation is of an architectural style characteristic of the best in Chinese classic and sacred buildings, and is to be maintained in accordance with modern scientific standards. Sixteen buildings, with sweeping green tile roofs and great overhanging eaves, house the laboratories, hospital wards, and auxiliary structures of the institution proper. These are situated on the Yü Wang Fu, the ancient palace grounds of Prince Yü.

One block east, on Hatamen Street, stands the building of the old Union Medical College, now occupied by the Pre-Medical School, which gives three years of intensive training in the chemical, physical and biologic sciences preparatory to medicine. A little farther east, across Hatamen Street and situated a couple of blocks apart, are the north and south residence compounds. Here, shut off by high walls from the dirty, disease-filled hutongs of Peking, groups of modern brick houses with electric lights, furnace heat and running water stand on trim New England lawns, shaded by ancient trees, banked by shrubs and flowers. These are the homes of members of the faculty and their families. Near the south compound stands the old H'sin kai lu Hospital, now being transformed into a men's dormitory. Adjoining both the H'sin kai lu and the south compound lie the palace grounds of Prince Yi in dilapidated grandeur.

THE FACULTY

The faculty falls naturally into three groups: first, a nucleus of physicians who have served valuable terms in mission hospitals and schools and who were selected from the six or seven hundred medical missionaries in China and further trained under fellowships in England or America before being called to positions on the staff; second, a group who have been brought directly from teaching or research

Western laboratories and wards and in installing power-driven machinery in the Orient have all contributed to multiply a total cost which under the best of conditions probably would have amounted to four millions gold. The expenditures for equipment and supplies also have been larger than originally planned.

The budgets of the college and hospitals for the next three years are slightly below those of similar well-established institutions of high standing in the United States. But the sums made available and the programs adopted are so much above those of other colleges and hospitals in the Chinese Republic that they make this institution unique in all China—in some aspects unique in the entire Far East. This places upon the faculty a responsibility for leadership in teaching, in hospital management and in the advancement of medical science and the public health to which they are alive. Few medical schools, few faculties have ever had before them the opportunities or the challenge to high endeavor which now confront the Peking Union Medical College.

CONCLUSION

China, as one is constantly reminded, is a great and slow-moving mass. The very magnitude of the work forbids the expectation of hasty results—Rome was not built in a day. As Mr. Rockefeller pointed out in his dedication address, not in terms of a day or a year or a decade is the work of this institution to be judged. But in the revolving years and generations who can tell to what tree of influence this mustard seed may grow in the life of the great old country of China?

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

July, 1921, 1, No. 4

- Thermal Death Point of the Human Intestinal Protozoan Cysts. W. C. Boeck, Washington, D. C.—p. 365.
Alsatrim in Jamaica. W. G. MacCallum, Baltimore.—p. 388.
Human Trichomonas in North China. E. C. Faust, Peking, China.—p. 410.
Biometric Data on Infant Mortality in the United States Birth Registration Area, 1915-1918. R. Pearl, Baltimore.—p. 419.
Giardia Enterica: A Parasitic Intestinal Flagellate of Man. C. E. Simon, Baltimore.—p. 440.
*Studies on Experimental Rickets. VI. Effects on Growing Rats of Diets Deficient in Calcium. E. V. McCollum, N. Simmonds, P. G. Shipley and E. A. Park, Baltimore.—p. 492.
*Id. VII. Relative Effectiveness of Cod Liver Oil as Contrasted with Butter Fat for Protecting Body against Inufficient Calcium in Presence of Normal Phosphorus Supply. P. G. Shipley, E. A. Park, E. V. McCollum and N. Simmonds, Baltimore.—p. 512.

Experimental Rickets.—Rats fed on diets which are low in calcium, but which contain a sufficient supply of the fat soluble A and have an approximately normal content of phosphate, develop a pathologic condition of the bone which has certain fundamental resemblances to human rickets. The condition is characterized by increased persistence of the epiphyseal cartilage, its invasion by blood vessels from the shaft, failure in lime salt disposition, the formation of a mixed zone between the cartilage and shaft (the rachitic metaphysis), and the overproduction of osteoid tissue. Gross deformities which cannot be differentiated from those caused by rickets are seen at necropsy. This pathologic condition differs from rickets, as that disease commonly occurs in man, in that the arrangement of the proliferative zone of cartilage cells is maintained, and that the evidences of bone resorption in the diaphysis are excessive. The rickets-like condition of the skeleton does not develop, if the deficiency in calcium is compensated for by the addition to the diet of calcium carbonate. The rickets-like condition never develops if the animal is allowed to receive cod liver oil, and the administration of cod liver oil, when the condition is well advanced, is followed by healing of the lesion with the formation of an

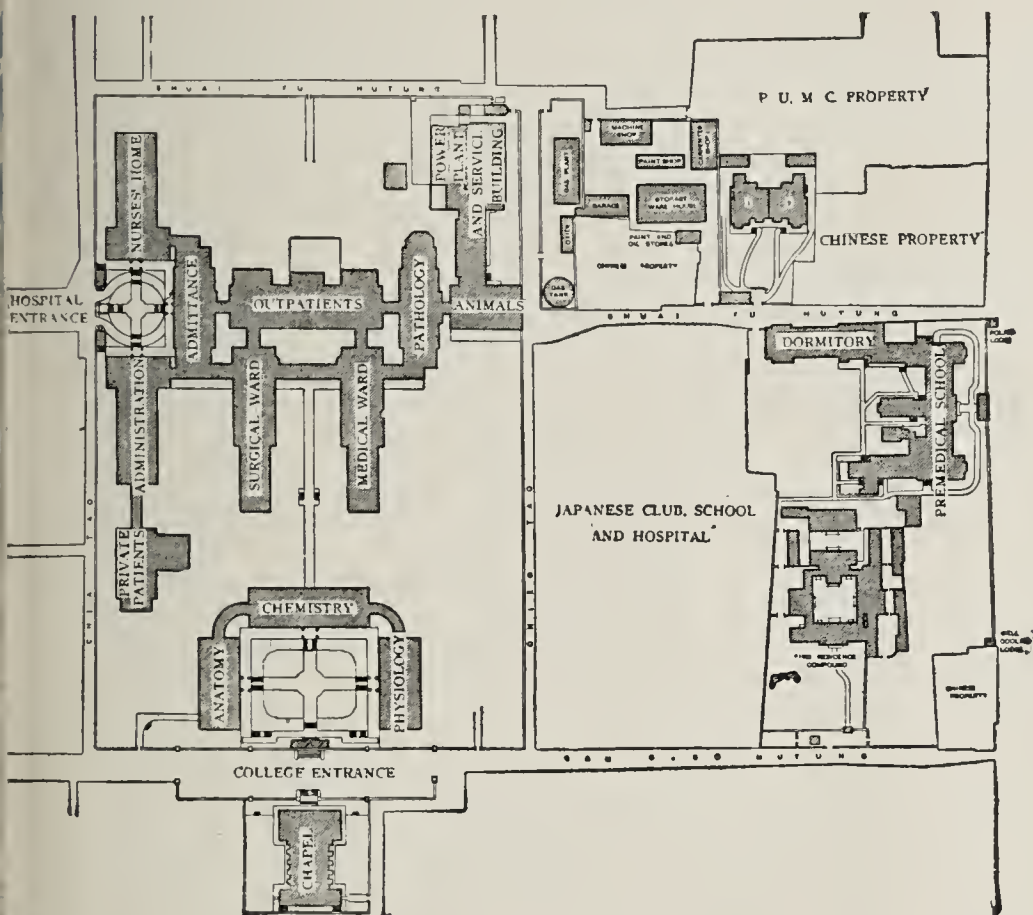


Fig. 5.—Plan of Peking Union Medical College.

institutions in the West to continue their scientific careers in the new college; and third, Chinese. The latter already form a fair proportion of the whole faculty. It is hoped that their number will steadily increase and that their academic and administrative responsibilities will be rapidly extended.

PURPOSE OF THE SCHOOL

It has long been recognized that neither this institution, nor any number of schools which one agency may maintain, will be able to train the great body of medical practitioners needed by the Chinese. The purpose, therefore, in establishing the Peking Union Medical College has been to set standards, to train leaders, to demonstrate what an adequate medical college in China should represent. Thus by a single institution it is hoped to influence an entire nation. It is because of this purpose, which has been adhered to consistently, that so great significance was attached to the attendance at the dedication of the large body of medical men from all parts of China and to their expressed desire to share in the opportunities for cooperation and for advanced study.

COST AND MAINTENANCE

The expense of constructing the buildings has been great. The war, loss of exchange, and the difficulty of erecting

osteoporotic bone. Since this pathologic condition in the skeleton is in no way prevented by an amount of butter fat which is amply sufficient to protect the animals against keratomalacia, it is necessary to assume that butter fat exercises a very feeble influence in protecting animals against the development of rickets-like lesions.

American Journal of Medical Sciences, Philadelphia

October, 1921, 162, No. 4

*Pylorospasm in Adults: Its Medical and Surgical Treatment. J. M. T. Finney and J. Friedenwald, Baltimore.—p. 469.

*Striatal and Thalamic Types of Encephalitis. Symptoms and Syndromes Referable to Basal Ganglia in Epidemic Encephalitis. J. R. Hunt, New York.—p. 481.

*Vegetable Problems in Diabetic Diets. W. A. Orton, Washington, D. C.—p. 498.

Defects of Membranous Bones, Exophthalmos and Polyuria in Childhood: Is It Dyspituitarism? A. Hand, Philadelphia.—p. 509.

Clinical Observations of Hodgkin's Disease, with Special Reference to Mediastinal Involvement. W. S. Lemon and J. B. Doyle, Rochester, Minn.—p. 516.

*Cell Counting Technic: Study of Priority. H. Gray, Boston.—p. 526.

*Malignant Tricuspid Endocarditis: With Report of Five Cases. A. V. St. George, New York.—p. 556.

Treatment of Syphilis. H. S. Newcomer, Philadelphia.—p. 565.

Memorandum on Occupational Study of Syphilis, with Special Reference to Farmers. J. H. Stokes and H. E. Brehmer, Rochester, Minn.—p. 572.

*Heart Irregularity Called "Sino-Auricular Block." S. C. Smith, Philadelphia.—p. 575.

*Bacteria on Subsidiary Coins and Currency. C. B. Ward and F. W. Tanner, Urbana, Ill.—p. 585.

*Case of Meningitis in an Infant Due to a Thread-Like Diphtheroid Organism. M. K. Miller and M. W. Lyon, Jr., South Bend, Ind.—p. 593.

Pylorospasm in Adults.—Finney and Friedenwald agree with Rogers that patients with pylorospasm who remain unbenefited by medical treatment should be operated on, and that pyloroplasty affords the best possible means of cure. Moreover, pain of every character in the upper abdomen should be observed carefully and studied clinically, so that if operation be undertaken for any cause and no explanatory lesion be observed, the advisability of performing a pyloroplasty may be considered—provided, of course, that definite evidence of pylorospasm has been previously noted. This fact is of the utmost importance, inasmuch as the spasm is extremely liable to relax under anesthesia, and the actual condition may therefore be entirely overlooked in the course of the operation.

Types of Encephalitis.—The results of Hunt's investigations may be summarized as follows: The large basal ganglia and especially the corpora striata, are frequently affected in epidemic encephalitis. Involvement of the corpus striatum produces three clinical types or syndromes: (1) a paleostriatal or pallidal syndrome—the paralysis agitans type; (2) a neostriatal syndrome—the choreiform type, and (3) a mixed striatal syndrome—the combined paralysis agitans-choreiform types. These three types are believed to be dependent on the existence of two distinct cellular systems within the corpus striatum. One, the pallidal system, which originates in the motor cells of the corpus striatum and links this structure with important nuclei of the hypothalamic region, and controls the various motor activities of the extrapyramidal tracts. When this system is involved the symptoms of paralysis agitans develop, i. e., paralysis of automatic associated movements with hypertonicity of the muscles and rhythmical tremor. The other, the striopallidal or neostriatal system, which exercises a coordinating and inhibitory influence on the purely motor functions of the corpus striatum. When this system is involved, chorea or spontaneous movements of the automatic associated type develop. The mixed striatal types result from involvement of both systems with the production of symptoms characteristic of each. The recognition of these two systems and fundamental syndromes of the striatum serve to explain and reconcile many peculiarities of striatal symptomatology. The pallidal or paralysis agitans type of lethargic encephalitis may be general, hemilateral or segmental in distribution. Aortive, relapsing and progressive types are also recognized. The neostriatal or choreiform type may also be general, hemilateral or local in distribution. There is an acute choreiform type; a choreo-athetosis and athetoid and rhythmical types. Thalamic symp-

toms also occur in encephalitis lethargica. When present they consist of severe and persistent pain, with disturbances of superficial sensibility, more especially of the pain and temperature sense. Evidences of the complete thalamic syndrome are rarely if ever encountered.

Vegetable Problem in Diabetic Diet.—Orton endeavors to show that the saying that "diabetics must not expect a varied diet" is not necessarily true. There is a vast store of experience on record in the garden literature of the world which diabetics have a special motive in searching for suggestions as to vegetables of value to them and as to methods of cooking to give added variety. Orton is growing eight-one species or kinds of plants in 255 varieties, and has accomplished the aim of having some fresh green vegetables of his own growing every day in the year without a greenhouse. The diabetic needs a hobby to take his mind from his hunger troubles and give him an interest in life. The culture of rare or uncommon vegetables fills his need admirably. The physician can assist in creating the demand by interesting the patients in the possibility of enlarging and varying their diet and then putting them in touch with some nearby gardener who will be found willing to produce the vegetables and supply them as needed. In many cases the physicians will be justified in encouraging patients to move to the country or to the suburbs, to do their own gardening, particularly when they have had previous farm or garden experience and are benefited by exercise. With few exceptions regular outdoor activity increases the carbohydrate tolerance and improves the general health to a remarkable degree. It is not always necessary for the city diabetic to change his residence, for the possibilities of nearby vacant lots are often good if the original soil has not been removed or covered and the ground is not shaded by trees or buildings. Orton gives a long list of vegetables which he has grown and details the method of their preparation as food.

Priority in Cell Counting.—Gray attempts to supplement the existing judicial and somewhat exclusive personal opinions by an inclusive historical review of the men who have contributed to the science of cell counting and to attempt to discern priority for the various procedures. His bibliography goes back as far as 1665.

Malignant Tricuspid Endocarditis.—Malignant tricuspid endocarditis, St. George says, is rare. Bacteriologically, the lesion is associated with different varieties of actively pathogenic micro-organism. Lung emboli or abscesses are practically invariably present. The prognosis is extremely unfavorable, the average duration of life from onset of symptoms being from two to three months.

Nature of Sino-Auricular Block.—Smith is of the opinion that "sino-auricular block" is not a pathologic condition, but is, in all likelihood, a physiologic manifestation in certain hearts. As such its detection does not require drug interference nor does it furnish an indication for modifying the individual's accustomed manner of living.

Bacteria on Coins and Currency.—According to Ward and Tanner there seems to be little basis for the belief that coins bear any close relation to the spread of disease. Coins which are passing from person to person in general circulation come in contact with acids and alkalis which are the formation of soluble salts on their surfaces. These tend to keep down the bacterial flora and probably to exert a selective action, destroying the nonspore-forming organisms.

Corynebacterium Trichodiphtheroide Causes Meningitis.—A diphtheroid micro-organism, named *Corynebacterium trichodiphtheroide*, was isolated by Miller and Lyon as the causative agent in a case of purulent meningitis developing in an infant suffering with bronchopneumonia. It appeared as a small bacillus in the spinal fluid, grew into irregular threadlike forms on first culturing, later becoming bacillary with gram-positive polar bodies and segments of diphtheroid type. It was not pathogenic for rabbits or cavies.

Annals of Surgery, Philadelphia

October, 1921, 74, No. 4

*Researches on Peri-Arterial Sympathetics. R. Leriche, Lyons, France.—p. 385.

- *Simplification of Technic in Operations for Harelip and Cleft Palate. J. E. Thompson, Galveston, Tex.—p. 394.
- Experimental Production of Pancreatitis. E. Archibald and E. C. Gibbons, Montreal, Can.—p. 426.
- *Drainage of Abscess of Pancreas. A. J. Ochsner, Chicago.—p. 434.
- *Traumatic Pancreatitis. H. B. Delatour, Brooklyn.—p. 435.
- Chronic Cholecystitis Without Stones: Diagnosis and Treatment. W. Meyer, New York.—p. 439.
- Surgical Management of Gastric Ulcers. D. C. Balfour, Rochester, Minn.—p. 449.
- Altered Anatomy and Physiology of Cecum and Ascending Colon, Result of Adhesions. G. G. Ross, Philadelphia.—p. 458.
- Carcinoma of Lower Part of Sigmoid in Boy Fourteen Years of Age. I. Olmsted, Hamilton, Ont.—p. 464.
- *Surgical Treatment of Megacolon. C. N. Dowd, New York.—p. 468.
- Management of Pelvic Abscess in Acute Appendicitis. E. Eliot, Jr., and O. C. Pickhardt, New York.—p. 480.
- Mechanics of Production and Treatment of Spiral Fractures. E. Rixford, San Francisco.—p. 490.
- Inequality of Lower Extremities Following Fracture of Shaft of Femur in Children. E. D. Truesdell, New York.—p. 498.
- Keratin and Keratohyalin in Tumors of Hypophyseal Duct. P. Bailey, Boston.—p. 501.

Research on Periarterial Sympathetics.—The sympathetic nervous plexuses included in the external layer of blood vessels seem to possess a real autonomy. The systematic study of the phenomena which follow the exciting of average sized arteries, that is, of prevailing muscular structure, Leriche says, reveals the existence of a very characteristic physiologic reaction which never fails in normal circumstances. Leriche presents results of his researches on this subject especially the use made of his findings in surgical treatment.

Cause of Cleft Palate and Harelip.—The anatomic faults present in harelip and cleft palate are discussed by Thompson, and he formulates rules of technic by which the deformed structures can be brought into the position they would have occupied if union of the component parts of the face and palate had occurred at the proper time, that is about the seventh week of intra-uterine life. The moment embryonic fusion fails, Thompson says, the great and probably the only agent in preventing subsequent union is the tongue, which exerts constant pressure between the edges of the cleft until it succeeds not only in prying the jaws apart, but in pushing the palatal plates upward until they come to occupy a somewhat vertical position. The mechanism of this disrupting force can be traced in every case. Whenever the gap is large enough for the tongue to be inserted, evidences of muscular pressure are always present and the direction in which the disrupted parts are moved is always that of the tongue thrust, i. e., from behind forward and from below upward. Since the force exerted by the tongue is greatest at the tip and decreases gradually backward toward the epiglottis where it reaches its minimum, the deformity is greatest where the prying force of the tongue can be exerted to greatest advantage. Thus in clefts confined to the soft palate the muscular action of the posterior part of the tongue is so feeble and so ineffective as to be negligible. On the other hand, in clefts extending through both soft and hard palate but stopping short at the alveolar margin, the tongue exerts considerable force on the lateral palatal plates of the maxillae, forcing them upward and outward against the lateral walls of the nose and producing an unusually wide cleft. In addition, the anterior and lateral portions of the alveolar ring are also pushed outward to a considerable extent. But the severest degrees of deformity occur in examples of complete palatal cleft extending through the alveolar margin into the nostril. The tongue has full play and acts like a wedge driving the maxillae apart in front so that they swing outward like double doors on hinges which are situated behind near the posterior ends of the alveolar borders. The principles of treatment are founded on accurate knowledge of the anatomy of the deformity; in other words, on a correct estimate of the degree of distortion. This can be measured graphically by comparing the deformed alveolar border with one reconstructed from a mold taken of the alveolar border of the mandible of the patient. Thompson cites a number of cases to illustrate the points made.

Drainage of Pancreas Abscess.—Ochsner directs attention to a method of draining an abscess located in the tail of the pancreas. In a case cited an incision was then made in the left flank, immediately below the last rib. The space behind

the pancreas was loosely packed with gauze, in the middle of which was placed a large rubber drainage tube. The gauze and the drainage tube were passed out of the wound in the flank and two cigaret drains were added and carefully placed behind the pancreas. Five days after the operation the abscess broke spontaneously and a large amount of thick pus escaped. The gauze and the cigaret drains were removed gradually. The rubber tube was left in place for two weeks, when the discharge had been greatly reduced. The tube was then removed and the wound healed in two weeks.

Traumatic Pancreatitis.—Delatour cites a case of subcutaneous laceration of the head of the pancreas from a wagon wheel passing diagonally over the body from the right thigh upward and to the left across the body to the lower left ribs. There was moderate shock and complaint of pain in the upper right thigh and also in the epigastric region. At operation the head and about one half of the remainder of the pancreas was found lacerated and contused. Very extensive areas of fat necrosis were observed in the omentum. Drains were carried down to the injured tissue. About three weeks later symptoms of sepsis manifested themselves. Partial obstruction of intestines by adhesions was suspected. Four weeks after the first appearance of these symptoms a diagnosis of pancreatic cyst was made and operation advised. The abscess was drained through an incision made in back just below twelfth rib, 2 inches to the right of spine. The points to be noted in this case are: (1) The comparative absence of shock, although over one half of the pancreas was badly contused and lacerated. (2) The principal symptoms, both during the first hours after the injury and during the stage of development of the cyst, were vomiting and severe upper abdominal pain occurring at intervals. In each instance these were immediately relieved by operation. Emaciation was marked until after the cyst was drained, although the boy was eating well most of the time. (3) The ease of approach from behind and the better drainage obtained.

Treatment of Megacolon.—Dowd reports three cases and reviews the literature with special reference to treatment. These three cases illustrate various phases of the problem. Case 1 shows the good result which may come from the removal of a sufficient portion of the enlarged colon. Case 2 shows that a patient with this disease may drift along beyond the possibility of relief, either medical or surgical, and that this drifting may occur while she is trying to attend to the ordinary duties of life. Cases 1 and 3 both illustrate the comparative safety of the extraperitoneal two stage method of resection (Mikulicz).

Arkansas Medical Society Journal, Little Rock

October, 1921, 18, No. 5

- History of Care of Insane. C. C. Kirk, Little Rock.—p. 93.
- Cancer of Rectum. My Method of Performing Perineal Proctectomy. J. L. Jelks, Memphis.—p. 98.
- In Cancer of Neck of Uterus, Should Cautey, Radium and Roentgen Ray Precede or Follow Radical Operative Excision? R. C. Dorr, Batesville.—p. 104.

Boston Medical and Surgical Journal

Nov. 3, 1921, 185, No. 18

- Ether Day at Massachusetts General Hospital. Opening Address. Dr. Henry P. Walcott, Boston.—p. 525.
- Address. F. C. Shattuck, Boston.—p. 526.
- Personality of Hospital. H. Cushing, Boston.—p. 529.
- History of Insanity During Past Century with Special Reference to McLean Hospital. C. McF. Campbell, Waverley.—p. 538.
- Place of Civil General Hospital in Scheme of Medical Preparedness. M. W. Ireland.—p. 544.

Canadian Journal of Mental Hygiene, Montreal

July, 1921, 3, No. 2

- Psychic Epidemics. H. Oertel.—p. 1.
- Study of 5,600 Psychiatric Cases. Survey of 767 Cases of Illegitimacy. C. K. Clarke.—p. 11.
- What Can State Hospital Do to Help in Struggle Against Syphilis? A. J. Rosanoff, King's Park, N. Y.—p. 25.
- Democracy and Mental Hygiene. W. D. Tait.—p. 31.
- Critical Survey of Intelligence Testing. P. Sandiford, Toronto.—p. 37.
- Physician's Responsibility in Connection with Insane and Their Commitment to Hospital, Together with Suggestions for Examination of a Patient. H. C. Steeves, New Westminster, B. C.—p. 47.
- Prevention of Mental Breakdown. C. A. Baragar.—p. 55.
- Organization of State Institutions for Feeble-minded in United States. W. B. Cornell, Albany, N. Y.—p. 65.
- Attitude Toward Mentally Diseased. G. O. Grain, Winnipeg.—p. 71.

Florida Medical Association Journal, St. Augustine and Jacksonville

October, 1921, 8, No. 4

- Simplified Infant Feeding. F. C. Moor, Tallahassee.—p. 61.
Failing Heart. S. R. Roberts, Atlanta, Ga.—p. 66.
Minimum Standards of Nurses' Training Schools. L. A. Hollohan, Clearwater.—p. 69.

Journal of Bacteriology, Baltimore

September, 1921, 6, No. 5

- Mannitol Producing Organisms in Silage. G. P. Plaisance and B. W. Hamner.—p. 431.
Principles Concerning Isolation of Anaerobes. Studies in Pathogenic Anaerobes. II. H. H. Heller, San Francisco.—p. 445.
Indol Production by Bacteria. J. F. Norton and M. V. Sawyer, Chicago.—p. 471.
Nitrification. IV. Carbon and Nitrogen Relations of Nitrite Ferment. A. Bonazzi, Wooster, Ohio.—p. 479.
Toxins of B. Dysenteriae, Group III. T. Thjøtta and O. F. Sundt, Kristiania, Norway.—p. 501.

Journal of Laboratory and Clinical Medicine, St. Louis

October, 1921, 7, No. 1

- Serology of Syphilis. Syphilitic Color Indices. E. F. Mahr, Washington, D. C.—p. 1.
*Development of Chemotherapy of Organic Arsenicals and Related Physical Phenomena. C. N. Myers, New York.—p. 17.
Ventilation, Weather and Common Cold. Study of Prevalence of Respiratory Affections Among School Children and Their Association with School Ventilation and Seasonal Changes in Weather. G. T. Palmer, Detroit.—p. 39.
Apparatus for Rapid Determination of Nitrogen in Blood and Urine. C. E. Reynier, Detroit.—p. 53.
Automatic Pipetting Device. W. F. Lorenz, Madison, Wis.—p. 54.
Modification of Kjeldahl Still for Distilling Large Quantities of Water. C. E. Swanbeck, Cleveland.—p. 57.

Chemotherapy of Arsenicals.—The chemotherapeutic development of arsenicals is discussed by Myers showing the relation of pentavalent arsenical products to those of the trivalent condition as illustrated in the "arseno" type. The rationale of the physiologic action is discussed from the chemical point of view showing the effect of the chemical action of mass, concentration, and pharmacodynamics. A complete chart showing all the possible methods of arriving at the final product salvarsan (with references) is given. Impurities and their relation to toxicity are discussed. The physical chemistry of arsphenamin is given with reference to the presence of colloidal properties and a discussion of the question of solutions in reference to viscosity, potential, dissociation, equilibrium, and ultrafiltration and their relation to toxicity. The administration of the drug in relation to concentrated and dilute solutions is discussed. Standing for thirty minutes tends to decrease the toxicity of freshly alkalized solutions of arsphenamin. Need of clinical standardization is pointed out. Reactions are explained in terms of disturbances of chemical equilibrium (precipitates).

Journal of Pharmacology and Experimental Therapeutics, Baltimore

October, 1921, 18, No. 3

- *Relation of Dextrose and Water Content of Blood to Antipyretic Drug Action. H. G. Barbour and J. B. Herrmann, New Haven, Conn.—p. 165.
Activity of Isolated Uterus. S. Ogata, London.—p. 185.
*Toxic Effects of Chlorin Antiseptics in Dogs. H. G. Barbour and A. M. Hjort, New Haven, Conn.—p. 201.
*Reaction to Epinephrin Administered by Rectum. R. G. Hoskins, Baltimore.—p. 207.
*Influence of Phenyleinchoninic Acid and Ethyl Ester of Paramethylphenyleinchoninic Acid on Renal Excretion. V. C. Myers and J. A. Killian, New York.—p. 213.
*Effect of Water Diuresis on Elimination of Certain Urinary Constituents. A. D. Carr, St. Louis.—p. 221.

Blood Content and Antipyretic Drug Action.—Barbour and Herrmann's experimental research shows that sodium salicylate, acetylsalicylic acid, antipyrin and quinin all increase the blood sugar concentration in both normal and fever dogs. After salicylates the total blood dextrose increases from 25 to 50 per cent. Antipyrin apparently gives a less marked effect than do salicylates, while quinin exhibits a greater. In Barbour's colon bacillus fever dogs, as well as in human febrile cases, these drugs produced a notable dilution of the abnormally concentrated blood. This dilution accounts for the decrease in body temperature. In normal dogs anti-

pyretic drugs often increase the body temperature slightly, in which case they may diminish the fluid content of the blood. According to the theory of antipyretic action evolved from our work the mobilization of dextrose is one of the chief factors responsible for the blood dilution by antipyretic drugs in fever.

Toxic Effects of Chlorin Antiseptics.—Given intraperitoneally in dogs, chloramine-T appears to possess one and one-half times the toxicity of surgical solution of chlorinated soda and but one fifth the toxicity of corrosive sublimate. All three of these antiseptics Barbour and Hjort found produce acute or chronic peritonitis, the severity depending on the amount injected. Fatal intraperitoneal injections of chloramine-T appear not only to fail of absorption but to attract in addition at least an equal amount of fluid from the circulation. All of the above mentioned antiseptics produce circulatory and muscular collapse with reduction in body temperature. Large amounts of 2 per cent. chloramine-T by mouth can be tolerated by dogs without other significant effect than vomiting.

Reaction to Epinephrin Administered by Rectum.—Epinephrin was administered by Hoskins to dogs and cats by rectum. Blood pressure and intestinal peristalsis were recorded. The drug, in doses of from 1 to 5 mg., produced either no or relatively slight effects. In positive reactions peristalsis was depressed and blood pressure either augmented or depressed, the effect persisting from three minutes to an hour in various cases.

Effect of Phenyleinchoninic Acid on Kidney.—Phenyleinchoninic acid (cinchophen) and the ethyl ester of p-methylphenyleinchoninic acid (tolysin), exercise a general stimulating effect on kidney excretion. This action is most marked in the case of uric acid, but Myers and Killian assert it is possible to demonstrate a similar action in the case of urea and chlorids, provided cases are selected with a slightly high blood concentration of these substances.

Effect of Water Diuresis on Kidney.—The effect of water diuresis on the elimination of chlorids, creatinin, urea, ammonia, sulphates, phosphates, and carbonates was studied by Carr in normal human subjects. The data obtained confirm the finding of Marshall in regard to urea, creatinin, and chlorids. Sulphates are increased in practically all experiments. Ammonia and phosphates are generally increased, but may be unchanged. All of these substances are decreased in percentage. Carbonates (i. e., total carbon dioxide) are increased not only in absolute but in percentage amount. The hydrogen ion concentration of the urine is decreased during diuresis.

Kentucky Medical Journal, Bowling Green

October, 1921, 19, No. 9

- Medical Evolution and Reconstruction. J. A. Stucky, Lexington.—p. 615.
Perforation of Uterus from Curret; Case Report. L. W. Frank, Louisville.—p. 621.
High Blood Pressure. G. W. Payne, Bardwell.—p. 622.
Annual Death Rate of Logan County and Russellville. W. Byrnc, Russellville.—p. 623.
Rheumatism. T. J. Marshall, Bardwell.—p. 625.
Infected Tonsils: Their Relation to Systemic Diseases. E. S. McIlwain, Cynthia.—p. 628.
Uterine Hemorrhage. W. Barrow, Lexington.—p. 630.
Differential Diagnosis of Surgical Diseases of Biliary Passages. H. J. Phillips, Louisville.—p. 633.
At Head of Hollow. J. F. Smith, Louisville.—p. 637.
Care of Pregnant Woman. H. L. Read, Louisville.—p. 639.
Diagnosis of Chronic Appendicitis. M. Casper, Louisville.—p. 641.
Two Cases of Carbon Monoxid Poisoning. S. C. Frankel, Louisville.—p. 646.
Focal Infections of Ear, Nose and Throat. G. C. Hall, Louisville.—p. 648.
Focal Infection in Relation to Diseases of Bones and Joints and Their Therapeuses. V. E. Simpson, Louisville.—p. 651.
Heart and Focal Infections. W. A. Jenkins, Louisville.—p. 656.
Focal Infections of Genito-Urinary Organs. O. Grant, Louisville.—p. 658.
Bronchial Asthma. L. K. Baldauf, Louisville.—p. 663.
Prenatal Clinic of Louisville City Hospital. A. N. Pickett, Louisville.—p. 670.
Case of Meningitis. S. G. Dabney, Louisville.—p. 671.
Important Considerations in Establishing a Full Time Health Department Permanently. R. J. Mallott, Harlan.—p. 673.

Laryngoscope, St. Louis

September, 1921, **31**, No. 9

- Endocrines in Otology. C. E. de M. Sajous, Philadelphia.—p. 659.
Deafness: Its Treatment. H. Hays, New York.—p. 673.
Radical Mastoidectomy Followed by Formation of False Membrana Tympani and Normal Hearing. L. G. Dunlap, Anaconda, Mont.—p. 687.
Nature's Radical Mastoidectomy: Case Report. L. W. Morsman, Hibbing, Minn.—p. 691.
Nasal Status in Retrobulbar Optic Neuritis. T. J. Gallaher, Denver.—p. 692.
Case of Nasal Hemorrhage (Postoperative) Requiring Ligation of External Carotid Artery. H. B. Cohen, Philadelphia.—p. 698.
New Tonsil Instrument. H. M. Goodyear, Cincinnati.—p. 699.
Cases of Postnasal Choanal Malformation by Bony Occlusion. J. C. Kirby, Boston.—p. 701.
Membranous Obstruction of Bronchi, Clinically Diphtheritic, with Repeated Removals with Bronchoscope. C. E. Purcell and J. B. Acree, Paducah, Ky.—p. 704.
Stammering: Bibliography of Past Decade—1911 to 1920, inclusive. C. S. Bluemel, Denver.—p. 709.
Two New Tonsil Crypt Evacuators. H. S. Wieder, Philadelphia.—p. 715.
Hemostatic Forceps for Ligating Vessels in Tonsil Fossa. J. F. Callahan, Brockton, Mass.—p. 717.

Medical Record, New York

Nov. 5, 1921, **100**, No. 19

- Radium Therapy in Cancer. G. S. Willis, New York.—p. 793.
Anthrax as a Non-Occupational Disease. L. Hannah, Sylvania, Ga.—p. 796.
A Specific Cure for Pneumonia and Pulmonary Tuberculosis. S. Stern, Atlantic City.—p. 798.
Pan-Pemmican. G. Homan, St. Louis.—p. 804.
Possible Exophthalmic Role of the Thyroid in Goiter and in Myxedema. G. A. Friedman, New York.—p. 806.
Standardization of Hospital Technic. J. Selinger, New York.—p. 808.
Three Cases of Central Speech Defect. N. J. P. Van Baggen, San Francisco.—p. 809.
Simple Method of Irrigating the Anterior Urethra. M. M. Nemser, New York.—p. 812.

Pan-Pemmican.—Under this name Homan describes a mixture of meat, fruit and bread with seasoning to increase its acceptability to the digestive powers. He claims that this is a wholesome food which can be produced at little cost, thus reducing the high cost of living.

Philippine Journal of Science, Manila

June, 1921, **18**, No. 6

- Composition, Solubility and Oxidation of Lumbang Oil. A. P. West and Z. Montes.—p. 619.
Some Nondiaspine Coccidae from Malay Peninsula, with Descriptions of Apparently New Species. H. Morrison, Washington, D. C.—p. 637.
New Genera and Species of Philippine Membracidae. W. D. Funkhouser, Louisville, Ky.—p. 679.
Some Philippine Wasps of Family Chrysididae. S. A. Rohwer.—p. 691.
Description D'Un Canthyrus (Coleoptera-Dystiscidae) Nouveau, Des Iles Philippines. P. R. Peschet, Paris, France.—p. 693.
*Position and Size of Kidneys Among Filipinos. J. C. Nanagas.—p. 695.
*Length and Position of Vermiform Appendix in Filipinos. A. Garcia and J. Solloza.—p. 707.
Philippine and Bornean Species of Hoplionota (Coloptera). F. Spaeth, Vienna, Austria.—p. 721.

Position and Size of Kidneys in Filipinos.—Forty-eight bodies from the dissection laboratory were examined by Nanagas. The kidneys were in general at higher levels in males than in females. The variability of the horizontal planes of both kidneys was greater in males than in females. The upper pole of both male kidneys was generally found at the lower half of the twelfth dorsal vertebra, and in the case of the left often at the level of the disk above it, with a tendency in both sides to be higher. In females it is also found at the level of the twelfth dorsal vertebra, though apparently not so frequently as in males, with a tendency to occupy lower levels. The right kidney is found farther from the median line of the back than the left, regardless of sex, and in corresponding sides it is found farther from that point in males than in females. In general the left kidney is larger than the right. The female kidneys, considered either in general or by corresponding sides, were larger than those in the males. There is a gradual increase in size of both kidneys with age, up to a certain maximum, attained in males between 30 and 40 years, and in females up to the age of 30 with a gradual decline thereafter.

Appendix in Filipinos.—Three hundred and forty human appendixes were examined by Garcia and Solloza and they found that the length of the human appendix is very variable and does not seem to keep any definite relation to race. In

Filipinos the length of the appendix bears a definite relation to age, being relatively longer in younger than in older persons and, furthermore, that it gradually grows in length with age, attaining its maximum between the ages of 20 and 50 years, gradually declining thereafter. It is longer in males than in females. It is higher in children than in adults and that in the former the subcecal is the commonest position and the retrocecal in the latter, the anteccecal being very rare in either. The pelvic position considered normal by some authors was not even found in this series and must be considered infrequent in Filipinos.

Tennessee State Medical Association Journal, Nashville

October, 1921, **14**, No. 6

- Lethargic Encephalitis. C. C. Turner, Memphis.—p. 209.
Protein Sensitization in Vasomotor Rhinitis. J. J. Shea, Memphis.—p. 218.
Indications for Tonsillectomy and Its End Results. M. M. Cullom, Nashville.—p. 222.
Cock-Sureness in Practice of Medicine. L. A. McSwain, Paris, Tenn.—p. 227.
Surgical Aspects of Congenital Pyloric Stenosis. W. T. Black, Memphis.—p. 232.

U. S. Naval Medical Bulletin, Washington, D. C.

October, 1921, **15**, No. 4

- Color Blindness; Objections Found with a Few Color Perception Tests Now in Use. E. J. Grow.—p. 717.
Cardiac Irregularity. E. U. Reed.—p. 732.
Handling of Recruits at Recruit Depot, Marine Barracks, Paris Island, S. C., with Special Reference to Physical Examination. J. C. Parham.—p. 740.
Four Centuries in Treatment of Syphilis. L. W. Shaffer.—p. 749.
Field Hospital of United States Marine Corps. G. F. Cottle.—p. 762.
Training and Care of Football Squad at United States Naval Academy During Season of 1920. M. H. Roberts.—p. 770.
Gas Poisoning in Warfare. G. H. Mankin.—p. 775.
Venereal Prophylaxis Among United States Marines at Honolulu, Hawaii, 1909-10. H. H. Lane.—p. 783.
Manila Galleon. W. M. Kerr.—p. 787.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

Sept. 30, 1921, **15**, No. 3

- Ceratopogonine Midges of Gold Coast: Descriptions of New Species. H. F. Carter, A. Ingram and J. W. S. Macfie.—p. 177.
Prevalence and Character of Tuberculosis in Hongkong. H. H. Scott. I. General Considerations.—p. 213.
*II. Portals of Entry and Mode of Spread of Tuberculosis.—p. 227.
*Multiple Aneurysms in Child. R. H. Kennan.—p. 245.
Lappeted Anoplocephala in Horses. W. Yorke and T. Southwell.—p. 249.
Feeding Habits of Stegomyia Calopus, Meigen. R. M. Gordon and C. J. Young.—p. 265.
*Case of Leprosy. W. Yorke and S. Adler.—p. 269.
Some Fungal Infections in West Africa. J. W. S. Macfie.—p. 271.
Fungus of Genus Nocardia Cultivated from Heart Blood. J. W. S. Macfie and A. Ingram.—p. 283.
Report on Rat Flea Investigation. R. Newstead and A. M. Evans.—p. 287.
Natural Enemies of Stegomyia Calopus, Meigen. C. J. Young.—p. 301.

Portals of Entry and Mode of Spread of Tuberculosis.—Of the 225 cases of tuberculosis in children under 10 years of age, analyzed by Scott, 153, or 65.77 per cent., were found in which the portal of entry was respiratory, and in five others there was a strong probability of a respiratory origin, in which case the percentage increases to 68. Only thirty-one of these 225 cases appeared to be definitely of alimentary origin, i. e., 13.77 per cent., while among those of "uncertain portal" were three others in which the evidence for the alimentary route had considerable weight; if these be included, the total percentage would be 15.11. Cases of isolated primary tuberculosis of the intestine are very rare in Hong Kong; in fact, only four cases were seen. The great majority, then, have a respiratory portal of entry, the proportion to alimentary being as great as between four and five to one. Of 300 cases in adults there were 209 in which the primary portal of entry appeared to be by the respiratory tract, i. e., 69.66 per cent., and in seven others there was considerable evidence in support of the same portal, bringing

the total to 216, or 72 per cent. Only thirty-two have been definitely determined as being of alimentary origin, i. e., 10.66 per cent.; five more were very likely alimentary; this would bring the total to 37, or 12.33 per cent. In four other cases there was a possibility of almost simultaneous entrance by way of the respiratory and alimentary tracts. In the remaining cases the primary portal was uncertain.

Multiple Aneurysms in Child.—An anemic boy, aged 4 years, whose history and physical condition were negative, is the subject of Kennan's discussion. The upper end of the left hypothenar eminence was slightly enlarged, and prominent, and was the site of a pulsating tumor which could be "emptied" by pressure over it, and which then filled again "per saltum." Pressure over the ulnar artery greatly diminished, but did not entirely obliterate pulsation in the tumor. The surface tissues over the tumor were unaltered in color and texture. Just above this tumor, and separated from it by a narrow surface depression, was a second one of similar character. There was no history of injury antecedent to the first hypothenar tumor; the second swelling came quickly two days after a fall, which, however, did not cause bruising or damage to the skin. Subsequently a small pulsating little vessel, slightly bluish in color was noticed about the middle of the right side of his neck, and some time after this his mother found another larger pulsating, uniformly oval swelling a little lower down, occupying the greater portion of the base of the anterior triangle of his neck above the clavicle. None of the tumors caused any pain, and only when the larger neck tumor was firmly pressed in an effort to empty it did the patient show any sign of distress. Examination of the blood showed *Plasmodium falciparum* infection and also eosinophilia (about 12 per cent.). Several very careful and prolonged examinations of the feces yielded negative results. As causes, it appears that septic emboli, syphilis and injury were not present in this case.

Leprosy in England.—The most interesting feature of the case reported by Yorke and Adler is its history. The patient arrived in England in 1912 in good health. Not until 1916 did he first notice small spots on the left side of the face. No further change was observed until 1920 when a ham colored eruption appeared on the trunk and upper and lower limbs. Five months ago he noticed for the first time swelling of the alae nasi. The patient was unaware of the fact that it was leprosy.

British Medical Journal, London

Oct. 22, 1921, 2, No. 3173

- William Harvey, Obstetric Physician and Gynaecologist. H. R. Spencer.—p. 621.
 *Physiologic Cost of Muscular Work. A. D. Waller and G. DeDecker.—p. 627.
 *Glycosuria of Malarial Origin. G. A. Harrison.—p. 630.
 Over Five Hundred Gallons of Fluid from an Ovarian Tumor. J. D. Malcolm. G. A. Gibb.—p. 631.
 Method of Skin-Grafting. S. Samuel.—p. 632.
 Compound Fractures of Thigh and Leg. N. Dunn.—p. 623.
 Theory and Method in Extension of Thigh. R. H. Russell.—p. 637.
 Diagnosis and Treatment of Injuries of Intestines. G. Gordon-Taylor.—p. 639.
 Employment of Crushing Instruments and Cautery in Certain Intra-Abdominal Operations. C. P. Childe.—p. 646.
 Lethargic Encephalitis. E. Bramwell.—p. 648.

Physiologic Cost of Muscular Work.—Waller and DeDecker are of the opinion that the measurement of primary importance to our further knowledge of the physiologic cost of industrial labor consists in the measurement of carbon dioxid expired during the day's work—recording the carbon dioxid values observed as ordinates throughout the day.

Glycosuria of Malarial Origin.—Harrison's patient was aged 32. Following an attack of colitis in March, 1920, he developed malaria. Parasites were found in his blood, but for three weeks only did he continue quinin treatment. The ague stopped, but he had a serious relapses, but did not take any more quinin. In March, 1921, he sought professional advice on account of excessive thirst. Sugar was found in his urine, and a diagnosis of diabetes mellitus was made. Under carbohydrate reduction the sugar disappeared within three months.

Journal of Laryngology and Otology, Edinburgh

October, 1921, 36, No. 10

- Is Mere Enlargement of a Tonsil Good and Sufficient Reason for Its Enucleation? T. M. Hovell.—p. 457.
 Intrinsic Cancer of Larynx: Usual Site of Origin, as Demonstrated at Fifty Laryngofissures; Influence on Diagnosis, Prognosis and Treatment. S. C. Thomson.—p. 462.
 Posterior Ethmoidal Cell Exploration. P. Watson-Williams and E. Watson-Williams.—p. 464.
 Review of Twenty Consecutive Cases of Acute Mastoiditis Treated by B. I. P. and Primary Suture. F. H. Diggle.—p. 471.
 Cranial Osteomyelitis Complicating Accessory Sinus Suppuration. N. Maclay.—p. 478.
 Value and Development of Residual Hearing. M. A. Goldstein, St. Louis.—p. 482.

Journal of State Medicine, London

October, 1921, 29, No. 10

- Health of Seamen and How to Safeguard It. R. J. Mackeown.—p. 289.
 Municipal Milk Supply. A. Shelmerdine.—p. 297.
 Garden City and Public Health. N. Macfadyen.—p. 305.

Medical Journal of Australia, Sydney

Sept. 10, 1921, 2, No. 11

- Roentgen-Ray Examination of Abdomen Following Inflation of Peritoneal Cavity. K. S. Cross.—p. 195.
 Acute General Peritonitis. W. R. Groves.—p. 199.
 *Tumor of Spinal Cord. J. M. Gill.—p. 201.

Tumor of Spinal Cord.—Gill's patient presented all the classical signs of a meningeal tumor situated in the mid-dorsal region. The history, too, was very typical. The first symptom was pain due to pressure on the nerve roots. Next ensued paralysis and stiffness of the legs, as the tumor got larger; then loss of control of bladder and rectum; finally painful involuntary muscular contractions of the lower limbs, indicating a virtual separation of the lower half of the spinal cord from the brain. On examination immediately after admission there was found complete paralysis of both lower limbs, the hip and knee joints were flexed (a condition sometimes called "paraplegia in flexion") and there were frequent painful spasms in each leg. Sensation was almost completely lost up to the xiphisternal line over the anterior wall of the abdomen. The line of separation was perfectly well defined. Moreover, it remained constant from day to day. The patient complained of intense pain in the back. When the spines of the vertebrae were tapped this pain was greatly aggravated. Pain was always most intense on tapping the spine of the sixth vertebra. As to the nature of the tumor, the history clearly suggested a meningeal origin. A syphilitic lesion was excluded by the absence of a reaction to the Wassermann test. The tumor was situated exactly in the middle line posteriorly and compressed the cord so that it was quite flattened and devoid of pulsation.

Sept. 17, 1921, 2, No. 12

- Muscle Atrophy. A. Juett.—p. 213.
 Bilharziosis in Western Australia. D. M. McWhae and T. R. Jagger.—p. 217.
 Radical Extirpation of Calcified Hydatid Cysts of Liver with Adventitious Capsule Complete. C. E. Corlette.—p. 220.
 Plastic Operation on Face. H. Bullock.—p. 220.
 Disarticulation at Hip-Joint for Sarcoma of Femur. T. Fiaschi.—p. 221.

Sept. 24, 1921, 2, No. 13

- *Case of Early Primary Ovarian Pregnancy. J. I. Hunter.—p. 233.

Oct. 1, 1921, 2, No. 14

- Tendon Transplantation in Old Nerve Injuries. H. R. G. Poate.—p. 253.
 Limitation of Movement at Metacarpophalangeal Joints: Its Causes and Treatment. D. J. Glissan.—p. 257.

Early Primary Ovarian Pregnancy.—In the case reported on by Hunter abdominal section was performed and the ovary removed twenty-four days after the last menstrual period. Microscopic examination revealed the presence of a growing blastocyst which was apparently less than three weeks of age; this indicated that fertilization occurred after the last menstrual period prior to operation.

Medical Journal of South Africa, Johannesburg

September, 1921, 17, No. 2

- Round Pupil in Cataract Extraction. R. C. J. Meyer.—p. 23.
 *Influence of Presence of Dust On Growth, in Vitro, of Certain Micro-Organisms. E. H. Cluver and A. Mavrogordato.—p. 26.
 Modern Dietetic Treatment of Diabetes. E. P. Baumann.—p. 27.
 Cases of Venereal Disease. H. Gluckman.—p. 28.
 Prevention of Deafness with Special Reference to Tonsillectomy and Tonsillotomy. J. L. Aymard.—p. 30.

Influence of Dust on Growth of Bacteria.—Cluver and Mavrogordato endeavored to ascertain whether the presence in culture mediums of various insoluble and chemically inactive dusts appreciably influence the growth of certain organisms therein. The dusts employed have been those of quartzite, coal, wood charcoal and "pure" carbon, the last having been obtained from cane sugar; the organisms used have been *B. pyocyaneus*, a pneumococcus, a streptococcus and *B. tuberculosis* (human). The results obtained were as follows: *B. pyocyaneus*, streptococcus and *B. tuberculosis* grew more rapidly and more abundantly in the "dusted" than in the "dust-free" mediums. This augmentary influence appeared to be approximately the same for all the varieties of dust. Pneumococcus: The same general effect was observed with regard to the presence of dust in the medium, but quartzitic dust appeared, on the whole, to augment the growth less than the other dusts. Hence, it is concluded that the presence of fine particles of insoluble and chemically inert substances appears to favor the growth of certain microorganisms in vitro. It could not be demonstrated that quartzite dust was more stimulating than coal, charcoal, or "pure" carbon, nor that "pure" carbon was either more or less stimulating than coal dust.

Practitioner, London

October, 1921, 107, No. 4

- Pathways of Infection in Rheumatic Group of Diseases. G. L. K. Pringle.—p. 229.
Empyema in Childhood. F. C. Pybus.—p. 238.
Uses of Diathermy in Dermatology. W. K. Sibley.—p. 246.
Uterine Hemorrhage and Its Treatment by Galvanic Current. A. Saville.—p. 256.
Prevention of Chronic Gonorrheal Urethritis. M. W. Browdy.—p. 264.
Therapeutic Uses of Anterior Pituitary Gland. T. B. Scott and F. W. Broderick.—p. 278.
Physical Treatment of Enteroptosis. C. MacMahon.—p. 288.
Anxiety. W. J. Jago.—p. 291.
General Practice and Puerperal Fever. A. C. Stark.—p. 295.

South African Medical Record, Cape Town

Sept. 24, 1921, 19, No. 18

- *Case of Juvenile General Paralysis. G. J. Key and A. Pijper.—p. 343.
Tuberculosis Among Native Mine Labor Recruits. J. F. Young.—p. 346.
East Coast Natives. A. I. Girdwood.—p. 348.
Genital Prolapse. J. W. G. Phillips.—p. 350.
Modern Dietetic Treatment of Diabetes. E. P. Baumann.—p. 353.

Juvenile General Paralysis.—Key and Pijper cite the case of a boy, aged 12, who first manifested symptoms when 8 years of age. When about 9 years old he commenced to have sleepless nights, and was frequently noisy. When he was about 10 years old it became evident that he was failing mentally. He was careless about his dress, and his habits became faulty. During the next two years he became more enfeebled mentally; gradually began to lose all interest in things around him; his speech became defective; he would scream loudly for no apparent reason, and toward the latter part of that period was slovenly at table, and eventually had to be fed. About four months before admission the parents noticed that the patient's walking was becoming worse. He fell in the garden on several occasions, and about three weeks before admission was unable to stand without assistance. He was by this time only able to utter a few words, but showed that he could recognize his father and mother. About five weeks after admission, symmetrical gangrene of both feet was well established. On the left foot there was a line of demarcation about the level of the distal end of the metacarpals. The right gangrenous portion extended over half the foot. Six weeks after admission he was unable to take any notice of what was going on around him. The patient's hands were at times cold and blanched, and these attacks were followed by a stage of hyperemia. The hands were kept carefully covered, but in spite of that they became of a definitely bluish tinge. The upper lip and nose were also bluish in color and the skin in these areas peeled off on any attempt being made to wash him. In the beginning of the seventh week the patient had difficulty in swallowing and was unable to retain even milk. He was in a dazed and stuporous state, and was unable to recognize his mother. No seizures were reported. He died toward the end of that week. The presence of syphilis was confirmed by us by means of the Wassermann test. His father gave a 4 plus reaction. The brain was

submitted to a careful examination. Vascular abnormalities were very prevalent all over the cortex. The changes were of a very interesting nature. Side by side blood vessels, apparently quite normal, were seen with others which showed complete hyaline degeneration.

Bulletin de l'Académie de Médecine, Paris

Oct. 4, 1921, 86, No. 31

- *The Lipolytic Function of the Lung. H. Roger.—p. 129.
*Hydatidiform Mole and Lutein Cysts in the Ovary. Potocki.—p. 133.
Case of Malta Fever. A. Rémond and Minvielle.—p. 135.

Lipolytic Function of the Lungs.—A longer report of Roger's research is summarized from the *Presse médicale* on a following page.

Hydatidiform Mole and Lutein Cysts in the Ovaries.—Potocki has encountered three cases of association of a hydatidiform mole with polycystic ovaries, but the mole was not malignant. In 120 cases of hydatidiform mole he has had only two cases of chorio-epithelioma. If the cysts increase in size after molar abortion, he advises panhysterectomy.

Oct. 11, 1921, 86, No. 32

- *Roentgenotherapy of Uterine Fibromyomas. A. Bécélère.—p. 151.
*Mortality of Infant Wards of the State. F. Lcdé.—p. 179.
Palpation of the Appendix. L. Pron.—p. 182.

Roentgenotherapy of Uterine Fibromas.—Bécélère's experience with 700 cases has been very favorable, as he reports. It failed in only 1 per cent. of his last series of 300 cases. In 90 per cent. the total duration of the exposures was under four hours; in 60 per cent. under three, and in 13 per cent. under two hours. The intervals brought the total course up to two and a half or three months. The dose was never over 3 or 3½ H units; the exposure never over ten minutes, and usually not over five. This gentle roentgen-ray treatment, he says, can be counted on to cure in almost every case, without pain or danger, and without interfering with the ordinary life or occupations. He regards it as the preferable treatment for fibromyomas of the uterus.

Welfare Work for Infants.—Ledé is member of the board which has charge of the placing out to nurse of infant wards of the state, and he summarizes the results of the work during 1913, 1919 and 1920. The death rate for the total of 329,892 infants was 5.03, 5.88 and 4.47 in these respective years. The children getting breast milk formed 18 per cent. of the whole in 1913, but only 6 per cent. in 1919 and 1920.

Bulletin Médical, Paris

Sept. 24, 1921, 35, No. 39

- *Epilepsy. J. Roubinovitch.—p. 757.
*Symptomatology of Epilepsy. R. Dupouy.—p. 758.
*Treatment of Epilepsy. G. Maillard.—p. 769.

Epilepsy.—Roubinovitch comments on the unity of epilepsy in all its forms, general or partial, transient or persisting, whatever its origin, reflex, infectious, toxic or autotoxic. The war experiences, he says, have confirmed this unity, from simple scotoma scintillans to the most complex motor phenomena.

Symptoms of Epilepsy.—Dupouy describes with much detail what the practitioner should know in regard to the symptoms and diagnosis of epilepsy.

Treatment of Epilepsy.—Maillard says of the management and treatment of epilepsy that until quite recently very little progress had been realized in the treatment of epilepsy, but in late years phenobarbital (luminal)—with or without bromids—borico-potassic tartrate, and surgical intervention have realized great progress. He states that phenobarbital seems to be equally effectual against all the manifestations of epilepsy, seizures, absences, psychic disturbance, traumatic or essential epilepsy, localized or general. With the proper doses, the epileptic manifestations should disappear by the second day. This is the rule, and this effect serves to exclude hysteric crises, as phenobarbital has no action on these. He adds that the physical and mental condition improves likewise under the drug. For a small person, 10 cg. morning and 10 cg. at night are the usual daily dose. Larger persons can take 15 cg. morning and night; children from 10 to 15 should not take over 10 cg. a day, and younger children less than this. Half a glass of cold water should be taken with

it. Some of his patients are taking regularly from 40 to 60 cg. a day. Until the system adapts itself to the drug there may be a kind of drunkenness, like that of alcohol, a psychomotor depression or excitement, drowsiness, staggering gait, weakness of the legs, irascibility or agitation. A tendency to drowsiness or mild excitement shows merely that the patient is getting the adequate dose. The weight and the appetite increase under it. The only contraindication he recognizes is irritability and excitement. This calls for tentative reducing or increasing the dose, or combining it with bromids. (He calls it by the French name, *gardénal*.)

Paris Médical

Sept. 24, 1921, 11, No. 39

- *Typhoid Heart. J. Minet and R. Legrand.—p. 233.
*Physical-Chemical Factors in Spasmodic Phenomena. A. Leroy.—p. 237.
Guaiacol in Pulmonary Tuberculosis. Brachet.—p. 239.
Treatment of Pulmonary Tuberculosis. Hamant and Jullien.—p. 243.
*Chronic Respiratory Insufficiency in Children. Dumoutet.—p. 246.

Localization of Typhoid Infection in the Heart.—Minet and Legrand summarize from the records 4 cases and report 2 from their own experience in all of which the typhoid infection had settled predominantly in the heart, sparing the bowels. In 2 of the cases the myocardium bore the brunt of the attack without involvement of the valves, and the patients recovered. Necropsy in 3 other cases confirmed the clinical diagnosis of typhoid endocarditis, and acute pulmonary stenosis was evident in the other patients who survived. The endocarditis was of the simple acute form or acute malignant or slow malignant in the various cases. In one case a streptococcus was found associated with the typhoid bacilli.

Physicochemical Elements in Spasmodic Phenomena.—Leroy argues that diseases which present sudden crises or seizures, such as epilepsy and eclampsia, suggest that physicochemical changes are responsible for their abrupt development. The protein complex, he relates, is a transient aggregate of amino-acids, each surrounded with a swarm of ions, and around these in turn gravitate a swarm of satellite electrons. The whole forms a miniature solar system. When these amino-acids, ions and electrons are released, they settle on walls and membranes, modifying their osmotic and electric tension. If we can assume that proteolysis is always accompanied by an increase in the osmotic tension, this would explain at once all this group of pathologic conditions that develop like an explosion.

Respiratory Insufficiency in Children.—Dumoutet refers to what he calls *petite insuffisance respiratoire*, the blood not getting normally oxygenated. When the heart is at fault, there is acrocyanosis; when merely the respiration is defective, the child is pale and chilly, readily fatigued, and listless. The pulse small and slow, the blood pressure low. Exercise reduces instead of increasing the appetite, and a short walk sends the blood pressure and the temperature below normal. The morning temperature may be higher than at evening. The child cannot bear a cold bath or douche without a tendency to cyanosis and dyspnea. The breath can be held abnormally long. Violent exercise has to be forbidden these children, but alternating repose and exercise are the reliance in treatment. A year of surveillance may be necessary, but with this he has witnessed actual resurrections, both physical and mental, when the respiratory insufficiency was of the hyposphyxia type. When the heart is at fault, this persists fragile, and these children will long be frail in respect to their circulation.

Presse Médicale, Paris

Sept. 17, 1921, 29, No. 75

- *Traumatic Lesions of Pituitary. L. Reverchon, G. Worms and Rouquier.—p. 741.
*Prognosis with High Blood Pressure. C. Lian, R. Broca and J. Clément.—p. 743.
*Hemoclastic Crisis under Roentgen Ray Treatment. M. and G. Giraud and G. Parès.—p. 746.
*Action of Quinidin. L. Cheinisse.—p. 748.

Traumatic Lesions of the Pituitary.—Reverchon and his co-workers had under observation for some months a man of 34 with fracture of the base of the skull from an automobile accident, with necropsy. In addition to paralysis of

several of the cranial nerves, there were a number of symptoms suggesting injury of the pituitary, including diabetes insipidus, loss of weight, hypotension and childish mentality. We need not wait for acromegaly, adiposogenital disturbance and hemianopsia to assume injury of the pituitary, and the necessity for pituitary treatment. They compare this case with a typical case of pituitary tumor, and ascribe the fatal outcome to the pituitary insufficiency, the hemorrhage from fracture of the sella turcica having entailed sclerosis and atrophy, with coma and collapse of the heart as the degeneration progressed. They have found several similar cases on record with sudden death in the course of pituitary disease, but they know of only three with necropsy.

The Prognosis with Permanently High Blood Pressure.—Lian, Broca and Clément analyze their experiences in the last ten years with cases of permanently high arterial pressure measured under identical conditions, the subject recumbent, and compared with the clinical findings at the time and the clinical course in general. The diastolic pressure is the more instructive as to the actual rise in the pressure, as they explain. The normal range of the diastolic pressure is from 7 to 9 cm. of mercury. Of 77 persons with diastolic pressure above 13.5 cm. of mercury, only 2 are known to be still living, and of the 34 seen before 1919, 26 are known to have died. Further analysis of the 77 cases shows that with a permanently high diastolic pressure, refractory to treatment, a survival of not more than five or six years at longest can be anticipated, and it is seldom as long as this unless the subject can rest and spare himself. Even with this a survival of over six years is exceptional.

The Hemoclastic Crisis During Roentgen-Ray Treatment.—Small doses of roentgen rays seem to have a stimulating and lymphocytosis producing action. Stronger doses entail leukopenia. In a case of myeloid leukemia treated by roentgen exposures of the spleen, the leukocytes dropped from 175,000 to 11,500 in six months and the spleen subsided to normal size. By the end of the third year it had enlarged again, and the leukocytes increased to 125,000, but under renewed roentgen treatment they dropped to 35,000 and the spleen showed some subsidence. The patient felt well except for occasional attacks of pain in the left hypochondrium which yielded each time to the roentgen rays. Unfortunately, the subject seems to be becoming sensitized to the rays of late, each exposure being followed by intense nausea, general malaise, dyspnea and dizziness for a few hours. This *mal des irradiations pénétrantes* or roentgen kater is accompanied by a transient *crise hémoclasique* like that described by Widal and his school, although there is no alimentary proteopathy, which shows that the liver cannot be incriminated for it.

Action of Quinidin on the Heart.—Cheinisse concludes from his review of this subject that quinidin may be regarded as free from serious danger, given carefully, and it should rank high in the treatment of arrhythmia. To judge from experiences to date, it seems to be indicated above all in cases of peripheral arteriosclerosis and in hypertonia. Acute and recurring endocarditis do not seem amenable to it. Other circumstances might well explain the fatality in Groedel's case in which a man of 70, with complete heart block, died suddenly the fourth day of taking quinidin.

Sept. 21, 1921, 29, No. 76

- Orchitis from Micrococcus Melitensis. P. Lombard and M. Béguet.—p. 753.
Respiratory Variations in Arterial Pressure. E. Constantin and L. C. Soula.—p. 754.
Vaccine Therapy in Acute Gonococcus Urethritis. Demonchy.—p. 756.

Oct. 5, 1921, 29, No. 80

- *The Functions of the Lungs. H. Roger.—p. 793.
*The Leg Sign and the Toe Sign in Pyramidal Disease. J. A. Barré and G. A. Shepherd.—p. 794.

Functions of the Lung.—Roger describes research which has apparently demonstrated that, besides serving for respiration, the lungs have a protecting and secreting function. They seem to produce a thrombokinase; pulverized desiccated lung tissue applied to a bleeding wound will arrest hemorrhage more quickly than tissues from other organs. The lungs, further, seem to have a disintegrating action on fats. They not only disintegrate them but actually destroy them.

Samples of blood taken before and after it has passed through the lungs show a difference in the fat content of 0.5 gm. to the liter. If desiccated lung tissue is added to arterial blood mixed with olive oil, there will be a difference of about 0.5 gm. per liter in the fat content compared with the mixture without lung tissue. He assumes that this lipolytic action of the lungs on the fats from the thoracic duct corresponds to the proteolytic action of the liver on the proteins brought by the portal vein.

Leg Sign of Pyramidal Disease.—Barré and Shepherd have compared the findings with the leg sign and the Babinski toe sign in 100 cases. Analysis of the findings seems to indicate that the leg sign is an indication of pyramidal deficiency, while the toe sign is an indication of irritation of the pyramidal tract. They may be associated or not, as it happens. The leg sign was described in these columns, Feb. 7, 1920, p. 426, when Barré first called attention to it. The patient lies prone, face downward, and the leg is passively raised, flexing it at the knee until it stands vertical. The healthy can hold the leg in this vertical position without effort. But with paralysis or even slight paresis from any lesion in the central motor neuron, the patient is unable to hold the leg thus erect; in spite of all his efforts, the leg drops back to the level of the bed, more or less slowly. It coexisted with the toe sign in more than 40 per cent. of eighty-nine cases, and in more than 27 per cent. of eleven cases of insular sclerosis. It was found alone in over 31 per cent. in the first group, but in none in the second group.

Oct. 8, 1921, 29, No. 81

*Mild Seric Shock in Man. G. Bouché and A. Hustin.—p. 801.
Anilin Dyes in Therapeutics. L. Cheinisse.—p. 805.

Slight Serum Shock.—Bouché and Hustin have been studying the reaction to subcutaneous injection in man of 0.5 to 2 c.c. of horse serum. The reaction varies widely in different persons, and the local from the reaction in the depths. There seems to be a vascular or sympathetic reaction at first, followed by a trophic or autonomic reaction. The sympathetic phase is observed also in the reaction in the depths of the organism, and this is followed by a reaction similar to that induced in the autonomic system by injection of pilocarpin. The vasotrophic shock from injection of the horse serum thus passes through two phases, and the manifestations are those we see in the anaphylactic shock. But it is a general property of the organism, and this vasotrophic shock forms part of certain affections such as epilepsy, migraine, asthma and urticaria. Their origin will be elucidated only by study of vasotrophic excitants. Anaphylaxis is one, but no doubt there are many others. In epilepsy and asthma, the symptoms develop mainly during the autonomic phase; in migraine, during the sympathetic phase. Symptomatic treatment should be based on this conception. The research reported suggests further the possibility of an anaphylaxotherapy by repeated small harmless anaphylactic shocks. Also the possibility of a curative vaccination with retro-active effect, by the inhibition from one or several ulterior injections of the same antigen after a single injection following the preparatory injection.

Progrès Médical, Paris

Sept. 18, 1921, 36, No. 38

*Vincent's Angina and Intestinal Spirillosis. M. Bouchut and L. H. Leroux.—p. 437.
General Review of Sterility in Women. Couvelaire.—p. 438.
Diagnosis of Syphilitic Chancres in General. Qucyrat.—p. 440.
Constitutional and Accidental Mental Disturbances. Damaye.—p. 442.
Opium and Its Derivatives. G. Faroy.—p. 443.

Fusospirillar Sore Throat and Enteritis.—The man of 25 had alveolar pyorrhea, and Vincent's angina developed, followed in a month by abdominal symptoms, with diarrhea and pains. This association of Vincent's angina and enteritis recurred several times during the year, and the same micro-organisms were cultivated from the throat and from the stools, with complete recovery under a course of neosphenamin. Bouchet and Leroux emphasize the importance of bacteriologic examination of the stools in cases of enteritis, as this may permit the cure under arsenicals instead of wasting time with other measures, probably futile.

Riforma Medica, Naples

Sept. 17, 1921, 37, No. 38

*Hydatid Cysts in Lungs. P. Ferro.—p. 889.
*Fracture of the Jaw. G. M. Nejrotti.—p. 891.
Traumatic Lesion of the Thigh. A. Palieri.—p. 893.
Specificity of Tuberculin Reactions. P. Rondoni.—p. 893.
Present Status of Surgery of the Skull. E. Aievoli.—p. 894.
Treatment of Diabetic Acidosis. G. Molinari.—p. 896.

Hydatid Cysts in the Lungs.—There were three cysts in one of the two cases described. In the other, the roentgen and other findings pointed to a large cyst at the base of the left lung, but the operation revealed that it was in the top of the liver. It had pushed up the diaphragm for 12 cm., and recovery was soon complete after the operation on the liver.

Fracture of the Jaw.—Nejrotti expatiates on the absolutely solid fixation realized in the case of which he gives an illustrated description. The fracture of the body of the lower jaw was slanting, and he fastened the stumps together with two horizontal wire loops. A third wire was tied over the first two loops to draw them closer together. This third wire was twisted and drawn up very tight and it exerted such pressure on the other two wires that the whole jaw was drawn into a solid whole. He calls this the "vise loop method," as the third wire acts like a vise to fasten the whole solidly together.

Rivista Critica di Clinica Medica, Florence

Aug. 25, 1921, 22, No. 24

*Parenteral Protein Therapy in Typhoid. G. Natali.—p. 277.

Protein Therapy in Typhoid.—Natali used a vaccine made from two strains of cholera vibriones in treatment of 10 typhoid patients. No effect was apparent in 5, but in 4 cases the temperature seemed to be favorably influenced, and in one case this heterogenous protein therapy seemed to be influential in aborting the disease. No aggravation of the condition from the intravenous injections was noted in any instance.

Oct. 5, 1921, 22, No. 28

*Reversibility of Opsonic Sensitization. A. Amato.—p. 325.
Tests of Action of Drugs on Vegetative Nervous System in Typhoid. C. Alessandri.—p. 327. Conc'n.
Means for Activation and for Attenuation in Treatment of Pulmonary Tuberculosis. G. Brecchia.—p. 332. Conc'n.

Opsonic Sensitization.—Amato is carrying on a discussion in regard to the laws regulating the reversibility of the phenomena of opsonic sensitization and of incomplete chemical processes in general.

Brazil-Medico, Rio de Janeiro

Sept. 3, 1921, 2, No. 8

*Interstitial Fibroma in Pregnant Uterus. M. Totta.—p. 97.
*Prophylaxis of Tuberculosis. A. Fontes.—p. 98. Cont'n.
Medicolegal Notes. Chapot Prevost and J. Ricardo.—p. 103.

Sept. 10, 1921, 2, No. 9

Sporotrichosis of Orbit and Cheek. Linneu Silva.—p. 115.
Research on the Respiration. M. Ozorio de Almeida.—p. 118.
Transmissibility to Man of Fixed Virus of Rabies. Magalhães.—p. 119.
Proposal in Treatment of Epilepsy. Cunha Lopes, Jr.—p. 120.
Two Medicolegal Signs. Leonidio Ribeiro, Jr.—p. 122.

Sept. 17, 1921, 2, No. 10

Bilateral Hypertrophy of the Breasts. Arnobio Marques.—p. 129.
Development of the Philophthalmus. Lauro Travassos.—p. 131.
Toxicity of Chenopodium. T. de Almeida, Jr.—p. 132.

Fibroma in Pregnant Uterus.—In Totta's case the woman of about 30 had been married for two years, menstruating regularly until the last two months. For the last few days there had been severe pains in the lumbar region and lower abdomen, spreading to the legs. Palpation revealed an unsuspected tumor, presumably an interstitial fibroma, in the uterus, and in a week the tumor had increased 6 cm. in its vertical diameter and become softer, while the pains had become unbearable. The severe pains from the enlargement of the tumor under the influence of the pregnancy compelled supravaginal hysterectomy.

Prophylaxis of Tuberculosis.—In this third conference Fontes devotes most attention to means to protect the young against tuberculosis, saying that by training in hygiene we can save the child of today to be the resistant man of the

future. He shows how to systematize the campaign against tuberculosis along the line of education, physical culture and protection for sick and well.

Revista Española de Méd. y Cirugía, Madrid

August, 1921, 4, No. 38

*Tamponing with Placenta Praevia. G. Ribas.—p. 465.

*Remote Results of Trauma of Urethra. M. Serés.—p. 467.
Rupture of Perineal Urethra. C. Cortés Figueras.—p. 468.

Tamponing the Uterus for Hemorrhage with Placenta Praevia.—After failure of all other measures, Ribas draws down the cervix and packs the uterus with gauze, packing it in between the inner wall of the uterus and the placenta, as he shows in an illustration, without puncturing the membranes. He has found this effectual in all conditions calling for the inflatable bag, as well as for hemorrhage with low insertion of the placenta. It arrests the hemorrhage and usually starts spontaneous delivery. If not, after ten or twelve hours he pulls out the gauze and tampons anew. Scrupulous antisepsis is imperative, and with this, he says, no complications need be feared.

Remote Results of Trauma of the Urethra.—Serés does not approve of using the retention catheter for traumatic injury of the urethra except when there has been extensive suppuration and the prostatic portion has sloughed off entirely. In one such case he reconstructed the urethra around the retention catheter, and the man has no disturbance in urinating now, two years later. Immediate diversion of the urine through a high incision is imperative, not only to ward off infection but to facilitate the procedures for repair afterward. Circular urethrorrhaphy is the preferable procedure always when possible. In one bull-fighter the mucosa alone was ruptured, and the gap kept increasing until Serés made a circular suture after cutting the edges smooth.

Deutsche medizinische Wochenschrift, Berlin

Sept. 1, 1921, 47, No. 35

Epilepsy Associated with Syphilis. O. Klieneberger.—p. 1017.

Early Neurosyphilis. W. Weigelt.—p. 1018.

Pleural Shock in Artificial Pneumothorax. Unverricht.—p. 1020.

General Principles of Abdomen Diagnosis. Kulenkampff.—p. 1022.

Preventing Infection and Hospitalism of Infants. Friedberg.—p. 1025.

*Bile Peritonitis. E. Neuber.—p. 1027.

The Extended Roentgen-Wertheim System. Haupt and Pinoff.—p. 1028.

Protective Effect of Friedmann Tuberculosis Treatment. Kretschmer.—p. 1029.

Transmission of Swine Erysipelas to Man. Veilchenblau.—p. 1030.

Retrospect and Prospect in Dermatotherapy. Hübner.—p. 1031.

Present Status of Tests of Intestinal Functioning. Grote.—p. 1032.

Intra- and Extra-Uterine Asphyxia in Infants. L. Blumreich.—p. 1034.

Bile Peritonitis.—Neuber states that the etiology and the pathology of bile peritonitis (*Gallenperitonitis*) are not well understood as yet. It must be sharply differentiated from peritonitis that arises in connection with pericholecystitis. In bile peritonitis we have to consider the passage of bile through the macroscopically intact gallbladder walls, whereas in the latter case the passage of bacteria from the gallbladder causes the peritonitis. In both cases the gallbladder remains intact. With cholecystitis, the passage of bile is secondary. Neuber discusses certain peculiarities of the clinical picture that may be learned from the small number of reported cases; he also reports in detail his own case in a man of 39. The onset, covering five days, was characterized by, first, an uncomfortable feeling, together with a slight chill, followed the second day by vomiting of a yellowish fluid. Examination the fifth day, on admission to the hospital, revealed moderate distention of the abdomen with some tympanites; dullness in both flanks, which disappeared when the patient was turned over; liver dullness normal; free, easily recognizable fluid in the abdominal cavity. Pain was diffuse; temperature, 38.2 C.; pulse, 120 to 130; tongue, coated and scaly. A subicteric tinge was noticeable in both sclerae. On tentative diagnosis of perforation of the gallbladder or stomach, a median laparotomy was performed. On opening the abdominal cavity a profuse quantity of brownish yellow, stringy fluid welled forth, which proved to be bile. The omentum covered the intestine; there were no adhesions that could be referred to an older process. The gallbladder was distended and the intestine and the abdominal wall were saturated with a brownish-yellow pigment, and coated with occasional fibrin

deposits. There was no pus. The fluid present in the abdominal cavity amounted to about 4 liters. Careful inspection of the gallbladder and the biliary passages failed to disclose the slightest sign of a perforation. The long operation had weakened the patient greatly and death ensued in a few hours. Necropsy revealed no perforation of gallbladder; its size was normal; the walls were somewhat thick; the cut surface was reddish gray, the inner surface brownish-yellow. The histologic specimens from the gallbladder wall presented normal conditions of all layers except the mucosa, which was lacking in several places, where it was replaced by a crumbly mass of necrotic appearance. The peculiar thing was that there was no sign of an inflammation. In the future, Neuber advises that when fluid bile is found in large quantities in the abdomen, this bile peritonitis should be thought of. If, after a short but reasonably thorough inspection of the biliary system, no perforation is found, the gallbladder should be removed without hesitation.

Medizinische Klinik, Berlin

Aug. 14, 1921, 17, No. 33

*Importance of Vitamins for Children. H. Vogt.—p. 985.

*Serologic Tests for Syphilis. H. Sachs and F. Georgi.—p. 987.

*Ectasia of Portal Vein. F. Glaser.—p. 990.

*Irradiation of Spleen in Hemorrhage. E. Vogt.—p. 991.

Sensory Disturbances in Paralysis Agitans. H. Zweig.—p. 992.

*Turpentine in Treatment of Typhus. A. Brenner.—p. 992.

Serologic Experiences with Silver Salvarsan. G. Ahman.—p. 993.

Unusual Pontine Syndrome. H. Sieben.—p. 996.

Swine Erysipelas in Man. Stengel.—p. 997.

Testing of Disinfectants. M. Feiler.—p. 998.

Principles of Natural Feeding of Infants. K. Blühdorn.—p. 1000.

Importance of Avitaminosis in Childhood.—Vogt describes the present status of our knowledge of vitamins, mentioning among other recent research that of Freise and Rupprecht on the influence of vegetables on calcium metabolism in rachitic infants. They found that calcium was assimilated better under the influence of vegetables. But they also found that this influence was lacking when the vegetable or carrot juice had been heated considerably before being ingested. Vegetables usually form part of the diet of rachitic children. If the findings of Freise and Rupprecht are confirmed by others it is not the fat soluble but the water soluble vitamin that is deficient in rachitis.

Flocculation Tests for Syphilis.—Sachs and Georgi here explain the reason for the difference between the response of active serum to the Wassermann test and the Sachs-Georgi test for syphilis. This they find is due merely to the difference in the salt content of the mediums. Adding a little more salt brings the response of the active serum to the same plane with one technic as with the other.

Ectasia of Portal Vein.—The result of the ectasia from primary sclerosis was cirrhosis of the liver, secondary to the dilatation of the bile-ducts from the compression.

Roentgen-Ray Exposures of the Spleen from Gynecologic and Obstetric Standpoints.—Irradiation of the spleen seemed to aid in promoting coagulation of the blood in only about 50 per cent. of the 68 cases of various gynecologic or obstetric hemorrhagic conditions. In fully 50 per cent. no effect was apparent.

Treatment of Typhus.—Brenner remarks that the only measures which helped in the treatment of typhus were abundance of fresh air, and keeping the sick under the influence of turpentine. He gave in 150 cases from 0.05 to 0.1 gm. at hour intervals, keeping it up through the night, or by inhalation, placing a pledget soaked in turpentine in each nostril. He often used up in this way 20 gm. of turpentine in the twenty-four hours. When begun not later than the third to the fifth day, it often abbreviated the course materially and in practically all cases improvement was the rule. The stimulating effect rendered camphor, etc., unnecessary. The turpentine seems to promote oxidations, and this combats the typhus virus and its products, and promotes repair in the tissues. By setting the turpentine in the sun for an hour or two it became ozonized, and this enhanced its oxidating power. His attention was first attracted to turpentine by the sedative, tranquillizing influence of a turpentine fixation abscess in some cases, this tranquillizing action resembling that induced by a supply of fresh air.

Sept. 4, 1921, 17, No. 36

- *Treatment of Secondary Syphilis. A. Brandweiner.—p. 1075.
*Deep Roentgen Ray Treatment of Internal Diseases. H. Böge.—p. 1080.
*Fatalities After Arsphenamin Treatment. L. Sussig.—p. 1082.
*Prevention of Trismus with Tetanus. E. Moser.—p. 1084.
War Nephritis. H. v. Hecker.—p. 1085.
*Intussusception in Children. W. Wortmann.—p. 1087.
Umbilical Cord Too Short to Allow Delivery. Wittneben.—p. 1091.
*Simple Acetone Test. R. Scharf.—p. 1091.
Vomiting in Children. K. Blühdorn.—p. 1092.

Treatment of Syphilis.—Brandweiner tabulated the details of 9,158 cases of syphilis in treatment at a Vienna reserve hospital during the war, and here gives similar data of the 425 among them that presented further symptoms later. His tables show that none of those given arsphenamin in large amounts during the first course have presented any symptoms since. The secondary cases were all in those given the smaller amounts. In 341 of the 425 secondary cases, the infection was of less than eight months' standing. The data presented apparently testify that to be effectual each course of treatment of a secondary case must consist of 25 or, better yet, 30 doses of neo-arsphenamin, equivalent to 3.75 to 4.5 gm. provided that the Wassermann reaction veers to negative in the course of the treatment. If not, then more of the drug or another arsenical should be given, strictly individualizing. He precedes the arsenical of the first course with five or ten mercurial inunctions to avert too strong a reaction. The associated course of mercury should consist of at least 40 to 50 inunctions at 4 gm. or 25 to 30 injections. The intervals between the courses should be from four to six weeks, never over two months. Three courses may suffice if there are no further symptoms. He advises to apply the Wassermann test at each injection of the arsenical. If at the second or third course any symptoms are noted, even the slightest trace of a Wassermann reaction, two more courses at least must be given. These directions apply only to infection of less than a year's standing; in the old cases it is often impossible to banish the Wassermann reaction permanently.

Deep Roentgen-Ray Treatment in Internal Medicine.—Böge reports favorable experiences with deep roentgenotherapy in all forms of tuberculosis, lung tumors, leukemia, neuralgia, pernicious anemia and splenomegaly. He has been working in this line for over two years, and urges others to enter this new field, as the results to date are certainly promising. In 17 cases of pulmonary tuberculosis permanent improvement in the local process and general condition was obtained in 15; a complete cure was realized in 28 of 32 cases of tuberculous glands, the course of treatment ranging from three to seventeen months. In 7 cases of a tuberculous process in a rib, 5 were completely cured, as also 3 of 8 cases of tuberculous peritonitis. In 4 cases of myeloid leukemia one has been cured for two years; chronic leukemia has to be kept under treatment for years. He does not enter into details further, reserving this for a later communication, but mentions that the treatment seemed to be an effectual adjuvant to arsphenamin in his pernicious anemia cases.

Fatality Under Arsphenamin.—Sussig remarks that as the cause for the deaths under arsphenamin is still obscure, it is important to report all such fatalities in detail for comparison. He describes a case of the kind in a woman of 30 with positive Wassermann reaction who had had typhoid and acute articular rheumatism and erysipelas during the preceding year. A chill followed the third injection of 0.3 gm. neo-arsphenamin, then fever of 104 F., coma and tremor, with death the sixth day. Necropsy revealed hemorrhagic encephalitis, with punctate hemorrhages through the white substance of each hemisphere and the left striatum. No spirochetes could be found in the brain or other organs but a streptococcus was in the spleen. This streptococcus was evidently responsible for the verrucous endocarditis and acute glomerular nephritis. The latter may have rendered the patient more susceptible to the action of the arsenical.

Prevention of Trismus in Tetanus.—Moser reports what he says was such brilliant success in a case of severe tetanus that he does not wait for further confirmation, but calls attention at once to the way in which he combated the tetanic closure of the jaw muscles by injecting locally an anesthetic as if for local anesthesia. The tetanus had developed the

twenty-second day after the man's hand had been crushed in a machine. The second day of the trismus, Moser injected 25 c.c. of a 0.5 per cent. solution of procain (novocain), distributed in both masseters. In a few minutes the previously tightly locked teeth could be opened, and the man could eat and drink at will which had been absolutely impossible before. The effect began to subside in an hour, and by the afternoon the teeth were clenched as tightly together as before. At 5 p. m. another similar injection was made, this time above the malar bone, pointing the needle downward in three different directions. The effect was prompt and as decided as at first, and the patient was able to eat and drink. Two local injections were required on the four following days. As the effect of the local anesthetic lasted only for an hour by that time, a change was made to eucain. The effect of this was less prompt but it lasted longer; one injection in the morning answered for the whole day. The patient could even chew bread, but the muscles were still rigid throughout the body, with intense spasms in the limbs. By the nineteenth day the local anesthetic was no longer needed. He had been given twenty injections of antiserum 100 units each, and also morphin, phenobarbital and camphor at times. The extreme severity of this case conflicts with the general assumption that the disease is milder the longer the incubation. The favorable outcome seems to have been due to the possibility of giving ample nourishment and cleaning out the mouth. When it was first opened, thrush was found. In a second case the local anesthetic conquered the trismus at once in the same way, but the boy of 12 could take nothing but fluids on account of the spasm of the swallowing muscles. He succumbed the second day to paralysis of respiration.

Intestinal Invagination in Children.—Wortmann advises immediate operative treatment for children of 18 months or 2 years and over. For infants, he manipulates the bowel from without, in profound general anesthesia, applying the same Hutchinson procedure through the abdominal walls as in older children through a laparotomy opening. High enemas at the same time, the pelvis raised, are a potent aid, as also holding the child with its head down and shaking it a little, especially when the invagination is deep in the rectum or there is prolapse. If the invagination cannot be reduced in ten or fifteen minutes by these procedures, the operation should follow at once.

Test for Acetone in the Urine.—Scharf has worked out a simple method for quantitative determination of acetone in the urine: To 5 c.c. of the urine are added 5 drops of a saturated solution of sodium nitroprussid and then 1 c.c. of a 15 per cent. solution of sodium hydroxid. The fluid turns red and then a dark dregs-of-wine color as the fluid is at once neutralized by adding a few drops of concentrated acetic acid, and this tint persists for ten minutes. The test is then repeated with the urine diluted to 1:10. If the dregs-of-wine color fades out before three minutes, there is less than 0.05 per cent. acetone in the fluid. The test is then repeated with dilutions of 1:5; 1:8, etc. If the tint fades out at 1:8 after three minutes while this does not occur until the fifth minute with the 1:6 dilution, then the 1:8 dilution is the proper one. The formula is the product of the dilution figure and the acetone figure of 0.05. In this case it would be $8 \times 0.05 = 0.4$. Assuming the daily output to be 1,000 c.c. the acetone content would be 4 c.c. or 3.2 gm.

Münchener medizinische Wochenschrift, Munich

Aug. 26, 1921, 68, No. 34

- What is Inflammation? A. Dietrich.—p. 1071.
*Sexual Intercourse During Pregnancy. Carl Ruge, Jr.—p. 1072.
Incidence of Carcinoma of the Uterus. E. Zweifel.—p. 1076.
Lung Edema. R. Geigel.—p. 1078.
Recoil of the Heart. R. Geigel.—p. 1079.
Calciuria. K. M. Hasselmann.—p. 1080.
Recent Views as to Treatment in Eclampsia. Hinselmann.—p. 1080.
Intraperitoneal Infusions. Baekes.—p. 1082.
Aluminum Oleate. W. Wiechowski.—p. 1082.
*Parathyroid Grafts in Paralysis Agitans. W. Köhl.—p. 1083.
Treatment of Roentgen and Radium Ulcer. L. Kumer.—p. 1084.
Treatment of Paresis. W. Fuchs.—p. 1084.
"An Invisible Phase of Pathogenic Protozoa." F. K. Kleine.—p. 1085.
"Occultism." A Reply. T. K. Oesterreich.—p. 1085.
Treatment of Wound Infections of Physicians. A. Bier.—p. 1087.
Indications for Early Operation in Appendicitis. A. Kreeke.—p. 1090.

Sexual Intercourse During Pregnancy.—Ruge reports the results of his inquiry into the sexual habits of married couples during the pregnancy of the wife. Seemingly reliable information was secured from 410 puerperants in the Universitäts-Frauenklinik, Berlin. Among many peoples of antiquity, sexual intercourse with pregnant women was absolutely prohibited by religious laws, and violations were severely punished. Among many "uncivilized" tribes of today the same is true. In civilized nations of the present, however, there is great diversity of opinion on the subject. Even physicians entertain widely different views. While some (Bumm, for example) prohibit all intercourse throughout the entire period of pregnancy, others, and probably the majority, regard moderate intercourse during the first half of pregnancy as harmless, but demand total continence for the later months—some insisting on four months, some on two months, some on only from two to four weeks' rest for the wife before term.

The results secured by Ruge's inquiry were surprising. Complete continence during pregnancy was not found even once in the 410 cases. Not less than 322 women (78.5 per cent.) had sexual relations during the last two months before confinement, and 53.9 per cent. during the last four weeks; during the last week, 31 per cent.; during the last three days, 20 per cent., and on the day of delivery, 39 (9.5 per cent.). The frequency of cohabitation was also startling, 60 per cent. having had intercourse two or more times a week, and 24.6 per cent. three and more times weekly. More startling still was the confession of 24 women (5.9 per cent.) that intercourse occurred daily, while 6 even admitted that it occurred several times a day and stated that they rarely ever felt other than well. Nevertheless, Ruge was able to discover evidence of injury to the mother or the child from cohabitation during the last months of pregnancy; for instance, premature rupture of the fetal membranes, hemorrhages, premature births, and fever during and after birth. Of the 82 women who had had intercourse during the last three days before delivery, 17 per cent. had high temperatures lasting from several days to several weeks. In fact, one woman had to undergo cesarean section and for a long time was in a very critical condition, though she was able to leave the hospital cured at the end of three months. Ruge recommends, incidentally, a vegetable diet, in the main, during the last half of pregnancy, saying that it lessens materially the danger of eclampsia.

Transplantation of Parathyroid Glands for Paralysis Agitans.—Kühl chose for his experiment a typical case of paralysis agitans, which had been observed as such in the Altona hospital, from January to April, 1921. He removed from two anesthetized calves, before they were slaughtered, in an aseptic manner, the parathyroid glands, which were placed in a warm, physiologic sodium chlorid solution. A quarter of an hour later he transferred them to the patient, embedding them under the abdominal skin at two different points. The result was so surprising that uninitiated neighbors of the patient inquired, on the tenth day thereafter, what had happened. Retropulsion was no longer observed after the eighth day; likewise, dragging of the feet in walking had almost disappeared; it was also noticeable that the play of the features was more normal. After the fifteenth day the man could lie down on the ground and rise unassisted, whereas before the operation he had always to be lifted out of bed. He could also fold his arms across his chest; could now feed himself, and he was able to spread out his fingers, whereas he had kept them either closed or stiffly extended. He was now able to write for the first time in three years. Kühl thinks the results prove that muscular rigidity in paralysis agitans rests on a hypofunctioning of the parathyroid glands.

Wiener klinische Wochenschrift, Vienna

Aug. 25, 1921, 34, No. 34

- Time and Route of Tuberculosis Infection. H. Wassing.—p. 411.
Endemic Autumnal Erythema in Rural Region. K. Toldt.—p. 412.
Clinical Aspects of the Climacteric. Jagie and Spengler.—p. 412.
Necrosis after Subcutaneous Injection of Quinin. Neumann.—p. 414.
Weather in Relation to Disease. M. Kahane.—p. 414.
Reforms in Land Tax and the Land Problem. Thausing.—p. 415.
Experiences with Pregl's Iodin Solution. E. Knauer and H. Zacherl.—p. 416. Begun in No. 33, p. 399.

Zentralblatt für Chirurgie, Leipzig

Aug. 27, 1921, 48, No. 34

- *Capping the Cystic Duct Stump. H. Burckhardt.—p. 1230.
Foreign Bodies in the Lung. W. Jehn.—p. 1232.
Fall of Blood Pressure Through Blocking of Splanchnic. Nerve. N. G. Bouma.—p. 1236.
One-Stage Plastic Reconstruction of the Upper Eyelid Together with Muscle Fibers and Eyelashes. R. Kaz.—p. 1239.

The Ligamentum Teres as Covering for the Cystic Duct.—Burckhardt found that covering the cystic duct stump after cholecystectomy with whatever material the hepatoduodenal ligament furnished did not always afford adequate protection. Of late he has been using the round ligament as covering. The round ligament is easily applied, its use causes no particular disturbances, and especially no displacement of the abdominal organs. He has used the method so far in only four cases, but in all these the result has been excellent.

Zentralblatt für innere Medizin, Leipzig

Aug. 27, 1921, 42, No. 34

- *Blood Findings in Pernicious Anemia. A. Flater.—p. 674.

The Significance of the Blood Findings for the Course of Pernicious Anemia.—Flater cites a case to show that we are not justified in basing our prognosis solely on results of the blood examination. In the reported fatal case in a man of 63 there was a marked incongruity between the blood picture and the intensity of the disease, since at death the hemoglobin content was still 58 per cent. and the erythrocyte count 2,600,000. Usually, death results in pernicious anemia only when the blood picture falls below the point at which life can be maintained.

Hygiea, Stockholm

Sept. 30, 1921, 83, No. 18

- *Institutional Care of the Tuberculous. E. Lindhagen.—p. 593.
Treatment of Oxyuriasis. H. Kjerrulf.—p. 603.

Care of the Tuberculous.—Lindhagen asks how the care of the tuberculous in institutions can be most suitably organized. Sweden now has seventy-seven institutions for the adult tuberculous, with a total of 5,382 beds. Omitting private institutions for the well to do, there are seventy-three with 5,069 beds, and 70 per cent. of these are in the larger sanatoriums. In Norway, the tendency has been the reverse, the majority of the beds being scattered in the smaller sanatoriums. He does not approve of this tendency, saying that the present financial depression is a transient phenomenon, and it is not wise to put up with makeshifts which will not serve later after this temporary period of stringency is past.

Svenska Läkaresällskapetets Handlingar, Stockholm

Sept. 30, 1921, 47, No. 3

- Physical Development of Schoolchildren in Sweden During and Since the War. H. Kjerrulf.—p. 67.
*The Physician's Fees in the Hammurabi Code. V. Djurberg.—p. 81.

The World's Oldest Medical Code.—Djurberg describes the Babylonian code dating from approximately 2250 to 2081 B. C., which regulated the remuneration of physicians. It was described in detail in THE JOURNAL several years ago, and a few of the more important regulations were mentioned in THE JOURNAL, Oct. 17, 1914, p. 1390.

Ugeskrift for Læger, Copenhagen

Oct. 6, 1921, 83, No. 40

- *Etiology of Habitual Constipation. T. E. Hess Thaysen.—p. 1286.

Etiology of Chronic Constipation.—Thaysen now has a record of 200 women and 175 men with habitual constipation, and his charts of these cases show that in 86.5 per cent. of the women and in 72.5 per cent. of the men the habitual constipation became installed before the age of 26; in 31.5 per cent. of the women before the age of 10, and in 11.5 per cent. between 10 and 15. In both men and women, the onset was between 15 and 20 in very nearly 30 per cent. These figures confirm, he declares, the importance of a constitutional predisposition, with puberty as the occasional factor. With the constipation accompanying gastric ulcer, from reflex action, the age proportions are just the reverse: The proportion begins to increase progressively after the age of 25 and reaches its highest figure at 45. Reflex constipation thus behaves entirely different from the constitutional.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 22

CHICAGO, ILLINOIS

NOVEMBER 26, 1921

THE CONTROL OF COMMUNICABLE DISEASES *

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I propose to consider the control of communicable diseases with special reference to the adequacy of our control, and the probable reasons why in certain diseases our control is inadequate.

There are three kinds of official health departments: federal, state and local. The official control of communicable diseases comes within the province of these three distinct health jurisdictions and is one of the fundamental duties of all health officers, federal, state and local. To secure adequate control, it is necessary to have a partnership of these three jurisdictions, with a clear understanding in the firm of the powers, functions and duties of each member.

Powers, functions and duties may be considered under the three heads: (1) police; (2) investigative and demonstrative, and (3) coordinative.

POLICE POWER

Police power has been given very sparingly to federal health authorities and delegated by states in large measure to local authorities, because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, namely, the local board of health.

It is clear that police power not specifically given by the constitution to federal agencies is reserved to the states or to the people. There is also police power, implied but not expressed in the constitution, which is inherent in the federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power, and its exercise cannot be a usurpation of state authority.

Congress has repeatedly given police power by statute to federal agencies to cover such conditions, but has always maintained the attitude that in health matters the state and local agencies should be utilized to the limit of their legitimate fields.

The quarantine law of 1890 gives very definite powers to the federal health authorities to prevent the introduction of cholera, yellow fever, smallpox and plague, or to prevent the spread of these diseases from one state to another, without reference to utilization of

state machinery, and it provides for the promulgation of rules and regulations, with penalties for infraction.

The quarantine law of 1893, which includes all communicable diseases, provides that the Public Health Service shall cooperate with and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of federal laws and regulations. It provides that where no state or local regulations exist or where these are insufficient, the Secretary of the Treasury shall make such additional rules and regulations as are necessary to prevent interstate spread of such diseases. It provides, further, that the rules and regulations promulgated by the secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them; but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease." Without invoking any of the police powers of the federal government, entirely satisfactory results can be secured by utilizing state and local police power, coordinated by the federal Public Health Service.

As the state health machinery becomes more highly organized and perfected, the need of exercise of federal police power will diminish, and the need of federal coordinative activity will increase.

The prevention of the spread of epidemic disease from one state to another may be handled in one of two ways: (1) by the present system of awaiting the outbreak of an epidemic and then attempting its suppression, or (2) by maintaining such a close check on disease prevalence that prompt and early information of undue prevalence is at once available, and that suppressive measures may be taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments, especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing an interstate spread of disease at the disposal of the federal government today lies in the development and utilization, in every state department of health, of strong divisions for control of communicable diseases, of water and of sewage.

* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

INVESTIGATIVE AND DEMONSTRATIVE FUNCTIONS

The investigative function of the Public Health Service has no limit other than that set by the amount of money which may be appropriated by Congress.

The act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution, directly or indirectly, of the navigable streams and lakes of the United States. Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provides for the publication of information for the use of the public. Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish, to the health officer in the field, diagnostic, prophylactic and curative weapons for the suppression of communicable disease. The economic advantage of doing this in one hygienic laboratory rather than in forty-eight laboratories is at once apparent.

The work done under the investigative authority of the act of 1912, especially the field work, is nearly always demonstrative, and it can be utilized as public health demonstrations of all kinds.

In addition, Congress has given specific authority for demonstrations in rural sanitation, contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

COORDINATIVE FUNCTIONS

In achieving national success against any public health problem, the coordinative function of the Public Health Service is perhaps the most important function which the service exercises. Some federal coordinating agency is necessary in order to secure a synchronous attack on any disease with uniformity of method over the entire area of the United States. To secure the maximum of improvement in our national health, we must have nation-wide programs for each problem with which health officers are confronted.

The example of our venereal disease campaign serves to show what may be accomplished in other fields by the same methods.

The coordinative function of the federal Public Health Service is but the national demonstration of the function exercised by state and local health authorities over smaller areas.

In other words, public health organization—federal, state, and local—should have this relationship:

RELATIONSHIP OF PUBLIC HEALTH ORGANIZATION

Coordinating Authority	Working Units to be Coordinated
United States Public Health Service.	State departments of health.
State department of health.	Local health departments.
Local health departments.	Individual citizens.

The coordinating authority furnishes the program in order to secure teamwork, and endeavors to have this program carried out by all the units in the area within its jurisdiction.

Outside of the limited and definite police power given by Congress to the federal Public Health Service under the constitution, all other police power is inherent in the

state, except in cases in which it has been delegated specifically by the state by charter or other legislative act to the local authorities. Under this broad power as defined by the constitution, the powers of the individual states within their own borders for regulatory, investigative or coordinative health work are limited only by the will of the people as expressed by the state legislature. As indicated above, this power has been delegated by the state legislatures in large measure to local health jurisdictions.

The coordinative function of the state is entirely independent of police power, and it resembles the federal coordinative function in being the most valuable function which the state exercises. Many states have this coordinative function highly developed, securing uniform concerted action by the local health units on the problems of communicable diseases.

The large police powers delegated to municipalities and other local health units often obscure the even more valuable coordinative function which the successful local health officer must employ. This means the securing of concerted action or "team work" by the individual citizens.

The foregoing outline of official powers, functions and duties would seem to indicate that there is ample legal authority. Experienced health officers nearly all agree that, generally speaking, there is ample legal authority if properly applied and supported by enlightened public opinion.

Police power for certain definite federal functions, such as prevention of the introduction or spread of communicable diseases, is adequate; and while police power has been given freely by states to local communities, the states retain tremendous powers for the legal prevention of the spread of disease. The tendency to overaccentuate compulsory measures is disappearing, and there is a growing tendency among health officers to secure results by education of individuals and communities.

This is logical and sensible, since a strong law may be nullified by an adverse public opinion, while substantial results are frequently secured with a weak law or without law because of the support of public opinion, expressed as respect for a fine health organization.

While it is true that the prevention of the spread of communicable disease concerns all three official health organizations, it is nevertheless, in the last analysis, a local problem.

It is the local health officer who comes into direct contact with the individual cases of the disease, and who should apply the measures to prevent its spread to other persons—in fact, a good local health organization, functioning effectively, reduces the necessity for state action to observation, keeping in touch, and lending moral support.

Adequacy of control demands effective action locally, and no activity at the state capital or at Washington can compensate for failure to apply prompt, effective measures on the spot. If the local organization is defective or nonexistent, state or federal aid may supply the temporary organization; but this should be considered as a temporary makeshift and should be used to demonstrate the necessity for a proper local organization. For these reasons, and because of the time limit on this paper, I will consider only local machinery.

Given the proper legal authority, the fundamental needs of communicable disease control come under the

heads of sufficient knowledge and proper local health organization.

Sufficient knowledge of the etiology and the modes of transmission of disease is essential to enable the formulation of effective suppressive measures. Sufficient knowledge of the biologic characteristics of a causative organism makes it possible to furnish the health officers with serums, viruses or prophylactic products for combating the disease.

If sufficient knowledge is available to furnish biologic weapons, and to make possible the formulation of effective suppressive measures, there remains only one fundamental need: proper local health organization. This means the machinery, official and unofficial, for prompt notification, at the earliest possible moment, of cases of communicable disease, and the machinery, official and unofficial, for putting into prompt effect the best suppressive measures known to science.

In considering the adequacy of control of the individual diseases, these divide themselves naturally into groups.

There is a group of diseases the prevention of which constitutes the major purpose of our federal quarantine service. They are more or less exotic, and inspire terror in the lay mind out of all proportion to their danger. In this group are Asiatic cholera, plague, yellow fever, typhus fever and leprosy.

We have sufficient knowledge to control all of these diseases, and the terror they inspire insures the support of public opinion and a feverish activity on the part of lay officials to effect their suppression. This does not mean that there is no need for further research in these diseases, but simply means that our present knowledge, backed by public opinion, makes possible what may be termed adequate control.

With the diseases which are endemic in the United States, there is quite a different story. They are of common, everyday occurrence. They inspire no terror, and public opinion is apathetic toward measures for their suppression. In some of these diseases, smallpox, typhoid and malaria, for example, we have sufficient knowledge now to effect their eradication. We have specific or biologic weapons with which to fight them, but we lack the interest and support of the individual citizen, who does not react to their presence as he would to cases of Asiatic cholera or yellow fever.

In the whole group of so-called respiratory or "sputum-borne" diseases it may be said that we lack the knowledge of the cause or the modes of transmission which would enable us to control these diseases. This is especially true of influenza and poliomyelitis. In these diseases we need specific biologic products for diagnosis, prophylaxis and treatment. We need also some practical index of susceptibility, such as the Schick test furnishes for diphtheria.

In the group of so-called communicable diseases of childhood, chiefly diphtheria, scarlet fever, measles and whooping cough, diphtheria is the only one for which we have biologic weapons which should be sufficient for its eradication. In the others, we lack definite knowledge of the cause and modes of transmission, and our practical measures for their suppression are, therefore, limited to instructions given on general principles.

Inadequate control of the communicable diseases of childhood is accentuated by certain basic defects in local health organizations. These are, chiefly, failure to coordinate and utilize unofficial volunteer agencies, and

failure to develop a community spirit and to secure the hearty support of the individual citizen.

Unofficial agencies which should be the most potent auxiliaries of the health department are operating in many instances entirely independently of the officials, and often without proper knowledge of, or consideration for, their sister volunteer agencies.

The failure to secure a community spirit is related to the failure to utilize properly the unofficial agencies. If proper coordination of all volunteer auxiliaries is secured, the development of a strong community spirit is not difficult.

Once the community spirit is developed by means of real health centers, the securing of support of a large majority of the individual citizens is within reach. We have been clamoring for better reporting by physicians, and this is a justifiable demand; but even if physicians reported 100 per cent of cases seen, we should still be far from adequate control in these diseases.

A large percentage of the cases of communicable diseases of childhood are not seen by physicians, or seen so late that most of the damage is done. School inspection and the cooperation of intelligent, trained teachers will augment the number of cases brought under early control, but the great need is development of sincere public spirited support by the parents themselves.

This can never be achieved by exhibition of police power, but education and an appeal to both civic pride and individual self-respect will be ultimately successful in getting parents to report cases voluntarily.

The biggest step forward will be achieved when the parents voluntarily will isolate children and report, pending diagnosis, when the symptoms are indefinite but present a sudden deviation from normal health.

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ABSTRACT OF DISCUSSION

DR. B. FRANKLIN ROYER, Philadelphia: When you use force or go far beyond the public point of view in a community, you arouse too much opposition to succeed, except with the most frightful types of epidemics. Education must precede law enforcement. In communities in which general education is widespread—and, probably, that is best seen in New England, where each town has kept zealously its autonomous organization and carries on its educational program thoroughly—you get the best coordination of effort. In the states into which Europe pours thousands, you have a very different problem from that of New England, and a different program is required. The modern health center and the activity of the Red Cross in the extension of its peace time program will do more than other influences, perhaps, to promote campaigns of public health education both in cities and in rural districts. The well directed public health nurse will probably do more effective work than will health officers or those actively engaged in administrative work. Health authorities must act as advisers and guides to those engaged in this new scheme of public health education, first, in order that the nurses may be trained properly, secondly, that the Red Cross agency may have its function properly coordinated with official agencies, and thirdly, that their lessons may be carried out to the best advantage of the community and without friction.

In communities where state and county supervision of teachers is well coordinated, much can be done in organizing teachers in carrying on the simpler preventive methods of medicine. The health center may do a great deal to prevent sickness, by doing a little curative medicine; but first, last and most of the time its work should be educational in character. Our hope lies largely in public health education, beginning at as early a stage in life as possible.

DR. R. S. YARROS, Chicago: In the venereal disease campaign carried on by the federal government, a remarkable

piece of work has been accomplished. The U. S. Public Health Service cooperated not only with the state departments of health, but also with all well established private agencies interested in this work, with epoch-making results. The federal aid to the states not only helped start the work in many states, but also stimulated and further standardized the various phases of such work. It also served, in a way, to create wholesome competition between the states as to number of clinics, kind of clinics, and educational and law enforcement work done. As each state officer had to report monthly to the venereal disease division of the Public Health Service, he was naturally, anxious to come up to the highest standard. Having learned the value of close cooperation between the federal, state and private agencies, why not apply it to other phases of public health work?

DR. A. W. COLCORD, Claretton, Pa.: For the last twelve years I have served as president of the board of health, in a rather large industrial community, including several thousand foreigners. We are grappling with this question of the education of the people of our community to help stop communicable diseases, and to improve the health of the community in general. We have Americanization classes in which we are teaching these foreigners the English language. Next year we shall begin through the school board to send trained workers into the homes to educate mothers, first in English, and then in personal hygiene, home economics and home health. We have been for three years conducting a sanitary survey of these homes through a nurse. Every time she finds something wrong in a home she tries to correct it. Then she is getting the mothers together and health classes are organized. They get weekly talks followed by the nurse going right into their homes to see whether they are profiting by these talks. The mothers are educated about baby care and feeding. We have a clinic in each school where all subnormal children are fed. A specialist examines those children, and every physician in the town participates. We are organizing the physicians in the town to promote this health program. It can be done only by the concerted action of the physicians, the schools, the local boards of health, the state board of health and the federal government, with the cooperation of the managers of the mills. You cannot stop contagious disease with a law, a health officer and a placard. You must secure the cooperation of the people by education, persuasion, organization.

DR. J. W. LOUGHLIN, Damariscotta, Maine: In many of our own American homes we ought to teach the people how to take care of a contagious disease. There should be more cooperation between the state departments of health and the state board of education, so that the state and district health officers can go into the high schools. I don't believe in beginning with the very small children, but begin with the high school children, and teach them how the contagious diseases are contracted and how they are transmitted. Every state department of health should educate the people about spray-borne diseases and not confine itself to contagious diseases. It is in the small towns in the country that we must create interest. Once we get a health center started and people interested in their own health, it is only a short time before the local health officer is at work; the state department is not so frequently called on, the people are cooperating and better results are obtained.

DR. ALLAN J. McLAUGHLIN, Washington, D. C.: I want to bring out two points which seem to have been emphasized in the discussion. One was our failure to utilize all the methods and knowledge which we now possess, and, second, the lack of certain instruments which explains the inadequacy of our control.

Closing School as a Means of Controlling Epidemics.—The successful control of epidemic diseases among schoolchildren requires: 1. Keeping the schools open, with the possible exception of sparsely settled rural districts when medical inspection cannot be obtained and where aggregation takes place only in the schools. 2. Careful daily or frequent periodic inspection of schools. 3. Careful provision for the exclusion of cases and contacts, emphasis being placed on clinical data rather than on fixed periods of exclusion. 4. Systematic home visitation. 5. Reliance on natural and physical cleansing rather than on chemical disinfectants.—*Pub. Health Rep.*, Nov. 21, 1919.

LABORATORY FINDINGS IN EARLY AND LATE SYPHILIS

REVIEW OF ONE THOUSAND AND SIXTY-FOUR CASES *

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AND

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An attempt has been made in this article to survey the serologic and spinal fluid records of a large number of our clinic cases and to correlate these findings with the clinical signs and symptoms presented by the patient. We hope that the data presented may have more than a statistical value in again emphasizing the importance of laboratory tests in the early diagnosis of neurosyphilis and in a more general adoption of better therapeutic procedures.

VISCERAL AND NEUROSYPHILIS

In the treatment of any manifestation of syphilis which at a given time may be in the foreground, one must never lose sight of the fact that the disease is a constitutional one. The association of cardiovascular syphilis with syphilis of the nervous system has been called attention to over and over again. In addition, necropsy findings frequently reveal the presence of visceral syphilis with neurosyphilis. The oft-repeated statement that patients with syphilis of the central nervous system present no external manifestations of the disease is subject to many exceptions, as we not infrequently see patients with gummas of the skin or mucous membranes with nervous involvement which is discovered only at the time they present themselves for their cutaneous trouble. As a routine procedure, therefore, it is important to examine carefully every patient for cardiovascular changes as revealed by auscultation, blood pressure and roentgen-ray findings, for ocular abnormalities as shown by the ophthalmoscope and perimeter, and for changes in the central nervous system as demonstrated by a neurologic examination and lumbar puncture. Keeping in mind that we are dealing with a constitutional disease, we have applied the modern procedures not only as determinants of a cure, but also as a prophylactic measure to prevent, if possible, degenerative stigmas, or at least to limit them. To this end it has been a routine practice during the last few years to perform spinal puncture on our syphilitic patients. When possible this has been done in secondary cases between the first and second courses of arsphenamin; but in tertiary cases, unless subjective or objective findings pointing to nervous involvement were present, the procedure was deferred until after thorough treatment had been administered.

CASES STUDIED

The series under discussion is made up of 1,064 cases grouped according to the length of infection into secondary, comprising those within the first two years,

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* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* This article and those by Drs. Solomon and Klauder, and Paroungian, which follow, complete the symposium on syphilis. The previous papers appeared last week.

and tertiary, including all those thereafter. The latter group, therefore, includes cases with tertiary lesions of the skin, asymptomatic or so-called latent cases, and a large group of neurosyphilitics.

Following this classification, there were 243 secondary and 821 tertiary cases. Of the secondaries, 179 had a negative spinal fluid and 64 abnormal findings. Of the tertiaries, 341 were negative in the fluid and 480 positive. The proportion of positive to negative fluids in secondary syphilis, it will be noted, is unusually high—almost 38 per cent., as against from 25 to 30 per cent. on previous calculations. This is due to the fact that quite a number of known positives were referred to us from other institutions for investigation. Similarly with the tertiaries. Here the positive fluids outnumber the negative and make it appear as though over 50 per cent. of tertiary syphilitics have a positive spinal fluid—obviously an erroneous interpretation.

TABLE 1.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF SECONDARY SYPHILIS WITH NEGATIVE SPINAL FLUID

Months	Cases	Months	Cases
2.....	5	14.....	4
3.....	15	15.....	3
4.....	14	16.....	3
5.....	12	17.....	1
6.....	17	18.....	4
7.....	14	19.....	2
8.....	7	20.....	4
9.....	9	21.....	2
10.....	7	22.....	4
11.....	8	23.....	1
12.....	14	24.....	25
13.....	4		

This again is due to the fact that, before other clinics were doing spinal diagnostic work, frank cases of neurosyphilis were sent for a fluid test and treatment.

ANALYSIS OF CASES

Analysis disclosed that:

There were 179 cases of secondary syphilis with negative spinal fluid; 132 of the patients were men; 47 were women; 115 had a negative and 64 a positive blood Wassermann reaction; 10 mentioned subjective complaints, such as headache, pains, nervousness, insomnia and vertigo; 17 presented slight objective findings, such as pupillary changes and minor reflex inequalities; 169 had no subjective complaints; 162 were without objective findings; 5 patients had received no

TABLE 2.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF SECONDARY SYPHILIS WITH POSITIVE SPINAL FLUID

Months	Cases	Months	Cases
2.....	1	14.....	3
3.....	1	15.....	2
4.....	1	17.....	2
5.....	6	18.....	6
6.....	2	19.....	2
7.....	5	21.....	1
8.....	3	22.....	1
9.....	2	23.....	3
10.....	5	24.....	8
12.....	10		

treatment before puncture; 32 patients had received less than one course; 80, one course or more, and 62, two courses or more. The age of the infection at the time of puncture is given in Table 1.

In 64 cases of secondary syphilis with positive spinal fluid, 52 of the patients were men; 12 were women; 12 had a negative and 52 a positive blood Wassermann reaction; 21 had

weakly positive spinal fluids; 9 showed cells and globulin only; 13 showed cells, globulin, a positive Wassermann reaction with 1.5 or 2 c.c. and a luetic curve; 43 had strongly positive spinal fluids, of whom 21 had cells, globulin, a strongly positive Wassermann reaction in amounts ranging from 0.1 to 1 c.c. and a luetic curve, and 22 had cells, globulin, a

TABLE 3.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF TERTIARY SYPHILIS WITH NEGATIVE SPINAL FLUID AND PRACTICALLY NEGATIVE CLINICAL FINDINGS

Years	Cases	Years	Cases
Unknown (no history)...	103	17.....	4
2½.....	6	18.....	6
3.....	10	19.....	3
4.....	16	20.....	16
5.....	8	21.....	1
6.....	12	22.....	2
7.....	6	23.....	2
8.....	16	24.....	2
9.....	16	25.....	10
10.....	12	26.....	2
11.....	7	27.....	1
12.....	8	28.....	2
13.....	8	30.....	7
14.....	5	32.....	1
15.....	9	38.....	1
16.....	5		

strongly positive Wassermann reaction in amounts ranging from 0.1 to 1 c.c. and a paretic curve; 34 patients mentioned subjective symptoms, as headache or pains; 43 presented objective findings referable to the deep reflexes, pupils or cranial nerves; 19 had received less than one course of treatment before puncture; 25 had received one course or more, and 20, two courses or more. The age of the infection at the time of puncture is given in Table 2.

In 307 cases of tertiary syphilis with negative spinal fluid and practically negative clinical findings, 218 patients were men; 89 were women; 126 had a negative and 181 a positive blood Wassermann reaction; 54 mentioned subjective symp-

TABLE 4.—AGE OF INFECTION AT TIME OF PUNCTURE IN TERTIARY CASES WITH NEGATIVE SPINAL FLUID AND POSITIVE SIGNS

Years	Cases	Years	Cases
Unknown (no history)...	12	13.....	2
3.....	2	15.....	1
5.....	1	16.....	2
6.....	2	20.....	2
7.....	1	21.....	1
10.....	2	25.....	1
11.....	2	35.....	1
12.....	1	40.....	1

toms, as headache, pains and nervousness; 23 presented slight pupillary anomalies; 253 had no subjective complaints referable to the nervous system; 284 were without objective findings; 27 had received no treatment before puncture; 3 had had inunctions only; 19 had taken internal medication only; 52 had received less than one course of treatment; 99 had received one course or more, and 107, two or more courses. The age of the infection at the time of puncture is given in Table 3.

In 34 tertiary cases with negative spinal fluid and positive signs or symptoms, which cases clinically were of vascular syphilis, hemiplegia, abortive tabes and old degenerative tabes, 25 patients were men; 9 were women; 16 had a negative and 18 a positive blood Wassermann reaction; 30 had subjective complaints referable to the central nervous system; 34 presented objective findings; 4 had no subjective complaints; none were without objective findings; 12 had had no treatment before puncture; 10 had had internal medication or inunctions, and 12, less than one course only of arsphenamin and mercury. The age of the infection at the time of puncture is given in Table 4.

In 480 cases of tertiary syphilis with positive spinal fluid, 386 patients were men, 94 were women; 85 had a negative and 395 a positive blood Wassermann reaction; 75 spinal

fluids were weakly positive; of these, 37 showed cells and globulin only, and 38 had cells, globulin, a positive Wassermann reaction with 1.5 or 2 c.c., of which 34 gave a luetic curve and 4 a paretic curve; 405 spinal fluids were strongly positive; 173 showed cells, globulin, a positive Wassermann reaction with amounts varying from 0.05 to 1 c.c. and a luetic curve; 228 showed cells, globulin, a positive Wassermann reaction with amounts varying from 0.05 to 1 c.c. and a paretic curve; 424 had subjective complaints referable to the central nervous system; 407 had objective findings; 56 had no subjective symptoms. 73 had no objective findings; 88 had received no treatment before puncture; 4 had had inunctions only; 56 had taken internal medication only; 170 had had less than one course; 88, one course or more, and 74 two courses or more. The age of the infection at the time of puncture is shown in Table 5.

GROUPING OF CASES

On further analysis, these cases might be grouped somewhat as follows:

1. Early Neurosyphilis: Type 1. Patients in good physical condition, with no complaints and absent or only slight neurologic signs. The spinal fluid is mildly positive, that is, an increase of 10 or more cells, a slight excess of globulin, a positive Wasserman reaction with

count of 1,500 or 2,000 may be present, with a very strong globulin reaction and a Wassermann reaction with 0.1 c.c. or less and a paretic curve. These patients must be carefully treated with small doses of syphilitic remedies and the spinal canal drained several times to relieve the increased pressure before energetic treatment is instituted.

Late neurosyphilis includes the classical vascular and meningovascular forms, gumma, tabes, taboparesis and paresis. In the pure vascular type the spinal fluid is usually negative, or a few cells and a small amount of globulin may be present. In the meningovascular form the fluid may be negative, yield cells and globulin only, or be positive in all phases. In tabes the picture varies with the activity and stage of the process. In so-called abortive forms, the fluid is negative. In early, active and progressing types it is usually strongly positive, while in the late degenerative types it is frequently negative. In taboparesis the fluid is strongly positive with a paretic curve. In paresis we have found in early untreated cases a positive fluid in 100 per cent. of the cases, the cell count ranging from 20 to 250, a marked increase in globulin, strongly positive Wassermann reaction with 0.2 c.c. or less, and a paretic curve. In gumma unaccompanied by a meningitis, the fluid is usually negative. Psychoses occurring in syphilitics who do not present clinical features of tabes or paresis give a negative fluid.

IMPORTANCE OF EARLY SUPERVISION

From our experience during the past ten years we are satisfied that the syphilitic patient's future depends on the thoroughness with which his case is supervised during the early months. He requires more than the injection, even though systematic and intensive, of arsphenamin and mercury. Although we have in the past frequently dwelt on the importance of lumbar puncture early in secondary syphilis, it is still not generally enough employed and we see only too frequently irreparable damage in the first year of the infection as a result of the failure thoroughly to investigate the patient by this means. We would therefore again emphasize the fact that an examination of the fluid gives the clinician his most valuable information regarding the infection at this time, as in the majority of cases of early syphilis with positive spinal fluid neurologic signs are either totally lacking or so insignificant that it is often a difficult question to decide whether a pathologic difference exists in the deep systemic reflexes or in the eye reactions. One must not be misled, therefore, and delay puncture until obtrusive signs appear. We have seen meningitis develop in the early months with delirium and a cell count of more than 1,000 in which the objective findings consisted of only slight impairment of the pupillary reflexes. In the basilar type in which cranial nerves are compressed by the exudate, palsies or visual disturbances give positive evidence of involvement of the central nervous system, but warning of what may take place can be elicited much earlier by the simple procedure of a puncture. For instance, in the following case we are of the opinion that an early examination would have anticipated the trouble and prevented loss of vision:

F. E., 22 years old, had an intra-urethral chancre in December, 1919. His blood was + + + + but no clinical secondaries manifested themselves. He was immediately treated

TABLE 5.—AGE OF INFECTION AT TIME OF PUNCTURE IN CASES OF TERTIARY SYPHILIS WITH POSITIVE SPINAL FLUID

Years	Cases	Years	Cases
Unknown (no history)....	165	18.....	14
2½.....	4	19.....	8
3.....	17	20.....	20
4.....	15	21.....	1
5.....	13	22.....	6
6.....	14	23.....	8
7.....	15	24.....	3
8.....	19	25.....	8
9.....	10	26.....	2
10.....	25	27.....	2
11.....	13	28.....	1
12.....	20	30.....	10
13.....	12	32.....	2
14.....	13	33.....	1
15.....	27	34.....	1
16.....	10	35.....	2
17.....	9	38.....	1

1.5 or 2 c.c. and a luetic curve. These patients are usually amenable to regular syphilitic treatment, show no progress of their infection, and on repuncture several months later yield a negative fluid.

Type 2. A. Patients with subjective symptoms, as headache, dizziness, fatigue, lack of concentration, and pains in the upper and lower extremities referred to as "rheumatic." Neurologic signs are absent or limited to slight pupillary inequality and irregularity and slight differences in the deep reflexes. The spinal fluid is usually strongly positive; cells from 25 to 300, strongly positive globulin, Wassermann reaction positive with 0.4 or 0.1 c.c. or less, and the colloidal gold reaction often of the paretic type.

B. Patients without subjective symptoms and absent or trivial objective symptoms and a strongly positive fluid similar to A. Owing to long latency, many of these patients are ignorant of their condition and lose time unless a routine puncture is made.

C. Patients presenting obtrusive signs on the part of the pupils, cranial nerves or deep reflexes. They have a strongly positive fluid, with a high cytology and a luetic or paretic curve. These cases are often very obstinate to therapy.

D. A malignant type giving the picture of an acute meningitis and sometimes terminating fatally. A cell

with arsphenamin and mercuric salicylate, receiving six injections of 0.5 gm. each of the former and fifteen of the latter, each $1\frac{1}{2}$ grains. After a rest period of a month a similar course of treatment was given. In September, 1920, he noticed blurred vision of the left eye, and four days later on rising in the morning he was blind on that side. He now received more mercury and arsphenamin, followed by drainage, but his vision was not restored. His first spinal puncture was reported positive in all phases. When examined a short time ago we found no cells, but globulin, Wassermann reaction + + + + with 0.4 c.c., and a luetic curve.

OPHTHALMIC EXAMINATIONS

Stress has so frequently been laid on the importance of repeated eye examinations in early syphilis that it seems superfluous to reiterate that ophthalmologic examination should be part of the routine in the care of the syphilitic patient. Dr. Mark J. Schoenberg, who so kindly cooperated with us in our examinations, has been able to detect pupillary and eye ground changes in a number of our patients in their incipency. In one case he reported pupillary inequality with a mild optic neuritis in a woman one month after the appearance of her chancre. Her blood was + + + +. In another case he observed it two months after the initial lesion. Incipient Argyll Robertson pupils with a mild optic neuritis were seen in a patient nine weeks after the primary sore. In another case he detected a left optic neuritis with irregular pupil two and a half weeks after the appearance of the secondary rash. We have noted the pupil of a patient during her course of treatment widely dilate and become fixed to light four months after her infection. The disk, which had been reported normal two weeks previously, showed an acute optic neuritis. On puncture she presented a positive fluid.

But pupillary changes may be entirely absent even when a pathologic process is going on, and this negative information may be misleading. In the case to be cited, we cannot help but feel that more information would have been gained from a puncture, and that if it had been performed from fifteen to eighteen months earlier the infection would have been controlled sooner.

H. C. has been under observation for about seven years. When he came, June 8, 1914, he was 24 years old and said he had had a chancre in January, 1914, for which his physician had prescribed internal medication for six weeks. He presented himself at the clinic because of fatigue and lack of ambition. Examination revealed only a + + + + Wassermann reaction. He was placed on arsphenamin and mercury treatment and soon felt better. While under treatment in September, 1914, he complained of blurring of the right eye. His vision was reported normal in each eye, namely, 20/15—; treatment was continued partly at the clinic and partly outside by his physician. Attacks of blurring lasting several days recurred from time to time. In December, 1916, almost two years after infection, he complained of pains in his head and failing vision for one week. He had up to this time received eighteen injections of arsphenamin and ninety of mercury. His eyes on examination showed a marked papilledema on both sides; vision: right, 20+/30—; left, 20/20—; his pupils reacted sluggishly to light, but were equal. The deep reflexes were very active and equal. The abdominal and cremasterics were present. There was no sensory or motor disturbance; no ataxia; no incoordination. A lumbar puncture revealed: cells, 210; globulin, + +; Wassermann reaction + + + + to 0.1 c.c., and a luetic curve (1233321000). The blood was still + +. Intraspinal therapy was now added to this treatment. During December, 1916, and January and February, 1917, he received fifteen injections of arsphenamin, nine intraspinal treatments, eight injections

of mercury and potassium iodid internally. The vision fluctuated between 20/30 + + and 20/70 in the right eye, and 20/30 + + and 20/50 in the left. In March, 1917, it was 20/70 right and 20/50 left. A rest, sweats and diet were now ordered. In May he was again placed on treatment and given nine arsphenamin and nine mercury injections. His vision shortly returned to 20/30 + + in the right eye and 20/15 in the left. In April, 1918, his vision was: right, 20/20 +; left, 20/20 + +. The fundus examination showed the right disk congested, edema of the retina on both sides and a large floating opacity in the left vitreous. In September, 1918, vision suddenly failed in the right eye. Examination revealed 20/100 on this side and 20/20— on the left. He was now placed on inunctions for a month. Vision was then: right, 20/30; left, 20/20—. In March, 1919, it was: right, 20/50; left, 20/20—. In July, 1919, his tonsils as well as an abscessed tooth were removed. He was again placed on treatment and received eleven arsphenamin and eleven mercury injections. Sept. 3, 1920, vision of the right eye was 20/40; left, 20/15. October 13: right, 20/40 +; left, 20/30 +. Nov. 30, 1920: right, 20/40; left, 20/30 +. His pupils in September were unequal, the left greater than the right. The left gave only a trace of reaction to light, while the right was very sluggish; both were very much reduced to accommodation. Neurologic examination was still negative.

This patient has had a total of fifty-three injections of arsphenamin, twenty intraspinal injections and 118 injections of mercury, besides inunctions and potassium iodid. His spinal fluid and his blood still give a positive Wassermann reaction.

PUPILLARY CHANGES

Pronounced pupillary changes may often for years be the only obtrusive evidence of a serious central involvement. We are minded in this connection to relate the case of a lawyer whom one of us met several years ago in connection with a criminal case. It was noted at the time that he had distinct inequality of the pupils. He was an unusually brilliant man, and while only 31 years of age had succeeded in politics and held responsible offices at various times. His professional career continued uninterruptedly two years longer, and then he complained of nervousness and irritability. Believing this to be due to a stricture following gonorrhea which he had contracted one year previously, he consulted a urologist and received treatment for the condition. After several treatments he decided to take a vacation and started on a motor trip to the Adirondacks. On the way up he talked almost incessantly. At the hotel he was exceedingly active, flirted indiscriminately, made many new acquaintances, read aloud to the guests, discussed politics by the hour, and took his newly made friends driving. No one suspected any mental disturbance and every one thought him an exceedingly charming and entertaining companion. A week later he received a letter from his fiancée informing him of the illness of her mother. On reading this he became very hysterical, cried aloud in the lobby, and told every one he met that a frightful calamity had occurred. It was very difficult to quiet him, but after several hours he calmed down and then became depressed. In a day or two he decided to leave for home. The trip was exceedingly trying, owing to a severe electric storm *en route* which almost wrecked his car. The next day he became very noisy, screaming and shouting at the top of his voice. A diagnosis of general paresis was made from his clinical and serologic findings. A few days later he became wildly delirious and remained in this state for months. Even now, although two years have elapsed since the onset of his mental symptoms, no remission has been induced.

although he has been treated intensively. From his physician was obtained the history of a penile sore five years previously which had been pronounced a chancroid and cauterized. This presumably was his primary infection for which he had never received syphilitic treatment. Our regret, of course, was that delicacy of feeling had prevented suggesting to him over two years earlier the advisability of investigation and treatment, thus obviating the personal and family wreckage caused by the sudden precipitation and unusually severe symptoms of his disease.

SYPHILITIC ARTERITIS

Syphilitic arteritis may show symptoms almost any time after infection, and has been reported as early as three months. According to Gowers, about one fourth of the cases occur within the first two years. A localized or diffuse meningitis is usually associated with the vascular lesions; the meningeal symptoms frequently precede the arterial, but the latter may precede the former and be independent of them. With purely vascular lesions the fluid is usually negative. The following case, occurring three years after infection, has as its special feature a maniacal attack during which a murder was committed, and after three days of intense emotional excitement a sudden motor aphasia:

An Italian, aged 28, was seen shortly after the commission of a grave criminal act for which he was held a prisoner. He had in a sudden frenzy shot his wife's father. Immediately after and during the next three days he had been able to testify before a special jury in Italian, as he spoke very little English. Then suddenly he was unable to speak and could communicate only by gesture. His hearing was not impaired, and he understood what was said to him. The physician called in was the same one who had treated him for syphilis acquired three years previously; and, recalling this infection, requested careful physical and serologic investigation. Physical and neurologic examination revealed nothing except a cardiac murmur and the motor aphasia. His deep reflexes were active and equal; there was no sensory disturbance: the pupils reacted to light and accommodation. He was exceedingly irritable and very excitable, and appeared to be suffering from severe headache. His blood was + + + +. His spinal fluid revealed: cells, 22; globulin + +; Wassermann reaction negative with 2 c.c.; colloidal gold test practically negative. As it was at first believed that his mutism was the result of malingering or hysteria, he was placed under complete ether anesthesia, but he did not utter a sound either while going under or coming out of the anesthetic. He was given eight arsphenamin and ten mercury injections, but no improvement occurred. It was agreed that he was suffering from cerebral syphilis with a lesion involving the motor speech area around the fissure of Rolando, and that his criminal act was related to his disease. He was therefore removed from the prison and given institutional care. From a report received several months ago he was still unable to talk.

SUMMARY

1. Not only is thorough investigation of every syphilitic patient early in the disease recommended, but it is as imperative as the use of the dark field in making an early diagnosis of the primary lesion.

2. Although from our analysis the percentage would seem higher, we do not believe that more than about 25 or 30 per cent. of all secondary syphilitics show infection of the central nervous system. This can in the majority of cases be determined only with certainty by a lumbar puncture, as in the early months

clinical signs are often negligible; and to wait until the latter appear usually requires a longer time to bring about negative reactions.

3. Our statistics show that the incidence of nervous system involvement is much higher in men than it is in women.

4. The statement is frequently made that neurosyphilis has increased since the use of the modern antisyphilitic remedies. This increase, in our opinion, is more apparent than real, and is to be attributed to the more systematic investigation of patients and our more thorough knowledge of the disease.

5. We have no proof that arsphenamin adversely affects the optic, auditory or other cranial nerves. On the contrary, we have very definite data showing arrest of optic atrophy by the proper use of the drug.

6. In considering the problem of neurosyphilis, one should always have in mind the general infection and especially the involvement by it of the cardiovascular apparatus and the eye. A persistent negative Wassermann reaction in the blood is frequently found with positive phases in the fluid and with an active process. A patient should never be discharged as cured without the information gained by lumbar puncture. When this has been neglected, it has in many cases led to disastrous consequences and incurable conditions.

7. Pupillary anomalies and cranial nerve paralyses are often pathognomonic and are always suggestive of nervous syphilis. In papillitis and optic neuritis occurring in early syphilis, vision may be normal with only slight narrowing of the fields. The necessity for routine ophthalmologic examination must, therefore, be emphasized so that the earliest changes may be detected before irreparable damage is done to the eye.

8. The absence of clinical signs and symptoms does not exclude syphilis of the central nervous system. The classical signs and symptoms of tabes may occur with a negative blood and spinal fluid. Likewise, neurosyphilis of the vascular, gummatous and other types may present subjective and objective clinical symptoms with an excess of globulin only in the fluid.

9. The colloidal gold reaction has been employed by us for six years. We consider it of great diagnostic and prognostic value. A luetic curve enables us with almost absolute certainty to exclude paresis. A paretic curve is always present in paresis in untreated cases, but may be encountered in meningovascular syphilis and may disappear under treatment. A paretic curve is also found in some types of early neurosyphilis, and disappears as the other phases become negative.

Syphilis in Family.—When one member of a family is found to be syphilitic, it is desirable to have other members of the family examined for possible syphilis. This should apply to both old and recent infections where there has been a possible chance for transmission of the disease either by contact or inheritance. It should be remembered that syphilis is syphilis when it occurs as paresis, locomotor ataxia, syphilis of the blood vessels, or other late manifestation of the disease, just the same as if the infection were recently acquired. Syphilis may be transmitted to other members of the family as an inheritance or by accident. It is for this reason that other members of the family of such a patient should be examined for evidence of syphilis.—Millard Knowlton, *Public Health Rep.* 36:2310 (Sept. 23) 1921.

NEUROSYPHILIS WITH NEGATIVE
SPINAL FLUID *

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PHILADELPHIA

The subject matter of this paper deals with cases of neurosyphilis having normal findings in the cerebrospinal fluid. It is generally recognized that active visceral and skin syphilis may exist in the absence of syphilitic inhibition of hemolysis in the Wassermann test. The same is true of syphilis of the nervous system. There are a group of cases in which even in the presence of an active progressive pathologic process the tests on the spinal fluid will be essentially negative. If this is so, and it will be our endeavor to show that it is, it would follow that one must consider the clinical facts in order to make a diagnosis without depending entirely on the laboratory examination of the fluid. The latter custom has become fairly general, that is, in the absence of any evidence of inflammatory or degenerative changes, as shown by the spinal fluid tests, the patient is often considered free from active neurosyphilis.

CLINICAL TYPES OF NEUROSYPHILIS WITH
NEGATIVE SPINAL FLUID

The only type of neurosyphilis in which it is generally recognized that the spinal fluid may be negative is that in which the disease process, as far as the central nervous system is concerned, affects almost solely the blood vessels. Vascular neurosyphilis as represented by thrombosis, hemorrhage, cerebral aneurysm and arteritis obliterans are clinical diagnoses applied to this type of disorder. It must be added that in many cases in which the disorder is chiefly vascular neurosyphilis the spinal fluid does show pathologic changes. This depends on the amount of inflammatory reaction existing in addition to the vascular changes. There are, however, many other instances of neurosyphilis in which the spinal fluid may be negative. In this group, we would mention tabes, cerebral gumma, cerebral syphilis of the type causing cerebral nerve palsies, Erb's syphilitic spastic paraplegia, syphilitic epilepsy, syphilitic paranoia and syphilitic dementia.

It will be in point to indicate on what one is justified in making a diagnosis of neurosyphilis in the absence of laboratory findings of a positive nature in the fluid. There is one cardinal symptom which, when present, is strongly suggestive of a syphilitic involvement of the central nervous system. This is the Argyll Robertson pupil. Other pupillary signs, such as marked irregularity, inequality and poor reaction to light, although suggestive of neurosyphilis, are of less diagnostic value since they may be present in many nonsyphilitic conditions, as brain tumor, chronic

alcoholism and arteriosclerosis. If the Argyll Robertson pupillary reaction is present, one has *prima facie* evidence of neurosyphilis. There are other combinations of symptoms, however, which, when no other explanation is available, may lead to a diagnosis of neurosyphilis. These symptoms, which include reflex disorders, speech defect, aphasia, cranial nerve palsies, fainting and convulsive attacks, are evidences of a pathologic condition of the central nervous system. When occurring in a known syphilitic who is free from any reasonable suspicion of other types of organic nervous disease, the condition may be considered syphilitic. The blood Wassermann test may or may not be positive in these instances. It is these cases which require the fine clinical examination by one who has a thorough and fundamental knowledge of neurology before the diagnosis of neurosyphilis can be made without confirmatory laboratory findings.

CLINICAL COURSE OF NEUROSYPHILIS

Our knowledge of the life history of patients with neurosyphilis is by no means complete. Many investigations have shown that the central nervous system is very frequently involved by an active syphilitic process during the early period of generalization. The course of this process after this early efflorescence until the appearance of definite central nervous system symptoms is by no means clear. We do not know whether during the period, which may be twenty to thirty years in duration, from the time of this early involvement to the appearance of definite symptoms, the cerebrospinal fluid ordinarily shows evidence of a pathologic condition, or whether there is a long period of quiescence or slow progressive changes during which the spinal fluid is completely negative, becoming changed at a time when the activity is much increased and symptoms occur. It is the consensus of opinion that spinal fluid changes precede by many years the appearance of subjective and objective symptoms of neurosyphilis. We believe that this is probably the general rule. However, we have all had experience with patients who on one examination had negative spinal fluid reactions but who later, after a period of months or years, presented symptoms and positive findings in the fluid; so that whatever the general rule may be, the fact remains that there are cases which, despite negative findings in the fluid, over a period of months or years later show positive findings.

On the other hand, it is well known that many patients who, during the period of generalization, have symptoms of nervous system involvement and positive findings in the fluid have spontaneous disappearance of the symptoms and a return of the fluid to its normal constituents. It is probable that this spontaneous cure or remission occurs not only in the early stage of syphilis but in the later periods as well, that is, in the cases which have had active progressive symptoms of the type of tabes or nerve palsies, the symptoms of which disappear and the spinal fluid becomes negative. Much has been written of abortive and "burnt out" tabes which are cases in which the spinal fluid is normal although objective symptoms of tabes exist. McIntosh, Fildes, Head and Fearnside¹ have asserted that pure cerebral syphilis, that is, syphilis of the cerebrum without spinal cord involve-

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. McIntosh, J.; Fildes, P.; Head, H., and Fearnside, E. G.: Parasyphilis of the Nervous System, *Brain* 36: 17 (July) 1913.

ment, frequently if not almost invariably gives negative fluid findings or that, at any rate, the spinal fluid changes would be minimal in intensity.

One of us (H. C. S.²) showed that the gold reaction on fluid from various loci of the central nervous system, such as the ventricle, the cisterna magna, base of the brain, and the lumbar sac, may be quite different in a given case. Further experience has proved that this is not at all infrequent, and that it exists not only as regards the gold reaction but also the cell count, the globulin and albumin content, and the Wassermann reaction. In some instances, for example, in general paresis, the ventricle fluid may be entirely negative, whereas the lumbar fluid shows the characteristic reactions of general paresis.

Probably the best evidence that can be given concerning the presence of an active syphilitic nervous system lesion in the absence of any changes in the spinal fluid is that which was published in our paper on the provocative reactions in the cerebrospinal fluid in neurosyphilis.³ It might be well to summarize briefly one of the cases reported in this article:

CASE 1.—A man, aged 36, who had had a sudden paralysis of the right arm and leg eighteen months prior to his admission to our clinic, and had recovered in two days, on admission complained of headache, loss of memory, and a mild speech defect. The neurologic examination disclosed only increased reflexes on one side. The blood and spinal fluid gave negative Wassermann reactions, and the other spinal fluid tests were entirely negative. After a provocative injection of arsphenamin, the spinal fluid Wassermann reaction became positive with 1 and 0.8 c.c. of spinal fluid. There were 53 cells per cubic millimeter, globulin two plus, albumin two plus and the colloidal gold curve, 2443330000. With the latter spinal fluid findings and the clinical history of the case, no one would have hesitated to make a diagnosis of neurosyphilis; but prior to the treatment we were dealing with a patient who had negative spinal fluid findings, although we would insist that this patient was suffering from neurosyphilis just as much prior to the arsphenamin as subsequent to it.

VASCULAR NEUROSYPHILIS

The most frequent form of neurosyphilis in which the spinal fluid findings are negative is, as has been stated, the vascular type. Examples of this type are seen in Cases 2, 3 and 4:

CASE 2.—The patient at the time of his admission to the hospital was 33 years of age. His presenting symptom was a right-sided hemiplegia, which had occurred two and a half years prior and which had come on suddenly during sleep. He admitted a chancre seventeen years previously for which he had received practically no treatment. Examination disclosed the usual findings of a hemiplegia, namely, increased reflexes on the side of the hemiplegia. The pupils were unequal but regular, and reacted well to light and distance. Blood pressure was 98 systolic and 60 diastolic. There was a speech defect. The Wassermann reaction on the blood was strongly positive, but in the spinal fluid it was negative. There was 1 cell per cubic millimeter, no globulin, a normal amount of albumin, and a negative gold reaction. This is the common form of syphilitic hemiplegia due to thrombosis of the middle cerebral artery occurring in a young man with a history of syphilis. This is an example of neurosyphilis existing with a negative spinal fluid.

CASE 3.—A woman, aged 34, had been diagnosed a syphilitic six years ago, at which time she had a strongly positive

blood Wassermann reaction and gave birth to a syphilitic child. She was treated for two years, at which time the Wassermann reaction was negative. Recently she had a shock leading to a hemiplegia. The blood Wassermann reaction was negative, and the spinal fluid was entirely normal. In this instance we are dealing with a patient of known syphilitic antecedents who, despite negative serology, developed a hemiplegia at the age of 34.

CASE 4.—A woman, aged 40, was brought to the Psychopathic Hospital, having been picked up by the police, who found her wandering about in an aimless fashion. She was unable to speak intelligently to the policeman. Examination showed that she was suffering from a motor aphasia, although she could understand speech and read printed words. The history showed that she had been apparently quite well until six months before, when without any warning she began to act strangely and have a series of convulsions. She recovered from this series of convulsions and remained well for three months, when suddenly while visiting a friend she suffered a paralysis of the left side of the body. Ever since this left-sided paralysis, the aphasic condition has persisted. Aside from the postapopleptic reflex disorders and the spastic phenomena, she showed irregularity of the pupils with diminished light reaction. The presence of syphilis was proved by a positive blood Wassermann reaction. There was a moderately strong gold reaction in the spinal fluid and a slight amount of globulin, 1 cell per cubic millimeter and a negative Wassermann reaction.

Cases with the clinical symptomatology of tabes but with normal cerebrospinal fluid may be discussed under three headings: (1) cases of incipient progressive type, (2) cases in which the pathologic findings in the spinal fluid have disappeared after treatment, and (3) abortive tabes. The cases of the first group, namely, those which, although they show an entirely negative spinal fluid yet continue to have symptoms, are not at all infrequent and must be considered as evidence of primary degeneration of the posterior roots and columns in the absence of an active inflammatory lesion. Cases 5 and 6 belong to this group:

CASE 5.—The patient had a primary syphilitic lesion twelve years ago for which he received no treatment until seven years later, when he received one injection of arsphenamin and thirty injections into the hip. His pupils were not quite equal or circular, but reacted normally. The knee jerks and ankle jerks were entirely absent, and the patient had a progressively increasing ataxia of gait. The Wassermann reaction in the blood was positive. The spinal fluid showed 8 cells per cubic millimeter, but in all other respects was entirely negative. Despite the negative findings in the spinal fluid, the fact that the symptoms occurred in a patient with a history of syphilis and a positive blood Wassermann reaction made tabes the only possible diagnosis.

CASE 6.—The patient, at the age of 47, appeared at the clinic complaining of lancinating pains in his legs and ataxia in gait. Three months previously he had a spontaneous fracture of the left femur. He had had a syphilitic infection thirteen years ago, receiving no treatment at that time. He remained apparently well until three years ago, when he suddenly developed a diplopia and pharyngeal paresthesia. He received a few injections of arsphenamin at this time and improved. A short time ago pains of a severe, shooting character appeared in his legs, he developed difficulty in his walking, the diplopia returned, and he had a spontaneous fracture of his leg which did not heal readily. The neurologic examination revealed unequal, irregular pupils, which reacted neither to light nor to distance. There was a slight speech defect and strabismus. The tendon reflexes were normal. The clinical picture was that of tabes with retention of the tendon reflexes. The blood Wassermann reaction was negative and the spinal fluid findings were entirely negative.

There are a great many cases in which mildly pathologic spinal fluid findings bridge over the gap between

2. Solomon, H. C., and Welles, E. S.: Varieties of the Gold-Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System, Study of Twenty-Eight Autopsied Cases, Boston M. & S. J. 172: 174, 625, 629, 1915.

3. Solomon, H. C., and Klauder, J. V.: Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis, Arch. Dermat. & Syph. 2: 679-691 (Dec.) 1920.

the negative spinal fluid cases of tabes and those with the usual type of spinal fluid findings. One of us (H. C. S.⁴) in a paper on nonconcomitance of spinal fluid tests has called attention to these spinal fluid findings.

A case of this type which was published in the paper on provocative reactions in the cerebrospinal fluid in neurosyphilis³ may be mentioned:

CASE 7.—A woman, aged 37, who had a very definite clinical picture of tabes dorsalis, for eight years had been having sharp pains in her legs so severe that she had to give up her work. An ataxic gait had developed. She had unequal, poorly reacting pupils, absent knee jerks and ankle jerks, ataxia in gait, and a positive Romberg sign. The Wassermann reaction was positive in the blood but negative in the spinal fluid. There was a slight suggestion of globulin by the Ross-Jones test, but not enough to be called a definite reaction. There were 139 cells per cubic millimeter and an almost negative colloidal gold reaction, 0011230000. Evidence that this was syphilis of the nervous system, despite the negative spinal fluid Wassermann and almost negative globulin and gold test was shown by the production of a strongly positive spinal fluid Wassermann reaction and the paretic type of gold curve after intravenous injections of arsphenamin.

CASE 8.—A case similar to the last showing a mild change in the spinal fluid and definite evidence of syphilis of the nervous system is as follows: A man, aged 41, who came to the clinic complaining of pains in his legs which had been present for four or five years and had been increasing in severity, admitted having a chancre nineteen years previously but had had no secondary symptoms. Examination revealed irregular, fixed pupils reacting neither to light nor accommodation. Knee jerks and ankle jerks were absent. He thus presented a definite clinical picture of tabes dorsalis. The Wassermann reaction in the blood was negative. The spinal fluid showed that there were no cells, no globulin and normal albumin, but a moderately positive Wassermann reaction. In this case the only laboratory evidence of syphilis was shown by the moderately positive spinal fluid Wassermann reaction.

In addition to the cases of tabes which have negative spinal fluids without treatment or after a very small amount is administered, there are cases which, as a result of intensive arsphenamin and intraspinal injections, become negative serologically but the subjective and objective symptoms of tabes remain unchanged. Such instances are shown in Cases 9 and 10:

CASE 9.—A man, aged 49, denied knowledge of a syphilitic infection. Sixteen years previously he began having symptoms of tabes, which had progressed steadily. The presenting symptoms were impotence, sphincter disturbance, lancinating pains, ataxia in walking and in the use of the hands, and severe gastric crises. The patient was emaciated, with the pale, anemic complexion so frequent in tabes. The pupils were unequal, semidilated, and gave the Argyll Robertson reaction. The tendon reflexes were all abolished; there was a positive Romberg sign and ataxia in gait and in the use of the hands. The blood and spinal fluid were both entirely negative. The history shows that the patient had had a great many intravenous injections of arsphenamin and some fifteen intraspinal injections of arsphenaminized serum. Under this treatment the laboratory tests had become quite negative, but the patient's symptoms were in no wise relieved.

CASE 10.—A baker, aged 43, had most typical attacks of gastric crises of great severity. His pupils were irregular, the right giving the Argyll Robertson reaction and the left being fixed to both light and distance. There were no other reflex disorders. His attacks of pain, nausea and vomiting

had occurred at varying intervals for a period of many years. The pupillary findings and the type of gastric crises, which occurred periodically without relation to diet and ceased spontaneously, led to a diagnosis of gastric crises of tabes dorsalis. It might be added that a very careful examination excluded lead colic, ulcer, carcinoma, enteritis and the like. His blood and spinal fluid were both entirely negative. However, the patient had been a member of our clinic several years previously, at which time both blood and spinal fluid gave the usual findings of tabes dorsalis. At this time he had received intravenous injections of arsphenamin and intraspinal injections of arsphenaminized serum, until his blood and spinal fluid were both negative. In spite of the negative spinal fluid findings, his symptoms had continued.

The third group, variably termed abortive, "burnt out" or imperfect tabes, includes those cases having no subjective symptoms, and a paucity of neurologic abnormalities which consists principally, if not entirely, of one or the other types of pupillary abnormality, the Argyll Robertson pupil or irregular pupils which react sluggishly. The diagnosis of tabes may not be justified from the objective symptoms, at all events in a known syphilitic those symptoms manifest a neurosyphilitic involvement. The presence of a normal spinal fluid in this class of patient, previously untreated, points to a spontaneous cessation of the underlying neurosyphilitic process. In these cases, the pupillary abnormality probably represents a "neurologic scar" of a former neuraxis involvement. The Argyll Robertson pupil may be the earliest appearing objective symptom of tabes, and may precede by many years the development of other symptoms of this disease. As previously mentioned, it is generally believed, although not definitely established, that the spinal fluid is persistently positive for many years prior to the development of frank symptoms of neurosyphilis. Therefore, in the light of present knowledge the presence of an isolated pupillary abnormality, in the type of case under discussion, together with a negative spinal fluid does not warrant the belief that this objective symptom is a forerunner of tabes or some other neurosyphilitic process. Moreover, the absence of subjective symptoms is further but not complete evidence against this assumption.

A good example of this type is seen in Case 11:

CASE 11.—H. D., a man, aged 33, when 18 years of age had a sore on the penis. He never received antisyphilitic treatment. His general health was good and he was free of any subjective complaint. The pupils were equal and irregular and were of the Argyll Robertson type. The patellar reflexes were slightly increased; otherwise the neurologic examination was negative. The blood Wassermann reaction was four plus; the spinal fluid: cells 7, globulin negative, colloidal gold test 0000000000, Wassermann test negative.

The statistics of Dreyfus⁵ are of importance in the discussion of the foregoing type. According to the observation of this writer, from 35 to 40 per cent. of tertiary syphilitics with isolated pupillary abnormalities have negative spinal fluids. Indeed, in Dreyfus' series of cases the spinal fluid remained negative after provocative arsphenamin injections.

The significance of an isolated pupillary abnormality in a syphilitic cannot be determined unless the spinal fluid is examined. The realization of this is important in the clinical examination of syphilitics.

4. Solomon, H. C.: Nonconcomitance of Spinal Fluid Tests, Arch. Neurol. & Psychiat. 3: 49-56 (Jan.) 1920.

5. Dreyfus: München. med. Wchnschr., 1912, No. 30, p. 1677; Verhandl. d. Deutsch. Congr. f. innere Med., 1912.

SYPHILITIC CEREBRAL NERVE PALSIES

The majority of cases of cerebral nerve palsies of syphilitic origin are associated with or caused by a meningitis involving the nerve in its course from the brain to its exit in the cranium. Despite the presence of a meningitis, the spinal fluid is, in many cases, negative, either because the meningitis is too localized and gives rise to too small an amount of inflammatory product to change appreciably the content of the cerebrospinal fluid, or because, owing to the rather sluggish circulation of this fluid, the contents of the lumbar sac are not involved. Cases 12 and 13 are cases of cranial nerve palsies of syphilitic origin with a negative spinal fluid:

CASE 12.—A sudden diplopia and ptosis of the eyelid led the patient to consult us. In addition, he complained of considerable pain in the left frontal region confined to the distribution of the trigeminal nerve. Examination disclosed Argyll Robertson pupils and paresis of the left external rectus muscle of the eye and a drooping of the lid on this side. There was considerable tenderness to pin prick, and diminution of sensory discrimination of fine touch over the distribution of the first division of the left trigeminal nerve. The neurologic examination was otherwise quite negative, but the patient showed evidence of an irritation of the recurrent laryngeal nerve and a widening of the aorta, as well as a gummatous condition of the nasal septum. The patient reported that he had had a chancre thirty years ago for which he had received two years of mercurial treatment at the time but no antisyphilitic treatment since. The blood Wassermann reaction was strongly positive, but the spinal fluid was negative in all tests. Under antisyphilitic treatment the headache, ptosis and strabismus rapidly cleared up.

CASE 13.—A man, aged 28, reported that on waking one morning he saw double and his right eyelid drooped. The following months he began to feel weak and have difficulty in swallowing as well as difficulty in breathing. Examination revealed a weakness of the right external rectus muscle and ptosis of the right lid. Otherwise the examination was entirely negative, but with a history of syphilis and the positive Wassermann reaction a diagnosis of cerebral syphilis was made, even in the absence of any positive findings in the cerebrospinal fluid.

CEREBRAL GUMMA

What has been said concerning localized meningitic lesions producing cerebral nerve palsies holds equally well for certain cases of cerebral gumma in which the spinal fluid contains no abnormality suggestive of syphilis or of any other inflammatory process. Such an instance is shown in Case 14:

CASE 14.—The patient presented a picture of increased intracranial pressure. Severe headaches, increasing dementia with confusion, disorientation and periods of excitement had developed. There was dragging of the legs, which finally led to inability to walk. The physical examination revealed areas of pigmentation on the face and sides of the neck, and some dark copper colored circular areas on the neck, suggesting syphilis. The heart was slightly enlarged. The pupils failed to react to flashlight, but reacted to prolonged sunlight. They were slightly irregular but equal, and reacted well to accommodation. There was almost complete blindness and extreme deafness. The tendon reflexes of the arms and legs were absent. The Wassermann reaction was positive in the blood. The spinal fluid was quite normal. The tumor was diagnosed as a gumma. It was localized and exposed at operation, the surgeon diagnosing gumma by its appearance. The patient died during the operation.

SYPHILITIC EPILEPSY

Under the heading of syphilitic epilepsy we would definitely exclude those cases in which convulsions are merely incidental in the course of general paresis,

epileptic attacks, and the like. We would include syphilitic patients who, having no previous evidence of epileptic tendencies and a negative family history, develop frequent characteristic epileptic convulsions. That there is such a group is probably best shown by the fact that some at least of these cases are cured of their convulsions by antisyphilitic treatment. There are two types of syphilitic epilepsy. In one type the spinal fluid presents the characteristic syphilitic reactions. Of this type we have many cases in our series, but they do not concern us in this discussion. In the other type, the spinal fluid is negative; evidence of central nervous system involvement is shown by the physical signs.

This group is represented in Cases 15 and 16:

CASE 15.—A negro man, aged 24, whose convulsions began when he was in the army, several years prior had had a syphilitic infection for which he had received only local treatment. The convulsions were severe, and in falling he often hurt himself. The physical examination revealed unequal, semidilated pupils which reacted only within the smallest limits to light, but very well to accommodation. The knee jerks and ankle jerks were absent. The blood and spinal fluids were entirely negative. A previous blood Wassermann test made at a public health hospital in the South was reported as positive. With the syphilitic history, the almost stiff pupils, the absent knee and ankle jerks, there is very little doubt that this patient had a syphilitic involvement of the nervous system, and it seems highly probable that his epileptic attacks were of syphilitic etiology despite his negative serology.

CASE 16.—A woman, aged 23, who had been married for a period of two years, dated back her syphilitic infection three years, at which time she took a small amount of medicine by mouth. Shortly after the infection she began having attacks of unconsciousness lasting for a few moments, during which she would froth at the mouth. There was no loss of sphincter control. The onset of attacks was not preceded by an aura. She sought aid at the clinic and received eight intravenous injections of arsphenamin and some mercury. At this time the blood Wassermann was positive, but the spinal fluid Wassermann was negative. One month later the blood was again positive. Attacks of unconsciousness continued, but came at longer intervals. When seen by us she was confined to bed complaining of severe headache and dizziness. The neurologic examination disclosed unequal, irregular pupils reacting sluggishly to light. The reflexes were lively and unequal on the two sides. The blood Wassermann reaction was negative. The spinal fluid was likewise negative, as was the gold reaction. There was 1 cell per cubic millimeter, and no globulin. Under active mercurial treatment and potassium iodid she rapidly improved, and at the end of the week was free of subjective symptoms.

SYPHILITIC SPASTIC PARAPLEGIA

Erb's syphilitic spastic paraplegia, although very much rarer than tabes, is probably quite similar in its pathogenesis. The corticospinal tracts are involved in their lower portion instead of the posterior spinobulbar tracts as in tabes. Therefore, if it is true that in some cases of tabes the spinal fluid is negative, it would seem probable *a priori* that the same would be true in the latter condition. Case 17 is an instance of Erb's syphilitic spastic paraplegia in which the spinal fluid is negative:

CASE 17.—A woman, aged 36, had a marked spasticity with characteristic scissors gait. The pupils were irregular; and although both reacted to light, the left reacted far more slowly than the right and the reaction failed to hold. The arm reflexes were very active, and the knee jerks and ankle jerks were exaggerated. There was a double Babinski reflex as well as Gordon and Oppenheim reflexes, and a bilateral ankle

clonus. There was no evidence of incoordination, no Romberg sign, no disorders of sensation or disorder of the special senses, and no tremor of the tongue or hands. There was no atrophy of the muscles, ruling out amyotrophic lateral sclerosis. The blood Wassermann reaction was weakly positive, and the spinal fluid showed 14 cells per cubic millimeter, a slight gold reaction in the syphilitic zone, a small amount of globulin, and a negative spinal fluid Wassermann reaction.

There are a group of cases with definite subjective symptoms, with evidence of central nervous system syphilis as shown by the physical signs but with a negative spinal fluid. As far as their clinical picture is concerned, these cases compare with those often spoken of as "neurosyphilis asymptomatica," which have been described in detail in a recent paper⁶ by one of us (J. V. K.). Case 18 illustrates this type:

CASE 18.—After an attack of pneumonia, a man continued to feel weak, and for this reason sought attention at the clinic. Examination revealed Argyll Robertson pupils which were dilated and irregular in shape. The Wassermann reaction in the blood was positive; otherwise no signs or symptoms were found. The spinal fluid tests were all quite normal. The patient received antisyphilitic treatment for more than a year, after which time his blood Wassermann reaction became entirely negative, but the Argyll Robertson pupils remained as almost the sole discernable residual of his syphilitic infection. However, the examination of the spinal fluid at this later date showed a gold reaction of an abortive paretic type, 5553000000.

SYPHILITIC PSYCHOSES (NONPARETIC TYPE)

There remains a group of cases mentioned by Kraepelin, Nonne, Pilcz, Plaut and others of the German school which these authors described as syphilitic paranoia, syphilitic dementia, and by other euphonious terms. Psychotic manifestations occurred in syphilitic patients who, prior to their infection, were entirely free of any disorder. A negative spinal fluid is a characteristic finding in these cases. The exact relation of these cases to syphilis is by no means apparent; and while we have numerous instances of this type which we might add here, the fact that the conditions are so uncertain leads us to leave them out of consideration. There are, however, some cases in which mental peculiarities occur in syphilitics who show definite evidence of central nervous system syphilis, such as the Argyll Robertson pupil, and who have negative spinal fluids as illustrated by Case 19:

CASE 19.—A man, aged 31, when seen at the clinic, told of a syphilitic infection seven years prior, claiming to have infected his wife, who was in fact undergoing antisyphilitic treatment. He complained of worry, depression, hypersensitivity to noises, thoughts of suicide, and amnesia. He had had excited attacks in which he became dangerous, and because of this it was necessary to commit him to an institution. The left pupil gave a typical Argyll Robertson reaction, and the right pupil showed a very mild contraction to light stimulus. There was a moderate tremor of the hands and tongue, and the patient showed a distinct Romberg sign, although the knee and ankle jerks were normal. The blood Wassermann reaction was positive, but the spinal fluid was quite normal in all respects.

NEUROSYPHILIS WITH NO SUBJECTIVE OR OBJECTIVE SYMPTOMS, BUT WITH STRONGLY POSITIVE SPINAL FLUID

In contrast to the foregoing cases with active signs and symptoms of neurosyphilis and negative spinal fluids, there is a group in which, despite the absence of signs or symptoms of a neuraxis involvement, the

spinal fluid tests are strongly positive. These cases occur in all periods of the disease. One group in the late stage of syphilis with spinal fluid findings similar to those found in general paresis was reported by one of us (H. C. S. in conjunction with Dr. E. E. Southard⁷). We will merely cite two cases of this large group, one (Case 20) occurring early in syphilis and one (Case 21) occurring late:

CASE 20.—A woman, aged 20, who had led a fairly riotous life, was under the charge of the girls' parole department. Because of their inability to keep her on the straight and narrow path, she was sent to the Psychopathic Hospital for examination. The routine Wassermann examination was reported positive. She gave no history of primary or secondary symptoms, and, as indicated above, her physical examination, including the neurologic, was essentially negative. As a matter of routine in a syphilitic case, a lumbar puncture was performed, which disclosed a strongly positive Wassermann reaction; globulin 1 plus, albumin 1 plus, 132 cells per cubic millimeter, colloidal gold reaction, 444333221. Sixteen injections of arsphenamin in the following four months were given, and at the end of this time she had negative blood and negative spinal fluid Wassermann reactions; globulin and albumin were still reported as 1 plus; there was 1 cell per cubic millimeter and the colloidal gold reaction was 4332221100. Treatment was continued and eleven more injections of arsphenamin were given in the following nine months. After a rest of seven months, another lumbar puncture was performed which was entirely negative, as was the blood reaction.

CASE 21.—A woman, aged 27, who came to the clinic for examination because her husband had general paresis, had no symptoms, was in the best of health, and came only at the solicitation of our clinic in following its routine of examining the mates of all syphilitic patients. Physical examination was as free from significant findings as was the symptomatology of the patient. The blood Wassermann reaction was strongly positive, whereupon the spinal fluid examination was made and disclosed a strongly positive Wassermann reaction, globulin 1 plus, increased albumin, 34 cells per cubic millimeter, and a weak paretic gold curve, 552221100.

Our conviction, which we hope we have shown is based on facts, is that there are many instances of active cerebral syphilis and even spinal syphilis in which the spinal fluid reactions are negative but yet the patients are actively syphilitic and react favorably to antisyphilitic treatment. The following two cases can be presented as final evidence in our chain that negative spinal fluids do not in any respect indicate the lack of activity of syphilis in the nervous system:

CASE 22.—This case seems to give conclusive proof of the activity of a neurosyphilitic process, although the cerebrospinal fluid is negative. A man, aged 41, gave a history of a lip chancre fourteen years previously. A month before his admission to the hospital he had a number of unconscious spells, one of which was associated with a transient left hemiplegia. In a few days he became excited, broke windows, and ran down the street in a markedly confused condition. On his arrival at the hospital he was very excited and confused. The pupils were equal, regular and reacted to light and distance. There was a slight ptosis of the left lid. The tendon reflexes were all present and equal on the two sides; there were no abnormal reflexes. The blood Wassermann reaction was positive, as was the spinal fluid. There were 87 cells per cubic millimeter, two plus globulin, two plus albumin, gold test, 0012210000. The patient received quite a number of intravenous injections of arsphenamin, and there was a great clinical improvement; the spinal fluid became negative. He was sent out from the hospital and after a few weeks had a sudden convulsion, was returned to the hospital and died

6. Klauder, J. V.: Early Neurosyphilis Asymptomatica, with Report of Observations and Cases, *Am. J. Syph.* 3: 559-586 (Oct.) 1919.

7. Southard, E. E., and Solomon, H. C.: Latent Neurosyphilis and the Question of General Paresis sine Paresi, *Boston M. & S. J.* 174: 8-15, 1915.

in a few days. Although the spinal fluid was negative, the necropsy showed that he had a meningitis with lymphocytic infiltration of the pia.

CASE 23.—A man, aged 46, who came under observation in February, 1916, had the mental and physical signs of general paresis, with mental deterioration, speech defect and irregular pupils, with very slight reaction to light, but good reaction to accommodation. The knee jerks and ankle jerks were absent, and he was unsteady in the Romberg position. The blood and spinal fluid were strongly positive, the latter giving the characteristic reactions of paresis. Under treatment the patient made a marked improvement, and he was allowed to return to his work. At the end of two years the spinal fluid was negative in all regards. A few months later the patient had a spell of confusion, following which the spinal fluid again showed the typical reactions of general paresis. Treatment was again pushed intensively, and the patient made a second clinical remission with a return of the spinal fluid to its normal condition. He remained under treatment, but again had a spell of confusion, and on return to the hospital his spinal fluid was again strongly positive. We had here, we believe, complete and thorough evidence of the continuation of the syphilitic process in the central nervous system despite a negative spinal fluid.

Nonne⁸ gives a long discussion of neurosyphilis in the absence of a pathologic spinal fluid. He gives the following group, of five types of cases for consideration:

1. The fluid is, from the beginning, normal. (This he calls a rudimentary process.)
2. The fluid, in the beginning pathologic, becomes normal. This is a healed syphilitic disease of the central nervous system.
3. The fluid shows improvement over its former condition but is still not entirely normal. In this condition the disease process is improved.
4. The fluid is still pathologic as it was earlier, but the clinical picture has remained stationary.
5. The fluid remains pathologic as it was formerly, with an increase in the disease process.

In addition to these conditions or groups as given by Nonne, we would conclude from the case material in our possession, as illustrated by the foregoing case histories, that in the absence of any pathologic changes or very mild ones, in the spinal fluid, neurosyphilis may be active and progressive. We, of course, agree entirely that in many instances in which the evidence of a syphilitic nervous involvement is shown by the physical signs and the fluid is normal, these signs present evidence of a former activity which has been halted.

The matter of the treatment of cases showing signs representing nervous system disease but in which the spinal fluid is entirely negative presents a matter for the finest clinical discrimination. If one is dealing with a "burnt out" process, one in which there is no evidence of an active neurosyphilitic process, there is less reason to consider antisyphilitic treatment. These cases will probably fit the old definition of parasyphilis. They manifest tissue damage as a result of syphilis but with no apparent spirochetal activity; hence antisyphilitic treatment is of questionable value. However, it is not definitely known whether these cases harbor living spirochetes, even though laboratory tests of the blood and spinal fluid are negative and the apparent pathologic processes are of a residual character. Many of the vascular cases, such as Case 3, are excellent illustrations of this type. This woman, who, at the time of the hemiplegia, showed no evidence of an active syphilitic process, probably had her cere-

bral vessels affected during the period of activity, which resulted in a sclerotic condition of the vessels, which subsequently ruptured. On the other hand, the cases in which the syphilitic process is active in the central nervous system despite the negative spinal fluid require and are entitled to active antisyphilitic remedies. Just what type of antisyphilitic remedy should be used is again a matter of clinical judgment, and the ideas concerning this would vary with different men who have predilections for different forms of treatment. But on this debatable ground we shall not enter.

A STUDY OF SILVER ARSPHENAMIN IN THE TREATMENT OF SYPHILIS

BASED ON FOUR THOUSAND TWO HUNDRED
AND NINETY INJECTIONS*

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The importance of the combination of arsphenamin and metal salts was first made public by Ehrlich, Aug. 8, 1913, at the International Congress of Medicine in London. A number of such preparations of arsphenamin and metal compounds were tried in the treatment of trypanosomiasis. The use of this class of compounds was founded on well-established experimental and clinical investigations. The doses were small and the results gratifying. Early in 1918, Kolle, the successor of Ehrlich at the Speyer House, had completed the biologic examination of silver arsphenamin and it was distributed for clinical study. As pointed out by Kolle and Ritz, silver and its compounds exert a decided antisyphilitic influence. Silver arsphenamin takes an exceptional position among the heavy metal combinations which are concerned with therapeutics. Silver in itself has remarkable oligodynamic powers, and when combined chemically with arsphenamin yields a product with a decreased toxicity and a higher therapeutic index.

Silver arsphenamin is arsphenamin treated with silver salts in such a manner that the silver is relatively firmly fixed in the molecule; after subsequent purification the reaction product is correctly alkalized so that the final product is capable of ready solution in water. Although, for brevity termed silver arsphenamin, it is in reality the salt, sodium silver arsphenamin.¹ The preparation contains about 20 per cent. arsenic and 14 per cent. silver. It is a brown powder which easily dissolves, without shaking, in distilled water, giving a dark brown solution. If the product has deteriorated, an opalescent and cloudy solution is formed, and the solution should be discarded, as it is dangerous to use. In case of decomposed products, a precipitate is formed when it is placed in water.²

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¹ Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

² 1. A description of silver arsphenamin appeared in the New and Nonofficial Remedies department of THE JOURNAL, May 7, 1921, p. 1312.

2. The structural formula is still under discussion by scientists abroad, particularly as regards the location of the silver in the molecule. Structural formulas of the various arsphenamin compounds, including silver arsphenamin, were published in our preliminary report (Parounagian, M. B.: A Preliminary Report on Silver Arsphenamin, Arch. Dermat. & Syph. 3: 333 [March] 1921).

The literature of silver arsphenamin has been extensive and, although I have made an analysis of all the literature available in America up to the present time, I will content myself at this place to quote from Walson's³ summary:

Kolle, Ritz, Galewsky, Hauck and Gennerich appear to be of opinion that silver salvarsan is better than any other salvarsan preparation. Boas, Kissmeyer and Müller seem to think that silver salvarsan is on a par with salvarsan. Dreyfus, Kerl, Schoenfeld, Birnbaum, Bruhns, Lowenberg and Goldberger think that silver salvarsan is better than neo-salvarsan. Hoffman, Knopf, Scholtz and Sinn prefer salvarsan to silver salvarsan. Von Nothhaft says he obtains no better results from silver salvarsan than other salvarsan preparations. Friedlaender, Sellei and Hahn speak of very good results from silver salvarsan; Fabry says it might well be called on to supplement or supplant neosalvarsan.

Silver arsphenamin is furnished in ampules like other arsphenamin. The technic of the preparation of the solution requires that the ampule be immersed in 95 per cent. alcohol to detect any imperfections. The ampule is then opened under sterile precautions and the contents are sprinkled on the surface of cool, sterile, recently distilled water, 5 c.c. being used per decigram of the drug. We use the standard mixing cylinders of 250 c.c. capacity. When the silver arsphenamin is completely dissolved, the necessary amount of cool 0.4 per cent. sterile saline solution is added so that the final solution will approximate 20 c.c. of liquid per decigram of the drug. The solution is filtered through previously moistened sterile gauze into gravity burets.

The injection should be carried out slowly, it being made certain that the needle is in the vein properly before the solution is administered. Care in these two features is an important factor in eliminating reactions of any kind.

The patients receive 0.15 gm. as an initial dose, and this is followed by an injection of from 0.2 to 0.25 gm. for each succeeding dose, unless smaller doses are indicated by the character of the case. Injections are given every third or fourth day. Eight injections have constituted a course; a rest of four weeks without treatment has been routine, followed by a further rest or continued treatment (mainly with neo-arsphenamin) as the serology or history indicate. Wassermann tests are repeatedly made.

Our experience with silver arsphenamin began, Oct. 13, 1920, on our service at Bellevue Hospital. The brand of silver arsphenamin used was that made in America by H. A. Metz Laboratories according to the original formula. To date we have treated 756 patients with syphilis. The number of injections given has been 4,290. The patients are divided for purposes of analysis into the following groups: primary syphilis, a total of seventy-one, of whom thirty-nine completed one course of silver arsphenamin; secondary syphilis, 177 patients, of whom seventy-five completed one course; a total of 387 tertiary syphilis, divided as follows: (a) Courses completed in nineteen patients with active tertiary lesions of the skin and mucous membranes and twenty-three with Wassermann positive and no lesions; forty-two patients were given one course of silver arsphenamin after treatment with other members of the arsphenamin group. (b) Incomplete courses for 262 Wassermann positive tertiaries; forty-four Wassermann negative tertiaries and forty-five patients who

had had previous treatment with other members of the arsphenamin group received silver arsphenamin.

Ninety-nine patients were treated who presented symptoms of neurosyphilis; twenty-seven of these completed one course of silver arsphenamin.

Ten congenital syphilitics have been treated, but only two have completed one course of silver arsphenamin.

Many of the patients listed as not having completed a course are still under treatment. Other patients of this group have been lost from observation despite efforts of our follow-up department. It should be especially noted that Bellevue Hospital Dispensary serves a motley population. The majority of the patients whom we have been unable to follow have been seamen, inmates of cheap lodging houses, transients and occasionally patients who have been transferred from this to other hospitals, including patients from the prison ward of the hospital.

The following analyses have been based on cases in which one full course of silver arsphenamin has been completed:

PRIMARY SYPHILIS

There were seventy-one patients, of whom thirty-nine completed one course.

Of the thirty-nine primary syphilitic cases, twenty-four were dark field positive. The initial Wassermann test prior to treatment in these twenty-four cases gave seventeen completely negative. One case which was negative at the first Wassermann test became 4 plus before the treatment was initiated. One case reported anticomplementary at the first reaction was 2 plus before treatment began. Three cases were reported doubtful; one case, 1 plus; one case, 2 plus, and one case, 4 plus.

These cases treated with silver arsphenamin all responded clinically in a very satisfactory manner.

A number of cases in this group deserve a little more mention. Patient 1335 represents a type of case very favorably acted on by silver arsphenamin. The duration of the primary lesion was two weeks. The dark field demonstrated *Spirochaeta pallida*; the Wassermann reaction was negative. His lesion was completely healed after the fourth injection, and the scar was very minute. Clinically, there was no advance of the syphilitic infection and the Wassermann test has been persistently negative on five different occasions. Exceptionally, a chancre has been healed after two injections of silver arsphenamin.

Follow-up dark fields in primary cases after the diagnostic demonstration have always been negative after two silver arsphenamin injections; occasionally, positive after one silver arsphenamin. The press of routine work has not permitted us to make such examinations in every instance.

The serologic results (and these are not only immediately after the cessation of treatment, for many patients had Wassermann tests at five-week intervals to the number of four and sometimes five) were: Of the seventeen negative, sixteen remained so and in one there has been no report. The patient who developed the 4 plus in the primary stage, but whose initial Wassermann test was negative, became negative; the patient whose first report was anticomplementary, and later 2 plus, developed a 4 plus Wassermann; all the

3. Walson, C. M.: Silver Salvarsan in the Treatment of Syphilis, *Am. J. M. Sc.* 161:418 (March) 1921.

other patients, including the patient with the initial 4 plus Wassermann have been serologically and clinically negative.

No case of this group has advanced clinically from the primary to the secondary stage.

Six patients presented themselves with initial lesions from which *Spirochaeta pallida*, although searched for on numerous occasions, could not be demonstrated. The lesions on these patients were typical syphilitic chancres.

Wassermann tests were made at frequent intervals on this group of six, with the following results: One patient, whose initial Wassermann reaction was anti-complementary, developed a 4 plus reaction; a second patient, with a negative initial Wassermann reaction, on a series of five Wassermann tests had 1 plus, negative, 2 plus, 1 plus and finally 4 plus, before treatment was initiated.

Another patient whose initial Wassermann reaction was negative developed a 3 plus and then a 4 plus Wassermann reaction. One patient's initial Wassermann reaction was 4 plus.

Two patients of this group had initial negative Wassermann reactions, and the basis for treatment was purely clinical and historical.

These patients treated with silver arsphenamin were clinically cured, and our serologic results have been very satisfactory.

Wassermann reactions have been reversed to negative in four of these five cases. The patient with the initial 4 plus Wassermann reaction had a 3 plus Wassermann at the close of his initial course of silver arsphenamin treatment.

The two patients mentioned above who had negative laboratory findings but who were treated on clinical and historical grounds demonstrate the necessity of occasional independence of laboratory diagnosis.

One of these patients presented himself with two lesions of the coronal sulcus. Although the clinical diagnosis was syphilitic chancres, repeated attempts to demonstrate *Spirochaeta pallida* were fruitless. Wassermann reactions at frequent intervals were also negative. Whether to treat this patient without waiting for laboratory corroboration was a subject of debate among the staff, which was settled in a very unusual manner. The patient called at the clinic on a day usually reserved for women. He pointed out the source of his infection as a certain woman passed through the corridor to the women's waiting-room. Our records showed that she had come to the clinic with active moist lesions of syphilis about the vulva and anus. Treatment of this male patient resulted in a rapid disappearance of his lesions, which formed the basis of a therapeutic diagnosis.

SECONDARY SYPHILIS

There were 177 patients, seventy-five of whom completed one course.

Seventy-five patients presented themselves with clinical generalized syphilis. The presenting symptoms in these cases were eruption, condylomas, mucous patches, adenopathy, alopecia syphilitica and combinations of these symptoms.

Fifty of these patients who had no previous treatment gave 4 plus positive Wassermann reactions. These patients were treated with silver arsphenamin, the course usually consisting of eight injections. Clinically,

these patients responded to this medication in a way which we have not seen approached by the other arsenicals which we had formerly used. Although it is not possible to give a numerical comparison, it is our opinion that the symptoms of secondary generalized syphilis disappear sooner with unaided silver arsphenamin therapy than with the other arsenicals combined with mercury.

The serologic results in this group of cases were analyzed as follows: Thirteen patients gave negative Wassermann reactions at the close of treatment. These patients gave repeated negative Wassermann reactions on different occasions at from weekly to six-week intervals, and our records show as many as six repeated negative Wassermann reactions in this group.

Another group which gave very promising immediate serologic results at the termination of the course of silver arsphenamin, that is, whose Wassermann reactions were negative immediately after treatment, did not retain this negative Wassermann result, but positive Wassermanns crept in at varying intervals of from six weeks to four months. This group had thirteen patients.

On the other hand, fourteen patients whose immediate serologic results were not assuring, that is, positive, either 2 plus, 3 plus or 4 plus, gave us decreasing degrees of positive reports until our last Wassermann test, taken in some instances from three to four months later, was negative and, indeed, in some cases repeated negative examinations were secured although no treatment had been given in the interval.

In addition, two patients of this group of generalized secondary syphilis with 4 plus Wassermann reactions remained 4 plus; two decreased to 3 plus; one to 2 plus; one to 1 plus, and one other case to doubtful. The last group has not had repeated Wassermann tests.

Eighteen other secondary generalized syphilitics presented themselves whose initial Wassermann reaction was not 4 plus, although the patients denied having had any previous therapy. Four of these patients gave negative primary Wassermann reactions. One gave a doubtful reaction; five gave a 1 plus reaction, six a 2 plus reaction, and in two an anticomplementary result was reported.

Clinically, as in the other cases, the improvement was rapid and satisfactory.

The serology in this group appeared to us as being especially worthy of study. Of the four patients whose initial Wassermann reaction was negative, two remained persistently negative after therapy. One advanced to doubtful after two negative results had followed cessation of treatment. The fourth case, negative immediately after treatment, advanced to 4 plus and receded to 1 plus, since which time he has given two negative results at intervals of six weeks.

The patient with the doubtful Wassermann reaction has become negative.

The group of patients having 1 plus and 2 plus initial Wassermann reactions approximated, as far as serologic results are concerned, the two divisions made above for those having 4 plus Wassermann reactions at the beginning of treatment, that is, some cases with promising serology at the cessation of treatment advanced toward positive, and others whose initial serology was positive receded toward the negative.

Of the two patients with anticomplementary initial Wassermann reactions, one has given anticomplemen-

tary results on every examination made; the other has given an anticomplementary immediately after treatment, two doubtfuls, a negative, and his last Wassermann reaction has been 4 plus.

Four patients came to our clinic after having had therapy elsewhere, although their generalized syphilis was clinically apparent. Two of these patients gave a 2 plus Wassermann reaction; one a 1 plus, and the last a negative Wassermann reaction. The clinical results with the use of silver arsphenamin were especially gratifying in this group, because these patients treated with other forms of arsphenamin and some with a combination of arsphenamin and mercury still had lesions of the skin or mucous membranes when they presented themselves. The use of silver arsphenamin cleared these persistent manifestations in a very short time.

Serology at the close gave three negatives, and one of the 2 plus patients had a 4 plus reaction. His previous treatment had been three arsphenamin and fifteen mercury treatments.

Three other cases remain to be reported on in this group of generalized secondary syphilis. One patient's preliminary Wassermann reaction was not reported on. After a course of treatment the Wassermann reaction was 4 plus, but without additional treatment became negative on two occasions. Two other patients with generalized clinical syphilis gave us doubtful initial Wassermann reactions. In both, dark field examinations of open lesions demonstrated *Spirochaeta pallida*.

It is interesting that in both these cases the Wassermann reaction at the close of a single course of silver arsphenamin was 4 plus, but that without additional treatment the Wassermann reaction in both patients has been reduced in one to 1 plus, and in the other to negative.

TERTIARY SYPHILIS

There were 387 patients, of whom 111 completed one course.

Nineteen patients either came or were referred to our service with active tertiary manifestations of the skin or mucous membranes, such as gumma of the leg, throat, shaft of the penis, scrotum or tonsil. The duration of the syphilis in these patients varied from one year to forty years, and some of the patients, mainly women, were unable to give a history of having been infected. The previous therapy in these patients was practically nil. Only four patients had had any previous arsphenamin therapy, and in two of these only one dose had ever been administered. Mercury by injection had been given in three. The Wassermann reactions were positive in all except two cases. In one of these the Wassermann reaction taken before treatment was anticomplementary, and the other was negative.

Clinically, the results were astounding. Many patients appearing from day to day showed definite improvement within twenty-four hours after administration of the first injection of silver arsphenamin. In instances of extensive gummas, the lesions cleared with intravenous silver arsphenamin alone and required no further local dressing or attention after three or possibly four injections.

Although serologic reversal in this group of patients was not to be expected following one course of treatment, we may still report three patients whose Was-

sermann reaction after treatment was negative and which remained negative at least on one repetition.

The Wassermann reaction in one other patient was 1 plus and did not advance. In another patient the Wassermann reaction advanced from 1 plus at the close of treatment to 2 plus six weeks later. A third patient whose reaction was 1 plus at the end of the course advanced from 3 to 4 plus on repeated Wassermann examinations. Three patients whose Wassermann reactions were 2 plus at the close of a series of silver arsphenamin advanced to 3 and finally to 4 plus. One patient was 3 plus at the close of his course. Four patients were 4 plus and gave repeated 4 plus results. The shorter series of active tertiary syphilis whose Wassermann reactions were not 4 plus when they came to us showed two patients whose Wassermann reactions went from 2 plus to 3 plus; one patient with an initial anticomplementary report was 4 plus; a third patient, negative at the beginning of the course, was 3 plus at its end, and a fourth case was negative both prior to and after the course of silver arsphenamin.

A group of twenty-three patients was under observation in whom no clinical evidence of syphilis could be determined on physical examination. The diagnosis rested on history and repeated 4 plus Wassermann examinations in all except two of the women patients referred to us from the obstetric service because of the character of miscarried fetuses.

Fourteen of these patients had never been treated for syphilis. Three of the patients had very minimum mercury treatment. Five of the patients had had arsphenamin, but three of these patients had had only two doses. One patient had had only local treatment applied to his initial lesion thirty years before.

The entire group received a course of silver arsphenamin, and the Wassermann reaction in sixteen was not altered. In the remaining seven patients, negative or weakly positive reactions were temporarily secured.

A striking case from this group was that of a patient with history of chancre twenty years ago with a tremendous carotid aneurysm and a specific laryngitis, which allowed him to speak only in a whisper. It was necessary for him to turn his head decidedly to relieve the pressure sufficiently to enable him to whisper hoarsely. Considerable arsphenamin and neoarsphenamin treatment had been of no avail. Silver arsphenamin treatment was finally resorted to. His laryngitis cleared up sufficiently to enable him to talk and, while he is still under treatment and while there has been no change in the aneurysm, he speaks in a perfectly normal tone.

Twenty-seven patients were treated on this service who presented physical signs and symptoms of syphilitic cerebrospinal involvement. The major number of these patients had been under observation by neurologists, and the diagnosis was confirmed by proper laboratory tests of the cerebrospinal fluid. Clinical improvement was noted in many instances. The serology remained practically as it was prior to the initiation of silver arsphenamin therapy intravenously. We have not attempted to inject this drug intraspinaly as yet.

CONGENITAL SYPHILIS

Opportunities for the treatment of congenital syphilis have been limited. Ten patients were treated with silver arsphenamin, and of these only two were car-

ried through a complete course. In one case a patient with a gumma on the left side of the neck was presented. After four injections, a complete disappearance of the gumma was effected. The patient improved in health generally, and a 4 plus Wassermann reaction was changed to negative, after a course of silver arspenamin.

In the second case there were gummas of both lateral aspects of the lower thighs. Eight injections reduced the Wassermann reaction to 2 plus, but the patient disappeared before the completion of serologic study.

REACTIONS FROM SILVER ARSPHENAMIN

Untoward reactions following the administration of silver arspenamin were strikingly few, and, under ordinary circumstances, of little moment. Except for the theoretical possibilities of the occurrence of argyria, the reactions following silver arspenamin are no different from those that may follow the intravenous administration of the other members of the arspenamin group. Such reactions as mild gastro-intestinal disturbance, vomiting and diarrhea, faintness, congestion and dizziness, if encountered at all following silver arspenamin, are exceedingly mild and give no cause for alarm. Recorded rise of temperature cannot be reported here following silver arspenamin as the patients are of the ambulatory type. Most of the reactions which have occurred were easily explained on the grounds that the patients had disregarded our specific directions concerning the care of the bowels and abstinence from food for three hours previous to their treatment.

One of our patients developed a mild evanescent jaundice after one injection of silver arspenamin. Treatment was resumed within one week with no recurrence of the jaundice.

Argyria we have never seen.

We have associated a peculiar perifollicular dark red, circumscribed eruption with the administration of silver arspenamin. We cannot say at this time whether or not this is a specific reaction. It has not been seen in a series of other arsenical administrations.

Reviewing our past experience with the injection of arspenamin and neo-arsphenamin, it is the general opinion of the staff that reactions have been less numerous and certainly those that have occurred have given less cause for alarm since silver arspenamin has been used. Incidentally, individual patients who have been intolerant to other arspenamins have been injected with silver arspenamin with no ill effect.

A case of dermatitis was observed in the tertiary syphilis series. The patient came under treatment, May 24, 1920, with a 4 plus Wassermann reaction and had two full courses of arspenamin and mercury which did not reverse his Wassermann reaction. After an appropriate rest period he was given eight silver arspenamin injections and his Wassermann reaction was reduced to 2 plus. Following the last injection he had a generalized dermatitis of the entire body which was not of an exfoliative nature and disappeared very shortly. The urine of this patient showed a slight trace of albumin.

One of our patients of the Wassermann positive latent tertiary group was given eight silver arspenamin injections, a total of 1.5 gm. Seven days after his last injection of silver arspenamin he reported at

the clinic with an eruption typical of erythema multiforme. This eruption was limited to the extremities. During the next week the eruption persisted and, although it appeared vesicular, no fluid could be expressed from the tiny papules of which the eruption was composed. The eruption became general within two days. Examination of the urine was positive for Benedict reduction substance. This has occurred within the last week and we have added this case as a single instance in which a severe eruption may have been caused by silver arspenamin.

BIOLOGIC SUMMARY

Silver arspenamin in a total dosage of 1.55 gm. has been able to retard the syphilitic infection in cases of primary syphilis in addition to destroying the organisms and the lesions already present.

In secondary syphilis, when the widespread dissemination of the organisms is known to have occurred and is clinically manifest by widespread eruption and a positive Wassermann reaction, silver arspenamin has not been universally successful from the serologic point of view.

In one course of eight injections in this group the clinical results have appealed to us as being superior to those of either of the other arspenamins, even in combination with mercury.

It should be remembered in this regard that the individual dose of silver arspenamin which we have given has been from 40 to 60 per cent. less than if either of the other arspenamins had been administered. One should consider this also as a possible factor for the lack of severe reactions.

The combination or the alternation of silver arspenamin and neo-arsphenamin has been advanced as being worthy of trial, and we have administered neo-arsphenamin both alternately and consecutively with silver arspenamin. Analysis of such trials cannot be given at this time.

Doses of silver arspenamin may certainly be increased without fear of ill effect, as has been reported by European observers in treatment of paresis. Occasionally, in our service we have permitted a larger dose to be administered and no ill effects have followed. For future study a group will be selected for treatment with larger doses.

Since mercury has always appealed to us as a necessary drug in the treatment of the syphilitic, we know of no theoretical or practical reason why it should not be administered with silver arspenamin. The fear of ill result from the combination of three metals, namely, silver, arsenic and mercury, in combination with silver arspenamin appears to be without basis.

In this report I have merely attempted to bring to your attention the results and trials of the use of American made silver arspenamin on patients at Bellevue Hospital. The paper read has been almost wholly made of statistics, with comments on some of our interesting problems. We have held no brief for silver arspenamin.

It may be noted that no conclusions have been appended to the paper. We believe that it is impossible to make conclusions in the treatment of syphilis, especially as to the final results, until the ex-patient is on the necropsy table, and then perhaps only after special microscopic studies of the various organs for spirochetes, as suggested by Warthin's conception.

Perhaps, with wider use of silver arsphenamin in America, other observers will report their findings. The suggestion for using slightly larger doses than recommended up to now should be considered in the future.

SUMMARY

Silver arsphenamin of American manufacture has been administered 4,290 times to 756 patients.

Clinical manifestations in all stages of syphilis have responded to treatment with silver arsphenamin with gratifying rapidity and thoroughness. Our impression is that the response begins more promptly and that the lesions resolve with greater rapidity than is the case with a similar number of treatments with other arsenical preparations.

In this opinion we concur with Kolle, Ritz, Galewsky, Hauck and Gennerich.

126 East Thirty-Ninth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. STILLIANS, BROWN AND PEARCE, IRVINE, FRASER, FORDYCE AND ROSEN, SOLOMON AND KLAUDER, AND PAROUNAGIAN

DR. UDO J. WILE, Ann Arbor, Mich.: Dr. Stillians does not mean for us to assume that true sarcoid is in any way ever associated with syphilis. Sarcoid is now generally conceded to be a nonulcerative form of tuberculosis. That syphilitic lesions resembling sarcoid may occur is not difficult to understand. The disappearance of lesions, sarcoid in type, on the administration of antisyphilitic treatment, however, is in no way to be taken as evidence that such lesions are due to syphilis. Except, therefore, for clinical resemblance, there is no relation between sarcoid and sarcoid-like syphilids. Dr. Brown's paper is an admirable exposition of a portion of the work that he and his co-worker have done in attempting to clear up many of the problems connected with syphilitic infection and syphilitic immunity. Every one, I am sure, has watched this work at Rockefeller Institute with the greatest interest. There is only one limitation to the interpretation of the results, and Dr. Brown has never failed to recognize this, and that is that he is dealing with rabbit syphilis and that the findings may not be identical with those occurring in the human host. One can only reason by analogy, and hope that the problems of immunity and infection in laboratory animals approach those occurring in the human being, and one must avoid too positive deductions from the results of animal experimentation. Dr. Irvine has sounded a very important note in the treatment of ambulatory syphilis. This class of patients presents difficulties of treatment which can be overcome only by education, by legislation and by social service. From the points made in his paper, it may be stated that a large class of patients is seen who are followed but a short time. For this reason, this group must receive the maximum amount of treatment consistent with safety in the shortest possible time. Dr. Fraser's paper indicates that the pathologic side, as well as the clinical chapters on congenital syphilis, must be rewritten. The syphilization of the product of conception can take place at so many different times during the pregnancy, and the conditions under which the fetus develops are so markedly influenced by this factor of times, that the clinical and pathologic pictures must present the greatest degree of variance. I was particularly interested in Dr. Fordyce's paper. I recently published the results of lumbar puncture findings in more than 1,800 cases of syphilis in all stages. My findings parallel those of Dr. Fordyce for the most part. I believe, however, that his figures are, perhaps, conservative, and this is more apparent if we accept Dr. Solomon's views—and I believe that these must be accepted. If, as Dr. Solomon indicates, cerebrospinal involvement may exist without spinal fluid findings, the percentage of involvement is necessarily higher than would be indicated in Dr. Fordyce's figures. Dr. Solomon brings up another important matter, one that I have frequently

insisted on, that laboratory criteria should not be too rigidly interpreted.

DR. JOHN H. STOKES, Rochester, Minn.: Dr. Stillians has called attention to an interesting association of the picture of sarcoid with syphilis, without showing the two to be identical. The clinical and pathologic picture of sarcoid need not have a high degree of specificity. The fact that sarcoid may resist all treatment for coincident syphilis suggests that the two need have no etiologic relationship. Dr. Irvine raised many interesting questions. Sooner or later we shall have to learn the lesson of German war preparation, and develop advisory clinical centers for the control of the syphilitic patient under treatment by the isolated practitioner. Laboratory paraphernalia, systematized case records and proper follow-up can be provided only in this way. Most physicians' notes have little value for scientific clinical study. The vital importance of life-long observation should be talked up to patients instead of an ungrounded emphasis on "cure" in syphilis. Control of patients with syphilis cannot be accomplished by official or legal machinery alone. It is a function of the physician's personality. Patients should be taken more completely into our confidence and their cooperation and interest developed. It is to be hoped that the day will come when classes of syphilitics can be gotten together to study their treatment and social problems, as is now the case among diabetics and nephritics. I was impressed in Dr. Frazer's paper by the disparity between clinically and pathologically identified syphilis of the heart in uterine or "hereditary" syphilis. The former is accounted a rare clinical entity. One cannot but admire the completeness of Dr. Fordyce's studies. It is important to recall that his percentage of involvement of the nervous system in early cases is lower than that of some observers, possibly because his patients had had some preliminary treatment, which may produce very rapid effects. Dr. Solomon's contribution still further points the moral of the vanishing diagnostic key to syphilis, and the disappearance of our last criterion of cure. The wise syphilographer no longer says, "You are cured." He adopts the terminology of tuberculosis, and says, "Your infection is arrested—see an expert from time to time as long as you live."

DR. HENRY H. HAZEN, Washington, D. C.: I have used silver arsphenamin in more than twenty cases. I started with small doses, 0.1 and then 0.2 gm. I have not had a single Wassermann reaction reversed. We have seen mucous patches recur after eight injections. In a series of eight injections each in four chancres the induration has not disappeared. That seems rather a poor record. Of course, we realize that such a thing is not impossible with regular arsphenamin; but when a whole series of cases runs that way, it certainly seems possible that silver arsphenamin is not doing all that is claimed for it. I am sorry to disagree with many, but our experience has not led us to believe that it is as effective as has been reported. Another thing: We must remember that when arsphenamin was first brought to our attention it was introduced with a blare of trumpets in the daily press and in the magazines and some of us cannot help wondering whether these wonderful claims that are being made for silver arsphenamin at the present time are of the same order. We should take the reports with a certain amount of conservatism and not allow ourselves to be run off our feet by them.

DR. IRVING SIMONS, Nashville, Tenn: I should like to know what Dr. Parounagian's experience has been in regard to the early reactions and the later ones, after six or twelve hours. Also whether the silver arsphenamin can be injected in the concentrated form, as some of us have been doing with neo-arsphenamin.

DR. JOSEPH EARLE MOORE, Baltimore: The paper by Dr. Fordyce was very interesting to me, particularly because we have just finished working up the results of spinal fluid examinations in 640 cases of syphilis, none of which showed demonstrable neurologic abnormalities. The figures which we obtained largely corroborate the figures which Dr. Fordyce obtained, but they differ from them in one point. Our cases were arbitrarily divided into early and late cases, as Dr. Fordyce divided his into secondary and tertiary. Our patients were examined, as a rule, after one or two courses of arsphen-

amin. The percentage of abnormalities was almost exactly the same, no matter what the patient's manifestations were; whether they were early or whether syphilis had been present for ten or fifteen years; the percentage of abnormalities ranged from 12 to 15. That we took to be an excellent demonstration of what Dr. Stokes brought out concerning a small amount of treatment. To show the effects of treatment we performed spinal puncture at various intervals arbitrarily after from one to five courses of arsphenamin, each course consisting of six injections. There was a definite decrease in the spinal fluid abnormalities, ranging from 26.5 per cent. in patients with no treatment to about 5 per cent. after five courses. Abnormal fluids were twice as common in the white patients as in the colored patients, which fits in very well with the differences in symptomatic neurosyphilis recognized in the two races. Our 640 cases were almost equally divided between men and women, and the percentages of abnormalities observed in the two sexes were practically the same. Our figures are not quite comparable to those of Dr. Fordyce, who included neurosyphilitic patients, but it is striking that in early syphilis in which neurologic abnormalities are absent our study shows no difference in the sex incidence of a symptomatic neurosyphilis.

DR. AUGUST RAVOGLI, Cincinnati: I have found there are fewer cases of syphilis in the rural districts; but sometimes those people coming from the country and going into the city to look for work are liable to be infected. In the mining camps I have found the reverse; a great many miners are infected with syphilis. In reference to the results obtained from the treatment of syphilis, I find that it is not very easy to get good statistical data, because the patients often stop treatment after two or three injections because they feel much better and they do not return until new symptoms are appearing. It is difficult to keep track of all cases. I do not think that the treatment of syphilis can be standardized, because a great deal depends on the general condition of the patient, the care which he takes of himself, and all the occurrences which prolong the disease and make it worse, or help to prevent recovery. I have always been taught that wherever an irritation exists the syphilitic lesions are coming. For this reason we tell patients that they must not smoke because smoking irritates the lips and the tongue and may produce mucous patches. In the same way we have seen patients with tattooed arms, and around the tattoo marks we see crops of syphilitic papules, and so on, proving that wherever an irritation exists the syphilitic manifestation comes. The war proved this by showing syphilitic manifestations around the wounds. Is it not possible that sometimes tapping the spinal column without special indications may cause trouble? I have seen patients who, after spinal puncture, have suffered with headache and felt ill. In this way, if the spinal fluid gives a negative reaction I do not see why the patients should have to undergo the treatment in the spine and be subjected to this suffering. I do not believe that syphilis of the blood vessels has anything to do with the affected condition of the peripheral nerves. I think the invasion of the spirochetes and the syphilitic affection of the arteries in most of the cases is independent of the nerves. I have some sections of tibial artery in a case of endarteritis obliterans in which it is shown that the occlusion of the blood vessels was due to a gumma found in the media which broke the intima. The blood, passing through the shreds of the broken gumma, was easily coagulated, causing spontaneous gangrene.

DR. JOHN E. LANE, New Haven, Conn.: I should like to ask Dr. Parounagian whether he finds that there is any advantage in using saline solution instead of distilled water in the administration of silver arsphenamin. At first I used saline, but for some time I have used distilled water and could see no difference in the effects. I should also like to ask how the inconveniences and accidents following silver arsphenamin compare with those following arsphenamin and neo-arsphenamin. In my rather small series I have already had one case in which a universal scarlatiniform eruption followed the third dose. This eruption was promptly followed by intense jaundice lasting more than six weeks. In this patient there was no question that it was due to the drug, as acute infectious jaundice and syphilitic hepatitis were easily excluded.

DR. RICHARD L. SUTTON, Kansas City, Mo.: In 1914 I made a study of sarcoid, using material secured from a typical case of the Boeck type in a young woman under my care at that time. Dr. Irvine and various other men lent me sections secured from their cases, and Dr. Wende sent me a number of slides from his case of tuberculosis of the hypoderm. Since then I have seen two other cases of the Boeck type. In all cases, the serum reactions were negative for syphilis. All responded definitely and satisfactorily to arsenic. I suspect that arsphenamin would also have given good results. With reference to syphilis as a possible etiologic factor in this disease, I do not believe that these growths are of that nature, and I do not think that Dr. Stillians wishes to leave that impression. The histologic picture of Boeck's sarcoid stands out clearly and sharply, and the response to arsenical medication is almost magical. I have always thought that tumors of the Darier-Roussy type were tuberculous, and closely related to Wende's nodular tuberculosis of the hypoderm. I have never had an opportunity to study of growth of the Spiegler-Fendt type. I was much interested in the excellent results obtained by Drs. Fordyce and Rosen, Schamberg, Harrison and others with intramuscular injections of arsphenamin and neo-arsphenamin. I have for many years been an advocate of this route, and it is a pleasure to have such splendid representative men for company. Looking back over an experience of eleven years, and about 30,000 injections of arsphenamin, I am convinced that the results are far superior to those following intravenous injections of the drug. Of course, the use of arsphenamin is to be regarded merely as one factor in the treatment of the disease. It is a wonderful symptomatic remedy, but in my opinion it is seldom definitely curative. I doubt if any case of syphilis was ever cured by arsenic alone. I think the combination plan, mercury and arsphenamin, is the best, and I think the majority of patients are undertreated rather than overtreated.

DR. WILLIAM H. GUY, Pittsburgh: In the past several years many new remedies have been enthusiastically received, then unqualifiedly condemned, and finally accepted at their true value. In the dispensary of the University of Pittsburgh we have had approximately 300 tubes of silver arsphenamin for experimental use. Using the technic and dosage recommended by the manufacturers in about 150 injections given at weekly intervals in courses of six or eight, we concluded that results in the control of cutaneous manifestations were not to be compared with those obtained with ordinary arsphenamin in the dosage ordinarily used. Following this experience, we combined mercury with silver arsphenamin and our results improved. We felt that if, as we have been informed, silver arsphenamin is from two to three times as effective a spirocheticide as arsphenamin, dose for dose, there must be something in the drug. We therefore attempted to better our results by increasing the dosage, but we quickly learned that we were limited as to the size of the dose we were able to give because of severe reactions. Our limit of safety was approximately 0.1 gm. to 60 pounds of body weight. In the animal toxicity tests a 2 per cent. solution is given by syringe, and we note that the hygienic laboratory reports equivalent toxicity for arsphenamin and silver arsphenamin. Giving the drug in concentrated solution therefore suggested itself, and we have recently been using a 2 per cent. solution. With the syringe introduced in the vein in the usual way, we draw a few cubic centimeters of blood into the syringe so that it will be thoroughly mixed with the silver preparation and then reinject it slowly, after the method described by Walson. We have not attempted to increase dosage to 0.1 gm. to 30 pounds body weight as arsphenamin is ordinarily used, but we have given 0.4 gm. without reaction of moment. The number of cases we have had has not given us enough data from which to draw definite conclusions, but our impression is that silver arsphenamin is certainly no better than arsphenamin as an adjunct in the treatment of syphilis. It seems to me that with the administration of the large amount of silver contained in this drug sooner or later one may anticipate argyria, just as we have seen this very much to be avoided condition develop following the ingestion of other silver salts.

DR. PAUL E. BECHET, New York: Dr. Guy has "taken the wind out of my sails" by bringing up the question of argyria. I consider this a very important point, and it was my intention to bring out some discussion about it. I did not hear Dr. Parounagian mention this possibility in his paper, and I should like to have him, or any one else who has used silver arsphenamin, state whether or not he has ever noted such a complication.

DR. I. L. MCGLOSSON, San Antonio, Texas: A case that typifies very well the negative findings in the blood and spinal fluid was that of a soldier who, while waiting his turn in the arsphenamin room, was seized with epileptiform convulsions and died the next day. At the necropsy we found that he had a gumma in the brain measuring 2 inches in diameter. In spite of the size of the overgrowth and the serious attack made on brain tissue by the spirochete, the blood and spinal fluid both were negative.

DR. G. M. KATSAINOS, Boston: Concerning experimental syphilis on laboratory animals and especially in rabbits, can all those experiments be considered conclusive? It is well known that syphilis is strikingly a human disease, and I think that what we see in rabbits cannot be compared with what happens in man. Though we have an enormous amount of human syphilis transmitted experimentally to rabbits, the cases of transmittance of rabbit syphilis to man are too limited to permit us to draw any conclusions. Metchnikoff reports two cases of lues venerea transferred back to human beings from apes. In both of these the disease is supposed to have run an exceedingly mild course. Buschke reported the case of a laboratory assistant acquiring syphilis from a rabbit, and the virus was not reduced in virulence by passage through at least six or seven rabbits. There are two other records in the literature of syphilis transferred back to man from rabbits. In neither case is there reason to believe that the disease ran a milder course than the human to human infection. In one of these cases, there had been sixteen rabbit passages of the infectious material. Other cases are reported by Levaditi and Marie. Now the question arises, Can those spirochetes be considered specific, or better, "syphilidogenous" or syphilis producing? One might say that Levaditi was misguided in his experiments; but if such an authority as Levaditi was mistaken, what weight can be attached to the opinions of others less familiar with laboratory syphilis? I think, therefore, that every experiment on rabbits, to be valuable, must be tested on apes, because it is impossible to be tested on man, and that a spirochete to be syphilidogenous, must produce syphilis either in man or at least in apes with all its consequences. The rabbit must be considered little more than a living culture tube of syphilis. In other words, the rabbit is syphilidisimous but not syphilitic, contracting the disease but not developing it as a human being. Now we pass the laboratory era of syphilis, and the lavish drawing of cerebrospinal fluid, with so many contradicting conclusions from chemical and biologic analysis of that fluid, that I wonder whether we can keep on doing that without any tangible damage to the patient's future health. Does the puncture of the spinal canal predispose the patient to neurosyphilis or not? We must not forget that syphilis manifests itself in either a locus minoris resistentiae or in a locus of over-excitement or overwork. Many syphilographers, in trying to explain the reasons of the early manifestations of paresis and tabes dorsalis in these last years of laboratory syphilis, forget that one of the principal reasons is the lumbar puncture and the repeated injury and disturbance which is caused by it on the nervous system. We must, therefore, be conservative and not puncture the spinal canal except when it is strictly indicated for diagnostic reasons, and when the patient's nervous system, already irreparably damaged, can stand that with impunity. It is proved beyond the slightest doubt by all syphilographers, from Grünbeck to Fournier, that this disease localizes where there is damage and disturbance done, and the routine lumbar puncture, as it is practiced so extensively today by so many not qualified to do it, invites the syphilidogenous spirochete to the nervous system and adds to the patient's liability to develop early or later neurosyphilis.

DR. HERMAN GOODMAN, New York: I have had the opportunity of observing the therapeutic action of silver arsphenamin as brought from abroad and of silver arsphenamin in the work of Dr. Parounagian at Bellevue Hospital. I will limit my remarks concerning silver arsphenamin to what I have termed the biologic test. No patient who came under treatment in the primary stage of syphilis has advanced either serologically or clinically, that is, no such patient has shown any secondary manifestation of the disease or a positive Wassermann reaction at the close of treatment or since the close of treatment, if the primary Wassermann test taken before treatment was negative. The diagnosis in these cases had been made by dark field demonstration of *Spirochaeta pallida*. Not all the frank secondary syphilitics have shown serologic reversal as the result of a single course of silver arsphenamin. There has, however, been a group with negative Wassermann reactions after eight injections, and the test has since been persistently negative, although no other treatment has been administered. There has been another group in which the Wassermann reaction, positive immediately after treatment, has since become negative, although no other treatment has been given. The period of observation has been too short to say whether silver arsphenamin is better or not as good as other drugs of the arsphenamin series. Certainly, the lesions have cleared as quickly, if not more so, than with the others, even when they have been supplemented with mercury. The results obtained by Dr. Parounagian and by Dr. Rosen are gratifying. I have never seen a recurrence, as mentioned by Dr. Hazen in his discussion.

DR. ISADORE ROSEN, New York: There seems to be some diversity of opinion about the value of silver arsphenamin. At the Vanderbilt Clinic, in the service of Dr. Fordyce, we have given in the neighborhood of 1,800 doses of the drug. At first we were rather timid about using it. The very satisfactory reports of the European observers gave us more courage. The clinical results have been very satisfactory. Primary and mucous membrane lesions would disappear after from one to three injections. The same rapid involution took place in the other cutaneous syphilitic manifestations. The patients were carefully examined each day, and comparisons were made with other patients treated with the other arsenical preparations. Some old neurosyphilitics were treated with the drug, and the clinical improvement in some of them was remarkable. The patient would ask for the "black medicine." Some of them would always get table reactions with the other arsenical preparations, whereas no ill effect was noted with this drug. I think there is no question of its value when you want a rapid sterilization of your patient.

DR. J. V. KLAUDER, Philadelphia: The question of neurosyphilis is of vital importance. From the study made by Dr. Solomon and myself it was shown that the diagnosis of neurosyphilis cannot always be made by examination of the spinal fluid, and that the spinal fluid is not always a guide to treatment or an indication of the progress of the disease. The most important, and in the majority of cases the initial, objective symptom of neurosyphilis is the presence of one or the other type of pupillary abnormality. About 30 per cent. of patients with pupillary abnormality as an isolated evidence of neurosyphilis have negative spinal fluids, regardless of whether the blood Wassermann reaction is positive or negative. The status of a syphilitic with isolated pupillary abnormality cannot be stated definitely unless the spinal fluid is examined. In the cases in which the spinal fluid is negative, our conception of this phenomenon is that the pupillary abnormality remains as a neurologic scar of a former neurologic process. This not infrequently occurs in the absence of prior treatment. In the present state of our knowledge we do not know whether or not in the foregoing type of case the spinal fluid will become positive in the course of years. We are inclined to believe, however, that such an occurrence is the exception rather than the rule. The realization of the foregoing remarks is important in the examination of syphilitics and to those engaged in industrial medicine. In the examination of men for industrial positions, it is important not to place latent neurosyphilitics in hazardous positions because of the important rôle that trauma may play in the

causation of paresis. The rôle of trauma is frequently seen among paretic admissions to the Boston Psychopathic Hospital. Latent neurosyphilitics who after head injury acutely develop symptoms of paresis are in all probability the type of case which Southard and Solomon styled paresis sine paresi. These cases have no subjective symptoms, but present objective evidences of neurosyphilis with a paretic type of spinal fluid.

DR. JOHN A. FORDYCE, New York: The problem of congenital syphilis is one of the most important ones with which we have to deal. By a study of the end-results of the infection and the active lesions, as has been so well done by Dr. Fraser, we obtain a real insight into what the infection can do. Fortunately, pathologic anatomy, so long neglected for the chemistry of metabolism and the intermediate changes during life, is again attracting the attention of serious students of medical problems. The mouth administration of mercury with chalk, calomel or rubbings does little more than hold in temporary check an infection of such intensity. It is not surprising, therefore, that a pessimistic attitude is the normal one among pathologists, and a more than occasional one among practitioners as to the curability of congenital syphilis. The visceral lesions of congenital syphilis as regards the prognosis of the infection are of vastly more importance than the external manifestations. We are fortunate in having emphasis placed on them by the painstaking work of Dr. Fraser. A careful study of the focal lesions in congenital syphilis supplies strong evidence in support of Warthin's contention as to the significance of similar lesions in the viscera of the acquired type of the disease. The prophylaxis of congenital syphilis places on the practitioner grave responsibility when his advice is asked as to when a syphilitic should marry. Are the criteria which we now employ as evidence of cure sufficiently conclusive? In no other disease of wide prevalence have we specific remedies as in syphilis, and in no other can the treatment be so readily controlled by our laboratory procedures. We should, however, never lose sight of the fact that the body may harbor the spirochetes and the specific reaction fail to reveal their presence. In other words, while a positive Wassermann reaction with certain limitations shows the presence of syphilis, a negative one is not always conclusive as to its absence.

DR. ARTHUR W. STILLIANS, Chicago: I have tried to show that the histology of sarcoid is not diagnostic of tuberculosis. Deep, indolent lesions occur in syphilis which, according to Darier's own criteria, are to be classed as subcutaneous sarcoid. Unless the definition of subcutaneous sarcoid is made narrower, syphilis must be accepted as one of the etiologic factors. I wish to emphasize Dr. Irvine's remarks on the importance of social service in the treatment of syphilis. We in Chicago consider social service one of the most important factors in the treatment of this disease.

DR. J. FRANK FRASER, New York: The evidence presented by those who have had experience with silver arsphenamin is contradictory. Dr. Bechet referred to the occurrence of argyria, which is a serious condition. It is quite possible that some individuals may be more susceptible to the action of silver preparations than others. I recall one case in which silver poisoning followed the daily application of a silver pencil to an unhealed appendectomy wound. I would suggest further study of the action of this new preparation and a series of experiments on animals with the view of determining its toxic properties. Before recommending its general use in the treatment of syphilis, one should feel certain that it possesses a distinct advantage over the old preparations.

DR. MIHRAN B. PAROUNAGIAN, New York: I have stated the facts as we observed them after 4,290 injections. The clinical results have been most satisfactory, far more so than after the use of any other of the arsphenamin group, either the imported or the domestic variety. I make this statement after observation personally of the patients day after day, watching the processes of evolution or involution. I have never seen an instance of argyria in the group of cases observed. The only report known to me of reported argyria is one by Lochte, a chiropractor from Germany. There is much doubt regarding the authenticity of this reported instance. The by-effects of silver arsphenamin as compared

with arsphenamin have been much more mild. In an early series of 373 injections we administered the drug in slightly more diluted form and with little more care. We had no "table reactions" whatsoever in this series which could be laid to the silver arsphenamin. Since using the drug more concentrated we have had the reactions as tabulated in the body of the paper. In considering the Wassermann reaction changed, it should not be forgotten that we are using dosage which is from 40 to 60 per cent. less than when arsphenamin or neo-arsphenamin is used; for example, the maximum dose of silver arsphenamin as used by us has been 0.3 gm., while the maximum dosage for arsphenamin would have been at least 0.5 gm. if not 0.6 gm., and for neo-arsphenamin 0.9 or 1.0 gm. The smaller doses have been proportionate, as our initial dose is 0.1 gm. As you use this preparation further you will find it a worthy one, and it may not be out of place to note that the unfavorable discussion has come only from those whose experience with this drug has been limited.

DR. JOHN A. FORDYCE, New York: In addition to the cases reported from our clinic I have used silver arsphenamin in my service at the City Hospital and in a number of private cases. Clinically it is just as efficient as the other preparations and is certainly freer from immediate reactions; for this reason many patients prefer it, as Dr. Rosen has said. As some patients who have become intolerant to arsphenamin or neo-arsphenamin are able to take this new preparation, we have, it would seem, in silver arsphenamin a very definite addition to our therapeutics.

THE MANAGEMENT OF A DIPHTHERIA OUTBREAK IN A PRIVATE SCHOOL*

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In spite of the tremendous advances that have been made during the last thirty years in the diagnosis and treatment of diphtheria, with many of which the laity has become thoroughly familiar, no disease breeds greater chaos in a shorter period of time, when it occurs in an institution which has, at least temporarily, the physical as well as the educational responsibility of a large group of children.

The theoretical management of a situation of this type is fairly simple, but the practical application of these theories offers difficulties, medical as well as human, which are often a source of tremendous concern and frequently tax ingenuity and tact, before a satisfactory solution of the problem is achieved.

Diphtheria, from a hygienic standpoint, has since 1913 been placed on an entirely new basis, and it will be well to consider the bearing of this fact on its control. Up to the time that Schick put at our disposal a method whereby it was possible to determine the individual susceptibility to the disease, the problem of immunity to diphtheria had not been solved. In a general way it had been recognized that under 1 year of age the condition was rare, between 2 and 5 years most common, and among adolescents and adults again less prevalent. Its occasional occurrence, however, at any age, made all individuals on exposure potential susceptibles, and from a public health standpoint this conception was the only tenable one. With the knowledge that evolved from Schick's discovery, there has developed an entirely new point of view as to immunity against and prophylaxis of the disease.

* Read before the American Pediatric Society, May 30, 1921.

* From the Department of Pediatrics, University of California Medical School.

The management of diphtheria outbreaks in institutions where large numbers of children were collected had depended, until Schick described his test, on the feasibility of sending these children to their respective homes. In orphan asylums and in hospitals, all children exposed were passively immunized with 1,000 units of antitoxin, cultures were taken of noses and throats, and those children suffering from the disease or found to be carriers were properly isolated. When the exposure was immediately terminated, this procedure was usually efficient in eradicating the disease. When it was not possible, however, to discover and remove all carriers, it was soon noticed that, whereas fresh cases of diphtheria did not appear for a considerable period of time after the prophylactic injection of 1,000 units of antitoxin, in from two to four weeks new children came down with the disease. It was then discovered that an injection of antitoxin was able to protect against the condition for only a short period of time, and it was found necessary to repeat the prophylactic dose in two or three weeks, if there was still a possibility of exposure.

In schools, on the other hand, where the responsibility for the children rested with their parents, the technic was very variable. In some places all the students were sent home and left to the very uncertain management of the family physician. In others, more properly supervised, cultures were taken in the school, carriers sent home with instruction as to isolation, and prophylactic doses of antitoxin were given either in the school or by a medical adviser at home. In either event the school was invariably closed for a considerable period of time, and often numerous fantastic procedures were employed to disinfect rooms or correct errors in plumbing, hoping thereby to prevent a recurrence of the disease by methods absolutely futile.

It is perhaps worth while to mention that one result was always accomplished by this very unsatisfactory plan, namely, a complete disorganization of the school and often a reappearance of the disease after the children returned to their work, because some carrier had not been discovered in the routine examinations made under the supervision of many and occasionally incompetent observers. Furthermore, with, for example, 100 children in the institution going to their respective homes, there was always the possibility of a corresponding number of new foci starting in uninfected communities. With human nature constituted as it is, parents have always had a false sense of security in the assumption that in the home the previously exposed child enjoyed a far greater degree of safety; and, whereas properly qualified medical men and sanitarians have realized the futility of this argument, steps have rarely been taken to combat it.

With a fuller realization of the responsibility entailed in the administration of foreign serums, the arguments for and against which are not within the scope of this paper, it must be admitted that the contention is sound that any therapeutic measure, however benign, which can be definitely proved to be unnecessary, is always contraindicated. Briefly summarized, this method of handling a diphtheria outbreak can be harshly criticized for the following reasons:

1. It places the responsibility for the control of the situation on too many, often incapable heads.
2. It is conducive to the spread of the disease by the formation of new and distant foci.

3. It entails the administration of foreign serums to all the children, whether it is necessary or not.

4. It disorganizes the school.

5. In view of our present conception of the immunity and prophylaxis of diphtheria, it cannot possibly be either efficient or successful.

Realizing its shortcomings, the method described above was pretty generally recommended up to 1913. Since Schick described his technic of testing intracutaneously to determine the presence of immunity or susceptibility to diphtheria, and Behring applied the toxin-antitoxin injection method of conferring an active immunity on all susceptibles, the disease from an epidemiologic standpoint has undergone, under ideal conditions, many changes. In this country the work of Park and Zingher is ample proof that the claims of Schick and Behring have stood the test of time and will be recognized in the future as a great boon to humanity, one more convincing evidence of the tremendous bearing of laboratory on clinical medicine.

It may be well to digress for a moment and briefly call attention to the main steps in the conquest of diphtheria. The epidemiologic and clinical phases are too intimately connected to permit of separate discussion. Less than fifty years ago, nothing was known of the disease except its clinical characteristics and tremendous mortality rate. In 1883, Klebs discovered the etiologic agent. In 1884, Loeffler isolated the organism and cultivated it on artificial mediums. In 1893, Behring gave to the world the epoch-making antitoxin, and reduced the mortality from 75 per cent. to 10 per cent. Since then, however, the morbidity and mortality from the disease had not changed, and no advances were made until Schick described the method whereby immunity was determinable, and Behring the method by which active immunity might be conferred. Each one of these scientific laboratory achievements today plays a rôle in the control of diphtheria and, combined, they place at the disposal of medicine means through which the ravages of diphtheria may be spared to posterity.

The bearing of these facts on the epidemiologic study of this disease can best be emphasized by detailing the methods by which an outbreak of diphtheria in a large private boarding school was eradicated.

MANAGEMENT OF THE OUTBREAK

March 9, 1921, three boys about 10 years of age, in a private school containing about 150 students ranging from 8 to 18 years, reported themselves ill. On investigation it was learned that one boy, a member of a religious sect that recognized no disease, had been ailing about four days (March 5, 1921) without attention having been paid to his condition, and that he had been mingling freely with the other members of the school. Examination of the three boys revealed that they were suffering from clinical diphtheria, and they were immediately isolated and appropriately treated with antitoxin. The diagnosis was confirmed bacteriologically. Coincidentally with the development of these cases of diphtheria, five other boys became acutely ill with what was apparently influenza, the diagnosis of which, notwithstanding that no membrane was present and nose and throat cultures were negative, was difficult and worrisome. The question immediately arose as to what steps should be employed to control and eradicate this incipient epidemic of diphtheria.

The following procedures were carried out: Nose and throat cultures were made on all inhabitants of

the school on the same day that the cases were discovered. Immediate cooperation was available with a very efficient laboratory manufacturing biologic products, so that a fresh supply of toxin for the Schick test was obtained in proper dilution (0.2 c.c. contained 1/50 minimal lethal dose) and an equal quantity of toxin heated to 75 C. for ten minutes to be used as a control. March 10, twenty-four hours after the outbreak was recognized, Schick tests and controls were made on every member of the school, including any possible contacts. The first reading was made at the end of forty-eight hours, March 12, and the percentage of positive reactions was 65. This was verified by a second reading made at the end of ninety-six hours.

Of the cultures made, March 9, out of 150, ten were found to be positive and these boys were immediately isolated in a building separate from the rest of the school. The question arose when the first Schick reading was made as to what should be done with those boys having a positive reaction. The decision reached was that all carriers with positive Schick reactions should receive 1,000 units of antitoxin subcutaneously; but since the original exposure to the disease had occurred six days previously, and as no new cases had developed for three days, that an immunizing dose of antitoxin would not be given to those having a positive Schick reaction, who were not apparently carriers, unless another case of diphtheria manifested itself. This decision seemed justifiable when the relatively short incubation period of the disease was considered. The one questionable link in the chain of argument, however, rested in the fact that it was not possible to detect all the carriers on the first culture. On the day that the second Schick reading was made at the ninety-sixth hour, five days after the last case of diphtheria and eight days after the exposure of the first boy ill of the disease, another case developed. At that time all the children with positive Schick reactions received 1,000 units of antitoxin, and no other case occurred among the students. One of the nurses, however, who was caring for the sick boys contracted the disease, notwithstanding that she was credited with having a negative Schick reading. This apparent inconsistency was explained when it was learned that, instead of having had her test on the day that the concentrated toxin was originally diluted, forty-eight hours had elapsed and the toxin consequently had deteriorated. That a single culture of the noses and throats of contacts was not sufficient was proved by the fact that a second culture made six days after the primary one showed fourteen additional carriers.

With proper isolation of the sick boys and the carriers, the problem presented itself as to how the healthy boys in the school should be controlled. When the disease first manifested itself, the parents or guardians of all the students were immediately notified. The expected amount of consternation occurred; but when it was explained that the management of the situation was to be placed in the hands of a representative of the department of pediatrics of the University of California, the confusion rapidly abated. The parents of about half a dozen boys insisted on removing their children from the school immediately. The Schick tests had been done on these students, and their respective medical advisers were informed of the situation and cooperated in each case, so that the boys received the same treatment that was accorded the pupils that remained in the school. No boy staying in the school

after the initial consent of the parents was obtained was allowed to leave for any purpose. Only parents were allowed to visit the boys, and always under proper supervision. Class room exercises and athletics proceeded as usual. Cultures were made on the non-carriers at five day intervals, but after the second examination no fresh carriers were discovered.

COMMENT

It is comparatively simple to write a description of a situation of this type, and even less difficult for a trained mind to grasp immediately its details; but there is a certain human element bound up in a problem of this kind which, to say the least, taxes the ingenuity and patience of those who have it in charge. The criticism, the blame, the doubt, the apprehension of parents under such circumstances, make the task truly burdensome, particularly for the master of the school.

Some very interesting facts can be learned from a careful study of the records of this outbreak. That the percentage of positive Schick reactions in boys from 8 to 18 years of age should have been as high as 65 is very remarkable when one considers the records that have been published by numerous observers. It suggests the possibility, in view of the fact that these boys come from a stratum of society where diphtheria is not prevalent, that repeated exposures to the disease play a rôle in the development of a natural active immunity.

The bacteriologic side of this outbreak presented probably the most difficulties, particularly when the second large group of carriers was discovered. It is very difficult to explain to parents why the noses and throats of their children should be negative at the first examination and positive at the second examination, particularly when subconsciously they are associating the whole situation with neglect on the part of some one.

Too much stress cannot be laid on the most assiduous attention being given to the supervision of this phase of the problem. When throat cultures are made, the specimens should be obtained from the crypts of the tonsils, if the tonsils are present; and, when removed, the cultures should be taken from the tonsillar fossae and as high up on the posterior pharyngeal wall as possible. In taking nose cultures, the swabs should be introduced far back into the posterior portion of the nares. It may sound superfluous to call attention to the importance of having the cooperation of a laboratory in which the clinician has unbounded confidence; but when the importance of correct interpretation is considered, no one thing can make the management of a diphtheria outbreak simpler than the unquestionable experience and capacity of the bacteriologist. On account of the inconveniences entailed in the isolation of the twenty-four carriers, very early recourse was had to the use of toxicity tests in guinea-pigs to determine the virulence of the bacteria, and it was surprising that of the carriers a large percentage showed nonvirulent diphtheroids. The final raising of the quarantine was unquestionably expedited by this method.

When conditions in the school were normal, advantage was taken of the knowledge gained from the Schick tests, and communications were addressed to the parents of all the boys explaining to them the import of these results. They were informed briefly that, if their children had negative Schick reactions, they would probably always remain immune to the disease; and when the reactions were positive, they

were advised of the toxin-antitoxin method of conferring active immunity, and urged to have this treatment carried out by their medical advisers.

SUMMARY OF METHOD

The following facts may be given as a means of controlling a diphtheria outbreak in a boarding school:

1. Immediate isolation and treatment of the sick children.
2. Immediate, carefully supervised nose and throat cultures on all members of the school.
3. Schick tests with proper controls on all members of the school within twenty-four hours.
4. Administration of 1,000 units of antitoxin subcutaneously to all children having positive Schick reactions at the end of forty-eight hours.
5. Reculture of noses and throats of all contacts two days after the primary culture.
6. Isolation of all ill children from the healthy children and from the true diphtheritics until a positive diagnosis is established.
7. Immediate isolation of all the carriers and, when it is possible, employment of toxicity tests to avoid the exposure of those children having avirulent diphtheroids to those with true virulent organisms.
8. When the outbreak is controlled, the conferring of active immunity on all children with positive Schick reactions by the proper injections of toxin-antitoxin mixtures.

350 Post Street.

REVIEW OF THE HILLSDALE, MICH.,
TYPHOID FEVER EPIDEMIC
OF 1920

RICHARD M. OLIN, M.D.
State Health Commissioner
LANSING, MICH.

As usual, ignorance and carelessness laid the stage for the typhoid fever outbreak in Hillsdale, Mich., during the fall of 1920, which developed into an epidemic, with eighty-three cases and eight deaths before it was controlled.

Reports of several cases of typhoid received by the Bureau of Communicable Disease of the Michigan Department of Health late in October, 1920, indicated that a severe epidemic of typhoid might be expected in the city. Consequently, October 27, the chief medical inspector of the department and an assistant state sanitary engineer¹ were sent to Hillsdale to discover the source of infection and to assist in controlling the spread of the disease.

WATER SUPPLY

Hillsdale, with a population of 5,476, is located in the southern part of the state, in a narrow out-wash plain bordered by large terminal moraines. It obtains its water supply from Baw Beese Lake. The pumping station is on the part of the lake nearest the city and is about 1¼ miles from the central part of the city.

Baw Beese Lake receives comparatively little contamination, and prior to 1917, the city water supply received no treatment. During the early part of 1917, an epidemic of typhoid was experienced in the city, investigation indicating that the infection came from the city water supply which had probably been con-

taminated by a crew of men cutting ice on the lake near the intake. In September, 1917, a liquid chlorin apparatus was installed, and since then the water has been treated with chlorin almost continuously. An experienced analyst at Hillsdale College makes examinations of the treated and untreated water twice a week, reporting at monthly intervals the results of these examinations, together with the amount of water pumped and the amount of chlorin used each day, to the Michigan Department of Health.

These records showed that chlorination had been continuous throughout the year, up to the time of the outbreak in 1920. The amount used varied between 0.25 parts per million and 0.8 parts per million. Bacteriologic examinations have occasionally shown gas formation in 10 c. c. specimens when planted in lactose broth at the end of forty-eight hours, but seldom in twenty-four hours. Further examinations indicated a relatively safe water supply.

The analyst at Hillsdale College was following the methods of water examination required by the United States Public Health Service. To obviate the possibility

TABLE 1.—RESULTS OF PARALLEL PLANTINGS

Date	Source of Water	Colo- nies on Agar 37 C.	Laetose Broth Tubes 10 C.c.		Endo's Plates	Refer- menta- tion
			24 Hrs.	48 Hrs.		
Nov. 4	Chlorinated city water from tap at college.....	125				
	Analyst's broth.....	...	0	0		
	State Dept. of Health broth ...	...	0	0		
Nov. 4	Chlorinated city water from tap at pumping station...	1				
	Analyst's broth.....	...	0	0		
	State Dept. of Health broth ...	...	0	0		
Nov. 4	Unchlorinated city water from pump well at water works.....	15				
	Analyst's broth.....	...	0	0		
	State Dept. of Health broth ...	...	0	2/3*	—	—
Nov. 6	Chlorinated city water from tap at college:					
	Analyst's broth.....	...	0	0		
	State Dept. of Health broth ...	...	0	0		
Nov. 6	Sample of water purposely contaminated:					
	Analyst's broth.....	...	+	+	+	
	State Dept. of Health broth ...	...	+	+	+

* Very little gas in state department of health broth; cloudiness and some indication of gas in analyst's broth.

that the mediums being used in this laboratory might be faulty, a supply of mediums made in the Bureau of Laboratories of the Michigan Department of Health was taken to the college laboratory and planted in parallel with the analyst's mediums. The results shown in Table 1 were procured from these plantings. These indicate that the mediums used in the college laboratory were similar to the mediums made by the state laboratories and also show that a safe water was being delivered to the city at the time these plantings were made.

EPIDEMIOLOGY

Survey of the nineteen cases of typhoid reported by Oct. 29, 1920, pointed to the infection's coming from a single milk supply. This milk supply was collected in large cans from seven different producers by a distributor, Charles Stitt, and was bottled in a small building adjacent to his residence.

Clarence Stitt, son of the distributor, had become sick, September 15, and was confined to his bed after September 19, with what was clinically diagnosed as typhoid fever. He was nursed by the mother, Mrs. Charles Stitt, a general helper being hired to care for

1. Medical inspection: S. R. Hill, M.D.; sanitary survey: W. C. Hirn and A. T. Kunze; bacteriology: M. Crooks.

the house and the cooking. The local health officer gave instructions for the care of the patient, but did not prohibit the distribution of milk from the premises.

Charles Stitt, the distributor, complained of not feeling well during the interval from September 25 to October 5. He continued, however, working with the bottling of the milk and handling the supplies.

Sale and distribution of milk from the Stitt premises was prohibited by the Michigan department of health, October 29, one day after the investigation had started.

A meeting of the Hillsdale city council was called, November 5, and was attended by the state commissioner of health, the state sanitary engineer, the epidemiologist, and the director of the bureau of laboratories. An ordinance requiring that all milk sold in Hillsdale be pasteurized, and means be provided for free immunization against typhoid was passed at this meeting on advice of officials of the Michigan department of health.

Previous to the outbreak of the disease in Hillsdale, there had been two cases of typhoid in Hillsdale County, which in no possible manner could be connected as the source of the infection in the case of Clarence Stitt. A few weeks before he became sick, Clarence Stitt had returned from a trip to Indiana, and it is most probable that he contracted the disease while in that state. A sister who had been in Indiana with him returned to Washington, D. C., and became sick with typhoid in that city simultaneously with Clarence Stitt.

BACTERIOLOGY OF HILLSDALE EPIDEMIC

Since epidemiology of the Hillsdale typhoid epidemic pointed to some member of the Stitt family as infecting the milk supply, six persons associated with the milk distribution plant were considered as potential sources of infection. Four of the family gave positive Widal reaction, and two negative. This in itself was of no significance, since all had had typhoid vaccine.

TABLE 2.—DILUTIONS OF DIAGNOSTIC SERUMS AND RESULTS OF TESTS

Culture	Direct Agglutination with																								Agglutination with Charles Stitt Serum Absorbed							
	Antityphoid Serum Diluted									Serum Paratyphoid B				Serum Paratyphoid A			Serum, Clarence Stitt					Serum, Charles Stitt					Sodium Chlorid Solution					
	80	160	320	640	1,280	2,560	5,120	10,240	20,480	80	160	320	640	80	160	320	80	160	320	640	1,280	2,560	80	160	320	640	1,280	2,560	100	200	300	
340	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	—	—	—	—	+	+	+	+	—	—	—	—	
338	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	—	—	—	—	+	+	+	+	—	—	—	—	
355	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	—	—	—	—	+	+	+	+	—	—	—	—	
347	+	+	+	+	+	+	—	—	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
332	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
331	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
296	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
318	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
307	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
324	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
326	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
415	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
343	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
339	+	+	+	+	+	+	+	+	—	+	—	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
337	+	+	+	+	+	+	+	+	—	+	—	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
346	+	+	+	+	+	+	+	+	—	+	—	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
348	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
373	+	+	+	+	+	+	+	+	—	+	—	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
372	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
371	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
370	+	+	+	+	+	+	+	+	—	+	+	—	—	—	—	—	+	+	+	+	—	—	—	+	+	+	+	—	—	—	—	
Para "B"	+	+	+	±	—	—	—	—	—	+	+	+	+	—	—	—	+	—	—	—	—	—	—	±	—	—	—	—	—	—	—	
Para "A"	+	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
B. typho-	+	+	+	+	+	+	±	—	—	+	+	±	—	+	—	—	+	+	+	+	±	—	—	+	+	+	+	+	—	—	—	—
sus'....	+	+	+	+	+	+	±	—	—	+	+	±	—	+	—	—	+	+	+	+	±	—	—	+	+	+	+	+	±	—	—	—

* Rawling's.

By November 9, fifty-one cases of sickness clinically diagnosed as typhoid had been reported to the local health officer. State medical inspectors visited the home of each of the sick and made careful inquiry concerning the different sources of food and drink. Aside from one patient, all of the patients had used milk from this one distributor. It was also found that all frequently, or regularly, drank raw milk.

Of a total of about 400 families furnished milk by the distributor, aside from restaurants and soft drink stands, forty-five families were invaded by the disease. Information proved conclusively that the epidemic originated from the milk supply, which had been contaminated at the bottling station. Whether the contamination came from the sickroom of the son, Clarence Stitt, or was transmitted by the distributor, Charles Stitt, could not be determined.

After free antityphoid vaccination was started by the city, a total of 1,500 persons was immunized. No cases developed among the vaccinated persons, and no one who had been immunized previous to the epidemic contracted typhoid. Infection by contact was prevented except in one family.

As Clarence Stitt, the son, was convalescing from a diagnosed case of typhoid, there was every reason to believe he might be an active carrier. Repeated examinations of the feces failed to recover the organism.

Mrs. Charles Stitt had taken care of Clarence Stitt during the early period of convalescence and, as she gave a positive Widal reaction, three specimens of feces were examined, as she might reasonably have become a contact carrier. Although George Stitt, another son, had had nothing to do with the case, his positive Widal reactions warranted three examinations of the feces, all of which were negative.

Ralph Stitt and Bernard Stitt both gave negative Widal reactions; but, as shown by Krumwiede,² contact carriers handling food, who show negative Widal reactions, should be given just as much consideration as those showing positive Widal reactions. Both of these cases returned negative results on repeated examinations of the stools.

2. Bolduan, C. F., and Krumwiede, Charles, Jr.: Milk-Borne Outbreak of Typhoid Fever Associated with a Chronic and Normal or Contact Carrier of B. Typhosus, Pub. Health Rep. 32:1755 (Oct. 19) 1917.

Bacillus typhosus was isolated from two specimens of feces submitted from Charles Stitt, the distributor, who had had an undiagnosed illness between September 25 and October 5—or about two weeks previous to the onset of the first case of typhoid in the city of Hillsdale. The medical inspector submitted forty-six specimens of feces for diagnoses from patients in Hillsdale, *Bacillus typhosus* being recovered from twenty-five of the forty-six specimens. Two blood cultures were submitted, one of which was positive. The isolation of *Bacillus typhosus* from feces was accomplished by a slight modification of the usual technic of the bureau of laboratories.

TECHNIC OF ISOLATION

Samples of stools to be examined were rubbed up in 1 per cent. peptone solution (approximately a 1:15 dilution of formed stool). The suspension was allowed to settle from fifteen to twenty minutes. One loopful of suspension was transferred to 0.4 c. c. of brilliant green plate.³ The mediums contained 0.4 c. c. of a 1 per cent. solution of brilliant green per hundred cubic centimeters of agar. This standard dilution of dye⁴ was determined by streaking various concentrations of brilliant green agar plates with feces from three cases of typhoid and three freshly isolated cultures mixed with normal feces. Four-tenths c. c. of the dye solution gave the greatest inhibition of fecal flora other than typhoid and an optimum growth of *Bacillus typhosus*. The diluted feces were spread on the green dye plates with bent nichrome wire; then without flaming the spreader Endo's plates were inoculated.

After incubating these plates for from eighteen to twenty-four hours, they were studied for typhoid-like colonies. When suspicious colonies were observed, a tentative macroscopic slide agglutination was made.⁵ At the same time, Russell's triple sugar medium (Andrade indicator) was inoculated. These were incubated over night and the growth studied for sugar reactions, morphology, motility, staining properties and specific agglutinins.

AGGLUTINATION TEST

A suspension of 0.5 c.c. of culture in physiologic sodium chlorid solution and 0.5 c.c. of the various dilutions of serum were incubated for two hours at 56 C., placed in the icebox for ten minutes and agglutinations recorded. Table 2 gives the dilutions of diagnostic serums and the results of the tests. The twenty cultures tabulated were morphologically and culturally typhoid bacilli, and gave typical sugar reactions on Russell's mediums. The absorption test was applied to the cultures isolated to obviate any possibility of cross agglutination of dissimilar strains and to eliminate any "out" strain of *B. typhosus*.

AGGLUTININ ABSORPTION TEST

Culture from twenty-four hour growth on agar slant was suspended in physiologic sodium chlorid solution and centrifuged. The supernatant salt solution was pipetted off, and the carrier's serum, diluted 1:20, was added to the packed organisms. The organisms were thoroughly mixed with the serum, and the emulsion incubated in water bath at 56 C. for two hours, shaking for more than ten minutes. At the end of the incuba-

tion period, the emulsion was placed in the icebox overnight to complete the absorption of the specific agglutinins. Agglutinations were set up with the clear serum in the same manner as in the direct agglutinations. For comparison, there was employed in this study the stock cultures of paratyphosus A and B, and Rawling's strain of *B. typhosus*. The results of the tests appear in the table with the direct agglutinations.

As there was no agglutination of the organisms isolated from various clinical cases of typhoid with the absorbed serum of Charles Stitt, there is considerable evidence that it was the same strain of organism recovered from the clinical cases as that recovered from the feces of Charles Stitt.

Table 3 shows the sugar reactions of the Hillsdale strain, compared with a culture isolated from a patient in Jackson, Mich., and the stock Rawling's strain, shows that the Hillsdale strain is a rapid xylose fermenter.

TABLE 3.—SUGAR REACTIONS OF HILLSDALE STRAIN, COMPARED WITH CULTURE FROM JACKSON, MICH., PATIENT AND STOCK RAWLING'S STRAIN

Culture	Fermentative Reactions		
	Maltose	Mannite	Xylose
Charles Stitt.....	+	+	+
F 357	+	+	+
F 348	+	+	+
F 340	+	+	+
F 324	+	+	+
F 366	+	+	+
F 331	+	+	+
F 367	+	+	+
F 307	+	+	+
F 326	+	+	+
F 290	+	+	+
F 370	+	+	+
F 323	+	+	+
F 371	+	+	+
F 332	+	+	+
F 372	+	+	+
F 338	+	+	+
F 318	+	+	+
F 373	+	+	+
F 339	+	+	+
F 347	+	+	+
BC 137 (Rawling's).....	+	+	+
BC 140 (Jackson).....	+	+	+
B. typhosus (Rawling's).....	+	+	-

CONCLUSIONS

The Hillsdale epidemic was a milk-borne typhoid fever epidemic, the local health officer failing to stop the sale of the milk after onset of sickness in the family of the milk distributor.

The epidemic was caused by the contact carrier, Charles Stitt, infecting the milk supply.

The organism proved to be a rapid xylose splitter.

Stock vaccine made from Rawling's strain protected. This confirms work reported by Oscar Teague and K. Morishima,⁶ indicating that although there is some difference in the fermenting power of the strains of organisms there is no variation in the antibodies produced, and the typhoid vaccine protects against this strain as well as the Rawling's strain. The supposed new strain of typhoid which the soldiers acquired in Germany was not in reality a new strain; but the disease in vaccinated soldiers was due to a mass infection breaking down the defenses that had been built up artificially by means of typhoid bacterial vaccine.

6. Teague, O., and Morishima, K.: J. Infect. Dis. 26: 52 (Jan.) 1920.

3. Krumwiede, Charles, Jr., et al: The Use of Brilliant Green for the Isolation of Typhoid Bacilli from Feces, J. Infect. Dis. 18: 1 (Jan.) 1916.

4. Krumwiede, Charles, Jr.: J. Infect. Dis. 23: 275-289 (Sept.) 1918.

5. Krumwiede, Charles, Jr.: J. Immunology 5: 155 (March) 1920.

Special Duty of Hospital.—The paramount special duty of a hospital in order to serve its particular purpose in the large medical development must be to afford its patients the best possible care at the least possible cost in time and money not only to the institution but to the individuals concerned, patients and servants alike.—J. L. Yates, Hospital Progr., November, 1921, p. 417.

TOXIC PROTEIN END-PRODUCTS, THE CAUSE OF SO-CALLED INANI- TION FEVER

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AND

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The cause of inanition fever has been a fertile subject for discussion. Among the most prominent ones presented have been water loss, products of broken-down systemic tissue, septicemia, a sensitive thermocenter, starvation and intestinal toxins.

We claim that the cause is the toxic protein end-products, developed in the intestinal canal. The development of these toxins is due to the lack of ingestion of the carbohydrates dextrine and lactose, which produce an aciduric state, a soil unfavorable for the development of proteolysis, in other words, a soil unfavorable to the development of toxic protein end-products. Time and experience will prove whether our assumptions are correct.

Let us briefly discuss these causes.

As regards water loss, this fever occurs in some cases in which all such water loss has been abundantly replaced. Not infrequently patients who have suffered a marked water loss have shown subnormal temperatures.

As regards the toxicity of the products of broken-down systemic tissue, we cannot find that it has ever been proved. On the other hand, were the fever due to such destructive tissue change, its course should not be so short, its relief should not so quickly respond to appropriate treatment, and its prevention should not be so simple.

As regards septicemia, we know of no blood cultures that have yielded any proof except in real septicemia. A septicemia of the intensity occasionally seen does not yield so readily to simple dietetic measures.

As regards the sensitiveness of the thermocenter, it is only a contributing cause.

Starvation and intestinal toxins will be discussed under one heading, since they are so interdependent in inanition fever.

The lack of food plays an important rôle in the development of inanition fever. The soil being fertile, the putrefactive bacteria, and consequently their toxins, develop rapidly. As soon as the toxins are absorbed, the constitutional symptoms arise. We claim that it is not the starvation, per se, which is the cause of the fever, but that it is the intestinal toxins, which develop because there is no food. It is generally agreed that the character of the food elements is of the greatest importance to influence the intestinal flora; that the intestinal state depends on whether they are fermentative or putrefactive; and that if they are putrefactive, the intestinal toxins, consequently produced, are the cause of the constitutional symptoms. We can thus see why a modified milk mixture, high in proteins and low in dextrin or lactose, has seemed at times to have augmented the symptoms of inanition fever.

The true meconium stool is dark, nearly black, thickly viscid and odorless. There is only one such stool; possibly there may be two. Laboratory tests show them to be practically sterile and to be a poor culture medium. Owing to intestinal secretions, which are soon poured out, there is a resulting change in

character, and the stools become brownish, less viscid and may have an odor. Laboratory tests of these stools have shown them to be fertile soil for putrefactive bacteria. There consequently should be a differentiation between the true meconium stool and the so-called starvation stool.

For the past year or two we have been taking cultures of the stools of the new-born babies at the Children's Hospital and elsewhere, and we have been greatly surprised at the intensity of the proteolytic reactions. Not infrequently the reaction has been in definite ratio to the height of the fever.

It is well understood that the gastro-intestinal canal of the new-born is sterile at birth, and that bacteria gain entrance very rapidly, especially by the route of the mouth.

Inanition fever develops about the third to the fifth day, sometimes sooner, and runs a short course of a few days. This period after birth provides an abundance of time for the proteolytic bacteria to thrive and multiply; and, if they are active and have sufficient fertile soil, they may produce toxic products, which, when absorbed, could cause constitutional symptoms.

We noted that fewer of the babies suffered from inanition, or starvation fever, whose mothers' breasts functioned early and well. While this might seem to substantiate the idea of starvation fever, it does not prove it, as we have explained.

To learn whether or not a change of intestinal flora, so easily brought about at this age, would prevent the occurrence of fever, we prescribed for all the babies, commencing a few hours after birth, a dextrinized sugar or lactose solution. The result was that we failed by culture tests, made in a large number of cases, to obtain any marked response to the proteolytic flora on the third and fourth day, the days on which inanition fever should make its appearance. Further, since we started this procedure, there has not been a single case of definite rise of temperature which could not be traced to something else. Again, in those cases not so early treated, if we have given the carbohydrates mentioned, we have secured an amelioration of the symptoms as soon as the carbohydrates reached the intestines in sufficient amount.

The general practitioner still gives castor oil to clear the gastro-intestinal canal of some toxic or offending substance, and not infrequently secures good results.

Breast milk prevents proteolysis because of its high lactose and low, easily digested protein; and the dominating flora of the breast-fed is *Bacillus bifidus*. Modified cow's milk is much less efficient in producing an aciduric flora. To do so it must contain a percentage of casein too low to provide a fertile soil for proteolysis, and a percentage of lactose or dextrin sufficiently high to insure an aciduric flora. The flora, under an appropriate modification of cow's milk, would be *Bacillus acidophilus*.

Both of these flora are marked antagonists to the development of proteolysis, and hence to the production of protein toxic end-products.

There are only two references in literature that we can find which in the least approach our ideas of the basis cause of inanition fever, and they merely give a suggestion along the line we consider correct.

Among the causes given by von Reuss are "the replacement of the meconium flora by the milk flora in the intestine," and, further, "the irritant effect of bacterial products of decomposition or toxins." He fails to mention the kind of milk needed to change the

intestinal flora quickly, and merely suggests the presence of toxins, failing to mention their origin.

In discussing "intestinal toxemia of the new-born," Morse and Talbot approach closer to our views, particularly when they come to the paragraph on the treatment of the condition mentioned above. They differentiate a severe form of intestinal toxemia from inanition fever, while we consider that all these cases are the same except in degree. In their paragraph on the treatment of intestinal toxemias they present ideas which correspond more definitely and more closely with our conclusions than any one else. They state that "it is important to give a high percentage of milk sugar in order to change the bacterial activity from the proteolytic to the fermentative type."

Because of its chemical combination it is self-evident that the best food to prevent and also to cure inanition fever is breast milk. Next stands lactose solutions, or dextrine solutions in the form of dextrimaltose.

We consequently draw the conclusion that these fevers are due to proteolytic toxins, and can be easily forestalled by the early administration of the carbohydrates dextrin and lactose. These are food elements which favor the production of innocuous aciduric flora, which in turn inhibit the multiplication of the proteolytic flora, and thereby prevent the formation of toxic protein end-products.

We suggest that the vague term "inanition fever" be discarded, and that "proteolytic intestinal toxemia of the new-born" be used in its place.

680 West Ferry Street.

VENIPUNCTURE OF THE SUPERIOR LONGITUDINAL SINUS IN THE NEW-BORN

RESULTS IN TWO HUNDRED AND THIRTY-ONE
CASES *

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DETROIT

From the standpoint of the clinical investigator, the superior longitudinal sinus has become, in the last few years, the most important blood vessel in the baby's body. Herophilus, who lived soon after the birth of Christ, was the first to draw attention to the cerebral circulation; he noted with accuracy the torcular condition of the sinus in the occipital region. For nearly 1,000 years after, little advance was made in brain anatomy, until about the middle of the sixteenth century, when Vesalius attempted a description and illustrated the brain and its blood supply, which have descended to us. During the middle of the seventeenth century, Willis worked on the arterial supply and in 1665 described the circle of Willis. Later in the eighteenth century, the blood supply of the meninges was described by Ruysch. It was not until 1898 that Marfan, a French pediatrician, described a method of entering the longitudinal sinus through the anterior fontanel. This method, however, was first used in this country about 1915. During this year and the following two or three years, extensive work was done by Shaw,¹ Helmholz, Dunn, Fischer² and Tarr.³

I am reporting this series of 231 operations in the hope that it will be of interest to the medical profession in general, and also because there are several points of importance which can be determined only by a large series of cases. Tarr has reported 207 operations in which the sinus was punctured before the eighteenth month. In my series the puncture was made on or before the seventh day of life.

In our series the head was not shaved, and iodine was not used. The area over the anterior fontanel was washed with 70 per cent. alcohol. The posterior angle of the anterior fontanel was selected as the most desired location, because here the sinus is about $\frac{3}{32}$ inch (2.4 mm.) in diameter. The needles which work best were short beveled, at an angle of about 45 degrees, with a large bore No. 18. No shoulder was used, because it was frequently found that both coats of the sinus were punctured, the walls of which are so easily compressible that it was only when the needle was slightly withdrawn that blood was obtained. An assistant firmly holds the baby's head, when the operator inserts the needle at a slight angle. About $\frac{1}{4}$ inch (6.35 mm.) is the usual distance to the sinus from the skin. The blood is usually withdrawn easily. In the 231 operations we have failed to obtain blood only three times.

Three patients were examined postmortem by Dr. James E. Davis, pathologist. Macroscopically they showed no injury whatsoever to the sinus, no clot formation and no evidence of degenerated brain tissue. One died of congenital syphilis; one was born prematurely at 6 months and 3 weeks, and died at 7 months and 1 week. These two belonged to the series of seventy-seven new-born babies. The third was a foundling brought to the hospital in very poor condition by a policeman. For four days it was given an intrasinous treatment of 2 per cent. sodium bicarbonate and physiologic sodium chlorid solution. On the fourth day, 6 ounces (180 c.c.) of this solution was injected intrasinally, and the baby died next day of acute dilatation of the heart. One patient was given a 5 per cent. glucose solution successfully. Five patients were given 2 per cent. sodium bicarbonate and physiologic sodium chlorid solution successfully. We have given from 2 to 6 ounces (60 to 180 c.c.) of fluid intrasinally with success. No arsphenamin was given. Blood was taken for Wassermann tests in the seventy-seven cases within the first twenty-four hours, on the third day and on the seventh day, a total of 231 Wassermann tests.

Fischer has introduced arsphenamin through the sinus in more than fifty cases without any bad results. Lowenburg⁴ reports thirteen cases in which blood transfusion has been successful. One was a new-born babe, one a 2 months infant. He uses needles one-eighth inch (3.17 mm.) in bore.

Our cases were watched daily for an average of about six months and no untoward results were noted. Occasionally slight pressure must be exerted over the puncture site for about ten or twelve minutes to stop hemorrhage. I know of no case in which bleeding was not entirely stopped by pressure for fifteen minutes.

No infections were encountered, and constitutional symptoms, such as shock, have never been reported to my knowledge. There was no apparent effect on the growth and the nutrition or the mental condition of the baby. We have been unable to take blood from the babies while they slept, but quite a few barely

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¹ Read before the Wayne County Medical Society, May 15, 1921.

² Shaw, H. L. K.: Albany M. Ann. **40**: 74 (March) 1919.

³ Fischer, L.: New York State J. Med. **19**: 183 (May) 1919.

⁴ Tarr, E. M.: Canada M. A. J. **7**: 226 (March) 1917; Arch. Pediat. **36**: 72 (Feb.) 1919.

4. Lowenburg, Harry: Arch. Pediat. **38**: 217 (April) 1921.

rouse from their sleep and immediately return to sleep after the blood has been taken.

SUMMARY

In 231 superior longitudinal sinus venipunctures there were no untoward results. This method is therefore recommended as the best of any so far reported for obtaining blood or giving intravenous medication to infants.

443 Forest Avenue, East.

PHENOLPHTHALEIN DERMATITIS *

SAMUEL AYRES, JR., M.D.

LOS ANGELES

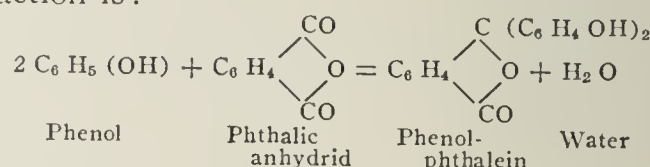
The first instance of an eruption which was apparently caused by the use of phenolphthalein as a laxative was reported by Abramowitz¹ in 1918. Since then, cases have been reported by Howard Fox, Rosen, Silberstein, Scheer, and Wise. Judging from these few case reports during the last three and one-half years, the condition must be either very uncommon, usually overlooked, or else not regarded of sufficient importance to report.

Phenolphthalein has been generally regarded as a drug entirely lacking in toxic effects. The usual laxative dose is $2\frac{1}{2}$ grains (0.15 gm.). Wood² has shown in experiments on dogs that doses which in human beings would be equivalent to from 60 to 100 grains (4 to 6.5 gm.) were quite harmless, and Abel and Rowntree³ gave animals enormous doses intravenously without ill effects. Orland⁴ reported the case of a 3 year old child who took 30 grains (2 gm.) by mouth without showing any toxic symptoms. Hydrick⁵ reported albuminuria following the ingestion of from 1 to 2 grains (0.065 to 0.130 gm.) in twenty consecutive tests; but Bastedo⁶ has not found a single instance of albuminuria following phenolphthalein in the course of frequent urine examinations during an extensive clinical use of the drug. McWalter⁷ failed to detect any untoward symptoms in the administration of more than a thousand doses of phenolphthalein for laxative purposes, the doses ranging from 2 to 6 grains (0.13 to 0.4 gm.) in adults. Many of his patients continued the use of the drug over prolonged periods of time. On the other hand, Rosenstein⁸ reports an instance of acute hemorrhagic nephritis which he believes resulted from the use of phenolphthalein. The patient completely recovered in a short time after the drug was discontinued. Fürbringer⁹ has written a paper on "Severe Poisoning from Laxative Drops (Phenolphthalein)" which was published in a German periodical during the war, and which is not at present available for review.

Bastedo has frequently found phenolphthalein in the urine after oral administration, its presence being indicated by a pink color in an alkaline reaction. The widely used "phthalein test" of kidney function is based on the retarded elimination in renal disease of

phenolsulphonephthalein which has been injected subcutaneously. Bastedo states that no phenol is liberated from phenolphthalein after administration, and that its laxative action is mild, nongripping, and depends on a stimulation of peristalsis, and, to some extent, on the prevention of absorption. Cushny¹⁰ says that some of the phenolphthalein is reabsorbed into the blood from the large intestine, carried to the liver and returned to the intestine by way of the bile, so that it acts for several days as a mild aperient, gradually being eliminated in the stools and to a less extent in the urine. "Useful Drugs"¹¹ (1916) prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association, says, "Phenolphthalein acts as a purgative, but appears to possess no further physiologic action, except that it may cause some irritation of the rectum and lower bowel."

Phenolphthalein, or dihydroxyphthalophenon, is a synthetic drug which, according to Cohen,¹² can be produced when two molecules of phenol and one molecule of phthalic anhydrid are heated together at 115 C., with the addition of strong sulphuric acid. The reaction is:



Phenolphthalein is closely related to triphenylmethane, which is the mother substance of a great variety of dyes.

In three of the six cases previously described and in the new case reported herewith, the eruption has been of the same type, a sort of erythema perstans in which wheal-like lesions of a pink, yellow, or gray have appeared rather suddenly and have persisted unchanged for weeks or months, usually disappearing soon after the administration of phenolphthalein has been stopped. Itching has frequently been annoying. No systemic symptoms have been reported.

The exact significance of this fairly characteristic eruption which only rarely follows the administration of phenolphthalein is not clear. It may be nothing more than an individual idiosyncrasy such as some persons exhibit toward quinin, iodids, etc. The subject merits further investigation, however, and no opportunity should be lost for studying and reporting cases whenever they can be found.

Some of the proprietary medicines¹³ which contain phenolphthalein are: A. D. S. Fruit Laxative, Agar-Lac, Alophen Pills, Analax, Auto-Lax Chocolates, Bisuroids, Bonalax, Citrolax, Dilaxin Pills, Ex-Lax, Exurgine, Figuroids, Joy Powder and Joy Tablets, Kellogg's Canitone Wafers, Laxaphen, Laxatol, Laxen, Laxine, Laxoin, Laxothalen Tablets, Lepsolets, Liophthal, Lux Cold Tablets, Marmola Prescription Tablets, Nurito, Partola, Pearl La Sage Complexion Treatment, Po-Do-Lax, Probilin Pills, Prunoids, Purgen, Phecolax, Phecozymes, Phenalein, Phenaloin, Phenaloin Tablets, Phenolax Wafers, Rexall Orderlies, Sofose, Tanlac Laxative Tablets, Taurocol, Veracolate and Woods' C Treatment for the Tobacco Habit. There are probably other proprietary medicines on the market which also contain phenolphthalein.

* From the Department of Dermatology, White Memorial Hospital.

1. Abramowitz, E. W.: J. Cut. Dis. **36**: 11 (Jan.) 1918.

2. Wood, H. C., Jr.: Rep. Philadelphia Hosp. **7**: 183, 1909.

3. Abel and Rowntree: J. Pharm. & Exper. Therap. **1**: 262, 1909-1910.

4. Orland, F.: Med. Klin. **9**: 257, 1913.

5. Hydrick: Proc. Am. Soc. Biol. Chemists, 1914, p. 36.

6. Bastedo, W. A.: Materia Medica, Pharmacology, Therapeutics, Ed. 2, Philadelphia, W. B. Saunders Company, 1919, p. 134.

7. McWalter, J. C.: Lancet **2**: 1141 (Nov. 20) 1915.

8. Rosenstein, P.: München. med. Wchnschr. **67**: 263 (Feb. 27) 1920; abstr. J. A. M. A. **75**: 1168 (Oct. 23) 1920.

9. Fürbringer: Deutsch. med. Wchnschr. **43**: 842, 1917.

10. Cushny, A. R.: A Textbook of Pharmacology and Therapeutics, Ed. 6, Philadelphia, Lea & Febiger, 1915, p. 91.

11. Useful Drugs, Chicago, American Medical Association, 1916, p. 106.

12. Cohen: Theoretical Organic Chemistry, London, the Macmillan Company, 1913, p. 518.

13. Street, J. P.: The Composition of Certain Patent and Proprietary Medicines, Chicago, American Medical Association, 1917.

Two of the preparations which appear in this list are mentioned specifically in the following case reports. Their formulas have been determined to be: Phenolax Wafers:¹⁴ phenolphthalein, 0.98 grain; sugars, 3.35 grains; starch, talc and aromatics, 0.43 grain per wafer (Connecticut Report 1915, p. 385); Ex-Lax:¹⁵ phenolphthalein, 9.67 per cent.; water, 1.03 per cent.; ash, 1.12 per cent.; sucrose, 44.03 per cent.; starch, 2.9 per cent.; ether extract, 34.92 per cent.; chocolate, present (Connecticut Report, 1916, p. 276).

REPORT OF CASES

CASE 1 (Reported by Abramowitz¹).—Mrs. J. T., aged 27, Russian, was seen in the Vanderbilt Clinic, New York. The history prior to the present illness was unimportant; there had been no previous skin trouble. The total duration of the present illness was one and one-half years with periods of freedom, but with frequent relapses, accompanied by itching. It was definitely ascertained that six months before and six weeks before, immediately after taking a proprietary medicine containing phenolphthalein, the eruption broke out anew. There was no history of the use of any other drugs. Examination revealed lesions distributed about the mouth, over the chest, arms, thighs and back. They were roughly oval or circular; they varied in size from that of a quarter to that of a half-dollar, and they were slightly elevated, with smooth surfaces free from scales, and with somewhat thickened but ill defined margins. The lesions were brown; some of the old spots which had flared up during the recent relapse were of a red-violet tint. Nothing abnormal was found in a general physical examination. The urine, stools and Wassermann test were all negative. A microscopic blood examination was negative except for a very slight anemia. A histopathologic examination of a section of skin taken from a purplish pink lesion of the posterior axillary fold showed a considerable deposit of pigment as the most striking change. This pigment was in the form of dark brown granules contained in irregularly pear-shaped cells in perivascular zones. They did not give the blue reaction in Perles' stain for iron. Other changes were: a loosely laminated horny layer; a moderate parenchymatous edema of the rete, with an increase in size of the rete pegs, some of which were confluent; a very little vascular dilatation, but some endothelial proliferation and hyperplasia; a moderate perivascular collection of round cells, mostly in the papillary and subpapillary bodies. The collagen and the elastica were normal.

The same patient was shown by Dr. Howard Fox¹⁶ before the Manhattan Dermatological Society, a number of weeks later. The following additional information was obtained: A minute or two before each of the last two attacks, the patient had taken a single "Ex-Lax" tablet. She did not remember whether earlier attacks had followed the taking of medicine. After the first attack, the lesions disappeared entirely in two days; but after subsequent attacks, pigmented spots remained and had not disappeared up to the time of presentation. On examination, she presented about sixty dark brownish, rounded macules, varying in size from that of a bean to that of a silver dollar. There was no infiltration, no evidence of scratching, no oozing and no anesthesia. Some of the spots were smooth, others slightly scaly. There were lesions on the face, neck, arms, forearms, backs of the hands, chest, abdomen and thighs, but they were most abundant on the back. The patient was a decided brunette. It was not possible to produce wheals by friction on the macular lesions. Clinically and histologically, the eruption corresponded to erythema perstans.

By comparing these two descriptions of this patient, made some weeks apart, it will be seen that lesions which formerly were slightly elevated, entirely free from scales, and which varied in color from brown to red-violet, were now flat, slightly scaly in places, and apparently were of a more uniform brown.

CASE 2 (Reported by Rosen¹⁷).—Mr. R., aged 25, was shown before the Manhattan Dermatological Society. A mildly pruritic eruption on his chest and abdomen had appeared suddenly three days before and had persisted without spreading. Two days before the onset of the eruption, the patient had taken two phenolphthalein tablets for constipation. Examination revealed a vesicopapular eruption involving the front of the entire chest and abdomen. Some of the lesions were hemorrhagic. In the ensuing discussion, some of the members of the society asserted that the eruption bore a slight resemblance to pityriasis rosea.

CASE 3 (Reported by Silberstein¹⁸).—Silberstein, himself, took a single dose of a phenolphthalein purgative, after which plaques, suggesting cancer, developed on his tongue, forcing him to give up smoking. A year later, he took another dose of the same medicine and developed a painful stomatitis with herpes on the genitals.

CASE 4 (Reported by Silberstein¹⁸).—A woman consulted him recently for general lassitude, loss of appetite, and a strip of ecchymosis in the conjunctiva of both eyes. She had taken seven tablets of a phenolphthalein preparation.

CASE 5 (Reported by Wise¹⁹).—Mrs. E. A., presented before the New York Dermatological Society, was suffering from a fresh outbreak of an eruption which had recurred at intervals of from one to four weeks during the last three years. The forehead, face, shoulders, axillae, arms and thigh showed a number of macular and urticarial lesions, from 1 to 3 cm. in diameter, bluish red, and suggesting erythema perstans. Several days later, when the eruption had subsided, she was given two 5-grain tablets of phenolphthalein, and the following day many of the spots had appeared in all their intensity.

CASE 6 (Reported by Sheer²⁰).—A boy, aged 8 years, shown before the Section on Dermatology and Syphilis of the New York Academy of Medicine, had been given "Ex-Lax" at various times during the last two years, up till six months before presentation. The eruption, which had been present about two years, first appeared about two weeks after the administration of diphtheria antitoxin. The older sister, who gave the history, was not very clear concerning some of the details. Examination disclosed about twenty-four lesions, distributed over the trunk and extremities. They were oval and circular macules varying in size from that of a dime to that of a silver dollar, and were of a peculiar slate color or blue-gray, which did not disappear on pressure. At an earlier stage, the lesions were said to have been red. The intensity of the color had varied from time to time; but the discoloration had never disappeared.

CASE 7 (Outpatient No. 23945, author's case).—History.—Mrs. E. J., aged 27, housewife, native of Kansas, referred to the Dermatological Clinic of the White Memorial Hospital from the Medical Clinic, June 17, 1921, had been troubled with constipation as long as she could remember. During the last five months she had taken one "Phenolax Wafer" every night, with the exception of two weeks, about two months before. During these five months the bowels had moved once or twice a day, and except for the eruption on her face, she considered herself to be in excellent physical condition.

The eruption began two or three weeks after she had been taking the "Phenolax Wafers." It had remained constantly present until two months before, when she discontinued the tablets, and it began again two weeks later when she resumed them, since when it had been present, becoming much more pronounced during the last ten days. Itching had been rather troublesome since the onset, but more particularly so during the last ten days. The first lesion appeared rather suddenly on the right cheek in the form of a flat-topped elevation, about the size of the little fingernail, at first pink, but, in the course of several days, assuming a yellow tinge which had remained. Other smaller lesions had appeared at various times since then on the same cheek, on the other cheek, and on the

14. Street, J. P.: Footnote 13, p. 194.

15. Street, J. P.: Footnote 13, p. 88.

16. Fox, Howard: J. Cut. Dis. 36: 252 (April) 1918.

17. Rosen, I.: Dermatitis Medicamentosa, Arch. Dermat. & Syph. 1: 355 (March) 1920.

18. Silberstein, L.: Therap. Halbmonatsh., Berlin 34: 306 (June 1) 1920; abstr., J. A. M. A. 75: 354 (July 31) 1920.

19. Wise, Fred: Phenolphthalein Eruption, Arch. Dermat. & Syph. 3: 200 (Feb.) 1921.

20. Scheer: Dermatitis Medicamentosa, Arch. Dermat. & Syph. 3: 704 (May) 1921.

chin, but nowhere else. Unlike the ordinary transitory urticarial wheals, these lesions had remained for weeks or months after they had once appeared, maintaining about the same size, changing in color from a pink or red at first to a yellow after a few days. The tops of the lesions had been scaly at times, but had never been moist or crusted. New lesions had frequently been macular at first, with little or no elevation, the wheal-like character developing in the course of several days and usually remaining. During the two weeks, two months before, when the patient discontinued the "Phenolax Wafers," all the lesions lost their elevation and became macular, but the yellow color remained. On resuming the medicine, the lesions again became elevated. There had been no systemic symptoms of any kind during these five months; in fact, the patient had felt better than usual.

During the last seven or eight years, the patient had noticed that after eating strawberries, peaches, and certain other fresh fruits, an itchy, transitory, urticaria-like eruption appeared on the face, but nowhere else on the body, although the body might itch. These lesions had never lasted longer than from a few hours to several days, and according to the patient, had never looked at all like the present eruption. No eruption followed if the fruit was cooked. The patient denied having eaten any fresh fruit during the last five months.

Examination.—This revealed an eruption which was confined to the cheeks and chin, and which consisted of possibly two dozen lesions, varying in size from one the size of a pin-head to one as large as the little fingernail, which the patient pointed out as being the first lesion to appear. The lesions were discrete and confluent. They resembled wheals in that they were elevated and flat-topped; but unlike wheals, they were a distinct dirty yellow in color. Some of the smaller lesions looked not unlike the eruption seen in verruca plana juvenilis. There was a mild degree of scaling.

Course.—The patient was instructed to discontinue taking the "Phenolax Wafers." The next morning there was a noticeable improvement; the lesions were flatter and the itching was less intense. Three days after discontinuing the medicine, there were practically no elevated lesions; but on the right cheek, a pale yellow discoloration the size of the little fingernail marked the site of the largest and oldest lesion. There were several smaller, faintly discernible yellow spots. More scaling was present than on the previous visit. Itching was entirely absent. Two 1-grain tablets of phenolphthalein were administered by mouth, without any recurrence of symptoms, either immediately after or within the next few days. For the sake of confirmatory evidence, the patient was urged to take a larger dose of phenolphthalein with the hope of causing a recurrence of the eruption; but she was too well satisfied with her relief from the itching to cooperate in the plan. In view of the fact that all of the lesions were on the face, a biopsy could not be obtained.

A chemical examination of the blood on the fourth day after the administration of "Phenolax Wafers" had been stopped showed no evidence of renal insufficiency. The non-protein nitrogen was 26 mg. per hundred cubic centimeters of blood (normal, from 25 to 35 mg.); the uric acid, 2.8 mg. per hundred cubic centimeters of blood (normal, from 1 to 3 mg.); the creatinin, 1.1 mg. per hundred cubic centimeters of blood (normal, from 0.7 to 1.3 mg.). A week after the patient was first seen, the urine was negative for albumin and sugar. A complete routine urine examination six months ago, before beginning the use of phenolphthalein, was negative. Nothing abnormal was found in the general physical examination.

SUMMARY

Most textbooks and most physicians regard phenolphthalein as a laxative which is entirely lacking in toxic properties.

In seven cases here reported an eruption of the skin has been associated with the oral administration of phenolphthalein for laxative purposes.

The eruption in four of the seven cases has been of the same type, corresponding clinically, and in one case in which a biopsy was obtained, microscopically, to erythema perstans.

1015 Brockman Building.

THE RELIEF OF PARTIAL OR COMPLETE ANTERIOR STAPHYLOMA

DESCRIPTION OF OPERATION *

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For the relief of partial staphyloma the end-result aimed at is twofold: first the removal of the deformity; and second, improvement in sight. The latter is gained by an iridectomy, usually and preferably, performed after the staphylectomy. In cases of total, or almost total, staphyloma, besides the removal of the deformity, the protrusion often being so great as to prevent closure of the lids, the object sought is also the retention of the globe within its orbit and the obtaining of a movable stump over which a prothesis may be worn. The operation of evisceration for such cases, while generally considered safer as far as future after-effects are concerned, and while it also leaves a better stump than enucleation, cannot be compared in cosmetic results with a good operation for total staphyloma. Such an operation also does away with the necessity of an insertion of a ball or other foreign body within the globe.

HISTOLOGY

In considering any operative procedure in these cases, the nature and histology of a staphyloma must be borne in mind. Staphyloma does not consist of corneal tissue, but is really cicatricial iris tissue, the cornea having perforated at some previous time, the iris filling the gap and eventually healing. In some cases, this scar tissue is extremely thin; in other cases, it is quite thick. It is necessary, in my opinion, in order to get healthy union, to remove all of this cicatricial tissue and obtain union between healthy or fairly healthy cut surfaces of the cornea. In methods of operation previously suggested, such as that described by Ziegler,¹ who proposed a trefoil keratectomy, and in the similar method of Attias,² no definite statement is made as to the amount of tissue removed; but they seem to have been successful in obtaining a healthy flat scar. Nevertheless, I wish to lay stress on the removal of all scar tissue and the insertion of the sutures in healthy tissue. The amount of tension on these sutures is very great, and the likelihood of their tearing through the cornea is very great. For this reason, a method of suturing, originally suggested by Wiener,³ was used. This consists of the use of gold strips 1.5 mm. wide, with holes large enough for the passage of the needle, 1 mm. apart.

Such tension sutures are able to withstand almost any amount of pull; and for the purpose of demonstrating this, I made a series of tests on pigs' eyes. The strength of the suture material itself was first determined by means of a recording spring scale such as is used for testing cord and wire. Ordinary black spool silk, such as is sold in the shops, which I have used now for some years in all ophthalmic operations, was used. For light work, such as conjunctival suturing, black spool silk designated as *B*, and for heavier, such as tendon suturing, *D* silk, have been found generally satisfactory. It has found that *B* silk had a tensile strength of

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Ziegler, S. L.: Trefoil or Stellate Keratectomy for Anterior Staphyloma, *Tr. Sect. Ophth. A. M. A.*, 1914, p. 308.

2. Attias: *Ophthalmoscope*, January, 1914.

3. Wiener, Meyer: A New Operation for Advanced Keratoconus, *Tr. Sect. Ophth. A. M. A.*, 1917, p. 217.

from $3\frac{1}{4}$ to $4\frac{1}{8}$ pounds, the average in a long series being $3\frac{2}{3}$ pounds. *C* is no longer made by the manufacturers. The tensile strength of *D* thread varied between $7\frac{7}{8}$ and 10 pounds, the average being $8\frac{3}{4}$ pounds. The tensile strength of *E* thread varied between $9\frac{1}{4}$ and $14\frac{3}{4}$ pounds, the average being $12\frac{1}{2}$ pounds. So it would seem possible for an expert fisherman to land a $12\frac{1}{2}$ pound fish, using merely *E* silk for a fishing line. In the experiments with pigs' eyes, only *B* and *D* threads were used. It was found that while the *B* thread had an average tensile strength of $3\frac{2}{3}$ pounds, if a loop were inserted through the cornea and traction applied, it invariably pulled through the cornea with a 3 pound pull. The *D* thread with an average strength of $8\frac{3}{4}$ pounds pulled through the cornea when a traction of from $4\frac{1}{2}$ to 5 pounds was exerted. When the sutures were inserted with the gold strip on the cornea and the loop outside the gold strip with *B* thread, traction caused the *B* thread to break without any apparent effect on the gold strip. When the *D* thread was employed, the gold strips broke at a pull of 9 pounds. It may be concluded, therefore, that in healthy cornea these gold strip tension sutures withstand any reasonable amount of tension.

TECHNIC OF OPERATION

Preliminary Treatment.—As many of these cases are already the subject of infectious processes such as trachoma or dacryocystitis, these conditions should be cleared up before staphylectomy is performed. In several of the cases in which operation was performed, a tarsal excision was first performed and the trachoma cured before proceeding to the main operation.

Anesthesia.—I used general anesthesia in all cases.

Instruments.—A speculum, Graefe knife, fixation forceps, pair of small strong scissors, mouse-tooth forceps, iris scissors, needle holder, needles, gold strips and black silk sutures, *B* strength, were required. A spatula and wire loop may be needed.

Description of Operation.—The first step in the operation is the insertion of the sutures. A gold strip, a trifle longer than the long axis of the staphyloma, is prepared by passing double armed sutures through the holes. Then each needle is inserted at the limits of the protrusion through the cornea, emerging at the opposite limits of the staphyloma. This is not a simple procedure, because, owing to the opacity of the staphyloma, the needle is not visible in its course to the opposite side. However, it has the advantage of inserting the needles through a resisting membrane, whereas if the staphyloma is first excised and the needles inserted later, the cornea must be seized by an instrument, there is increased trauma, and greatly increased danger of extrusion of the vitreous. It may appear to be disadvantageous because of the danger of cutting the sutures in removing the staphyloma; but this is more fanciful than real, as it has not happened once in the series of eighteen cases in

which I have operated. The second step is the insertion of a Graefe knife at one extremity of the staphyloma midway between the lines of sutures. The knife is inserted with the edge forward, passes through the long axis of the protrusion, keeping close to its under surface, and emerges at the opposite end. One lip of the wound is then seized by the mouse-tooth forceps, and with small scissors, such as the Stevens scissors, half of the staphyloma is excised. The same procedure is followed with the other half. If the lens appears or extrudes, it is removed. The sutures are then tied over another gold strip. The performance of an iridectomy for improvement of vision is best postponed until after healing has occurred. Sutures are removed in eight days.

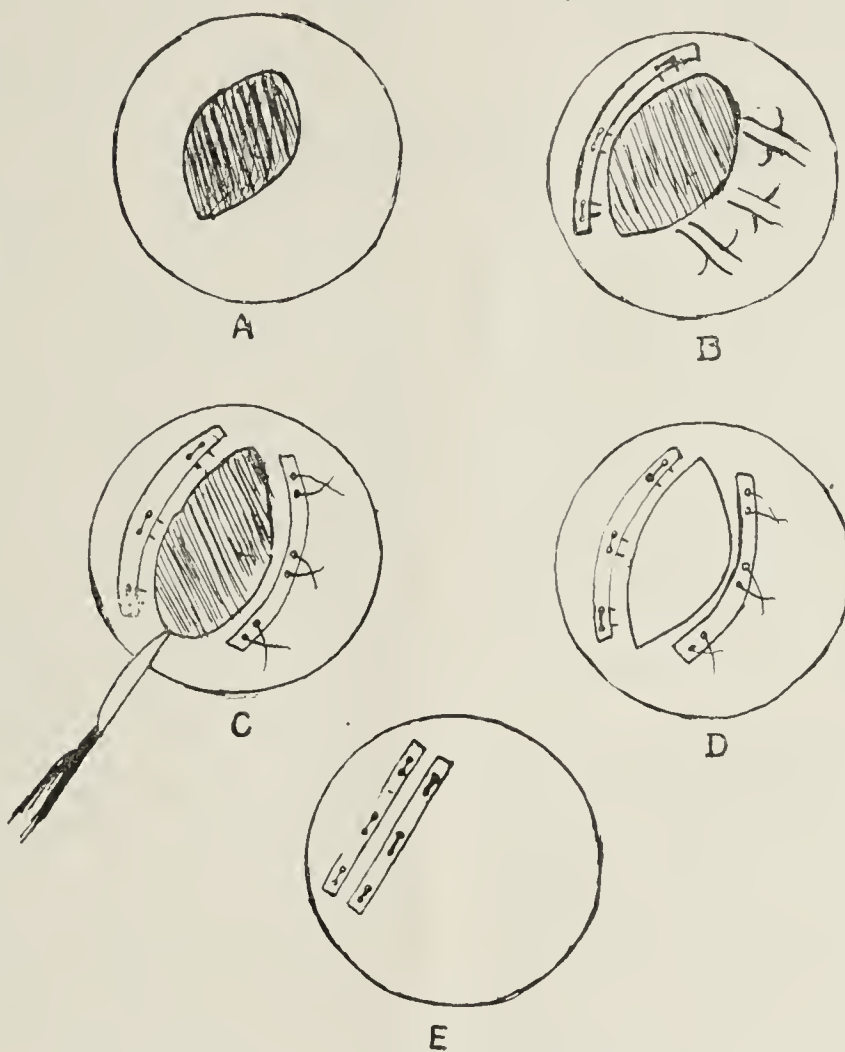
COMMENT

I have used a similar procedure in cases of central recent perforating ulcer of the cornea as soon as the eye had become quiet. The course of such cases if left alone is for the prolapsed iris to heal and form scar tissue and become staphylomatous. In Egypt, the common procedure of the surgeons in such cases is to perform an iridectomy, then slit up the prolapsed iris with a Graefe knife, and trust to the formation of a flat scar. In two cases, I have inserted the gold strip sutures as previously described, then excised the prolapsed iris, and at a later date, after union had taken place, performed an iridectomy with excellent results in both cases.

In the year 1919 and part of 1920, which period I spent in Syria, eighteen operations for the removal of partial or total staphyloma were performed with uniformly excellent results. In only two cases of total staphyloma was vitreous lost. In one of them there was considerable shrinkage of the bulb, but a very

serviceable mobile ball was left over which a prosthesis was worn with comfort and excellent cosmetic result.

70 East Fifty-Sixth Street.



Steps of operation: *A*, shaded area representing staphyloma; *B*, suture inserted, with one gold strip in place; *C*, both gold strips in place, and knife at point of entrance; *D*, clear area representing excision of staphyloma, and *E*, sutures tied.

Philippines Need More Doctors.—The total mortality in the Philippines is 26 per thousand as against 13 per thousand in other countries. The infant mortality in this country is at present reduced to 297.90 per thousand as against 100 per thousand in other countries. The mortality from typhoid fever is 32 per hundred thousand while in New York it is 3.82 per hundred thousand. Death from tuberculosis is 504 per hundred thousand as against 172 per hundred thousand in New York. We have at present 969 physicians in the Philippines; that is, one physician for each 11,000 inhabitants. It is estimated that a population, to be safe regarding health, should have at least one doctor for each 3,000 inhabitants. Therefore, about 3,000 physicians are needed for the 10,000,000 population.—José Albert, *J. Philippine Islands M. Assn.* 1:162 (July-August) 1921.

A DEPARTURE IN HOSPITALS: THE NATIONAL HOSPITAL FOR SPEECH DISORDERS *

JAMES SONNETT GREENE, M.D.
Director, National Hospital for Speech Disorders

NEW YORK

As far back as we have any history there have been physicians, and we know that for at least a thousand years there have been persons with impediments in their speech—for are they not mentioned in the Bible, in both the Old and New Testaments, in Isaiah, in Saint Mark, and in other places?

From that time on, scientific men have considered and written about defective speech; but, strange as it may seem, it did not receive the attention it deserved from the medical profession, and even now, when specialism is the outcome of progressive medicine, it is still a neglected specialty.

In the field of defective speech in Europe, before the war, Prof. Herman Gutzman was the outstanding figure. In our country, for years, the late Hudson MacKuen of Philadelphia was a recognized authority. Besides these leaders, there have been others, comparatively recently, who have done good work along analytic lines; but it was not generally realized that a person who suffered from a speech disorder was just as much entitled to hospital care as one who, for example, suffered from eye, ear, nose or throat trouble.

While we have eye hospitals, nose and throat hospitals, skin and cancer hospitals, and numberless special institutions, we did not have one general specialized voice and speech hospital in the entire United States: by that I mean a hospital devoted solely to the cure of patients suffering from various disorders of voice and speech.

The natural outcome of such a condition—very few men interested in the subject and no special hospitals—compelled that vast army of sufferers to look elsewhere for help. Consequently, it was the same as in the old days when venereal diseases were not taken largely into consideration, and those suffering were treated through advertisements in drug stores, museums and other places, by people in all walks of life.

The defective speech sufferers have been and still are going through a similar process. They have been receiving courses of treatment from schoolteachers, Christian scientists, osteopaths, and the very latest, chiropractors. For instance, a chiropractor professes to cure a stutterer by twisting his neck in single \$2 treatments; or he twists it by the case for from \$50 to \$100, but to no avail. With it all, those having speech trouble still carry their burden and continue to suffer.

These prevailing conditions demonstrated only too clearly for many years the ever growing necessity for some central hospital or organization to help speech cripples and to try to make life more livable for them; an institution or hospital whose policy it was to take a very broad view of its duty to all those who came under its care, particularly the poor and neglected; a dignified humanitarian type of institution approved by physicians of the highest ethical standing and irrevocably opposed to quacks and fads.

There seldom is any speech defect that stands alone. Usually, it so intimately associated with other

defects, physical, mental or moral, that in order thoroughly to remove the speech defect the associated defects must be treated also. Therefore, necessarily, the hospital or clinic had to be not only a medical institution, but an educational and social one as well, for it had to raise standards and inculcate good habits of all kinds in its patients.

We definitely realized that there was great need for a cooperative work, one in which there was an intimate relationship between medical, reeducational and social therapy. In other words, a center where the physician, the teacher or educator, and the social worker were represented in complete harmony.

WORK OF THE NEW YORK CLINIC

About three years ago, the New York Clinic for Speech Defects, which recently changed its name to the National Hospital for Speech Disorders, was founded. During that time, more than 3,000 persons have applied for treatment. They have come from every state in the Union. Children and adults have come, suffering with every conceivable ailment of voice and speech.

They had defective speech conditions due to hare-lip, feeble lips, cleft palate, relaxed palate, jaw conditions (protrusions or recessions), teeth anomalies, tongue conditions and with various voice abnormalities arising from palate or laryngeal conditions, such as nasality, aphonia, hypophonia, phonesthesia and falsetto voices. Again, conditions of stuttering, stammering and lisp, deaf-mutism, audimutitas and idioglossia. We have seen numerous patients with diseases or conditions of nervous origin that give rise to various disturbances of speech, such as agitaphasia (speech agitans), imbecility, idiocy, hereditary ataxia, progressive muscular atrophy, congenital hydrocephalus, spastic spinal paralysis, bulbar paralysis, syphilis, multiple sclerosis, Bell's palsy, postdiphtheritic paralysis, cases of tumors of speech areas (aphasia), and also medulla conditions, epilepsy, chorea, spasmodic tics, hysteria, and insanity.

The number of conditions just enumerated will at once show the extent of speech disorders in medicine. Our patients presented many interesting and complicated speech problems; for instance, we have already treated about 1,500 stutterers at our hospital.

CONDITIONS OBSERVED

Stuttering speech is a neuropathic manifestation which has become a veritable obsession in a psychopathic or psychasthenic person, this state being the result of an unconscious motive, usually caused by the inability of the patient to adjust himself to some difficult situation. The nervous system of such a patient presents increased irritability with diminished capacity; a system that becomes easily affected from the least cause, and is constantly threatened with a break. If trying conditions occur, lowering the resistance to a given point, then when an emotional disturbance of some force occurs, such as a shock, a fright or an illness, the mental state is developed which precipitates the stuttering symptom. In other words, during the period of momentary paroxysm, some chance occurrence of hesitating speech or predisposition determines the development.

Since the condition is endogenic, there being in all cases a pronounced hereditary predisposition, the patient carries his burden all through life, though his symptoms can be kept in abeyance.

* Read before the annual meeting of the American Laryngological, Rhinological and Otological Society, June 4, 1921, Atlantic City, N. J.

Another prevalent condition that many of our patients suffer from, a disorder characterized by defective enunciation, is the inability to form correctly or to utter any or all of the sounds of speech. These patients are classified as stammerers and lispers, and must not be confused with stutterers, as stutterers show hesitating speech, while stammerers and lispers show mutilated speech. These patients either present a central (cerebral) involvement or a peripheral involvement, due to malformations of the organs of speech. The central involvement is either of a primary, so-called functional nature, or secondary, which is of an acquired nature. The peripheral involvement is either congenital (as harelip, cleft palate, malformations of the tongue, and jaw conditions), or it is acquired (as conditions of the lips, teeth, gums, palate, tongue, pharynx, larynx, and ears). Therefore, in all conditions of defective enunciation, there is an anatomic defect which is found either in the brain proper or in the organs of articulation.

It is a well known clinical fact that injuries to the brain, when the motor areas are involved, may result in spasms, paralysis or convulsions. Likewise when a sensory area alone is affected, there result the various disturbances common to sensory nerves, as numbness and paresthesia; or when particular centers are involved, the various forms of aphasia may result. Concomitant with these resultant conditions, or existing independently, are cases resulting from cranial injuries received in childhood; for instance, a fracture of the bones of the skull, or a concealed hemorrhage beneath them, causing destruction or disintegration of brain tissue (either centers or tract fibers between them), with degeneration of the nervous element.

Patients having a primary central involvement demonstrate an organic condition in the cerebral tissue in various stages of development. In some instances, this condition partakes of the nature of a manifest anatomic structural disintegration of the cells or fibers which go to make up the various speech centers, or their proper association tracts. In other instances, this functional disturbance is immediately apparent at the first efforts at speech and is sometimes of a more latent and potential character.

Besides the conditions just elaborated, there are numberless others. I shall touch on just a few of them. It is surprising how many people apply for treatment who suffer from agitophasia, or speech agitans, a condition of excessive rapidity of speech, in which sounds or syllables are unconsciously omitted, slurred, mutilated, or in any way imperfectly uttered, causing at the same time the speech accent to become distorted. These patients have great difficulty in making people understand what they say, so much so that they have a hard time in holding positions. A pathologic condition of the nervous system is usually present. Agitophasia may be associated with stuttering or agitographia (a form of writing in which letters, parts of letters or words are mutilated or omitted).

Another form of mutilated speech, particularly observed in young children, is idioglossia. These patients seem to speak a distinct language of their own. Parts of words or whole words may be slurred, disjointed or otherwise mutilated. In severe cases, they are quite unintelligible except perhaps to their little brothers and sisters, who often are the only ones who understand them. This condition of idioglossia is not associated with weakness of intellect, although there is

often a family history of insanity. It is probably due to congenital deficient appreciation of musical tone. It is not associated with any malformation of the organs of speech.

We have had many children who suffer from auditory dumbness. The dumbness of children that hear, when young, is a condition of retarded speech development which is due to general physical weakness. These children have good speech understanding, and under careful supervision and treatment can acquire normal speech.

Besides these cases of hearing dumbness, we have, of course, had many cases of deaf-mutism. These patients being of a special class, their speech training is of a special nature, and it is not necessary for me to elaborate, as every one knows of the progressive work that is now carried on for the deaf.

Cleft palate patients always prove interesting problems. In these cases, strange as it may seem, the speech or voice defect does not coincide with the size of the palatal defect; for there are small defects which greatly interfere with the production of speech, while in some large defects of the palate, even with harelip, one finds tolerably good speech without even resorting to the use of mechanical interference. It is hardly necessary to state that closure of the cleft does not remedy the defective articulation; but I might add that the resonance of the voice becomes more normal, simply through the improved anatomic status. In nearly every case, speech training is not only advisable but absolutely necessary; for as well as the existence of a faulty physical condition, there also existed a faulty psychic condition, and while operative measures have been successful, the speech remains the same.

On account of our nonoperative cleft palate cases and the numerous conditions of dental anomalies that are present in all kinds of defective speech cases, we have found it necessary, in order to get the desired results, to conduct a fully equipped dental department, where special obturators, plates and MacKenty splints are made, and orthodontia work is carried out for malocclusion cases.

I wish to call attention to a special phase which these patients present, the condition amusia. All cleft palate patients suffer from amusia, that is, a disturbance in the musical faculty. They all demonstrate one definite form of amusia, that of tone deafness. Defects in the musical and speech faculties may coexist independently of one another. The independent occurrence of disturbances in their musical faculty points to the existence of a separate center presiding over the musical memory.

No progress can be made in the elimination of nasality, the great bane of cleft palate cases, until the patient's musical sense has been developed to such a degree that he or she realizes the difference between nasal and non-nasal intonation. As soon as this takes place, the patient strives for purer intonation, and gradually the nasality diminishes until, to all intents and purposes, it is completely lost. In other words, he has lost his tone deafness, and, of course, does not suffer from amusia any longer.

Besides nasality being due to congenital conditions such as cleft palate, it may also be due to injuries following the removal of tonsils and adenoids, to inflammations (as of the nose and pharynx), tonsillitis, diphtheria, syphilis and tuberculosis, and to tumors, nervous conditions, bulbar paralysis, etc.

A special form of voice disorder of a most distressing and embarrassing nature which has come frequently under our observation and which yields readily to treatment is a shrill high-pitched woman's voice, a falsetto voice, in a man. There is a prevailing erroneous impression in regard to this falsetto voice in the male. A falsetto voice is a voice often reckoned to the head register, its volume and area being almost as large as the chest register, reaching from D¹ to F². It is an octave above the chest register. It is of a thin, shrill quality, sounding forced or unnatural, and, as its name implies, is a false voice.

Of vocal anomalies that occur during or following mutation, the persistent falsetto voice is the one most frequently observed. While the condition occurs in both males and females, most of the cases that come under observation are in men. The falsetto voice is characteristic of the voice of the eunuch or eunuchoid. While their voices are practically similar in reference to pitch, ranging between tenor and soprano, they are absolutely dissimilar in reference to origin. Eunuchs are those individuals in whom for some reason the sexual glands have been removed (castration) in early life, a complicating result of which is nondevelopment of the larynx, so that the voice remains high. Eunuchoids are individuals who, without being castrated, entirely simulate in clinical manifestations the true eunuch type. This condition is due to a developmental disturbance beginning primarily in the sexual glands. One of the symptoms is a change in the pitch of the voice, which becomes high.

On account of this similarity, the term eunuchoid voice has been used synonymously with falsetto voice. The use of this term has given rise to much misunderstanding, which, of course, is rather unfortunate for those having a falsetto voice, for the falsetto voice of an adult male who is not a eunuch or an eunuchoid, does not depend on imperfect genital development, but, in practically all cases, is the result of a faulty habit which is contracted by the subject at the time of the change of voice and retained in after life.

We have had a great many patients suffering from organic and functional manifestations in the respiratory tract. Their voice abnormalities were the result of various conditions, as hyperplastic rhinitis, nasal obstruction, adenoids, tonsillitis, hyperthrophied tonsils, and follicular pharyngitis. Of the laryngeal disturbances, we frequently observed conditions of hysterical mutism, laryngeal phobias, aphonia, hypophonia, phonis thenia, laryngeal spasms and paralysis.

Laryngeal or pharyngeal trouble of professional voice users becomes a serious problem on account of the fact that their livelihood depends on their voices. Under those circumstances, neuropathic tendencies develop very readily; for example, let any slight laryngeal trouble which may happen to last for a few days disturb the patient, and fixation may be produced. Not alone do these voice patients develop neurotic tendencies; but from my observations, I have found that all of our patients, whether they suffer from a voice or speech disorder of a peripheral or central nature, have neurotic tendencies.

NECESSITY FOR THE ESTABLISHMENT OF SIMILAR CLINICS ELSEWHERE

Speech is the great vehicle of human intercourse. Business and social life depends on it. To put it bluntly, if you can talk, you can put your ideas over;

you can win success; you become independent. If you cannot talk, if your lips and tongue refuse their service, you cannot put your ideas over. You are dependent, and on account of continued conflict with everyday life, which to the normal speaking person is no conflict at all, you belong to a class apart, and you naturally develop neurotic tendencies.

To my mind, of the various kinds of defects that both children and adults are prone to, there is none so depressing or far reaching as a speech abnormality.

A composite therapy of a psychologic, medical, reeducational and social nature, is absolutely essential for the cure of those suffering from defective speech. The physician, the educator and the social worker are the greatest factors for good when they are fused together in such a harmonious union that their adjustment completely saturates the maladjustment of these long-suffering patients. In order to carry out such a cooperative work, a departure in clinics was necessary, and that prompted the founding of our institution, which we hope will prove, in the course of time, a model for similar institutions all over the country.

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Clinical Notes, Suggestions, and New Instruments

A CASE OF CENTRAL MYELITIS *

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This case is reported because it represents the unusual condition of a circumscribed central myelitis, most likely syphilitic in nature.

REPORT OF CASE

History.—H. S., aged 24, man, single, chauffeur, was admitted to the Mount Sinai Hospital, May 16, 1921. His chief complaint was loss of power in both lower extremities for the previous six days. The family history was negative. He had had gonorrhea in 1919, and at the same time, a small sore on the penis. This disappeared in one week and was not followed by sore throat, rash, loss of hair or any other signs or symptoms of syphilis. He was a heavy cigaret smoker, but he did not use alcohol. His general habits were good. There was no history of illness or injury preceding the onset of the present condition. In fact, he gave no history of injury, although some time after he entered the hospital, he recalled the fact that four years previously he had been in a car accident, had fallen from the car, and had landed on the back (of his head?), after which he was unconscious for an hour. There were absolutely no untoward after-effects. He was perfectly well the next day and remained so until the onset of the present sickness.

May 10, 1921, while driving his car, the patient experienced a tingling, drawing, numb feeling in the feet and legs, which gradually mounted to the groins. He also felt a peculiar stiffness in the limbs. He consulted a physician on the same day, after which he walked home and went to bed. The next morning, there was great weakness in both lower extremities, the dysesthesia continued and he had a girdle sensation. The following day, both lower extremities were totally paralyzed, and he suffered incontinence of urine and feces. It is worth emphasizing that the onset was fairly slow and gradual, the disease taking more than thirty-six hours to develop fully, and that there was no history of trauma, exposure or overwork. Attention should also be

* From the service of Dr. Bernard Sachs, Mount Sinai Hospital.

called to the fact that an examiner, several hours after the onset of the first symptoms, found no objective sensory disturbances, and that the patient could walk home from the physician's office.

I saw the patient on the day following his admission to the hospital and recorded these findings:

Examination.—The patient was well-developed and well-nourished. Both lower extremities were completely paralyzed. He had incontinence of both urine and feces. Coordination was normal in both upper extremities; there was no ataxia, adiokokinesis or dysmetria. There were no tremors, fibrillations or other abnormal involuntary movements. There was no rigidity of the neck, no Kernig sign, nor other abnormal associated movements. The jaw jerks, biceps, triceps, radial, patellar and Achilles reflexes were lively and equal. The abdominal, cremasteric and plantar reflexes were not elicited. There was no Babinski sign, nor its confirmatories. There was absolute loss of motor power in both lower extremities. The muscles felt soft and hypotonic; but there were no atrophies.

Sensory status: With the exception of small patches on the external surface of the right foot and left thigh, pain and temperature sensation was completely lost in both lower extremities. The level of loss began at the crest of the ilia, as shown at about *D 12* in the accompanying chart. Touch was almost completely preserved, doubtful replies having been obtained in only a few small, ill-defined areas. Position and vibratory senses were intact.

Cranial nerves: The pupils were equal, slightly irregular, and reacted promptly to light and to convergence, but did not come down fully. There was a question of hippus. The fundi were normal. There were no ocular palsies or nystagmus. Other cranial nerves were normal.

Course.—May 18 (one day later), the loss of pain and temperature sensation was, if anything, more complete, and the knee and ankle jerks became diminished. Mild priapism was noticed. May 19, a bed sore developed on the right buttock. May 23, a belt of hyperesthesia was found, extending from *D 12* up to *D 3*. At this time, there was slight impairment of the position and vibratory senses on the right side. A few days later, both knee jerks and the right ankle jerk were absent, but the left Achilles reflex was preserved. The abdominal reflexes were elicited, though feebly. The bed sore meanwhile became very extensive and penetrated down to the bone. A few days later, the vibratory and position senses returned to normal, but the loss of pain and temperature sensation, that is, complete sensory dissociation was absolute from about the level of *D 12*.

About June 12, the patient began to perceive the pin prick in the right extremity. The knee jerks gradually returned and became lively, and a bilateral Babinski sign was elicited. Bladder and rectal incontinence persisted, and motor power was still completely lost. The bed sore, after an extensive area had sloughed off, began to heal. June 24, the area of hyperalgesia extended from *D 4* to *D 8*, although the level of sensory dissociation was still below *D 12*.

Early in July, a very large bed sore developed on the left buttock. It became infected, despite unusual care in treatment, with resulting abscess formation. The patient began to have a septic rise in temperature (from 100 to 105 F.); he became emaciated, very weak and extremely anemic. This condition persisted for several weeks, when he was transferred to the Montefiore Hospital. The same condition per-

sisted for a few weeks longer and he finally died. Throughout his illness, except for slight temporary involvement of position and vibratory sensation, the sensory dissociation was absolute.

The blood Wassermann reaction was +++++. The spinal fluid showed a 2 mm. ring of albumin, globulin +, no reduction, Wassermann reaction +++++, smear and culture negative. The blood showed a leukocytosis ranging from 11,000 to 28,000, with 93 per cent. polymorphonuclears. The urine was practically negative. During his stay in the hospital, he received numerous injections of arsphenamin and neo-arsphenamin.

COMMENT

The syringomyelic sensory dissociation and the early and complete loss of rectal and vesical control pointed to a lesion about the central canal of the cord. The absence of trauma, the comparatively slow onset of all the symptoms (at least thirty-six hours) indicated an inflammatory condition. When in addition the absence of fever at the beginning and the history of a probable chancre, together with slightly irregular pupils, are considered, there seemed to be sufficient justification for the diagnosis of a syphilitic, fairly circumscribed, central myelitis. The +++++ Wassermann reaction in the blood and spinal fluid confirmed the diagnosis tentatively expressed after the first examination.

A few other possibilities suggested themselves: First, a nonspecific inflammatory condition in a syphilitic patient, that is, a transverse myelitis involving mainly, or commencing about, the central canal. The absence of any discoverable etiologic factor, the absence of fever, the almost complete circumscription of the process about the central canal, as evidenced by the sensory dissociation, all were opposed to the diagnosis of a nonspecific inflammation and a transverse myelitis. The fact, too, that the symptoms receded very little, or not at all, also argued against the diagnosis of infectious myelitis or meningomyelitis.

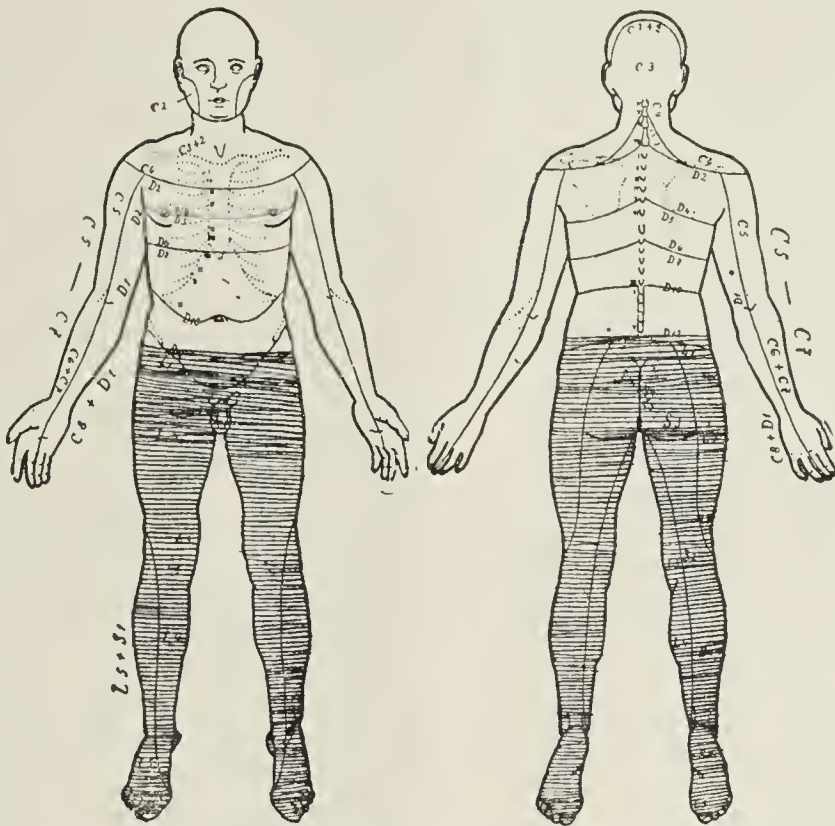
Another possibility to be considered was a hematomyelia. Against this was the comparative slowness of the onset and the absence of any history of even slight trauma. The failure of the process to recede

was also in opposition to such a possibility. A hemorrhage into a quiescent, nonsymptomatic, central gliosis was also suggested; but some of the reasons already advanced argue against such a conclusion. The failure of antisiphilitic treatment does not militate against the diagnosis of specific myelitis, considering the severity and site of the lesion and the fact that the specific cord lesions do not readily yield to treatment. Despite the absence of pathologic findings and the rarity of so limited an inflammatory lesion, the clinical signs and symptoms were, I believe, sufficiently conclusive to warrant the diagnosis of specific central myelitis.

It is somewhat difficult to explain the rather wide and fluctuating belt of hyperesthesia above the level of sensory dissociation which remained stationary throughout the illness.

1291 Madison Avenue.

The Interned Insane in Prussia.—The *Deutsche medizinische Wochenschrift* states that in 1917 there were 63,163 male and 59,921 female inmates of the asylums for the insane in Prussia. In 1918 the figures were, respectively, 50,788 and 51,970. The decline is ascribed to the numerous deaths during 1917. The alcoholic cases have shown a marked decline; from 5,000 in 1913 the figure dropped to 600 in 1918.



Total loss of pain and temperature sensation in a case of central myelitis, indicated by shaded areas.

*Special Article.*REPORT OF COMMITTEE ON LOCAL
ANESTHETICS IN OPHTHAL-
MIC WORK**To the Members of the Section on Ophthalmology,
American Medical Association:*

About three years ago, the Council on Pharmacy and Chemistry of the American Medical Association decided to ascertain the advantages and disadvantages of the various agents used for producing local anesthesia for general as well as specific purposes, and to decide which local anesthetics have distinct usefulness, which are objectionable, and which are superfluous duplications. In carrying out this purpose, a series of investigations was conducted by the Research Committee of the Council, which embraced a study of the toxicity, activity and efficiency of the local anesthetics as determined by experimentation on animals. These studies are contained in a number of papers published in the Therapeutic Research Reports of the American Medical Association and form a trustworthy and valuable addition to our knowledge of the comparative value of the local anesthetics.

A little more than a year ago, the Council requested that this Section aid in the clinical investigation of the subject, and a committee was appointed to study the subject of local anesthetics in ophthalmic practice.

The committee decided to draw deductions from the following:

1. A survey of the acquired experience of representative ophthalmologists.
2. Clinical investigation.
3. Experimental investigation on animals.
4. An analysis of the literature.

In carrying out the first purpose, your committee sent a questionnaire to all of the prominent members of this Section.

The questions asked were:

1. Which local anesthetics do you use at present, and in what strengths?
2. Do you use one local anesthetic for all classes of cases? If not, give particulars.
3. What special reasons have you for your preference as to the local anesthetic, strength and cases?
4. Have you abandoned or decreased the use of any anesthetics that you have tried? Give reasons.
5. Name, and state briefly, your experience as to the following points for the local anesthetics which you have tried. (Where more than one anesthetic has been used extensively, explain each in detail.)

(a) Agents and strength or concentration for superficial anesthesia.

(b) Agents and strength of concentration for deep anesthesia.

(c) Time of onset and duration in both cases.

(d) Degree of irritation, both cases.

(e) Effect on vascularity.

(f) Effect on pupils.

(g) Effect on corneal epithelium.

(h) Effect on accommodation.

(i) Effect on intra-ocular tension.

(1) Normal.

(2) Glaucoma.

(j) Occurrence of systemic intoxications.

(k) Stability of solution, including effect of sterilization by boiling.

(l) Effect of addition of epinephrin on intensity of anesthesia and duration of anesthesia.

Unfortunately, only about one half of those to whom the questionnaire was sent made any reply, but practically all of those who did reply represent ophthalmologists of recognized ability and wide experience, so that a digest of their opinions as herewith given forms a valuable contribution to the subject.

ANESTHETIC PREFERRED

While a majority of those who answered the questionnaire admitted having tried many of the newer anesthetics, nearly all, or 98 per cent., now confine themselves to cocain, phenacain (holocain), and procain (novocain) in varying strengths, and each for specific purposes and with a specific reason for its use.

Practically all of the answers show that a distinction is made in the use to which the anesthetic is put. For instance, in cataract operations and all other operations in which the globe is opened, there is a very general preference for the local application of 4 per cent. cocain, though a few prefer 2 per cent. phenacain alone, still fewer the combination of 1 per cent. cocain with 2 per cent. phenacain, or 4 per cent. cocain in combination with 1 per cent. phenacain, and a very limited number (two) express a preference for 4 per cent. cocain, supplemented by the subconjunctival injection of 0.5 to 1 per cent. cocain.

In muscle operations about 25 per cent. of the answers show that the local application of from 4 to 5 per cent. solutions of cocain are relied on exclusively, though over 50 per cent. supplement this with either injections of procain (novocain) in from 1 to 2 per cent. solution, or cocain in 1 per cent. solution, and 5 per cent. of the answers indicate the use of pure powdered cocain over the operative field.

Those who use cocain for everything as well as those who use phenacain for everything are about equal in number, and few.

In glaucoma, or when using the tonometer, or in any case in which a dilated pupil is objectionable, phenacain is preferred by all but 5 per cent., and some of those who use cocain for everything employ a miotic to offset the effect of a dilated pupil when such is objectionable.

For foreign bodies in the cornea, and for surface anesthesia in connection with therapeusis, there is an overwhelming sentiment in favor of phenacain in from 1 to 2 per cent. solution.

In summarizing the answers to the first four questions in the questionnaire concerning the anesthetic preferred, strength used, and reasons for the preference, we find that the preponderance of evidence is in favor of a 4 per cent. solution of cocain as the local anesthetic for routine work. The reasons assigned for the preference are given as based on many years of experience, very satisfactory results from its use, and failure of other local anesthetics in one or more essentials to compare in reliability with cocain.

Practically all of the answers indicate that holocain in from 1 to 2 per cent. solution is used either frequently or occasionally in producing surface anesthesia for the removal of foreign bodies from the cornea, for local anesthesia in connection with therapeusis, for use prior to determining the tension with a tonometer, and for producing local anesthesia when a dilating effect on the pupil is to be avoided.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Local anesthesia with 4 per cent. cocain solution is supplemented with subconjunctival injections of a 1 per cent. cocain solution, to which a few drops of epinephrin solution have been added, in operations on the iris, muscles and lids. In sac operations, infiltration anesthesia with 1 per cent. procain (novocain) and epinephrin, or 1 per cent. cocain and epinephrin, shows opinion about equally divided. Two answers indicate a preference for infiltration anesthesia with 2 per cent. apothecin.

Three of the answers indicate that local application of 4 per cent. cocain, together with subconjunctival and deep orbital injections of 1 per cent. cocain and epinephrin, also is used for enucleation. However, a greater percentage of the men use procain (novocain) in from 1 to 2 per cent. solution by infiltration methods for operations on the muscles, lids and sac, and enucleation, when general anesthesia is not to be employed.

OBJECTIONS TO NEWER ANESTHETICS

In condensed form, the objection made to all of the newer local anesthetics, as indicated by the answers, is that none of them present all of the advantages possessed by cocain, and many of them present distinct disadvantages, not the least of which is difficulty in procuring them. Alypin, beta-eucain, acoin and apothecin were mentioned in numerous answers, but with the single exception of one endorsement of apothecin for infiltration anesthesia for enucleation, all were condemned as unsatisfactory for ophthalmic work. Alypin was pronounced too feeble as well as too toxic, and the same objection was raised concerning beta-eucain. Acoin was considered by two as painful to use, and about 25 per cent. of the answers indicated that apothecin is next to useless as an instillation, and not so satisfactory as either cocain or procain (novocain) in infiltration anesthesia. It also is considered more toxic than procain (novocain), and though less toxic than cocain, is thought to be far less efficient than the latter agent in infiltration anesthesia. Even phenacain, which next to cocain is most in favor, offers the objection that it produces irritation of the eyes, must be prepared and kept in porcelain receptacles, and not infrequently is difficult to obtain.

STRENGTH OF SOLUTIONS PREFERRED

Concerning the strength of solutions, there is almost unanimity of opinion that a 4 per cent. solution of cocain and a 2 per cent. solution of phenacain will be proper concentrations for all but the surface anesthesia required for removal of foreign bodies from the cornea, applications of cautery or irritating remedies, or tonometry, when 1 per cent. solution of phenacain is considered sufficient. The combination of a 4 per cent. solution of cocain with a 1 per cent. solution of phenacain, or a 1 per cent. solution of cocain with 2 per cent. solution of phenacain for deep local anesthesia, and especially to effect anesthesia of the iris prior to cataract extraction, seems to be popular with several well known ophthalmologists of wide experience. For superficial or surface anesthesia one instillation of either cocain or phenacain solution is deemed sufficient, whereas for operative work four instillations at three minute intervals are deemed required. The use of stronger solutions as well as an increase of the number of instillations of the standard solutions, is thought to induce collapse of the cornea as well as delay in closure of the corneal wound in cataract extraction.

For infiltration anesthesia, a 1 per cent. solution of cocain is just as popular as a 2 per cent. solution of procain (novocain), even though the lessened toxicity of the latter is admitted. The addition of epinephrin not only adds to the efficiency of the solution by reducing the amount of hemorrhage during the operation; but through constriction of the blood vessels, it lessens the absorption of the anesthetic agent and hence reduces the possibility of toxic effects.

TIME OF ONSET AND DURATION OF ANESTHESIA

Five minutes after the instillation of either cocain or phenacain is considered in all of the replies as sufficient allowance for superficial or surface anesthesia, whereas fifteen minutes, or following immediately after the fourth instillation of either cocain or phenacain at three-minute intervals, is sufficient allowance for the deep anesthesia required for cataract extractions and other operations upon the eyeball. The anesthesia lasts from fifteen to twenty minutes, or long enough for the average ophthalmic operation.

In infiltration anesthesia, most operators allow from eight to ten minutes subsequent to the last injection to insure the maximum anesthesia, and they count upon holding the anesthesia for from thirty to thirty-five minutes.

IRRITATION AND VASCULARITY PRODUCED

All of the observers agree that local instillation of cocain in the eye allays irritation and reduces vascularity, whereas phenacain produces the opposite effect. Most of the ophthalmologists offset the congesting effect of phenacain by adding epinephrin to the solution.

EFFECT ON PUPILS, CORNEAL EPITHELIUM, ACCOMMODATION AND TENSION

Cocain dilates the pupils, desiccates and impairs the nutrition of the cornea, and produces a slight paresis of accommodation, whereas phenacain has no such effects.

Neither cocain nor phenacain affects the tension in the normal eye, but the tension of the glaucomatous eye may be increased by the effect of the dilation of the pupil produced by cocain.

TOXIC EFFECTS

Owing to the fact that only small amounts of local anesthetics are used in ophthalmic practice, the occurrence of toxic effects is rare. However, about 10 per cent. of the answers to our questionnaire mentioned having seen mild toxic disturbances from both instillations and injections of cocain, and in three instances rather alarming symptoms were produced. It is but fair to report that the case presenting the most marked symptoms of collapse occurred following infiltration rather than instillation of a cocain solution, with consequent greater absorption and greater dose of the drug.

Some observers are inclined to believe that the mild toxic symptoms seen after instillation of solutions of cocain may be due to psychic influence as much as to the toxic effects of the cocain.

To offset the theory that toxic effects are not secured from instillations of 4 per cent. solution of cocain in the eye, your committee desires to call attention to an interesting feature in connection with this question, which is that in all of the answers to our questionnaire there is not a report of a case of toxic disturbance from phenacain. This also leads us to question the statement often made that phenacain is more toxic than cocain.

The toxic symptoms observed and described are at first a sense of exhilaration, followed by giddiness, oppressed breathing, pallor, nausea, clammy perspiring skin and general weakness. All of these symptoms usually disappear promptly after the patient lowers the head even with the knees, or is placed in a reclining position.

STABILITY OF SOLUTIONS

Your committee has been interested in the conflicting reports concerning the stability of solutions of cocain, especially when sterilized by boiling. Fully 75 per cent. of those who answered the questionnaire reported that boiling does not impair the efficiency of any of the agents used for the production of local anesthesia, though three well-known members of this section, of ability and wide experience, assert that cocain solutions deteriorate through boiling. To enable the committee to arrive at more definite conclusions concerning this question, several clinicians were asked to compare the effects of boiled and unboiled solutions of cocain of the same strength in individual cases as well as in a series of clinical cases, and the returned reports indicate no difference in the anesthetic effect produced by the solutions that were sterilized by boiling and those not subjected to heat. The question arises, therefore, as to the possibility of erroneous impressions being formed as a direct result of insufficient clinical investigation.

Many of those who answered the questionnaire reported that they invariably sterilize their cocain solutions by boiling a few minutes prior to use in operative work, while others content themselves with dissolving the cocain crystals in water that already has been sterilized by boiling. All of the replies indicate that nothing but freshly prepared solutions of cocain are used in operative work. Solutions will remain active for a much longer time if 5 grains of boric acid is added to each ounce of the solution. One correspondent recommends the addition of 10 grains of chlorbutanol to each ounce of cocain solution, and asserts that it not only preserves the solution for several weeks but intensifies the anesthesia.

EFFECT OF ADDITION OF EPINEPHRIN OR OTHER AGENTS ON THE INTENSITY AND DURATION OF ANESTHESIA

Fully 80 per cent. of those answering the questionnaire asserted that epinephrin added to phenacain and procain (novocain) solutions intensifies as well as slightly prolongs the anesthetic effect. However, concerning this subject, we desire to quote from the pharmacologic studies on local anesthesia conducted by Sollmann, and reported in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Jan. 26, 1918, p. 216, in which it is stated that the addition of an alkali to the local anesthetics other than phenacain, increases their anesthetic efficiency, as tested on the motor as well as the sensory fibers of nerve trunks, and increases the action of the anesthetics when applied to the surface as on the cornea. This increased activity by an alkali is due to the liberation of the anesthetic base which penetrates more readily than the salt. No increased activity occurs through the addition of alkalis when the anesthetic is used by infiltration.

Sollmann further states that the addition of an equal volume of 0.5 per cent. solution of sodium bicarbonate to a solution of cocain for surface anesthesia increases the activity of the cocain from one to two times; the activity of beta-eucain is increased two times; procain

from two to four times; tropacocain and alypin, four times. This effects a marked saving in the amount of anesthetic drug used.

The efficiency of phenacain is destroyed by the addition of an alkali.

COMBINATION OF ANESTHETICS

Inasmuch as some of the answers to our questionnaire indicated preference for various combinations of anesthetics, especially a combination of phenacain and cocain, we desire to call attention to the results of animal experimentation and study of the subject by Sollmann, *THE JOURNAL A. M. A.*, Jan. 26, 1918, p. 218, from which we quote:

The efficiency of mixtures of the local anesthetics corresponds to more or less complete summation without any potentiation. In other words, if two solutions of different anesthetics are diluted until they are "just effective," then a mixture of the two solutions will also be "just effective," no more and no less.

While nothing is gained by combination of anesthetics from the standpoint of efficiency, the undesirable side effects perhaps may be minimized.

RELATIVE TOXICITY: ANIMAL EXPERIMENTATION

The occurrence and symptoms of acute cocain poisoning are so well known that it is unnecessary to do more than call attention to the fact. So far as we know, the literature contains no record of fatal results from cocain poisoning when the drug has been used purely for ophthalmic work, though numerous observers report slightly or even moderately severe toxic symptoms from instillations of even a 4 per cent. solution of cocain in the eye. It may be argued that psychic influences play a prominent rôle in these cases, though one must not forget the possibility of an extremely well-marked idiosyncrasy.

Concerning the relative toxicity and range of concentration of solutions for the several local anesthetics, attention may be called to the various investigations reported by Eggleston and Hatcher, in the *Journal of Pharmacology and Experimental Therapeutics*, August, 1919, p. 433, and in *THE JOURNAL A. M. A.*, Oct. 25, 1919, p. 1256, a digest of which is herewith presented.

The search for substitutes for cocain has led to the introduction into materia medica of a large number of compounds possessing the property of causing local anesthesia, and for each of these the claim has been made that it is less toxic than cocain. These compounds belong to several general chemical groups, and not only do these compounds of somewhat diverse chemical nature possess the common property of producing local anesthesia, but also they resemble one another very closely in all their more important pharmacologic actions, such differences as are shown being chiefly quantitative. All are capable of producing severe or even fatal acute poisoning in man, with symptoms closely related to those produced by cocain.

The rapidity of absorption of the drug into the blood stream seems to be the feature of greatest importance in determining the occurrence of acute intoxication, especially in the case of the several substitutes for cocain. An investigation was undertaken by the Research Committee of the Council on Pharmacy and Chemistry in an attempt to throw some light on the causes of acute intoxication in man produced by the several local anesthetics, to discover if possible some of the factors which influence the toxicity of these

drugs, and to find means of avoiding or combating the acute toxic actions. More than 300 animal experiments were performed, all of which were made on cats, which more closely resemble man in their response to most drugs than do the rodents. The local anesthetics employed were alypin, apothesisin, beta-eucain, cocain, phenacain, nirvanin, procain (novocain), stovain and tropacocain.

The relative toxicity of these local anesthetics is shown in the accompanying chart.

From the chart it will be seen that cocain occupies an intermediate position with reference to its maximal toxicity, being surpassed by alypin, beta-eucain and phenacain, while the least toxic are nirvanin and procain. It will be noted that apothesisin is but slightly less toxic than cocain, and is a little more than twice as toxic as procain (novocain).

It also was shown that many times the minimum fatal dose of procain (novocain) can be injected intravenously *if the injection is made slowly*. The recovery from a sublethal dose is very rapid except in the case

of cocain, even when the dose approaches closely to the fatal. Cocain cannot be given by repeated intravenous injection of small doses without the development of evidences of accumulation as shown by the increasing severity of the symptoms following the later repetitions, and by the ultimate death of the animal after five times the minimum single dose given in a period of four hours and sixteen minutes. In the case of procain (novocain), the simultaneous administration of epinephrin greatly reduces the toxicity.

The elimination of cocain and phenacain is a slow process, and in the case of cocain it may not be complete after periods of two or more days. Cocain and phenacain are relatively slowly destroyed, so that even when absorption is delayed by the vasoconstrictor effect of epinephrin they are still capable of accumulation in the essential organs sufficient to cause serious intoxication or death when from five to six times the fatal vein dose is injected subcutaneously.

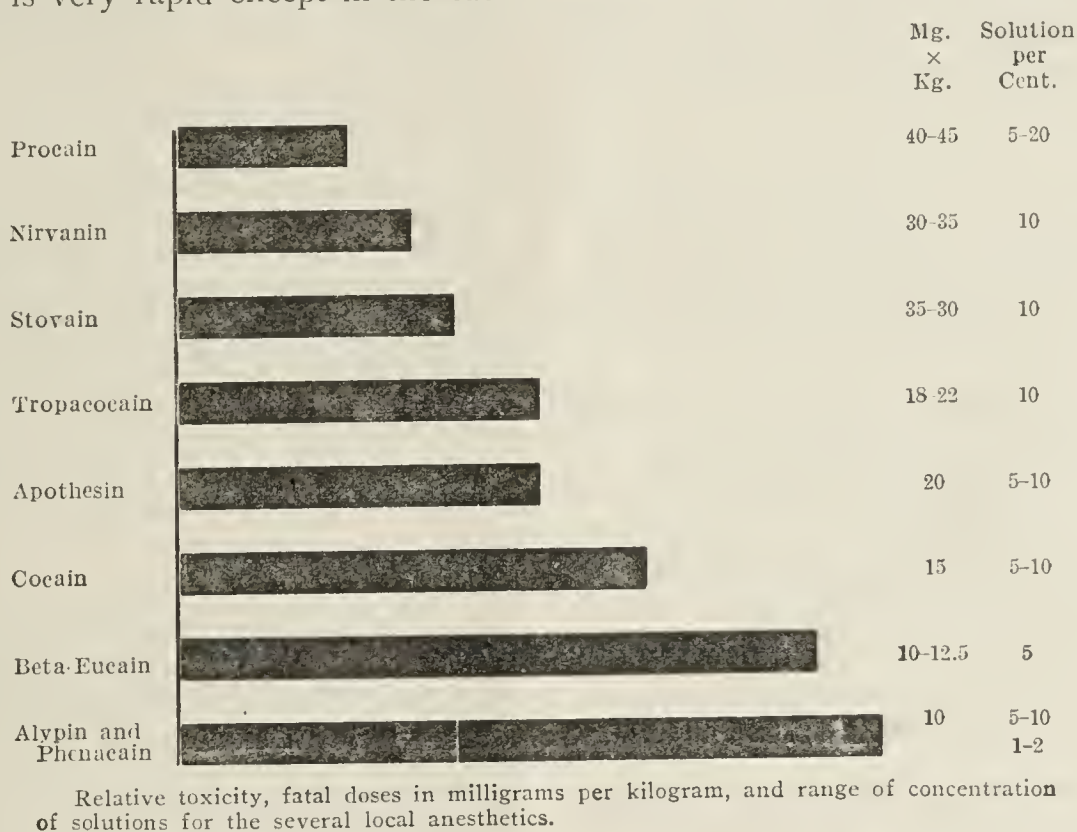
On the other hand, the importance of the rapid destruction of the other members of the group is emphasized by the experiments with epinephrin, and it would seem to point to the decided value of always using epinephrin as a routine in combination with the cocain substitutes for subcutaneous injection in man, to delay absorption and diminish the chances of accidental poisoning.

Eggleston and Hatcher again state, THE JOURNAL A. M. A., Oct. 25, 1919, p. 1258, that in order to diminish the likelihood of intoxication from the subcutaneous injection of the local anesthetics excepting cocain and phenacain, epinephrin should be

added to the solution as a routine, because by delaying their absorption it renders it probable that the destruction by the liver can keep the amount present in the circulation at any time at a point below that sufficient to cause intoxication. The use of epinephrin also has the further advantages of prolonging the anesthetic action of a given quantity of the drug and reducing the amount required to remain in contact with the tissue, and by maintaining the contact for a longer period of time than when the drug is injected alone.

LITERATURE

While your committee has reviewed a great deal of literature pertaining to local anesthesia in ophthalmic work, most of which is the expression of individual opinions, it does not seem necessary to quote extensively or give the large number of references that would be required in order to do the subject justice. For the most part, the opinions expressed in recent literature are not at variance with the deductions drawn by your



committee from an analysis of the experience of our members and the results of experimental investigation carried on by the Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association. We especially are impressed with the favor shown infiltration anesthesia in ophthalmic work by so many of the prominent European ophthalmologists of wide clinical experience.

Perhaps the latest and most comprehensive work is that entitled, "L'Anesthesie locale en ophthalmologie," by C. Duverger, professor of clinical ophthalmology at Strasbourg. (Translated for the Committee by Dr. Pierre Gaudisart, Brussels.) A résumé of the principal points contained in that work is given herewith:

I. ANATOMIC RESEARCHES

Conclusions drawn from experiments on skull and on cadaver.

(a) Needle 4.5 cm., reserved for total anesthesia of the superior maxillary nerve, or when there is edema of the region.

(b) Needle 3.5 cm., suffices in all other cases and can never injure the optic nerve.

(c) Needle 2.5 c., for skin, conjunctiva and lacrimal sac.

II. SOLUTIONS

(a) For instillations in culdesac, cocain from 5 to 10 per cent solutions.

(b) For injections:

(1) Cocain solution 1 per cent. at the most, and better 0.5 per cent.

(2) Procain (novocain) solution is much better (Anesthetic power three times greater than cocain; ten times less toxic.)

In general surgery, 1 gm. may be used. For the eye, on account of the strong absorption power of orbital tissues, it is better never to inject more than 50 centigrams.

Concentration.—Four per cent. solution is the best.

Anesthesia of the whole content of the orbit requires only four injections of 2 c.c. temperature 32 C.

For broad plastics of the face, injections of from 1 per cent. to 0.5 per cent. dilutions are the best.

Epinephrin is useful in weak concentrations:

SOLUTION 1	
Procain	0.20 gm.
Epinephrin	(1/1,000) 2 drops
Water	5 c.c.

SOLUTION 2	
Procain	0.10 gm.
Epinephrin	(1/100) 4 drops
Water	10 c.c.

GENERAL METHODS

Local anesthesia (instillations, infiltrations of tissues.)

Regional anesthesia; anesthesia of nervous branches.

Infiltration anesthesia is inferior to regional anesthesia because it alters the field by swelling and does not succeed with scar tissue and inflamed tissue.

Instillations must precede every operation. They reach superficial parts of the conjunctiva, cornea and iris. They never reach deep layers of the conjunctiva, subconjunctival tissues or ciliary body, and they are without action on inflamed tissues.

ANESTHESIA OF THE GLOBE

1. *Cornea.*—When the eye is noninflamed, instillation. When the eye is inflamed, instillation only suffices for extraction of foreign body, cauterization or tonometry.

If there is traction on the conjunctiva, or pressure on the globe or emptiness of anterior chamber, conjunctival or deep anesthesia is required.

2. *Conjunctiva (Bulbar).*—The zone next to the limbus, breadth of 3 mm., innervated by the ciliary nerves, is anesthetized by the deep injection for anesthesia of the globe.

With all the operations which require a more extensive insensibility, subconjunctival infiltration, with a small and acute needle, and the 2 or 4 per cent. procain solution, must be used. This anesthesia also must be made in every complete anesthesia of the globe, for instance, in enucleation.

3. *Anterior Chamber.*—Cysts or Iridectomy: When the eye is white, instillations of from 5 to 10 per cent. cocain solution. When the eye is red and inflamed; deep anesthesia of the globe is required.

4. *Deep Anesthesia of the Globe.*—With 3.5 cm. needle, the author never has had the slightest accident. From 2 to 3 c.c. of 4 per cent. procain solution.

Injection: Lower and outer angle of rim of orbit. Needle is thrust in just against the bone, guided by the tip of the finger. Needle directed backward, upward and slightly inward, aiming to hug the floor of the orbit, then pushed in until its base reaches the orbital margin. During this time 0.5 c.c. is injected. The 1.5 c.c. remaining must be injected at several intervals, each time changing the position of the point of the needle. In that way, all the nervous branches of the muscular cone are reached by the diffusion of the liquid. In very inflamed eyes, it is better to inject 3 c.c. instead of 2 c.c.

As a second step, the subconjunctival infiltration must be done, but only as a second step.

The advantage of the injection through the skin is that in this way the painful globe is not touched.¹

5. *Lids and Palpebral Conjunctiva.*—Anesthesia of the four nervous branches (nasal, frontal, lacrimal and suborbital) is too complicated when an operation is on the lids only.

The following method is more simple: From 2 to 4 per cent. solution is used. A needle, 2.5 cm., is introduced, 0.5 cm. to the outer side of the external canthus and 0.5 cm. below the external canthus. It is conducted midway between the skin and conjunctiva up to the inner canthus. When both lids are concerned, anesthesia may be obtained by the same puncture, by tilting the needle. This injection reaches all the nervous

fibers which run from the base toward the margin of the lid. This injection suffices for all the operations on the lids.

For the Mota's operation:

(a) Anesthesia of the upper lid.

(b) Needle thrust a second time exactly at the middle of the orbital margin, backward, parallel to the roof of the orbit, 2.5 cm. needle, 1 c.c. injected.

6. *Palpebral Plastics.*—Preliminary anesthesia of the lids is required.

(A) Autoplasty with Frontal Flap: Four and five-tenths cm. needle is thrust in at outer end of eyebrow up to the periosteum and pushed in, keeping in contact with the bone to the inner end of the eyebrow. During this time the liquid is injected slowly: 2 c.c. of a 4 per cent. solution.

The first step is common to all the frontal plastics.

The second varies.

(a) Flap with internal pedicle.

Needle thrust at inner angle of eyebrow of the other side, then pushed vertically in the median line up to the limit between upper third and inferior two thirds. All the branches coming from the opposite side are reached in that way.

(b) Flap with external pedicle.

Needle thrust near outer canthus and pushed backward, more or less upward, according to the situation of the pedicle.

(B) Autoplasty with Temporal Flap:

(a) Injection on the outer third of the orbital margin.

(b) Anesthesia of the frontolacrimal nerve in the sphenoidal cleft.

(C) Autoplasty with Maxillary Flap:

(a) Anesthesia of the suborbital nerve.

Patient clenches teeth, with the operator's finger on the point where masseter muscle begins to be inserted on bone. On the line connecting this point to the edge which marks the upper part of the wing of the nose, the needle is thrust a trifle inside the middle of this line, and pushed upward, backward and outward so that its direction cuts the middle of the mouth and that its angle with the tissues is 20 degrees (practically the thickness of the finger). One c.c. of 6 per cent. solution is the anesthetic for the lower lid, the inner part of the cheek and the wing of the nose.

(b) Lacrimal.

(c) Inferior and outer barrier.

Needle thrust in the cheek, a trifle above external angle of lips, pushed backward up to the vertical branch of the lower jaw, then thrust again and pushed upward to the level of the tragus of the ear. From 5 to 6 c.c. of 2 per cent. solution is used.

7. *Muscles-Strabismus.*—Deep injection as used for the complete anesthesia of the globe.

8. *Orbital Anesthesia.*—(a) Anesthesia of the nasal nerve.

The finger is placed on the pulley of the superior oblique muscle, a needle, 3.5 cm., is thrust against the inner side of the pulley, slips against the orbital wall backward, always with the point kept in contact with the supero-internal angle, with the base of the needle against the margin 0.5 c.c. of a 4 per cent. solution is injected. Thus anesthesia of all the branches of the nasal nerve is obtained with the roots of the ophthalmic ganglion.

(a) Anesthesia of frontal and lacrimal nerves.

The needle is thrust in at the outer angle of the margin of the orbit, above the palpebral ligament. It is pushed carefully horizontally, with care not to break the needle against the bone. Five-tenths c.c. of a 4 per cent. solution is injected when the base of the needle is against the margin.

(c) Anesthesia of superior maxillary nerve: in sphenomaxillary fissure.

A needle 4.5 cm. is thrust against the orbital margin, the outer and lower angle being 10 or 12 mm. inside this angle. It is pushed in the anteroposterior plane, backward and downward. When the base is against the margin, the injections are made.

CONCLUSIONS

In analyzing the results of this investigation, so far as our present knowledge of ophthalmic work is concerned, your committee feels justified in arriving at the following conclusions:

1. For the Elliot operation, when the eye is quiet, repeated instillations and subconjunctival infiltration in the upper part are sufficient.

1. For surface anesthesia, cocain in 4 per cent. solution, freshly made, possesses distinct advantages over all other local anesthetics, particularly for operative work. Concerning cocain anesthesia the following is offered:

(a) In all instances, the anesthesia is equal to and in most cases it is greater than that produced by any other local anesthetic.

(b) Its toxicity when used in the small dosage required for ocular anesthesia is almost negligible and does not count as a serious objection.

(c) The desiccation and disturbance of nutrition of the cornea produced by it are negligible or entirely avoided if care is observed in keeping the eyelids closed after the instillations of the cocain solution and up to the time that the operative work is to begin.

(d) The dilatation produced by the cocain is of short duration, does not often occasion inconvenience, and may be overcome promptly by the counter effect of a weak miotic.

(e) The penetrating effect of cocain solution is increased by the addition of 0.5 per cent. solution of sodium bicarbonate.

(f) The efficiency of cocain solution is not impaired by boiling.

(g) The efficiency of cocain solutions is not affected either as to intensity or prolongation of anesthesia by the addition of epinephrin.

(h) The use of stronger solutions than the one recommended are at the risk of seriously disturbing the nutrition of the cornea and interfering with the healing process.

2. Phenacain in 2 per cent. solution stands next to cocain in efficiency.

Concerning phenacain anesthesia the following is offered:

(a) It has the advantage of producing a quicker effect than cocain and a slight antiseptic action.

(b) It does not dilate the pupil, hence is valuable in producing surface anesthesia for tonometry, therapeutics and removal of foreign bodies from the cornea.

(c) It does not produce desiccation of the cornea, nor, so far as known, disturb nutrition.

(d) The solutions are not affected by boiling.

(e) Epinephrin does not add to its efficiency in any way.

(f) Alkalis should not be added to phenacain solutions as they cause precipitation.

(g) Phenacain offers the distinct disadvantage of producing more or less irritation, which is very objectionable to sensitive patients.

(h) Phenacain is incompatible with alkalis and their carbonate bases, and the use of glass vessels should be avoided in preparing the solution, porcelain being used instead.

3. Procain (novocain) in 2 per cent. solution is the anesthetic of choice for infiltration anesthesia.

(a) The addition of epinephrin does not increase efficiency, but does delay absorption and diminish the chances of accidental poisoning.

(b) Procain (novocain) solutions should be injected slowly to aid in the avoidance of toxic effects.

(c) The efficiency of procain (novocain) solutions is not increased by the addition of alkalis.

RECOMMENDATIONS

Your committee believes that it is highly advisable to find, if possible, a synthetic anesthetic which will take

the place of cocain—one that will be less toxic, less expensive, nonhabit-forming and equally efficient.

The Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association is now experimenting with several new local anesthetics not yet on the market, one of which is especially promising, though it must be tested clinically before expectations are raised. Your committee has been placed in possession of samples of this promising local anesthetic but has not had time to conduct sufficient tests to warrant an expression of opinion. The results of experiments in progress seem to indicate that cocain may be replaced successfully by one or more new synthetic anesthetics, although no definite announcement concerning the matter will be made until after adequate clinical tests justify some announcement. To that end we recommend that a committee be selected to cooperate with the Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association in carrying out such clinical investigations and experimental study, under suitable checks as to methods and technic as may seem indicated, in order to determine the advantages and disadvantages of the newer local anesthetics as they may be offered, as well as to continue the further study of any of the local anesthetics at present under study or that are considered in this report.

Your committee also recommends the further study of the advantages and disadvantages of infiltration anesthesia in ophthalmic work, with the possibility in view of recommending a more general employment of such form of anesthesia in ophthalmic operative work. Such an investigation should embrace a study of the agents adaptable to the purpose, the strength of the solutions and technic of application.

Any and all investigations should be independent of and uninfluenced by the recommendations or reports of manufacturers who usually are prejudiced because of the commercial interest in view.

ALBERT E. BULSON, JR., Fort Wayne,
Chairman.

WILLIAM ZENTMAYER, Philadelphia.

EDGAR S. THOMSON, New York.

H. MAXWELL LANGDON, Philadelphia.

JOEL WHITAKER, Indianapolis.

Tribute to Cardarelli and Maragliano.—The Twenty-Sixth Italian Congress for Internal Medicine was held recently at Naples, and was made a special tribute to the two best known Italian internists, Prof. A. Cardarelli and Prof. E. Maragliano, as the date corresponded with a professional anniversary. The issue of the *Riforma Medica* of Naples for October 22 is filled with tributes sent in by clinicians and internists from a number of different countries, including Falta of Vienna, Penzoldt of Erlangen, Henryjean of Belgium, Trunczek and Schmidt of Prague, Collet and Teissier of Lyons, Achard, Chauffard, Gilbert, Roger and Widal of Paris; Orth, B. Fischer and Schittenhelm of Berlin, Frankfurt and Kiel; a number in England, Laache of Norway, Lewellys Barker of Baltimore, Max Einhorn of New York, Holmgren of Stockholm, Sahli of Berne, and numbers of others. The portraits of Cardarelli and Maragliano accompany this tribute. This issue of the *Riforma* is sold separately for 5 liras (Piazza Settembre 22, Naples). The two following issues contain the scientific proceedings and are likewise to be sold separately, for 3 liras each. The *Riforma* was founded by Prof. G. Rummo in 1885, and at his death Cardarelli and Maragliano, both senators of the realm, became its directors, but Prof. A. Ferrannini is the acting editor.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address : : : "Medic, Chicago"

Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, NOVEMBER 26, 1921

ATHREPSIA IN INFANTS

Infants may experience a variety of chronic disturbances of nutrition which are independent of known infections or recognized local causes. Sometimes the illness is characterized merely by a failure to gain in body weight, despite a liberal intake of food and an absence of conspicuous symptoms of indigestion. The condition here referred to has been designated as "Bilanzstörung" by some of the continental pediatricians. Other cases of disturbed nutrition may be associated with inability to digest sufficient food to meet the energy requirements for both maintenance and growth. A further category, involving much more serious conditions, includes infants who do not even maintain their weight, but pass into a state of malnutrition. This has been variously described by the terms "infantile atrophy," "Dekomposition" and "marasmus"; Marriott¹ of St. Louis has proposed that Parrot's older designation, athrepsia,² be retained for it.

Athrepsia should not be confused with conditions accompanying acute gastro-intestinal disturbances or toxicoses demonstrably of alimentary origin. It is a truly chronic malady attended with upset of normal nutritive functions. The picture presented by the infant patients has been well described as "weakness and advanced emaciation without any evident cause for this condition and without general symptoms referable to the nervous system." Intestinal abnormalities are usually observed, but they appear to be a consequence rather than a forerunner of the athreptic state. The older idea of the existence of an atrophy of the alimentary tract in these cases has been abandoned as untenable in the light of postmortem evidence. Other hypotheses, such as the assumption of a negative mineral nutrient balance owing to abnormally large losses of bases like sodium, potassium and calcium through diarrheal stools, or the recourse to the always available theory of acidosis, also have not proved adequate to explain all the phenomena afforded by the sick child. There is little doubt that in advanced athrepsia there is a marked lack of absorption and consequently a poor nutritive condition due to lack

of sufficient food; but the question whether there are functional disturbances beyond the alimentary barrier has not been satisfactorily answered.

Recently, Uthheim³ of the Department of Pediatrics at Washington University, St. Louis, has added some significant facts to our knowledge of athrepsia. He has demonstrated that in the case of infants suffering from this condition there is a diminished capacity of the organism to bring about such oxidations as the transformation of benzene to phenols. Added evidence of metabolic disturbances from decreased oxidative capacity was secured by a study of the urine. In athreptic infants there is an indication of excretion of an excessive amount of organic material containing little or no nitrogen. There is no increase in the excretion of creatinin, uric acid or amino-acid nitrogen in the urine, but during the severe stages of athrepsia there is an increased excretion of organic acids in the urine. As might be expected, the presence of large amounts of organic acids is accompanied by increased excretion of ammonia, which has hitherto been taken as the indicator of the acidosis. During the severer stages of athrepsia, the intestinal loss of energy derived from the food material in the stools may exceed 25 per cent. of the intake. With improvement in the nutritional condition of the infant, the utilization of food is much greater. The excretion of organic acids and ammonia likewise decreases. With respect to the basal metabolism of infants exhibiting severe malnutrition, Talbot⁴ has lately observed at the Massachusetts General Hospital that the heat output per kilogram is higher than in normal average infants. He asserts that, with increasing nutritive decline, the divergence from the normal becomes greater and body heat is lost more easily because of the lack of the insulating layer of subcutaneous fat and of the greater radiation of heat due to the relative increase in body surface as compared to the weight. When the heat loss becomes greater than the heat production, the temperature becomes subnormal. This condition can be remedied only by the application of enough external heat to make up for the loss.

Marriott has stressed the fact that one outcome of the prolonged period of negative energy balance owing to poor food absorption and utilization is a diminution in the volume and in the volume flow of the blood which results in the inability of the infant to utilize suitable food given in reasonable amounts. He considers the slight degree of acidosis sometimes observed as a result but in no way a cause of the condition. The poorer circulation would of itself in time help to render metabolism incomplete. Without considering possible hereditary or constitutional factors, Uthheim remarks

3. Uthheim, Kirsten: Metabolism Studies in Infants Suffering from Chronic Nutritional Disturbances (Athrepsia), *Am. J. Dis. Child.* **22**: 329 (Oct.) 1921.

4. Talbot, F. B.: Severe Infantile Malnutrition: The Energy Metabolism, with the Report of a New Series of Cases, *Am. J. Dis. Child.* **22**: 358 (Oct.) 1921.

1. Marriott, W. M.: Some Phases of Pathology of Nutrition in Infancy, *Am. J. Dis. Child.* **20**: 461 (Dec.) 1920.

2. Parrot: *L'athrepsie*, Paris, 1877.

that even in adults there is a great difference in the reaction toward food and surroundings. Such differences are even more marked during the period of infancy; it would seem quite likely that certain infants are less capable of adapting themselves to artificial feeding than are others, and it is the infants of this group that fall into the condition of athrepsia when deprived of the natural nourishment. One of the first effects of failing nutrition is, perhaps, in the circulatory system, followed later by changes in the intermediary metabolism and functional disturbance in the intestinal tract. None of the factors taken alone, Uthheim concludes, will explain the picture; but, together, they contribute in developing the athreptic condition.

BACTERIALLY TAINTED MONEY

During the earlier years of the development of the modern science of bacteriology, the hunt for harmful microbes was a popular laboratory pastime. The readily secured evidence of the widespread distribution of germs—perhaps it should be designated the omnipresence of bacteria—at first disturbed the peace of mind of many persons who now saw the possibilities of disease transmission awaiting them at every turn. Presently, however, it became clearer that not all micro-organisms are baneful and that some are at least relatively innocuous; while the varied protective devices of the human organism against the microscopic invaders were being discovered in rapid succession, thus bringing the sense of relief that comes from the contemplation of our factors of safety.

The alleged danger of dirty money passed frequently from person to person in every day life has long furnished a subject for discussion by those who are accustomed to seek unanticipated calamities or who have in mind some project of a prophylactic nature. Not infrequently the latter are actuated by something more than purely philanthropic motives. There is no reason to believe, as might be expected if money in circulation were a menace to health, that those who handle it most frequently are peculiarly subject to disease. There are, of course, employments which represent vocational risks to the employees. Bank tellers and other money changers are not demonstrably exposed to unusual chances of infection, although the money which they handle is a medium received from all kinds of persons, often without regard to the possibility that it may be a carrier of infection.

There are scientific reasons why metallic coins may actually be destructive to bacteria. The latter are sensitive to small concentrations of the ions of some of the heavy metals. That such bactericidal action is actually exerted by coins seems likely from the studies of Ward and Tanner¹ at the University of Illinois, who found the indicators of pollution used in sanitary investigation

entirely absent from coins in current use and examined by them. Thirty-seven of the strains of micro-organisms isolated from the coins were spore formers, and probably spores are necessary before the organism may perpetuate itself for any considerable length of time on coins. This, the Illinois bacteriologists assume, may explain why none of the commonly accepted indicators of pollution were found. They are not spore-forming organisms, and consequently are destroyed by the action of the metals. In other words, the coins act to some extent as bactericides. Similar experiments reported in Great Britain, where the ability of coins to spread disease was tested by the use of common pathogenic micro-organisms, disclosed that the life of the latter on the coins was very short. It was concluded that coins may be regarded as negligible factors in the transmission of disease.

Ward and Tanner have pointed out that postage stamps have somewhat the same relation to the public that money does, although their constitution is quite different from that of coins. Stamps are used but once and are not handled by so many individuals, although the adhesive applied to them might be a favorable abode for micro-organisms for relatively long periods of time. Nevertheless, the menace is not regarded as a threatening one; and in an investigation conducted some years ago with reference to the question here at issue, pathogenic bacteria were rarely found on stamps.²

NEW SHEPPARD-TOWNER BILL PASSES

On November 19, the House of Representatives adopted the bill for the protection of maternity and infancy prepared by its Committee on Interstate and Foreign Commerce. This bill was substituted for the Sheppard-Towner bill recently passed by the Senate. On November 21 the Senate unanimously accepted the House bill as a substitute. The bill has now gone to the President for his signature, which is practically assured. The amendments made by the House are extensive, all of the text after the enacting clause being stricken out, and a new text substituted. The committee states, in its report, that "individuals, organizations and public prints which have contributed views on the subject have confined their discussions to one of the following general propositions," and then lists these propositions, which include practically all of the points against this bill which have appeared in *THE JOURNAL* from time to time. It is apparent that the committee was guided by these objections in its revision, and has endeavored to meet them.

The Senate bill appropriated \$480,000 a year without time limit, \$10,000 to be paid yearly to each state for administrative expenses. It also appropriated one million dollars a year without time limit to be prorated

1. Ward, Charlotte B., and Tanner, F. W.: Bacteria on Subsidiary Coins and Currency, *Am. J. M. Sc.* **162**: 585 (Oct.) 1921.

2. Keilty, R. A., and McMaster, P. D.: *Med. Rec.* **90**: 153 (July 22) 1916.

among the states in proportion to the population. The House bill appropriates \$480,000 for the current year and \$240,000 for the five years thereafter, to be equally divided among the states for administrative expenses, and makes a further appropriation of one million dollars a year for a limited period of five years, to be prorated among the states in proportion to the population. A second difference is that the Senate bill placed the administration of the bill in the hands of the Children's Bureau of the Department of Labor and provided for an advisory committee consisting of the Secretary of Agriculture, the Surgeon-General of the United States Public Health Service and the U. S. Commissioner of Education. The House bill creates a board of maternity and infant hygiene consisting of the chief of the Children's Bureau, the Surgeon-General of the United States Public Health Service and the United States Commissioner of Education. The Senate bill provided for the appointment of state and local advisory committees, at least one half of whose members shall be women. This provision is omitted in the House of Representatives bill. The most important difference, however, is in the provisions for the approval of plans and the distribution of money. The Senate bill provided that any state desiring to avail itself of the benefits of the act shall "submit to the Children's Bureau for its approval detailed plans for carrying out the provisions of this act. These plans shall provide solely for administration of the act in the state and provision for instruction in the hygiene of maternity and infancy through public health nurses, consultation centers and other suitable methods." The House of Representatives bill requires each state to submit "detailed plans for carrying out the provisions of this act . . . which plans shall be subject to the approval of the board." The last section of the House of Representatives bill provides an additional guarantee against bureaucratic control by providing that "this act shall be construed as intended to secure to the various states control of the administration of this act in their respective states." The Senate bill placed the complete control of all appropriations in the hands of the Children's Bureau, and required all states desiring to secure their part of the appropriation to submit plans for instruction in the hygiene of maternity and infancy through public health nurses, consultation centers and other suitable methods. The House bill places the control of the money appropriated in the hands of a board of three and provides only that the plan submitted by the state shall be subject to the approval of the board.

The House bill, as finally adopted by both houses, is much less objectionable than the one passed by the Senate. The objectionable feature of contingent appropriation still remains, and states will be tempted to appropriate money merely to get the equal amount

offered by the national government. THE JOURNAL has insisted that this work, if undertaken at all by the federal government, should be a function of the United States Public Health Service. Placing the control in the hands of a board, consisting of two laymen and one physician, does not insure efficient medical administration of what is essentially a medical problem.

THE FUNCTIONS OF THE GALLBLADDER AND THE BILE DUCTS

To the surgeon, who is often compelled to interfere with the integrity of the bile passages and the gallbladder, the prevailing uncertainty regarding the physiologic functions of these structures must be disconcerting. In extirpating the gallbladder he cannot fail to ask himself whether the organ is devoid of any importance for the body or to speculate on what it actually brings about in relation to the bile either in health or in disease. An appeal to current textbooks brings little satisfaction. They assure us essentially that the bladder has a motor function. Although the bile is formed more or less continuously, it enters the duodenum only at intervals associated with periods of digestion. Between these the sphincter at the end of the common bile duct is effective in stopping the onward progress of the bile, wherefore it is "stored" in the gallbladder. The gush of chyme into the duodenum seems to be the impetus, probably by reflex action, for a contraction of the gallbladder and an inhibition of the sphincter closing the opening into the intestine.¹

Analyses of bile obtained from different parts of the biliary system have long demonstrated that the concentration of the hepatic secretion varies considerably as it is recovered from different localities in its onward path. Bladder bile is notably "thick." Some writers have given special emphasis to the view that considerable secretion of mucus and other substances takes place from the walls of the gallbladder, thereby contributing to the higher concentration of the contents. This idea has been given prominence in attempts to explain the genesis of gallstones in the bladder. The latter has been looked on as an added source of cholesterol in particular, Naunyn and his followers being largely responsible for the dominance of the hypothesis.² They have maintained that bladder bile is frequently relatively richer in the rather insoluble cholesterol, which constitutes the foremost component of biliary calculi found in the gallbladder.

The possibility that liver bile may be concentrated by mere absorption of water through the walls of the gallbladder during its more or less enforced stay there has never been lost sight of. To Rous and McMaster³

1. Howell, W. H.: *Textbook of Physiology*, Ed. 7, Philadelphia, W. B. Saunders Company, 1919, p. 826.

2. Wells, H. G.: *Chemical Pathology*, Ed. 4, Philadelphia, W. B. Saunders Company, 1920, p. 454. Hewlett, A. W.: *Pathological Physiology of Internal Diseases*, New York, D. Appleton & Co., 1917, p. 338.

3. Rous, Peyton, and McMaster, P. D.: *The Concentrating Activity of the Gallbladder*, *J. Exper. Med.* **34**: 47 (July) 1921.

of the Rockefeller Institute for Medical Research is due the convincing demonstration of the surprising extent to which this mode of inspissation is a physiologic process. According to their latest observations, the gallbladder is something more than a mere muscular reservoir. It is capable of reducing the volume of the bile with surprising speed by the absorption of water. For example, in dogs a gallbladder, emptied at the beginning of one experiment and left to fill from the liver, concentrated the 49.8 c.c. of bile reaching it in twenty-two and one-half hours to 4.6 c.c., that is to say, reduced its bulk 10.8 times; while another bladder, left distended with a bile of known constitution and receiving in addition fresh increments from the liver, concentrated the secretion 8.9 times in twenty-two hours. Merely in its passage through the bladder, the bile may be concentrated more than four times. Rous and McMaster even look on the propulsive properties of this organ as subsidiary to the unique storage function. The gallbladder, they point out, acts like a distensible bag interpolated into a rigid system of tubes, to minimize extremes of pressure when bile comes rapidly or in large quantity from the liver, and its escape into the intestine is prevented by the sphincter. The bag in question is rendered capacious not so much through its size as by a singular ability to reduce the bulk of the fluid reaching it.

It is not surprising, therefore, that after cholecystectomy the bile ducts sometimes dilate so that the sphincter at the duodenum gives way.⁴ As a practical deduction, it is obviously desirable to induce an opening of the sphincter at frequent intervals when the reservoir is removed. This can be accomplished by shortening the intervals between the feeding periods, so that the ducts will not become unduly distended in order to retain the secretory output of the liver in the interval from one gastric digestion time to another. The New York pathologists, in warning against the conception of the gallbladder as a mere diverticulum in the duct system, remark that the special character of its influence on the bile deserves emphasis as demonstrating the highly purposeful differentiation of the organ. The fact that few ills follow upon removal of the normal gallbladder means merely that the body has adapted itself to the loss, not that the loss is unimportant. In this connection, they add, the surgeon would do well to remember that uncertainty as to function and confidence in readjustment are at best questionable motives for adventures in ablation.

If our knowledge of the functions of the gallbladder has heretofore been so obscure, it must be confessed that those of the ducts have been almost unknown. Usually their walls have been assumed to act somewhat like those of the attached bladder. Rous and McMaster,⁵ however, have shown that the activities of the

bladder and ducts, respectively, are of different nature. Glands in the duct walls secrete a thin, colorless fluid which tends to dilute the bile passing through them. Thus, the inspissated product coming from the bladder may again be reduced greatly in concentration and restored to its earlier density. The fluid produced by the ducts forms the "white bile" familiar in certain types of biliary obstruction or when the liver itself has ceased to secrete.

The attested difference between the bladder and the ducts helps to explain why stones of the hepatic duct are less frequent and offer less clinical difficulty than the more familiar bladder calculi. The concentrating activity of the gallbladder renders it a menace during intermittent stasis and whenever the bile itself is of such a kind that stones readily form out of it. The more normal the organ, or, to speak precisely, the more of the concentrating faculty it retains, the greater is the danger. On the other hand, Rous and McMaster conclude, surgeons should realize that the removal of a normal gallbladder entails functional disturbances that are none the less significant because the body adjusts itself to them. Furthermore, cholecystectomy is often followed by a marked and permanent dilatation of all the ducts so that they come to hold much bile. The accumulated secretion is separated from the intestine only by a weakened sphincter, and ascending infection of the ducts has been noted to occur.

Current Comment

PRESCRIBING BEER AND WINE—SENATE ADOPTS CONFERENCE REPORT

The conference report on the Willis-Robinson bill, amending the Volstead act by forbidding the use of wine and beer as medicines, was adopted by the House; the action of the Senate completes the legislative approval of this measure, and sends it to the President for his signature. It is generally understood that the President will approve it. This will automatically revoke the regulations recently issued by Secretary Mellon, permitting the prescribing of wine and beer as medicines. The newly adopted measure specifically forbids their use for this purpose. According to newspaper reports, the brewery interests intend to take this measure before the United States Supreme Court on a test case as quickly as possible. There are two points on which the constitutionality of the law can probably be attacked. The first is Section 6, the so-called Stanley amendment, regulating search and seizure. It is claimed that the law, as passed, constitutes an unwarranted infringement on the rights of the citizen and is in violation of the constitution. The other question is the right of the federal government to determine by law what preparations may or may not be used as medicines. The Volstead act, as its title indicates, was for the purpose of prohibiting intoxicating beverages. The use of alcohol for medicinal purposes was regulated but not forbidden. The same principle is involved here as in the Harrison law. Either the federal gov-

4. Judd, E. S.: *Ann. Surg.* **67**: 473 (April) 1918.

5. Rous, Peyton, and McMaster, P. D.: *Physiological Causes for the Varied Character of Stasis Bile*, *J. Exper. Med.* **34**: 75 (July) 1918.

ernment must recognize the right of any physician legally qualified under the medical practice act of his state to use such remedies for the treatment of disease as his scientific knowledge and ability may determine; or the federal government must undertake, through Congress and its executive departments, to decide what drugs may be used in the treatment of disease. In the latter case, the federal government must assume the responsibility for deciding scientific questions. As this question is fundamental to the practice of medicine, it is to be hoped that it may be brought before the United States Supreme Court for decision at the earliest possible opportunity.

THE PAY CLINIC

A number of pay clinics have recently been established, for the stated purpose of providing examinations by groups of physicians for people of limited resources who are unable to pay large fees, but who are also unwilling to accept charity. Such clinics range from those established under the joint auspices of the state boards of health and the U. S. Public Health Service for the treatment of venereal disease at a very low charge, up to the pay clinics established by certain universities for the examination and, in many cases, the treatment of even wealthy patients who may—or may not—be referred to the clinic by practicing physicians. The latest of these pay clinics is the one recently established by Cornell University College of Medicine, a statement in regard to which appears this week in our correspondence column. The establishing of such clinics has been stimulated by the fact, expressed in recent years, that only the wealthy people and charity patients were able to secure examinations by groups of specialists. The wealthy patient could afford to pay the several fees charged by the individual specialists to whom they were successively referred, while the charity patient went to the free dispensary and secured examinations by the various clinicians which his particular conditions may have required. The real function of the diagnostic clinic is to handle those patients in whom the examination and diagnosis require the use of special apparatus not possessed by the average physician, or when the joint examination by several specialists is essential. To avoid excess charges and to secure reliable treatment, therefore, many patients have preferred to attend the free dispensary. Most of these patients, if they could secure satisfactory medical attention, would gladly pay reasonable charges. Such clinics can be successful and render an excellent and continuous service to the public when at the same time they establish a close cooperative relationship with the local practicing physicians. They should receive no patients able to pay a fee unless the patients are referred by the family physician—if they have one—or are received with his knowledge or approval; and, to prevent the appearance of competition, the fee charged by the clinic should be no less than that charged for a like service by the family physician. Where clinics so conducted have back of them a well-known university or hospital, or when they are conducted by physicians of established reputation, they will meet a positive need in their respective communities. It must be remembered that the family physician, after all, is the most important factor; it is through his intimate contact and

personal acquaintance with the patient that sound advice and proper treatment can be best secured for the great majority of sick people. Diagnostic or pay clinics will render their greatest service both to the public and to the medical profession if they cooperate to the greatest possible extent with the family physician.

NOSTRUMS AND QUACKERY: VOLUME II

In 1911 the American Medical Association published "Nostrums and Quackery"; this volume of 500 pages represented an accumulation of much of the material published up to that time on the nostrum evil, quackery and allied matters affecting the public health. The book was extensively reviewed, both in medical and lay periodicals, and the first edition was quickly exhausted. A second edition of Volume I, some 200 pages larger, appeared in about a year, and this also has had a wide and general circulation. Since January, 1913, when the second edition was issued, THE JOURNAL has continued to publish articles of interest to the public on the nostrum evil and on quackery, and these articles have been republished from time to time in pamphlet form. The number of inquiries coming to THE JOURNAL for information relative to various quacks, "patent medicines" and allied subjects has now led to the issuing of a second volume in which all of the material published since the second edition of Volume I has been brought together and freely illustrated. The book, uniform in style with Volume I, contains more than 800 pages. It has a most comprehensive index including references both to the present volume and to Volume I. It may be conservatively stated that these two volumes constitute a veritable encyclopedia on the nostrum evil, quackery and unscientific medical empiricism. There are chapters on "cures" for the alcohol, tobacco and drug habit, for consumption, for deafness, for epilepsy, for kidney disease and diabetes, for obesity and for rheumatism. There are chapters on medical mail-order concerns, medical institutes, mineral waters and quackery of the drugless type. There is a chapter of miscellany containing much interesting information on subjects of a quasimedical nature. The book is useful; it is interesting; to the physician who would be well informed it is indispensable. It should be on the reception room table of every physician in the country. If it is carried away surreptitiously by the patients, so much the better.¹

DEATH ERRONEOUSLY ATTRIBUTED TO CHLORINATED WATER

A man, aged 65, of Chester County, Pa., died after a few hours' sickness, and a coroner's jury, finding that he had drunk copiously of the chlorinated public water supply, rendered a verdict that death was caused by "general systemic debility caused by chemicalized water, which produced a severe gastro-enteritis followed by cardiac failure." Since millions of persons drink of public water supplies that are regularly disinfected with chlorin, the commissioner of health of Pennsylvania caused the body to be disinterred for postmortem examination. Dr. Baldwin Lucke, of the

1. See description on advertising page 35.

University of Pennsylvania, performed a necropsy, the results of which indicated that the cause of death was dilatation of the heart, and that marked arteriosclerosis was the underlying cause of the heart condition. The drinking of chlorinated water evidently had nothing to do with the death. The further evidence showed that many other houses were being supplied with water from the same main as the decedent's house, and that there was no evidence of any discomfort or illness accredited to the water supply in any of these houses. The coroner's jury was reempaneled and made a supplemental report to the effect "that chlorin was neither directly nor indirectly the cause of death; that death was due to acute dilatation of the heart, sequential to the loss of bodily fluids, incident to a severe attack of toxic gastro-enteritis, with complicating, extensive cardiovascular and renal degeneration." The Pennsylvania officials conclude, as is generally well known, that "there is no reason to fear that the chemical disinfection of public water supplies is other than an important safeguard and protection to the public health." Thus, time and money have been well spent to allay any public suspicion relative to an important public health measure.

Association News

MEETING OF THE BOARD OF TRUSTEES

Autumn Session, Held Nov. 10-12, 1921

The Autumn meeting of the Board of Trustees of the American Medical Association was held at the Association headquarters, November 10-12, 1921. The opening meeting was called to order by the Chairman, Dr. Sarles. All members of the Board were present; also the President, Dr. Hubert Work, and the President-Elect, Dr. George E. de Schweinitz.

NEW BUILDING

Among other matters taken up by the Board were the following: In its report to the House of Delegates last June, the Board of Trustees stated that the Board had decided to commence the new building in the Spring of 1921; that in accordance with the instructions the architects had made plans and specifications, which the Board had approved; that the bids were so much higher than the architects' estimate that it was concluded to put off building for another year. In the present discussion attention was called to the fact that the building fund which had been accumulated was established by the House of Delegates for this specific purpose, and that owing to the war and the cost of material and labor building had been postponed, but that now the cost of building had been materially reduced, it was the opinion of the Board that the new building should be erected in 1922. Attention was called to the fact that there is need for more space in the printing department, as well as in the editorial and other departments, if the Association is to function efficiently. In the discussion emphasis was made that the time had arrived to put into operation a long-existing policy, the operation of which circumstances have prevented. This policy includes the organization of a larger personnel at headquarters and in the field, to bring the benefits of organized medicine to its members all over the country, viz.: professional advancement, through postgraduate study, improvement of facilities for practice, including hospitals, libraries and the like. The sentiment of the members of the Board and of the officers of the Association was expressed as favorable to the policy of financial cooperation of the Association with the constituent state organizations in the establishment of full-time paid secretaries as a field personnel.

The question as to whether to carry the whole building up to eight stories was fully discussed, and this point was left

to the Executive Committee and the General Manager, who were instructed to make a careful investigation at the committee's December meeting, and to report recommendations to the Board.

HARRISON LAW RULING

Dr. M. L. Harris, Chairman of the Judicial Council, called the attention of the Board to a ruling of the Commissioner of Internal Revenue of the Harrison Act in the regulation of the prescribing of narcotic drugs by physicians. Dr. Harris stated that the present interpretation is that physicians must register and pay a fee for every location in which they conduct their business, and that in Chicago some physicians pay from one to three or more registration fees. He believed that this interpretation of the law is wrong and unconstitutional. He stated that the attorneys for the Chicago Medical Society have conferred with the Commissioner of Internal Revenue and that the decision of the Commissioner was that stated by Dr. Harris. After thorough discussion, it was the unanimous opinion of the Board that this unjust administration of the Harrison Act should be corrected. The matter was referred to the Council on Health and Public Instruction, with the understanding that the Council, through its Chairman, Dr. Victor C. Vaughan, now a resident of Washington, should first communicate with the Commissioner of Internal Revenue in an attempt to secure a satisfactory ruling; and that in the event of failure to secure this object, other measures should be undertaken by the Council.

REPORT OF DR. DE SCHWEINITZ

At the request of the Board, the President-Elect, Dr. de Schweinitz, who was the official representative of the Association at the opening ceremonies of the Union Medical College of Peking, made a report. (See THE JOURNAL, November 19, pages 1679-81.)

REFERENDUM

The Editor and General Manager brought before the Board the proposition of taking a referendum of the profession for the purpose of obtaining data as to the opinions of the physicians of the country on the alcohol question as it relates to the practice of medicine. After full discussion the proposition was unanimously endorsed.

COMMISSION ON ANESTHESIA

A communication was received from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, in which it was recommended that a commission be appointed on anesthesia. The Board recognized the splendid work that had been done through subcommittees, especially through that on local anesthetics in the nose and throat, by a committee representing the Section on Laryngology, Otolaryngology and Rhinology, but believed that the work could be carried on successfully under the Committee on Therapeutic Research, without creating a commission. The Board, however, wishes to assure the Committee on Therapeutic Research that appropriation will be made for the continuance of its good work.

PAY CLINICS

The question of pay clinics, diagnostic clinics and group practice was given extended discussion and a special committee was appointed to report during the present meeting. This Committee met and considered the subject from every point of view. The general consensus of opinion was that pay clinics have come into the field to remain permanently; that it is the duty of the Association to study the subject and to offer fundamental principles and policies which should be followed in the conduct of such clinics, group practice, and diagnostic clinics. The principles deemed basic are: (1) that patients should be received by the clinic only when sent by the family physician or received with his knowledge and approval; (2) so far as feasible the patient should be returned to the family physician with written information and suggestions; (3) that the fee charged by such clinic should not be less than that usually charged in general practice, so that, as far as possible, competition of the clinic with the general practitioner should not occur, and the chief consideration should be the public and the medical profession. It was finally decided that the Executive Committee and the General Manager should secure a committee of three, if possible, to make a survey of certain existing

diagnostic clinics and private groups, for the purpose of obtaining full information of the methods of administration and policies under which such institutions are conducted, and report to the Board at the February meeting.

COOPERATION WITH STATE ASSOCIATIONS

The subject of the cooperation of the American Medical Association with the constituent state associations in matters of medical defense was then considered, and a motion was made to create a committee on medical defense to report at the February meeting. The Committee appointed is composed of Drs. McDavitt (Chairman) Mitchell and Sarles.

GORGAS MEMORIAL

Mr. H. de Joannis appeared before the Board in behalf of the Gorgas Memorial Institute of Tropical and Preventive Medicine of Panama, and requested the cooperation of the American Medical Association. After discussion, the Board authorized the secretary to inform Admiral Braisted, President of the Board of Directors of the Institute that the American Medical Association will cooperate.

LIFE EXTENSION INSTITUTE

The Secretary of the Board presented the request of the Life Extension Institute for recognition of its work by the American Medical Association. He recalled the fact that this request was made at the Boston meeting of the Board, when the President of the Institute, Mr. Harold A. Ley, appeared before the Board, and stated that, following the Boston meeting, as directed by the Board, he had obtained from Mr. Ley additional information on the work of the Institute, in the form of circulars, books and other data. The secretary read two additional communications which had recently been received from Mr. Ley. A general discussion followed and the following resolution was offered, duly seconded and carried: The Board of Trustees has considered the matter of the Life Extension Institute and as the methods employed do not conform with the ideas of the Board regarding the practice of medicine, it cannot consider the question further.

RESOLUTIONS ON DEATH OF DR. DWIGHT MURRAY

A special committee appointed for the purpose presented resolutions on the death of Speaker Murray, which were approved by rising vote, and a copy of which was ordered forwarded to Mrs. Murray.

FRANK BILLINGS,
Secretary, Board of Trustees.

CONFERENCE OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

First Meeting—Friday Morning, November 11

The conference met in the Assembly Hall of the American Medical Association at 10 o'clock and was called to order by Dr. Hubert Work, Pueblo, Colo., President of the American Medical Association, who said in part:

It has been my pleasure to sit with the Board of Trustees, and I can assure you that it is working in the interest of the American medical profession. You are entering on a new era in the practice of medicine, and the Board of Trustees is going to blaze the way as it has never done heretofore. I believe that in the future the state secretaries will take a more active part and be in closer affiliation with the parent organization and with the Board of Trustees than ever before. As to those who are not willing to enlist in these newer activities I hope that their state societies will put in their places men who will be in sympathy with the march of events.

Past, Present and Future Policies of the American Medical Association

DR. FRANK BILLINGS, Chicago: In speaking of the future it is necessary to survey rapidly the past and present. The American Medical Association was organized in 1847. Its primary aim was to improve medical education in the United States, and for the next twenty-five years it worked to this end. With the reorganization of the Association in 1901 and immediately following, the question of greater activity on the part of the Association in this work was dominant, so that in 1903, at the meeting in New Orleans and in subse-

quent years there resulted the formation of the first Committee on Medical Education, which grew into the present Council. It is unnecessary to repeat what the Council on Medical Education has done, but its continued policy has been to work for the standardization of medical education throughout the country; and, although not delegated to do so, the Council has worked also for the improvement of hospital standards. A year ago the word "hospital" was added to the title of the Council. Now the Council also looks after the improvement of hospitals, especially that class which has to do with medical education.

In 1883 the Association began the publication of a journal. Before that time the transactions of the Association were published in book form once a year. For the first 15 years THE JOURNAL did not have a large circulation. In 1898, the Association secured the services of Dr. George H. Simmons, who has been editor since that time. One year later Dr. Simmons was made general secretary of the Association. His work on organization as editor and general manager has been of a character that needs no comment. THE JOURNAL of the Association is now the best professional journal published in the world; it has the largest circulation of any medical journal, more than 80,000 copies weekly. The Association is also printing five special medical journals.

It is not the function of the Board of Trustees to adopt policies for the Association. That is the function of the House of Delegates; but we may bring our thoughts to you and formulate our proposed policies as they will be presented in our report to the House of Delegates.

With reference to "state medicine," I understand it to be that function of the state which has to do with the prevention of disease and of injuries. What factors are there involved in the prevention of disease? First of all, the dissemination or promulgation of regulations for the prevention of disease which are practical and enforceable. It is the prevention of disease through the prevention of the pollution of drinking water, the prevention of contamination by sewage and contamination through the privy and other things. It is the prevention of pollution and contamination of foods. It is the standardization and availability of drugs, serums and antisera for the use of the profession. It is the regulation and standardization of measures of child welfare, and especially of the examination of schoolchildren, the prevention of the spread of communicable disease among schoolchildren and the correction of physical defects.

As members of the Association, we will oppose any measure which will separate the practitioner of medicine from his patient, or any measure which will in any way restrict the private practitioner in discharging his function or interfering with domiciliary visits.

As modifications of state medicine, perhaps one of the most outstanding things is compulsory health insurance, which is dead and need not be discussed. It will never become operative in any state in this Union.

For the first time in the history of the United States, the urban population is in excess of that of the suburban population. Fifty-two per cent. of our people live in the populated cities today, whereas formerly a larger percentage of the people were rural. With this excess of population of the general public in the cities there is an excess of population of physicians in the cities, so that there is a dearth of physicians in rural districts. The cry is that medical education has been advanced so rapidly that there are not enough graduates in medicine to supply the need. When we come to analyze the situation we find that there is a larger number of physicians in our cities than are needed, and a much smaller number than there should be in the country.

Ways and means must be devised to increase the number of physicians in the rural districts. It is in the minds of the Board of Trustees to bring to the attention of the House of Delegates the question of greater cooperation on the part of the American Medical Association with the state organizations. We must have in the office of the Association an increased personnel and a larger building to carry on the work. We must have men in the office who will be in charge of the field work, and there is no class of men better qualified for field service working in cooperation with the American Medical Association than the state secretaries.

Your Board of Trustees has the interests of the medical profession at heart, and we are all interested in the protection and promotion of the general practitioner of medicine.

DISCUSSION

PRESIDENT WORK: Speaking of health centers, I think the term community center should be substituted for health center. Community centers contemplate so much more than health centers.

At this juncture, the President-Elect of the American Medical Association, Dr. George E. de Schweinitz, Philadelphia, took the chair and called for discussion on the remarks of Dr. Billings.

DR. ROCK SLEYSER, Wauwatosa, Wis., in opening the discussion quoted from an address on "The Future of the Medical Practitioner," delivered before the Cleveland Academy of Medicine, Jan. 16, 1920, with his approval, as follows:

Up to the present time the primary, if not the sole object of organization in the medical profession has been the diffusion of medical knowledge to the end that the population should best receive the benefits of the discoveries and advancements made in the science of healing. The benefit to the individual member of the profession has been in his opportunity through such organization to increase his own knowledge and perfect his own methods for the sole purpose of rendering better service to his clientele. Only the great medical profession, as widely as it touches public life, has been blind to the desirability of such influential participation in community life, and has failed to appreciate that the trend of the times in all other professions, businesses and trades is toward a policy of publicity, assertiveness and aggressiveness in pushing the profession, if not the individual members of it, into the life of the community.

The two outstanding points in Dr. Billings' remarks which appealed to me are, first, the necessity of the recognition of making the isolated country practitioner or small town practitioner as a member of the American Medical Association feel that something is being done for him, and, second, improving conditions for him, for the success of the general practitioner is the foundation of medicine in every respect.

DR. D. E. SULLIVAN, Concord, N. H.: In the immediate future there are grave questions that the American Medical Association must meet, for on it rests the great responsibility of compelling the public mind to think straight in matters pertaining to public health and the practice of medicine. In recent months, legislation has been enacted in all parts of the country in direct defiance of the expressed opinion of medical societies, yielding to the voice of people expressed through politicians, and the standing of the medical profession is nothing. All sorts of cults and "isms" have been recognized, and the voice of scientific medicine stifled. If I read the times aright—and I am not a pessimist nor an alarmist—there are ominous and evil days for the medical profession unless we take hold of this job in man-like fashion. I believe we have got to adopt definite and concrete resolutions and then act on them. We should have a strong central committee selected without regard to favoritism, politics or location, that will represent the best thought and minds of the profession in its everyday affairs. That will necessarily imply a good deal of expense. Can we not afford it? We cannot afford to do otherwise. Considering the magnitude of our Association, we have failed to march to the music of the times. We have allowed lay organizations to insinuate themselves into medical practices and really to undermine the very stability of public health organization. If my section of the country is any criterion of the rest of the United States, the general practitioner is much disgusted with the way these things have been handled by our profession in the past.

DR. EDGAR A. HINES, Seneca, S. C.: I sent a questionnaire to every member of our county medical society (and we are 100 per cent. strong), asking their ideas as to what the American Medical Association has done for them and for American medicine: 1. Do you depend on the general practice of medicine for the support of yourself and family? Probably not more than 25 per cent. of the doctors in my county depend on the practice of medicine for a living.

Why? I have taken a reply from one of the best general practitioners, educated in the best schools of the country, both literary and medical, twenty-five years ago. His answer is, no, not entirely. 2. Do you think the general practice of medicine as a vocation offers a decent living and sufficient remuneration to educate one's children and lay aside a little money for old age? Yes, if the individual practices thrift as a man does in any vocation if he succeeds financially. 3. Would you advise your son to take up the study of medicine? If not, why? After the hardships of the profession have been explained to him and he still wishes to pursue the study of medicine—yes. 4. Do you know of a prospective student of medicine in this county? 5. What are the evil tendencies in medicine today detracting from the profession from a humanitarian point of view? Commercialism has become rampant and widespread. Advertising, which is called legitimate by some, is practiced in all sorts of devious and uncertain ways. 6. What may the American Medical Association do to help you and uplift the profession as a whole and restore it to the high plane it once enjoyed? Come out strongly against the foregoing. Unfortunately, some men have occupied and are occupying official positions who have or are practicing one or the other of the foregoing. The profession should readjust itself decisively and most emphatically against the exorbitant fees being exacted by some real specialists as well as some would-be specialists.

DR. L. B. McBRAYER, Sanatorium, N. C.: As to the scarcity of rural practitioners, I was talking with a young man the other day who graduated from the University of Michigan. His uncle is a general practitioner in that state, he is getting old, and wants this young man to assume charge of his practice. This young man said there were two things that made it impossible for him to do it, one of which was that he was familiar with the work his uncle had done, and he could not use the things and methods in rural practice that he had spent time in learning in the study of medicine. The other thing touches our education and the rural districts. We cannot expect men who have received a good preliminary education and who graduate from our best medical colleges to go out into the country communities, throw away their knowledge of scientific medicine, and practice medicine loosely as general practitioners isolated in country communities are compelled to do.

DR. OLIN WEST, Nashville, Tenn.: With respect to ideals, I believe that the medical profession has gotten away from some of the ideals of our fathers to which they should have clung tenaciously, persistently and eternally. I do not believe that "state medicine" will ever be operative in the United States. It ought not to be put over from the standpoint of the people whom we are to consider, nor from the standpoint of the medical profession. Unless the members of the medical profession as a whole get back to the place where they can recognize their responsibilities and realize the things they get for being physicians and change their attitude on a good many things, they are going to be driven into a modified form of "state medicine." What has the medical profession done as a whole to circumvent the conditions that lead up to the present situation? It has not assumed and maintained leadership that was thrust on it by right. We are going to have public health institutes in our country very soon unless the medical profession assumes leadership in public health work. With reference to social insurance, we are not going to have it, but we have got something which is worse than that, and that is workmen's compensation. The medical profession should in a concerted way circumvent any action which allows a physician a sum not to exceed \$100 in a workmen's compensation case, which is the limit for the physician and hospital. Again, we are tolerating all sorts of violations of the code of ethics, and nobody says anything about it. We need some one to do plain speaking to ourselves and look the facts squarely in the face and assume the responsibility we ought to do. We have reached a point at which we have forgotten ideals and obligations, and we have just allowed ourselves to drift along with the tide, and many of the developments of the present day are due to these forgotten ideals and obligations. I believe that if some one could impress these ideals deeply

on the minds and hearts of the medical profession, much of our difficulties and troubles we are worrying ourselves to death about would soon adjust themselves, and we would be on the high tide of prosperity from every standpoint.

DR. HORACE J. BROWN, Goldfield, Nev.: In my state we are practically all country. Our largest city (Reno) contains only about 15,000 inhabitants. The rest of our community ranges in population anywhere from 100 up to 2,500. Our practitioners are all more or less general practitioners, and they demand and receive much larger fees than the average general practitioner in communities of the same size in the East. Nevertheless, every man in our state who has any pride in his profession and any desire for advancement feels a lack of facilities to carry on his work as he would like to do. There are very few young men today, unless they have parents who are financially able to see them through a long course of drudgery, who are really able to get opportunities either in a city or country for the practice of medicine. If after graduation a young man stays in a city like Chicago, if he has no hospital connections, with nobody to pull for him, where is he going to get? If he is in a country district he becomes acquainted with everybody, makes a half way living, manages to raise a family, and, if adapted to that kind of work, he dies a poor man unless he is fortunate in his investments. Such men should be cared for under the fellowship that we have. As a suggestion for the handling of the city and country proposition, I think it would be advisable for the American Medical Association to get in such close touch with every member so as to know exactly what his abilities and preferences are.

MR. G. H. WINFREY, Richmond, Va.: The general public is more interested in getting results than it is in the welfare of the medical profession. It is a great deal more interested in eradicating tuberculosis, typhoid fever and kindred diseases than it is in your getting anything out of it or in your having any particular part in it. If the members of the medical profession have neglected to seize the opportunities for assuming leadership in their work, it is entirely their own fault. The general public knows nothing of what you are doing. The general public should be informed as to the splendid work your various councils are doing, and this can be done only through an extensive publicity campaign.

DR. C. D. SELBY, Toledo, Ohio: I have a letter from Dr. Teachnor, president of the Ohio State Medical Association, in which he pledges the full strength of the Ohio State Medical Association in all constructive movements undertaken by the American Medical Association. It is evident from what Dr. Billings has said that the Board of Trustees feels the necessity of assisting the practitioner of medicine, and we concur absolutely in that necessity. It has been proved conclusively by those who have spoken that the general practitioner in medicine is the man who needs our help. I am firm in the belief that we cannot overeducate the physician; we cannot provide too many facilities in the line of diagnosis for him; we cannot make him too good a physician. That is fundamental. We think all activities of the American Medical Association designed with that object in view should be augmented as rapidly as possible. Other features which we feel have been neglected, and which make for the success of the physician, are his economic relations and public relations. There should be a Council on Medical Economics to teach physicians the economic side of medical practice, office routine, etc. I would advocate increasing the activities of the American Medical Association along three lines: 1. Education to make a man a better physician. 2. Medical economics to make him a better business man. 3. A Council on Public Relations in order that the medical man may be presented rightly to the general public.

(To be continued)

Laboratory Determines Result of Treatment.—The employment of laboratory methods makes it possible when dealing with a complex procedure, such, for example, as sanatorium treatment, or the technic of aseptic surgery, or vaccine therapy, to investigate the effect of the separate items of treatment instead of noting only the effect of the procedure taken as an aggregate.—A. Wright, *Lancet* 2:645, 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Appropriation for Pasteur Institute.—The governor has approved the act appropriating \$25,000 for treatment at the Pasteur Institute of indigent persons who have been bitten by rabid animals. This appropriation will be taken from the fund obtained from the dog licenses.

CALIFORNIA

Sentenced to Jail for Prescribing Narcotics.—It is reported that early in November Dr. C. B. Gay of Los Angeles was sentenced to ninety days in jail for prescribing narcotics in bad faith. This conviction follows steps taken by federal authorities to break up a narcotic ring operating in all parts of southern California. Twenty-five counts were lodged against Dr. Gay at the time of his arrest.

Southern California Medical Society.—The sixty-fifth regular semiannual meeting of the society was held, November 4 and 5, at Los Angeles, under the presidency of Dr. Charles L. Bennett, Los Angeles. Dr. William Duffield, Los Angeles, the former secretary-treasurer of the society, was elected president. Dr. Robert Pollock, San Diego, was made first vice president; Dr. Herbert A. Johnston, Anaheim, second vice president, and Dr. Egerton L. Crispin, Los Angeles, secretary-treasurer. The next meeting of the society will be held at San Diego in April, 1922.

CONNECTICUT

Higher Requirements at Yale.—The report of the president of Yale University for 1920-1921 states that hereafter three years of collegiate work will be required of all applicants entering this school of medicine.

DELAWARE

Organization to Fight Cancer.—The Delaware Branch for the Society for the Control of Cancer met recently and effected a permanent organization with Dr. Alfred K. Smith, Wilmington, as president.

DISTRICT OF COLUMBIA

Bill to Examine Delinquents Defeated.—A bill for the establishment of physical examination of all delinquents brought before the juvenile court of the District of Columbia met with defeat after a spirited debate. Opposition centered about the appointment of a physician at \$5,000 a year and a psychiatrist at \$1,800 a year and a psychologist at \$2,000 a year. Another provision of the bill provided for the selection of a woman physician at a salary of \$1,000 a year. A similar measure has been pending in the Senate for some time, but has never been taken up for consideration.

IDAHO

State Medical Meeting.—At the recent meeting of the Idaho State Medical Association, held at Twin Falls, the Idaho League for the Conservation of Public Health was organized with Dr. Lucien R. McCalla, Boise, president, and Dr. Ernest E. Laubaugh, Boise, secretary.

ILLINOIS

School of Instruction for Health Officers.—Definite arrangements have been completed by the state department of public health for conducting a school of instruction for health officers in Springfield, December 12-15, inclusive. Lectures and discussions will be given by Dr. Isaac D. Rawlings, director of public health; Dr. William A. Evans, Dr. John Dill Robertson, Dr. Lee A. Stone, and the chiefs of the various divisions of the state department of public health. Copies of the program will be available at an early date, and may be had from the state department of public health on request.

Birth Registration.—Dr. Isaac D. Rawlings, state director of public health, has sent a circular letter to every physician

in the state, calling attention to the fact that Illinois is the only northern state east of the Mississippi River that has not been admitted to the Birth Registration Area of the U. S. Census Bureau, owing to the failure so far to secure the registration of 90 per cent. of births. The cooperation of the medical profession is asked in securing the registration of all births attended by physicians. The medical profession is also asked to stimulate public sentiment in favor of complete registration. Resolutions adopted by the advisory committee on public health state that so far only 82 per cent. of births have been registered and that, in the opinion of the board, every physician or midwife who neglects or refuses to comply with the laws should be reported to the state's attorney for prosecution.

Chicago

Chicago Medical Society.—At a meeting of the society, held, November 23, Dr. Abraham Zingher, assistant director of the research laboratory, department of health, New York City, spoke on diphtheria prevention.

Chicago Institute of Medicine.—A meeting of the Institute of Medicine of Chicago was held, November 22, at the City Club, Chicago. Dr. Robert McCarrison, M.B., D.S.C., Lieut.-Col., Indian Medical Service, gave an illustrated lecture on "Faulty Food in Relation to the Gastro-Intestinal Disorders."

INDIANA

Hospital News.—The campaign to raise funds to purchase needed equipment at the Jay County Hospital resulted in a total of \$1,542.50 having been subscribed.

Damages for Interference with Practice.—Dr. George F. Smith, Bicknell, it is reported, was awarded \$65,000 in Greene circuit court, Bloomfield, in his action against four other Bicknell physicians. Dr. Smith's court action followed the refusal of the state board of medical examiners to revoke his license at the request of the four physicians whom he made defendants. Dr. Smith charged that the other physicians were attempting to destroy his practice and drive him from town.

IOWA

Personal.—The citizens of New London gave a golden jubilee banquet, November 10, in honor of Dr. Frank C. Mehler on the fiftieth anniversary of his residence in New London, as a physician.

New Officers for Northwestern Medical Society.—At a recent meeting of the society, held at Sheldon, the following officers were elected for the ensuing year: Drs. Frank S. Hough, Sibley, president; Frederick W. Cram, Sheldon, vice president, and Jay M. Crowley, Rock Rapids, secretary.

KANSAS

Hospital News.—At the annual meeting of the Kansas Hospital Association, held at Newton, October 20, Dr. Albert R. Hatcher, Wellington, was elected president of the association. The other officers are: Dr. Richard C. Young, Arkansas City, vice president, and Dr. John T. Axtell, Newton, secretary-treasurer. McPherson was chosen for the 1922 meeting.

KENTUCKY

Personal.—The state board of health, November 14, unanimously elected Dr. Lewis S. McMurtry president of the board to succeed Dr. John G. South, who has resigned to accept the position of United States minister to the Republic of Panama.

MARYLAND

Plans New Health Center.—Dr. C. Hampson Jones, commissioner of health, Baltimore City, has completed arrangements for the establishment of a health center in the Walbrook district. A lease on a building has been made for a term of three years, for the use of this center.

Courses of Extension Teaching.—The University of Maryland has established courses of extension teaching for physicians, including (a) a weekly clinic in the medical school amphitheater, beginning Thursday, December 1; and (b) clinics by prominent physicians in various parts of the state at given intervals.

Laënnec Society Meeting.—A meeting of the Laënnec Society of the Johns Hopkins Hospital was held, November 21, in the medical amphitheater of the hospital. Dr. Esmond R. Long, Sprague Memorial Institute, Chicago, spoke on "The Biochemistry of Tuberculosis." Dr. Louis V. Hamman

is president of the society, and Dr. Allen K. Krause, secretary.

New Appointments to the Johns Hopkins Hospital.—Reorganization of the medical department of the Johns Hopkins Medical School has been completed and the new appointments, made to replace those who resigned to go to other institutions, have been announced by Dr. John Whitridge Williams, dean of the school.—Dr. William S. McCann, instructor of medicine at Cornell University Medical School, New York, and assistant visiting physician to Bellevue Hospital, has been chosen associate in medicine to succeed Dr. Walter W. Palmer, who resigned to go to Columbia University. Dr. John B. Youmans of the Massachusetts General Hospital, Boston, and Dr. Robert R. Hannon, a holder of the Barrett fellowship last year, have been appointed to the staff, to fill the vacancies caused by the resignations of Dr. Dana W. Atchley and Dr. William S. Ladd, who went to Columbia with Dr. Palmer.—In the biologic division, Dr. Alan M. Chesney has been appointed associate professor of medicine; Dr. Arthur L. Bloomfield, associate in clinical medicine, and Dr. Alfred B. Hodges, assistant in medicine, succeeding Drs. Alphonse R. Dochez, Walter P. Bliss, and Hugh J. Morgan, who also went with Dr. Palmer.—In the division of clinical pathology, Dr. Walter A. Baetjer has been appointed associate in clinical medicine and Dr. John G. Huck, instructor in medicine, in place of Drs. Frank A. Evans and F. D. Conroy. Both Dr. Baetjer and Dr. Huck have been connected with the medical school since their graduation.—In the general division of the department, Dr. Charles Sidney Burwell succeeds Dr. R. V. Mason as instructor in medicine. Dr. Burwell is a graduate of Harvard and was house physician in the Massachusetts General Hospital.—The status of Dr. Llewellys F. Barker as professor of clinical medicine remains unchanged. With the exceptions of Dr. Baetjer and Dr. Bloomfield, all are in the full-time list and will give all their time to the hospital and university.

MASSACHUSETTS

Hospital News.—The Trumbull Hospital, Brookline, is nearly completed. The capacity will be fifty beds, and the work will be chiefly surgical and obstetric.

Scholarships for Tufts College Medical School.—Two scholarships of \$3,000 each are created by the will of Dr. Elizabeth A. Riley, the income to be applied to the education of needy and worthy women students in Tufts College Medical School. One scholarship is to be known as the Charles P. Thayer Scholarship in recognition of Dr. Thayer's services to the school, and the other to be known as the Dr. Elizabeth A. Riley Scholarship.

MICHIGAN

Free Clinic at Sanatorium.—It has been announced that a free clinic will be conducted at the Battle Creek Sanatorium. The laboratories and medical experts connected with the sanatorium will be at the service of the patients. Physicians outside the sanatorium may use the institution's equipment.

Roosevelt Community House.—On the occasion of the visit of Marshal Foch and General Pershing at Battle Creek, the Roosevelt Community House was transferred to the American Legion and dedicated as the Roosevelt American Legion Hospital. The formal opening of the hospital will take place Thanksgiving day. It is planned to use the hospital entirely for the treatment of tuberculosis patients.

MISSISSIPPI

Hospital News.—Contracts for building five units of the Mississippi Tuberculosis Sanatorium at Magee have been awarded by the state authorities at Jackson. The total amount of the expenditure is \$544,130.

Organization of New Medical Society.—Following the disbanding of the county societies in Jones, Forrest, Covington, Greene and Perry, the South Mississippi Medical Society has been organized. Dr. Jefferson D. Donald, Hattiesburg, is the president; Dr. Joseph S. Gatlin, Laurel, vice president, and Dr. Theophilus E. Ross, Jr., Hattiesburg, secretary-treasurer. It is planned to have two meeting places, alternating between Hattiesburg and Laurel, the sessions to be held every three months. The next meeting will be held, December 15, at the South Mississippi Charity Hospital, Laurel. It is expected that the organization eventually will include also the counties of Smith, Jasper, Wayne, Clarke, George, Stone, Marion, Pearl River and Lawrence.

MISSOURI

University Hospital Assured.—It is reported that the University of Missouri has received an appropriation of \$250,000 for the erection of a university hospital at Columbia. This is in accordance with the plan of the university to reestablish a four-year course in its medical school.

Jackson County Medical Society.—At the meeting of the society, November 15, Dr. William Palmer Lucas, San Francisco, spoke on "Blood Studies in Infancy and Childbirth." Dr. Byron Bennett Davis, Omaha, addressed the society, November 22, on "Neoplasms of the Breast."

Teaching Sanitation to Blind Children.—The Missouri School for the Blind is having health crusade charts put into braille with a view to teaching hygiene and sanitation to the children in the grades. This instruction in hygiene and sanitation will later be included in the high school courses for the blind.

NEW HAMPSHIRE

Hospital News.—The New Hampshire Memorial Hospital, Concord, which admits only women and children, has just finished a drive for \$100,000 to build an addition. The drive was conducted throughout the state, and resulted in \$74,599 being received from 4,513 subscribers.—The Elliott Hospital, Keene, in a drive for \$150,000 conducted in Keene and surrounding towns, has realized \$224,000 in subscriptions.

NEW JERSEY

Personal.—Dr. Richard Bew has been elected president of the Atlantic County Medical Society; Dr. David B. Allman, vice president, and Dr. Edward F. Uzzell, secretary-treasurer.

Symposium on Venereal Disease.—Under the auspices of the American Public Health Association and for the purpose of encouraging the establishment of venereal disease clinics in as many cities as possible, a symposium on venereal diseases was conducted at the City Hospital, Jersey City, November 10. The principal address was delivered by Dr. John A. Fordyce, Columbia University College of Physicians and Surgeons.

Physicians Resent Beer Ruling.—The Atlantic County Medical Society at its annual meeting at the Hotel Chalfonte, November 11, passed the following resolutions condemning the recent medicinal beer ruling:

WHEREAS, Malted stimulants of high alcoholic content are without official pharmacopeial recognition or therapeutic registry, and

WHEREAS, The recent interpretation of the federal act with reference to the use of beer as a therapeutic remedy, will lead to great and wide abuse and moral reflection on the medical profession. Be it

Resolved, First, that the Atlantic County Medical Society goes on record as being unequivocally opposed to being placed in a false position to the world at large by seemingly justifying a practice and therapeutic necessity, the real purpose of which is to promote the dispensing of beer as a beverage under a legalized cloak of a medicinal agent;

That the Atlantic County Medical Society strongly resents any attempt of liquor or allied interests at shifting on its members any part of the responsibility properly attaching to the distribution and sale of intoxicants;

That the members of the Atlantic County Medical Society refuse to become stigmatized as puppets of a brewery or allied liquor interests.

NEW YORK

Franklin County Medical Society.—At a meeting of the society, held at Malone, November 9, Dr. William G. Turner, Montreal, Que., delivered an address on "Diagnosis of Hip Joint Diseases," illustrated by lantern slides.

New York City

Report on Hospital Situation in New York.—The New York Academy of Medicine will hold a meeting, December 1, at which a summary of the findings of the public health committee's study of the hospital situation in New York will be presented by Prof. E. H. Lewinski-Corwin, executive secretary of the committee. Dr. Wallace will discuss "The Recording of Hospital Case Histories"; Dr. Sigismund S. Goldwater, "The Private Room and the Ward," and Dr. Thompson, "The Function and Need of a Central Hospital Bureau."

"Prevent Disease" Drive.—The Medical Society of the County of Kings has adopted resolutions looking to the initiation of a campaign of education in preventive medicine. The medical societies of the other boroughs of the city have been invited to join the Brooklyn physicians in their movement to inform the public on "Social Disease and Degeneration and Waste of the Man-Power of the State." A committee of five has been appointed to confer with similar committees from other societies on the preparation of a plan for lectures to be given as a part of this campaign. The public is also to be

warned against the "nature and probable effect of threatening or pending vicious public health legislation." The resolution was introduced by Dr. John J. A. O'Reilly.

American Public Health Association Meeting.—At its annual session held in New York City, November 14-18, the Food and Drugs, Public Health Administration and Laboratory Sections adopted a report of the committee recommending that the group of drug addicts "variously spoken of as criminals, degenerates and feebleminded" be kept under official control, and declaring that the control of this group is a police problem. The group of addicts who suffer from physical conditions necessitating an indefinite continuance of their use of drugs constitutes a medical problem, in the opinion of the committee. For the prevention of new cases of drug addiction, the committee recommended that international measures leading to the reduction of uncontrolled supply of drugs be taken, and that physicians be educated as to the danger of inducing addiction through medical practice and that the best methods of avoiding such dangers be emphasized. The association endorsed the movement to establish the Gorgas Memorial Institute of Tropical and Preventive Medicine in Panama City. A committee was appointed to represent the association in furthering the memorial. An outstanding feature of the conference was a banquet held at the Hotel Astor in honor of Dr. Stephen Smith, who founded the association fifty years ago. Dr. Smith, who is within thirteen months of the century mark, stood and addressed the company for half an hour. President Harding sent a message congratulating Dr. Smith upon his health and his splendid work, and adding good wishes for the testimonial banquet. The association elected the following officers for the ensuing year: president, Dr. Allen J. McLaughlin, Assistant Surgeon General, U. S. P. H. S.; vice presidents, Dr. Haven Emerson, New York City; Dr. Alfonso Pruneda, head of the national department of health of Mexico, and Dr. Royal S. Copeland, health commissioner of New York City; executive secretary, A. W. Hedrich; treasurer, Dr. Roger I. Lee, Cambridge, Mass.

PENNSYLVANIA

Personal.—Dr. Frederick W. Black, Lewistown, chief surgeon for the Lewistown Hospital, was shot when called to his office, by an unidentified man.—Dr. Adolph Koenig, Pittsburgh, and Lee Masterson, Johnstown, have been appointed by Governor Sproul to the advisory board of the state department of health.—Dr. Charles B. Penrose, Philadelphia, has been reappointed by Governor Sproul to the advisory board of the state department of health.—Dr. William C. Sandy, Philadelphia, psychiatrist of the New York State Commission on Mental Defectives, has been appointed chief of the division of mental health of the Pennsylvania State Department of Public Welfare, the appointment to become effective in December. This completes the list of chiefs under Dr. John M. Baldy, state commissioner of welfare.

Philadelphia

Campaign of the Welfare Federation.—A campaign for \$4,000,000 by the Welfare Federation for those hospitals and institutions which joined the organization was opened, November 14 and was to end November 18, but has been extended until November 23. The amount pledged so far totals \$1,320,735.

PHILIPPINE ISLANDS

Physical Director of Manila Police.—The city council has created the position of physical director for the Manila police. It is understood that the director will be a physician.

Personal.—After spending some time in the United States visiting the leading colleges and hospitals, Dean Fernando Calderon has returned to the College of Medicine, University of the Philippine Islands.

"La Gota de Leche."—This institution, established in the city of Cebu for the free distribution of milk, has estimated that a child can be maintained at a minor cost of 5 pesos (\$2.50) a month. Funds for the continuation of the work are being obtained by donations, benefit entertainments and nominal fees.

Establishment of an Opium Hospital.—On account of recent police drives against opium dens in Manila, a Chinese benevolent corporation has requested permission to establish a hospital especially adapted for treatment of opium addicts. It is expected that the hospital will be placed under government supervision.

Monthly Health Bulletin.—Beginning with last July, the Philippine Health Service has issued a monthly bulletin containing information regarding activities of the health service as well as health statistics. Drs. Salvador V. del Rosario, L. Lopez Rizal, T. P. Bantug and M. V. Argüelles have been designated as members of the publication committee.

Laboratory Technicians.—The Philippine Islands health service has appointed sanitary inspectors to be trained as technicians in laboratory work under the immediate direction of the provincial sanitary physicians. They are now being given special courses in laboratory technic and clinical microscopy at the San Lazaro Hospital and the University of the Philippines.

SOUTH CAROLINA

Physician Sentenced to Federal Prison.—It is reported that Dr. Joe M. Owens, Cross Hill, pleaded guilty, November 4, in the federal court to having violated the Harrison Narcotic Law, and was sentenced for one year to the federal prison in Atlanta.

TEXAS

Physician Convicted and Paroled.—It is reported that Dr. Darling L. Peeples, Navasota, convicted in the federal court on two charges of violations of the Harrison Narcotic Law, was released on the promise of State Senator H. L. Lewis, Judge S. W. Dean and Mayor Gordon Boone of Corpus Christi, to be responsible for placing Peeples in a sanatorium and keeping the court advised.

WASHINGTON

Hospital News.—The Newport Community Hospital Association has been formed for the erection of an up-to-date hospital to be established in Newport.—The Snoqualmie Falls Lumber Company opened its new hospital last month, with Dr. Richard T. Burke, Northend, as chief surgeon.—The Detention Hospital, maintained by the Seattle City Health Department for women afflicted with venereal disease, has been moved from the city jail building to the King County jail building, where space will be available for twenty-five patients.—Physicians of Puyallup, Sumner and Orting have started a campaign to build a twenty-bed hospital at Puyallup. They will have the aid of the commercial club of Puyallup, and they expect to expend \$50,000.

CANADA

Opening of New Medical Building.—The new medical building of Western University Medical School, London, Ontario, has been completed and was opened for public inspection, November 15. November 17, came the official opening; and on November 18 an address to the faculty, students and alumni was made by Prof. A. B. Macallum, department of biochemistry, McGill University. At a reception on the evening of November 18, a portrait of the late Dr. H. A. McCallum was unveiled.

Western Ontario Academy of Medicine.—A session was held, November 4, at which Dr. Lewellys F. Barker, Johns Hopkins University, Baltimore, conducted a medical clinic, taking in all four cases, which gave him the opportunity of presenting views on nephritis, in association with syphilis, epilepsy and encephalitis, and also on the subject of endocrine influence. Dr. Barker, with the lieutenant-governor of Ontario, was a guest at a luncheon given by the Canadian Club. His address on that occasion was a call for unity between the two countries, one of which had given him birth and the other his field of professional activity.—A special session of the academy was held, November 8, to greet Sir William Taylor, K.B., F.R.C.S.I., of Dublin, who gave a comprehensive outline of acute intestinal obstruction, with particular reference to the type of intussusception occurring in children. In his reply to the discussion of his paper he touched on the subjects of chronic obstruction and appendicitis.

GENERAL

Visitors from Holland.—Among those visiting America from abroad, recently, have been Dr. Willem Vos, superintendent of the Zuider Ziekenhuis and general director of the psychopathic hospital of Rotterdam, Holland, and Mr. Jan G. Snuif, an architect of the same city. Their object was to study hospitals in Boston, New York, Buffalo, Cleveland, Detroit, Cincinnati and Chicago. They are planning to erect a new hospital in Rotterdam having about 1,300 beds.

American Physicians Honored.—The Royal College of Physicians of Edinburgh has recently conferred membership on Admiral William C. Braisted, Washington, D. C., and Dr. Walter L. Bierring, Des Moines, two prominent members of the National Board of Medical Examiners. This honor is in recognition of the efforts of the National Board in promoting a closer relationship between the Old World and the New in matters of medical education. These are reported as the only honorary memberships conferred by the college referred to since 1809.

Service in Small Industrial Plants.—At a recent meeting of the board of directors of the American Association of Industrial Physicians and Surgeons, a committee was appointed to formulate a practical plan for supplying an employee health service in small industrial plants. The members of the committee are: Dr. Clare F. N. Schram, Fairbanks Morse Company, Beloit, Wis.; Dr. Clarence D. Selby, National Malleable Casting Company, Toledo, and Dr. Alfred E. Shipley, Brooklyn. The annual meeting of the association will be held, May 22-23, 1922, at St. Louis.

LATIN AMERICA

A Gift of the Medical Students.—A tuberculosis ward to the general hospital in Tegucigalpa, Honduras, was presented by the medical students to celebrate the independence centenary.

Compulsory Vaccination in Cuba.—The head of the health department has ordered all head masters to vaccinate all schoolchildren except those who show satisfactory marks of recent vaccination. The necessary amount of vaccine will be supplied by the health department.

First Woman Professor in Medical School.—Dr. María Teresa Ferrari de Gaudino is the first Argentine woman to be appointed to a professorship in the University of Buenos Aires. She was accepted through a competitive examination for the chair of gynecology in the faculty of medicine.

Brazilian Federation of Students.—At a meeting of the presidents of the students associations of the schools of medicine, pharmacy, dentistry, etc., of Rio de Janeiro, it was decided to establish a Brazilian federation of students to be composed of delegates of all Brazilian college associations.

Street Named for Living Physician.—The authorities of Rio de Janeiro have recently changed the name of the street on which is located the Child Welfare Station to Rua Dr. Moncorvo Filho, as this Instituto de Protecção á Infancia is mainly his work, and to it he devotes his constant energy. The Academia Nacional de Medicina passed a vote of thanks to the authorities for this tribute to one of the members.

Centennial Celebration of the University of Buenos Aires.—The University of Buenos Aires celebrated the first centennial of its foundation, Aug. 12, 1921. The ceremonies of inauguration took place, Aug. 12, 1821. The direction of the university was placed in the hands of Dr. Antonio Sáenz who in turn commenced to form the different departments and placed them under the supervision of a prefect. In 1828 the school of primary instruction was taken from the university and placed under the control of the Interior Department. In 1876 the university founded a semiannual volume under the name of *Anales*, which was replaced in 1904 by the present *Revista de la Universidad*.

Personal.—Dr. P. Escudero has had to resign his editorial work with the *Prensa Médica Argentina* since he has been appointed full professor of clinical medicine in the Buenos Aires University.—Dr. J. C. Segovia, professor of bacteriology and medical entomology in the medical school at San Salvador, has returned from a two years' course of study in the United States.—Prof. E. Bertarelli was the guest of honor at a banquet given by certain physicians of S. Paulo.—Prof. M. Labbé has been elected honorary member of the National Academy of Medicine of Brazil.—Dr. Bachmann was tendered a banquet recently by his friends to celebrate his appointment as chief of the Instituto Bacteriologico of the Argentine public health service.

Baby Week in Mexico.—In connection with the centennial celebration of the nation's independence, a baby week was held, September 11-17, at Mexico City. The exhibits were grouped in seventeen different booths, each devoted to some major phase of baby welfare. The exhibit for mothers emphasized those duties and responsibilities which lie outside the home—industrial conditions, rents, poverty, juvenile delinquency and such other problems as the women of Mexico have, so far, given little attention, and a special "Message to Mothers" was distributed from this booth. The exhibit for

fathers dealt primarily with their duties in the home, and the "Message to Fathers" emphasized these points. The exhibit on race and eugenics brought out other aspects of parenthood not covered by the other two exhibits. The subjects in the other booths were much the same as would be found in standard American exhibits. Child welfare demonstrations, the playgrounds, and health plays given by the children attracted large audiences. Medical talks were prepared and delivered by a group of physicians of the city under the direction of the secretario general of the department of health, Dr. Alfonso Pruneda. Birth registration was emphasized, and all children whose births were recorded during baby week were promised special certificates, signed by the president of the republic. Many of the posters for the exhibit were the work of the artist José de Jesús Pruneda and a group of young students from the Escuela Nacional de Bellas Artes. The noted painter Orozco contributed striking posters to the dental exhibit. Heralded by martial bands, a grand *procesión infantil* made a tour of the city with more than a hundred automobiles proclaiming by banners and posters the right of their small occupants to intelligent parents, pure water, clean milk, nurses and welfare stations, adequate housing, registration, vaccination and all the other advantages the modern baby has been taught to demand. Preparation of the parade and the nurses provided were the voluntary contribution of the Red and White Crosses of Mexico.

FOREIGN

Contract Practice in Berlin.—The *Deutsche medizinische Wochenschrift* cites some recently published statistics to the effect that only 3.62 per cent. of the Berlin sickness insurance contract physicians receive more than the "existence-minimum income" from their insurance practice.

Medical Conference in Lithuania.—A conference was recently held in Kovno, under the presidency of the prime minister, Dr. Grinius. The object of the conference was to encourage the development of the medical profession in Lithuania, to promote the interchange of scientific ideas and to improve methods of combating tuberculosis and other diseases.

The Nobel Prize in Medicine.—The *Nederlandsch Tijdschrift* relates that it is rumored that the Nobel prize in medicine will not be awarded this year, and that the candidates that have been considered most eligible are the English physiologist, Sherrington, the Netherlands professor, Magnus, and the two brain specialists, Henschen of Sweden and Vogt of Germany.

The Marcel Benoist Prize.—This prize, amounting to 20,000 francs, is awarded annually by the Swiss government to the scientists of Swiss nationality or domicile who, during the preceding year, have made the most valuable contribution to science, particularly in reference to human life. M. Arthus, a French scientist domiciled in Switzerland, professor of physiology at the University of Lausanne, received the prize this year for his original work on anaphylaxis and immunity.

Award of the Jenner Medal.—At a meeting of the epidemiologic section, October 28, the Jenner Memorial Medal of the Royal Society of Medicine was awarded to Sir Shirley Forster Murphy in recognition of distinguished work in epidemiologic research. This medal was founded on the centenary of Edward Jenner's first successful inoculation of cowpox from one human being to another, and has been awarded for preeminence in the prevention and control of epidemic disease.

Deaths in Other Countries

Dr. R. Bonnet, formerly professor of anatomy at the University of Bonn, aged 71.—Dr. R. de Gainza, professor of histology at the University of Buenos Aires and at one time director of the public health service.—Dr. M. Murphy of Buenos Aires, until his recent retirement connected with the national board of education.—Dr. E. R. Schneider, a well known Danish ophthalmologist.—Dr. Alfonso Medina, professor of clinical medicine in the University of Madrid.—Dr. E. Navarro Ortiz of Madrid, a naval medical inspector, aged 65.—Dr. J. Vieira Marcondes of S. Paulo.—Dr. F. A. Bainbridge, professor of physiology, University of London, author of several books on physiology.—Dr. F. P. Maynard, lieutenant-colonel, Bengal Medical Service; professor of ophthalmology, Medical College of Calcutta, India, from pneumonia, September 20; at one time editor of the *Indian Medical Gazette*.—Dr. W. Russell, formerly of the Royal City of Dublin Hospital, at Ranchi, India, president of the Assam branch of the British Medical Association, 1917.

Government Services

Neuropsychiatric Hospital for Public Health Service

Surg.-Gen. Hugh S. Cumming, U. S. Public Health Service, has inaugurated plans for the operation of the Catholic Orphanage, located in the Bronx, New York, as a neuropsychiatric hospital. This institution was recently acquired by the government at a cost of \$2,750,000, and new improvements and alterations will be made at a cost of approximately \$600,000. The hospital will be equipped, when completed, to care for a thousand patients. The three main buildings of the institution are of brick and unusually well constructed, and are situated on a tract of 32 acres. The plans for alteration contemplate connecting tunnels for the main buildings and installation of general mechanical equipment. The alterations and remodeling will be completed within three or four months, and the hospital will be devoted to the care of mental cases only. Quarters for nursing, dietetic and reconstruction personnel are thoroughly modern, and the hospital will be one of the best equipped of its kind.

American Legion Adopts Resolution on Public Health Service Reserve

The movement which has been in progress for several weeks to have legislation enacted to place on a permanent basis the reserve officers of the U. S. Public Health Service has gained force as a result of the resolutions passed by the Convention of the American Legion in Kansas City, Mo. These resolutions, which were printed in the Congressional Record, state in part that:

WHEREAS, Uncertainty of length of service and the consequent inability to provide for prudential considerations of the future cannot fail to impair the morale of reserve officers detailed to duty in the care of the disabled soldiers in the United States Public Health Service hospitals; and

WHEREAS, Because of this uncertainty the efficiency of the treatment of the disabled is impaired because of resignation from the service and the reluctance of skilled surgeons to enter such service. Therefore, be it

Resolved, That officers now on duty in the United States Public Health Service hospitals in care of disabled veterans be placed in the regular corps of the United States Public Health Service or upon a similar status, with all the rights and privileges that are provided for officers in the regular army of the United States Public Health Service.

Senate Adopts Willis-Campbell Bill

By a vote of 56 to 22, the United States Senate adopted the conference report on the Willis-Campbell bill prohibiting the sale of beer for medicinal purposes. The measure, already having been adopted by the House, now goes to the President for his signature. He is expected to sign the measure within the ten-day period, thus putting an end to the condition prevailing at the present time that permits physicians to issue prescriptions to patients for beer. Because of delay in the passage of the antibeer measure, the Treasury Department recently issued regulations covering the sale of beer as a medicine, and breweries in various parts of the country began the manufacture of beer. Physicians also were prepared to issue prescriptions to the extent of 100 every three months. Had not the bill passed, therefore, the distribution of beer would soon have been in full force. This situation, however, has been abruptly ended by the action of the Senate. There is some question as to the constitutionality of the proposed act, and it is reported that President Harding will send it to the Attorney-General for a decision before finally placing his signature to the measure. This issue of constitutionality is based on the feature dealing with the right of search of private property and other legal questions which were the basis of strenuous and vigorous opposition to its passage in the Senate. The legislation has been before Congress since last June.

Association of Public Health Service Reserve Officers Organized

At a meeting recently held in Washington, D. C., there has been organized the Association of reserve officers, U. S. Public Health Service. The purpose of this organization is to promote better cooperation among its members, to establish a high degree of professional efficiency, and to establish the greatest interest in the treatment and care of disabled men and women of the World War. At the initial meeting there were present about forty medical men, who represented more

than 700 reserve officers of the Public Health Service. The following officers were elected by the association: president, Dr. O. Yarnell, St. Louis; first vice president, Dr. C. T. Messner, Washington, D. C.; second vice president, Dr. John P. Wheeler, New Haven, Conn.; treasurer, Dr. A. J. Campbell, Fort McHenry, Md.; secretary, Dr. Bernard C. MacNeil, Washington, D. C.

Distinguished Service Medals for Medical Officers

Three officers of the Medical Corps of the Army and one former emergency officer in the Medical Corps have been presented with the Distinguished Service Medal by President Harding. The emergency officer was Dr. John J. Moorehead, New York, a colonel in the Medical Corps during the war. Colonel Moorehead was in charge of Evacuation Hospital No. 10 in the American Expeditionary Forces, and was cited for his distinguished service at this hospital. Col. J. R. Kane, M. C., U. S. Army, was given his medal for the organization of the base hospitals and ambulance service in France. Col. Henry A. Shaw, M. C., U. S. Army, was presented the medal for splendid work at the base hospital section at Bordeaux, France, and Lieutenant-Colonel Foster for similar service while in charge of the base section at St. Nazaire, France.

Federation of Hospitalization

In order to standardize requirements of hospitals operated by the government and to systematize their operation and purchase of supplies, a federal board of hospitalization has been created. The board will purchase hospital and surgical equipment for hospitalization activities of the Army, Navy, U. S. Public Health Service and the U. S. War Veterans' Bureau.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 28, 1921.

Creation of a Clinic for the Treatment of Diseases of the Urogenital Tract

Until recently there has been no chair of urology at the School of Medicine of Montpellier. This deficiency has now been supplied by the appointment of Prof. Emile Jeanbrau, who, during a long period of activity, has made a reputation for himself by his studies in urology. He was also president of the twenty-first congress of the French association of urology held recently in Strasbourg.

Legislation for the Suppression of Abortion

The Conseil supérieur de la natalité et de la protection de l'enfance held a meeting recently, presided over by Monsieur Leredu, minister of hygiene, public charity and social welfare. The council requested the adoption by the chamber of deputies of the bill pertaining to the suppression of abortion, which has already been passed by the senate. In the meantime, while action is being taken on this bill, the council expressed the desire that the authorities use greater vigilance in the suppression of abortion. It requested also that communes be required to furnish quarterly statements in regard to the number of marriages and births, and also of deaths of children under 1 year of age. The council also declared in favor of the elaboration of a code of laws for the protection of children, and also the creation of a French section in the International Association for Child Welfare, the headquarters of which are in Brussels.

Prizes Bestowed by the Academy of Sciences

The Academy of Sciences has made known its list of prizes and grants awarded in 1921. Among these awards the follow-

ing may be noted: The Barbier prize (2,000 francs) awarded to Dr. Ernest Sacquépée, professor of the Val-de-Grâce school of applied military medicine and pharmacy, for his work on gas gangrene; the Bréant prize (5,000 francs) awarded to Dr. Dujardin-Beaumetz and to Dr. E. Joltrain (director of the laboratory of the Pasteur Institute) for their work entitled, "Histoire d'une Epidémie Parisienne de Peste"; the Lallemand prize (1,800 francs) awarded to Dr. Georges Guilain, associate professor in the medical department of the University of Paris, and Dr. Alexandre Barré, professor in the medical department of the University of Strasbourg, for their work entitled, "Travaux Neurologiques de Guerre," and the Argut prize (12,000 francs) awarded to Dr. Foveau de Courmelles for his studies on roentgen rays and radium in gynecology. The Charles Bouchard annuity fund for scientific research (5,000 francs) has been awarded to Dr. Maxime Ménard, roentgenologist of the Cochin hospital, for his researches in roentgenography.

Use of Mercuric Chlorid and Solution of Hypophysis by Midwives

It is well known that the incautious use in obstetrics of injections of a solution of hypophysis may seriously endanger mother and child. The Society of Obstetrics and Gynecology of Bordeaux has recently taken up the question and expressed the wish that midwives be prevented from obtaining these preparations in drug stores on their sole request. At the same time, the society considered the dangers resulting from allowing midwives to prescribe mercuric chlorid. The society believes that, at the present time, there is a sufficient number of powerful antiseptics available without placing salts of mercury (mercuric chlorid or cyanid) at the disposal of midwives. Some of them still administer vaginal injections of these medicaments, the danger of which during labor and the sequels of confinement is well known. The Bordeaux society accordingly thought it advisable to submit the question to the Society of Obstetrics and Gynecology of Paris and to ask the latter to take the initiative in presenting a collective request to the competent authorities for a revision of the list of medicaments that midwives are allowed to prescribe, and to insert solution of hypophysis in the list of toxics to be delivered only on a physician's prescription. The question was discussed by the Society of Obstetrics and Gynecology of Paris, which instructed Dr. Le Lorier to present a report to the Bordeaux society. While admitting that mercuric chlorid is not an ideal obstetric antiseptic, Le Lorier believes, however, that on account of the great extent to which it has been used in the past, compliance with the request might awaken doubt and confusion in the minds of old practitioners who are no longer capable of adapting themselves to new ideas. The Paris society agreed with Dr. Le Lorier and declared that it could not comply with the request of the Bordeaux society on this point. On the other hand, as regards solution of hypophysis, the Paris society agreed with the Bordeaux society that pituitary preparations in any form must be considered as dangerous medicaments and that, although they are nontoxic, they should be included in the list of substances not obtainable without a physician's prescription. Midwives will therefore no longer be authorized to prescribe pituitary preparations nor to obtain such for their own practice. This decision was unanimously adopted.

Serotherapy and Vaccinotherapy in Affections of Bones and Joints

Among the many questions reviewed at the thirtieth French congress of surgery recently held in Strasbourg, the subject of serotherapy and vaccinotherapy in osteo-articular affections is of general interest, as is everything pertaining to

modern methods of biologic therapeutics. One of the essayists, Dr. Louis Delrez of Liège, reviewed the various applications of serotherapy and vaccinothrapy to typhic osteitis, gonorrheal arthritis and staphylococcus and streptococcus affections of the bones and joints. Vaccinothrapy has given good results in the closed types of typhic osteitis, although it is true that experiments have been made in only a few cases as yet. In open osteitis, however, it is almost always necessary to resort to surgical intervention in addition to vaccinothrapy. In gonorrheal arthritis, vaccinothrapy, which is aimed, in fact, at complications only and not at gonorrhea itself, has given inconstant and uneven results. Its specific value seems doubtful, and its effectiveness, if noted, depends probably on the general reaction brought about by the vaccine. This seems to be further indicated by the fact that nonspecific vaccines have sometimes given good results. As regards antigonococcus serotherapy, it has given encouraging results both with intravenous and intra-articular injections, the latter seeming preferable. However, the results of the method are far from constant, and the present tendency is to go back to surgery and to perform early arthrotomy followed by mobilization. Concerning osteo-articular affections, pure antistaphylococcic serotherapy is practically unknown. Antistreptococcic serotherapy gives very inconstant results. Likewise, vaccinothrapy is far superior to serotherapy. Its action is shown by modifications of the exudate, which becomes serous by degrees on account of the rarefaction of bacterial elements. This aseptic process occurring in the foci is of great practical importance. It allows early secondary suture and dispenses with drainage, without affording us, however, absolute assurance that fistulization will not occur, despite the good results otherwise obtained. As a rule, however, vaccinothrapy eliminates surgical intervention or confines it to the incision of a subperiosteal abscess or the removal of a few sequestrs. The co-essayist, Dr. R. Grégoire, associate professor in the medical department of the University of Paris and surgeon to the Paris hospitals, confined himself in his paper to the results he obtained with vaccinothrapy in sixty-three of his own cases, regularly followed up. Discussing the respective merits of massive injections of several billions of bacteria at one time (the Delbet method) and of progressive injections, he declared himself in favor of the latter, which, though the effect may be slower, are less dangerous. Grégoire extols the prolongation of the treatment for two or three months, at the rate of one injection weekly after recovery, in order to establish immunization more fully. Injections should be given subcutaneously or intramuscularly (deltoid or gluteal region). The indications and results vary with the clinical type. Thus, in septic types vaccinothrapy can be but an adjuvant to the operation, which should be performed without delay. We must add that, even in this restricted application, vaccinothrapy often produces no effects, and in eleven cases of this type Grégoire recorded nine deaths. Grégoire remains convinced that vaccinothrapy is most successful in acute and subacute forms, in spite of contrary opinions from various surgeons. But great caution is necessary, as the precise indications are not as simple as one might suppose. The essayist held that only the surgeon has the right to try vaccinothrapy, as he must be ready at any moment to resort to the knife if circumstances should demand it. When vaccinothrapy can be employed (and it must be noted that a precarious condition of the heart and kidneys constitutes an absolute contraindication), we must differentiate between cases in which vaccine alone will be sufficient and those in which an incision is indicated. In incipient cases, in subperiosteal abscess, and even in confirmed suppuration of the bone, we have a right to expect much from the vaccine, if

the general condition of the patient is still fairly good. On the other hand, in articular complications, we cannot derive much benefit from vaccine and in most cases we shall have to resort to arthrotomy. When sequestrs are present they must be removed, and surgery alone can accomplish this. But also in such cases vaccinothrapy is a valuable aid; for, the virulence of the infection being thus diminished, it becomes possible to operate *à froid* (during intervals between attacks), to fill in the bone cavity immediately and to close the wound, instead of draining it for several months. In chronic forms, we must differentiate between closed chronic osteomyelitis and fistulous chronic osteomyelitis. The former often requires no treatment, but it may present acute or subacute recurrences that vaccine will cause to retrogress. We may remark, however, that an ordinary moist dressing and rest produce the same effect; thus vaccinothrapy is in such cases of doubtful value. In fistulous osteomyelitis, vaccinothrapy appears to be even less indicated, since surgical intervention is indispensable in such cases, and also on account of the frequent presence in old cavities of collections of bacteria on which vaccine has no effect.

BUENOS AIRES

(From Our Regular Correspondent)

Oct. 21, 1921.

Smallpox in Chile

The smallpox epidemic in Chile seems to be serious. It has already spread to the boundary provinces of San Juan and part of Mendoza although it is on the decline there. In our country, in the cities and coast provinces, people trust completely to vaccination, a measure through which the disease was eradicated many years ago. When some cases occurred at San Juan there was, however, a general alarm, due partly to the fact that there were some chickenpox foci in the province of Buenos Aires. The demand for smallpox vaccine has been so considerable that it has been impracticable to fill all the orders although about 22,000 doses are being delivered daily.

Antituberculosis Conference

On October 21 the inaugural session of the Third Argentine Conference on Antituberculosis Prophylaxis will be held at the Argentino Theater of La Plata. The conference was organized by a committee presided over by Dr. Angel A. Alsina. Two hundred and ten physicians and many scientific institutions will participate. Dr. Araoz Alfaro, president of the Argentine League Against Tuberculosis, will give a lecture on "Harmful Errors and New Ideas in regard to Tuberculosis." Special reports will be presented on: 1, etiology of tuberculosis; 2, mortality and morbidity statistics in Argentine; 3, means of fighting the disease; 4, economic aspects of the campaign; 5, present status of the campaign; 6, compulsory health insurance; 7, friendly societies' insurance; 8, sanitation of lodgings; 9, cheap and hygienic homes. In connection with the conference there will be an exhibition at which numerous scientific and public health organizations will be represented.

Aid to Backward Children

Prof. Domingo Cabred, who has been in charge of relief work for insane people and backward children, gave a lecture before the Bar Association October 18. He mentioned especially, the asylum for backward children located at Torres, province of Buenos Aires, and the reformatory at Olivera, Buenos Aires. Backward children are classified into two groups, inmates and educable. The latter receive special teaching. The treatment of the inmates is carried out at Torres, in an asylum divided into four large sections, with 250 hectares (about 617 acres) of ground. There are 800

patients. Educable children learn several occupations and have their own school, church, gymnasium, moving picture house, etc. They raise poultry and pigs, have vegetable gardens, coal mines, etc. All the work is done in the open air, without any fences about the grounds.

BERLIN

(From Our Regular Correspondent)

Oct. 26, 1921.

Influence of the War on the Determination of Sex

The old question whether or to what extent the war has exerted an influence on the sex of the new-born continues to be discussed. According to an article emanating from the Tübingen University Women's Hospital, no increase in male births could be noted in Württemberg, and, judging from the previous statistics issued for the whole empire, no such increase can be anticipated. In this connection it must be borne in mind that a sufficiently large number of cases must be available in order to establish conclusions that are at all reliable. It is noteworthy that, according to the observations of the Tübingen hospital, there was a very wide variation in the number of male births during the years of peace. In 1899, in a series of 381 births, the figure representing the proportion of boy births was 86.9, while in 1919, in a series of 441 births, the figure for male births was found to be 125.4, or a difference of 38.5 in approximately equal series and with the same conditions prevailing. From this it may be seen how easy it is to draw false conclusions. For this reason, the relationship of the number of male and female births, respectively, to the age of primiparas must be considered with caution. Ahlfeld, formerly gynecologist in the Marburg University Women's Hospital, has formulated these hypotheses: 1. Very young primiparas give birth to an excess of boys. 2. Primiparas, during the height of the fertile period, produce more girls than boys. 3. In the case of primiparas just past 30 there is, with increasing age, a greater tendency to male births. However, Ahlfeld, later on, suggested certain modifications of these propositions, and more recent investigators have reached quite different conclusions. In the case of multiparas, no influence of the age of the mother on the sex has been definitely established. If we may apply the observations of stock breeders, the condition of nutrition in the parents might be expected to have an influence in determining the sex in man. However, Düsing has investigated the results following good and bad harvests and with reference to the fluctuation in the prices of provisions, but was unable to secure any clear evidence of such differentiation. Nor has the war, as yet, shed any new light on the question.

Incidence of Cancer

From the statistical report on the causes of death in the German empire for the years 1914-1918, it appears that in 1914 the deaths from cancer in men were 23,494, whereas in 1918 the number had dropped to 21,804. However, it should be noted that for women there was in reality an increase (in 1914, 28,694 deaths; in 1918, 29,361 deaths). It is thus evident that no particular increase in the mortality from cancer can be established. Whereas, during the period preceding the war, the mortality from cancer took a constant upward turn (in 1904, 6.2 per 10,000 of population, and in 1914, 8.2 per 10,000), the recent statistics furnish no evidence of an increase. However, these figures cannot well be used as the basis for any general conclusions, for, in spite of a general decrease of fatal cancer cases, there has been an actual increase in certain sections; for example, in Bavaria 9.8 deaths per 10,000 of population, while Prussia's record is 7.1 per 10,000.

New Head of the Serodiagnostic Department of the Behring Institute

Professor Dr. Dold, formerly an assistant in the Institute for Experimental Therapy in Frankfort-on-the-Main and privatdozent in hygiene and bacteriology at the University of Frankfort, has accepted a position in the Behring Institute for Experimental Therapy in Marburg, of which Geheimrat Uhlenhuth is the director, and has taken over the management of the serodiagnostic department. From 1908-1910, Professor Dold was demonstrator of bacteriology and comparative pathology at the Royal Institute of Public Health in London. He later became first assistant at the Institute for Hygiene and Bacteriology in Strasbourg, and in 1912 secured a professorial chair. In 1914 he was granted leave of absence to accept a temporary position as professor of hygiene and bacteriology in the German Medical and Polytechnic School for Chinese, in Shanghai. In 1919, he was forced out of his position in Shanghai, whereupon he became an instructor in the medical department of the University of Halle, assuming at the same time the duties of department head in the Hygienic Institute. A year later he was called to Frankfort, as stated.

A German Expedition to Combat Trypanosomiasis

The *Deutsche medizinische Wochenschrift* states that a scientific expedition under the leadership of Professor Kleine is to leave soon for Africa, where certain new remedies which it is hoped will be effective in trypanosomiasis in man and animals are to be given a trial. Professor Kleine was an assistant of Robert Koch on his expeditions for the study of coast fever and the African sleeping sickness, since which time he was, until his work was interrupted by the war, the head of the mission for combating trypanosomiasis in German East Africa. He was the first to succeed in transmitting experimentally trypanosomiasis to apes through the natural intermediate host, the genus *Glossina*, thereby clearly demonstrating the development of the causative agent in such flies. The next objective is North Rhodesia. Through the courtesy of the British government the expedition will enjoy the privilege of carrying on investigations in the British colonies.

Marriages

BENJAMIN BRUCE BRUMBAUGH, Elkridge, Md., to Miss Mirian Lee Smith of Baltimore, at Washington, D. C., November 5.

WILLIAM B. KENWORTHY, Capt., M. C., U. S. Army, to Mrs. E. E. Pritchett, at Fort Amador, C. Z., September 27.

FRANK CARLETON THOMAS, Roanoke, Va., to Miss Marjorie Winthrop Griffiss of Pikesville, Md., November 14.

ROBERT REID, JR., North Tarrytown, N. Y., to Mrs. Helen Dinkle Spencer, at Schenectady, September 24.

LEO ALEXANDER DE MERCHANT, Seattle, Wash., to Miss Cora J. Philipps of Enumclaw, October 15.

FRANK W. SMITH, Williamsburg, Ohio, to Miss Loretta McKenzie of Cincinnati, November 15.

JOHN JEREMIAH O'LEARY, Olympia, Wash., to Miss Mary L. Hall of Kent, Wash., October 12.

BURTON A. BROWN, Seattle, Wash., to Miss Adeline Perry of Iowa City, Iowa, October 10.

JOHN WOLFGANG GEIGER, La Salle, Ill., to Miss Gertrude M. Cahill of Peru, Ill., October 15.

CHARLES JAMES HIGLEY, Brooklyn, to Miss Louise Lane of Towanda, Pa., November 15.

SIDNEY HYMAN BAROVICK to Miss H. Schlansky, both of New York City, November 1.

BENJAMIN H. ALTON to Miss Elizabeth Moen, both of Worcester, Mass., November 7.

Deaths

Charles Elihu Quimby ☉ New York; New York University Medical College, 1878; a member of the medical faculty of New York University, and since 1895 visiting physician at the City Hospital; president of the American Climatological Society, 1909, and member of the New York Academy of Medicine; consulting physician to the Manhattan State and Jamaica Hospitals, New York; died, November 6, from cerebral hemorrhage, aged 68.

Austin Wilkinson Hollis ☉ New York; College of Physicians and Surgeons, New York City, 1890; at one time professor of clinical medicine, Columbia University, New York, and for years in charge of the New York Dispensary. He was a member of the New York Academy of Medicine and the American College of Physicians, and was the author of several medical textbooks; died, November 6, from cerebral hemorrhage, aged 52.

Charles Christopher Byrne ☉ Washington, D. C.; University of Maryland, Baltimore, 1859; entered the U. S. Army as assistant surgeon in 1860 and ultimately attained the rank of assistant surgeon general; was retired by operation of the law in 1901 with the rank of colonel and advanced to the grade of brigadier general under the act of 1904; member of the Order of the Loyal Legion; died, November 12, aged 84.

William A. Dickey, Toledo, Ohio; Louisville (Ky.) Medical College, 1877; president of the Toledo Academy of Medicine; president of the Northern Tri-State Medical Association, 1913; founder and formerly professor of the principles and practice of medicine, Toledo Medical College; at one time attending physician, St. Vincent's Hospital; died, November 4, aged 71.

Loomis LeGrand Danforth, New York; College of Physicians and Surgeons, New York City, 1874; emeritus professor of obstetrics and head of chair of obstetrics, New York Homeopathic Medical College and Flower Hospital; member of the New York Academy of Pathological Science; died, November 7, from cerebral hemorrhage, aged 72.

Joseph M. Ratliff ☉ Cincinnati; Cincinnati College of Medicine and Surgery, 1878; veteran of the Civil War; superintendent of the Grandview Sanatorium since 1914; fellow of the American Psychiatric Association; served during the late war on the district advisory board; died, November 5, from chronic myocarditis, aged 73.

Cary Breckenridge Gamble, Sr., Baltimore; University of Maryland, Baltimore, 1846; also graduate of the University of Virginia, Charlottesville; Confederate veteran; member of the Medical and Chirurgical Faculty of Maryland; practitioner for half a century; died, November 8, at Gamble Hill, Md., from senility, aged 97.

Elizabeth Angela Riley ☉ Boston; Tufts College Medical School, Boston, 1897; since 1913, instructor in gynecology and abdominal surgery at her alma mater; at one time superintendent of the Woman's Charity Club Hospital, and founder of the Bay State Hospital, Boston; died, October 27, in Allston, aged 52.

William Henry Fox ☉ Washington, D. C.; Columbian University, Washington, 1884; member of the American Ophthalmological Society; former surgeon to the Episcopal Eye, Ear and Throat Hospital and associate surgeon to the Emergency Hospital, Washington; died, November 3, aged 64.

Mortimer Willson ☉ Port Huron, Mich.; Detroit Medical College, 1874; president of the Port Huron Hospital Association for ten years; died suddenly, November 10, on the golf course, from cerebral hemorrhage, aged 74.

George J. Burns, Dayton, Wash.; Western Homeopathic College, Cleveland, 1865; Civil War veteran; practitioner for more than fifty years; died, November 4, in the Ohio Soldiers' and Sailors' Home, Sandusky, Ohio, aged 81.

John J. Robinson, Plattsburg, N. Y.; University of Vermont, Burlington, 1885; member of the Vermont State Medical Society; died suddenly, November 2, from cerebral hemorrhage, at the Y. M. C. A., Albany, aged 65.

Charles Lewis Moir, Chicago; Kentucky School of Medicine, 1903; assistant superintendent, Louisville (Ky.) City Hospital; served in the World War; died, November 9, at El Paso, Texas, from tuberculosis, aged 39.

Frederick Edward Easton, Syracuse, N. Y.; Long Island College Hospital, Brooklyn, 1884; member of the Medical Society of the State of New York; died suddenly, November 12, from cerebral hemorrhage, aged 60.

Louis J. Pelletier, Ludington, Mich.; Laval University, Quebec, Canada, 1887; member of the Michigan State Medical Society; died suddenly in his office, November 7, from cerebral hemorrhage, aged 56.

Franklin Matthews, Philadelphia; Jefferson Medical College, Philadelphia, 1872; practitioner for nearly fifty years; member of the Medical Society of the State of Pennsylvania; died, November 29, aged 73.

James Peter Boyd, Larchmont, N. Y.; Long Island College Hospital, Brooklyn, 1875; practitioner for nearly half a century at Akron, Ohio; died suddenly, November 10, from heart disease, aged 70.

Roy Leslie Barr, Buffalo, N. Y.; Hahnemann Medical College and Hospital of Chicago, 1908; assistant physician, Gowanda State Homeopathic Hospital, Collins, N. Y.; died, November 3, aged 37.

William W. Dickie, Richmond, Va.; Medical College of the State of South Carolina, Charleston, 1857; practitioner for over fifty years; died, November 4, at the home of his daughter, aged 87.

James F. York, Portsmouth, Ohio; Eclectic Medical Institute, Cincinnati, 1895; for ten years mayor of Kenova, W. Va.; died, November 3, at the Palace Hotel, Cincinnati, aged 55.

John F. H. Duff, Shelbyville, Ky.; University of Louisville, 1878; died, October 30, in the Old Masons' Home, from injuries received when he was struck by an automobile, aged 74.

Rupert Folger ☉ Whitestone, L. I.; Long Island Hospital College, Brooklyn, 1898; visiting physician to the Flushing Hospital, L. I., where he died, November 13, from pneumonia, aged 45.

John Fitch Dove, Chicago; Meharry Medical College, Nashville, Tenn., 1918; member of the Chicago Dental and Pharmaceutical Society; died, November 6, from tuberculosis, aged 28.

George W. H. Moore, Chelan, Wash.; University Medical College of Kansas City, Mo., 1896; died, October 31, after a long illness, at the Sacred Heart Hospital, Spokane, aged 64.

Albert Wallace Henderson, Nelson, British Columbia; Manitoba Medical College, Winnipeg, 1908; died recently from injuries received in an automobile accident, aged 35.

Charles Vincent Eads, Arthur, Ill.; Barnes Medical College, St. Louis, 1899; was drowned, November 14, when his car overturned into a ditch near Decatur, Ill., aged 50.

Charles Polhill McCall, Reidsville, Ga.; University of Georgia, Augusta, 1883; Confederate veteran; died, October 16, at the home of his son, at Sylvania, Ga., aged 78.

Robert F. Hayes, Freeport, Ill.; University of Pennsylvania, Philadelphia, 1858; practitioner for more than half a century; died, November 6, from senility, aged 89.

James Monroe Beyer, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1883; died, October 31, at Bustleton, from pneumonia, aged 73.

Josiah E. Cooper, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1896; was found dead in bed, November 3, from valvular heart disease, aged 52.

Edward H. Rinkel, East St. Louis, Ill.; Missouri Medical College, St. Louis, 1882; died in October, at the home of his brother, Medford, Okla., aged 64.

Charles N. Dunn, Centralia, Ill.; Hahnemann Medical College and Hospital of Chicago, 1878; died recently from carcinoma of the rectum, aged 70.

Eugene Sawyer, Chicago; Hahnemann Medical College and Hospital of Chicago, 1882; died, October 20, after a long illness, aged 85.

William P. Ryan, Decatur, Ill.; Bennett Medical College, Chicago, 1897; died, October 27, from edema of the larynx, aged 51.

Moses Roberts, Fincastle, Ky. (license, Kentucky, 1899); died, September 21, from senility, aged 84.

Stiles H. Dunbar, Athens, Ga.; University of Georgia, Augusta, 1906; died, October 12, aged 36.

George W. Kirkpatrick, Lafayette, Ind. (license, Indiana, 1897); died, September 22, aged 86.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

PHILIP RAHTJEN AND HIS DISCOVERIES

Recent newspaper reports regarding the alleged "discovery of the Germ of Pernicious Anemia" and the development of "an antitoxin and serum" by Dr. Philip Rahtjen of Pasadena, California, have brought inquiries of which the two that follow are typical. This from a physician in Indiana:

"Please let me know about the supposed recent discovery of Dr. Philip Rahtjen concerning pernicious anemia. The information I have is from a newspaper clipping of October 21, Pasadena, California. Kindly omit my name."

A New York physician writes:

"If you could send me any information as to the enclosed I would appreciate it. The article impresses one as absolutely inconclusive. However, I promised the patient I would investigate the matter."

The enclosures referred to consisted of a reprint and a letter from "Ph. Rahtjen, M.A., Ph.D.," Pasadena, Calif., both of which had been sent to a layman who had written to Rahtjen. The reprint was a translation of a brief article by Rahtjen "On the Etiology of Idiopathic Anemia" translated from the *Centralblatt f. Bakteriologie Parasitenkunde u. Infektionskrankheiten*. Rahtjen's letter to the layman read:

"Your inquiry relative to my isolation and classification of the Germ of Anemia received.

"I herein enclose my paper published in August in the *Central Mazazine of Bacteriology*.

"I have succeeded in immunizing goats against the Germ therein described. Five thousand injections of the Serum have been given. Three hundred cases diagnosed as Anemia and Chlorosis were treated under observation. Six cases of Pernicious Anemia were observed under treatment. All responded favorably.

"The Serum is at your disposal from my laboratory here for the use of your physician. The price is five dollars for twelve ampoules each containing 1 ccm., the amount of one injection.

"The treatment consists of intramuscular injection every second day accompanied with a nitrogenous free diet, preferably milk diet. Your attending physician should very easily give them."

Just what Rahtjen's serum is we do not know. Nor have we been able to find any information on the subject in any available medical literature. In fact, a rather careful search of American medical literature for some years past fails to reveal any article by Rahtjen on any subject.

Philip Rahtjen is not a physician. In the Propaganda files is a circular issued in 1917 by the "Rahtjen Tuberculosis Sanatorium" of San Francisco, Calif. This exploits "The Rahtjen Cure for Tuberculosis" and tells of "The Discovery of Dr. Philip Rahtjen." The circular states that:

"Dr. Rahtjen studied in Heidelberg, Berlin, Munich, Marburg, and Rostock, Germany, from which latter school in 1904, he graduated in chemical pathology as Doctor of Philosophy. He became assistant professor of pathology at the Imperial Biological Station at Heligoland, and was later appointed assistant to Dr. Piorkowsky, head of the *Deutsche Schutz und Heilserum Gesellschaft*."

The same circular summarizes the potentialities of "Rahtjen's Cure for Tuberculosis" thus:

"The remedy seems to cure tuberculosis in all its forms with equal celerity and certainty. The evidences indicate that it does not matter how far the disease has progressed, if there be tissue of the attacked organ remaining sufficient to sustain life, the disease can be wholly eradicated and the patient restored to health. This is indicated alike in tuberculosis of the lungs, of the throat, of the bladder, of the kidneys."

The booklet stated further that patients might be treated at one of two places: at the offices of the sanatorium in the city of San Francisco, or at the sanatorium itself near Glenwood. The cost of treatment at the sanatorium was to be \$1,000, which would entitle "the patient to residence and attention there for four months." According to the leaflet, "This is regarded as a period sufficient to restore the patient to health whatever be the stage of his disease; provided only, as we remark, that he has enough left of the infected organ to sustain life with the T. B. expelled."

"At the end of four months the patient is sent to his home, not alone relieved of his disease, but in a highly vigorous state of health."

All this, as stated previously, was in 1917. And yet people are still dying of tuberculosis!

In March, 1920, Rahtjen (so the newspapers have it) was offering a "New-Life Fluid." According to a San Francisco paper Dr. Philip Rahtjen "announces the discovery that by the injection of secretions from the ductless glands the human body may be reinvigorated." The paper described the discovery "as a long step forward in the fight to counteract old age" and stated that a syndicate was being formed by Rahtjen and others to "produce the extract in such quantity that it may be available for every one." The newspaper article showed the learned doctor in a laboratory apron in the characteristic pose of the newspaper "scientist" pouring something from a beaker into a test-tube—and gazing intently at the camera while doing it! This was in March, 1920; yet people still grow old.

Within the last month the *Los Angeles Examiner* has heralded some more wonderful accomplishments of Rahtjen. According to this paper Rahtjen has:

1. Isolated the "germ of pernicious anemia."
2. Found a "serum" for the cure of this disease.
3. Discovered the secret of human virility.
4. Evolved a fluid "from the glands of selected bulls and cows" which will "restore 'pep' for worn-out human bodies! Give added weight, clearer eyes, brighter minds, quicker bodies and a generally 'firmer grip' on oneself!"

This "amazing discovery" was, according to the *Los Angeles* paper, the culmination of "five years of continuous study" and had only just been revealed by Rahtjen.

"Dr. Rahtjen has for years been working silently in a bio-chemical laboratory in Pasadena, surrounded by microscopes, scales, test-tubes, acids, alkalis, reagents and all the accompanying stage settings that spell bio-chemical science."

All of these wonders might still have been a closed book to the public had not "friends" of Dr. Rahtjen brought the matter to the attention of the *Examiner*:

"Dr. Rahtjen yesterday, with the usual reserve of the ethical scientist, was disinclined to talk of his work until publication of it in a scientific journal."

Fortunately for a palpitating public the *Los Angeles Examiner* "was able to learn the essence of his study" and pass the information on. It seems from this newspaper report that Rahtjen first made his extracts from the glands of goats and sheep but these extracts "were found to be too strong." As a result "Dr. Rahtjen is now using the glands of specially selected Mexican bulls and cows." The male patients who are "weak, uninterested in life, unable to concentrate in thought" are given the extract of bull; the female patients who are in a similarly deplorable condition receive an "injection of the cow gland extract."

We have not yet learned whether the *Los Angeles Examiner* has deprecated Dr. Rahtjen's use of Mexican bovines. Remembering the attitude of the Hearst papers towards all things Mexican, one may look for the suggestion that Mr. Rahtjen use 100 per cent. American bull.

Correspondence

"ANESTHESIA IN NOSE AND THROAT WORK": DEFENSE OF PROCAIN

To the Editor:—Having read the report of the Committee on the Advantages and Disadvantages of the Various Local Anesthetics in Nose and Throat Work, and of the deaths caused by procain (*THE JOURNAL*, Oct. 22, 1921, p. 1336), we feel it our duty to say something in defense of this most valuable drug.

Since 1913 we have used novocain, or, as it is now called, procain, in oral surgery practice, in 2 per cent. solutions, in amounts varying from 2 c.c. to 20 c.c., each cubic centimeter of procain containing 0.00005 gm. of epinephrin. The operations performed under this anesthetic ranged from the simple extraction of a tooth, to the resection of the jaw for a malignancy.

nant tumor. We have made about 20,000 injections in private practice and some 30,000 in hospital practice. We have also witnessed about 15,000 more. The ages varied from 4 to 86 years. We have injected patients suffering with cardiac disease in all its stages, those suffering from nephritis, diabetes, arteriosclerosis, pulmonary tuberculosis and asthma, one patient having a systolic blood pressure of 280. In none of these cases, despite the ages of the patients or the condition of their health, has there been a fatality. The only untoward symptoms following the injections have been pallor, slight tachycardia, pains in the back, and in one case tremors of the extremities. The longest time that these symptoms lasted was five minutes. After these symptoms passed, the patient felt perfectly well and was operated on successfully. In one case of exophthalmic goiter the patient was greatly distressed, complaining of pains in the back and cramps in the lower abdomen. This attack lasted about three minutes and then the patient felt well again. We attributed this attack to the epinephrin in the solution, since the patient, having an exophthalmic goiter, the epinephrin caused the same reaction we would expect in the Goetsch test for hyperthyroidism.

We are at a loss to account for the deaths from procain that are listed in the report. What was the condition of the patient before the injection of the drug? Maybe the injection was incidental to the death. Perhaps the operator was careless with his solutions. We would suggest a more thorough explanation of the cause of the deaths of these patients. A report of this kind may serve to discourage men from using a drug that has proved a blessing to all users of local anesthesia.

LESTER RICHARD CAHN,
JOSEPH LEVY,
New York

THE BEST METHOD OF TYING THE
UMBILICAL CORD

To the Editor:—In 1896, when I was resident obstetrician at the Sloane Hospital for Women, it was our custom to ligate the cord about three-fourths inch (2 cm.) from the abdomen with a simple square knot. This method was continued until the day came when a new-born infant bled to death through the slipping of a ligature. In a conversation with Dr. L. E. La Fetra, who had just completed his service at the Sloane Hospital, and who at that time was a member of the house staff of the New York Nursery and Child's Hospital, the unfortunate experience was related, and Dr. La Fetra suggested the method which was in use at the nursery; a method so simple and so efficient that we introduced it at the Sloane Hospital, and have used it in private and hospital work ever since. The method is as follows: The cord is first clamped and cut in the usual way, or, if no clamps are used, a square knot is applied to the cord about three-fourths inch (2 cm.) from the abdomen, after which the cord is cut about a quarter of an inch (6 mm.) from the ligature. The jelly is then squeezed out from the cut end of the cord. The two ends of the ligature are then held up, and a knot is tied over the end of the cord, the tape being carried down between the two umbilical arteries, one of them being ligated. The ends of the ligature are then carried around the cut end of the cord in such a way as to secure the other artery. The ends of the ligature are then carried completely around the cut end and tied in a square knot.

The ligation is sometimes facilitated by seizing one of the arteries with a small clamp; but, with a little patience, one can apply the ligature without it.

An experience of twenty-five years with the method justifies me in stating that hemorrhage has never occurred: the pro-

cedure is simple and most satisfactory, and I believe that the technic is by far the safest and best for the ligation of the umbilical cord.

GEORGE L. BRODHEAD, M.D., New York.
Visiting Obstetrician, Harlem Hospital.

THE HOSPITAL AND ITS NECROPSY
PERCENTAGE

To the Editor:—In THE JOURNAL, Oct. 8, 1921, page 1198, is published a letter describing the progress made at the Philadelphia General Hospital in obtaining a high percentage of necropsies. The same problem is being met in an institution in which the securing of necropsies is even more difficult than in a large municipal institution.

The institution is one of 400 beds, including a private ward, and is supported to a large extent by private endowment. Postmortem examinations are in charge of a resident pathologist, but the staff has every opportunity to assist in making them, and to examine the material, both in gross and microscopically. Formerly requests for necropsies were left in the hands of the executive office. Recently the matter has been entrusted to the house staff, a policy which has resulted in a marked increase in the number of necropsies, as shown by the following figures:

Year	Number of Deaths	Number Necropsies	Per Cent.
1915	382	73	19
1916	343	54	16
1917	367	60	16
1918	458	27	6
1919	402	41	10
1920	398	105	29
1921 (10 months).....	377	92	24

The low figure for 1918 might possibly be attributed, in part, to the war; but the real explanation undoubtedly lies in the fact that it is only within the last two years that a really consistent and conscientious effort has been made to obtain as high a percentage of permissions as possible.

The percentages obtained by the various services in the hospital in 1920 are instructive:

	Percentages	Deaths	Necropsies
Medical service	31.5	99	31
Surgical service	31	42	13
Pediatric service	21.5	23	5
Private pavilion	21	38	8

As a rule, it seems more difficult to obtain necropsies in surgical than in medical cases. This is due largely to the fact that in the former an operation has already been performed, and the relatives are unwilling to permit further use of the knife. It is interesting and significant that the percentage of necropsies in private pavilion cases was only one-third less than in ward cases. In the private cases, permission is usually requested by the attending physician or surgeon in charge, which has far more weight than a request made by others. That the success of obtaining necropsies depends on the zeal and interest of the various staffs is shown by the figures for the two surgical services, one of which has for the past six months secured permission in 45 per cent., the other in 10 per cent., of the deaths.

There appear to be certain cardinal principles which, if followed, are useful in securing the desired results:

1. Establish what might be termed an "entente cordiale" with that member of the family who, in event of death, is legally authorized to give permission. This has frequently resulted in securing permission before death in hopelessly incurable cases. Persons who at first seem to be bitterly opposed to a postmortem examination will themselves request one when the matter is presented properly.
2. Ask for permission in every case of death. It is only by repeated necropsies that pathology can make progress.

3. Request permission immediately after death. A close relative, when most keenly affected and grieved by the death of one near and dear, is at that moment more willing to consent than at any other time. Later consideration or subsequent discussion with others almost invariably results in a refusal.

4. Broach the matter of a necropsy only to the next of kin or the one legally able to give permission. Effort to solicit the aid of an intermediary is usually a mistake and often the cause of failure.

5. Make every effort to obtain the permission before an undertaker has seen the relatives.

The arguments to be employed in each case vary. The one appeal which has had most success with us is that based on the good which may at some time accrue to some one else. Death seems to awaken a sudden outpouring of unselfishness. The presentation of the scientific side, with its addition to medical knowledge, is much less successful. When the diagnosis is uncertain, and a life insurance policy depends on it, an easy argument is afforded by the inability to sign the paper without a knowledge of the exact cause of death. This occasionally applies to the death certificate itself, although the board of health is unfortunately lenient enough to render this argument a rather weak one.

There are cases in which permission cannot be obtained, but the figures given show that constant improvement is possible.

L. G. RICHARDS, M.D., New York.

House Surgeon, St. Luke's Hospital.

THE CORNELL PAY CLINIC

To the Editor:—I beg to acknowledge receipt of your letter concerning the pay clinic which was opened at the Cornell University Medical College, Nov. 1, 1921, and to thank you for your courtesy in offering this opportunity to explain the character of the clinic.

During the past several years the dispensary of the Cornell University Medical College has, in common with practically all other dispensaries, made a charge for the more costly diagnostic procedures; yet it has been operated at a large and increasing expense. Despite the fact that many of the physicians have held teaching positions for which they received salaries, our dispensary, also in common with most others, has failed to give the best possible service to its patients; it has also failed to provide adequate clinical material for teaching, the purpose for which it has been maintained.

The decision to reorganize the clinic and charge fees which will eventually cover the actual expenses, including reasonable salaries for the attending staff, is the outcome of a study of the dispensary situation in New York City made by the Public Health Committee of the New York Academy of Medicine, and has become possible through the cooperation of the Dispensary Development Committee of the United Hospital Fund. This committee has made a large appropriation which, in addition to an amount equal to that which has been expended annually by the college for the support of the dispensary, is to cover any deficit incurred during the first two years of operation.

The clinic is designed for self-supporting persons who cannot afford the fees charged in private offices, particularly by specialists, or for diagnostic consultations, laboratory and roentgen-ray work. Estimates given at a recent meeting of the Section on Medicine of the New York Academy of Medicine were to the effect that at least 2,000,000 persons in New York City are in this class. Patients are charged \$1 a visit; medicines, roentgen rays, laboratory service and appliances are furnished at cost. The clinic includes a diagnostic service for patients referred by physicians at a fee of \$10, which

includes a report and recommendations for treatment to the referring physician.

Each department decides how many new and how many old patients can be properly attended by each member of the staff at a session, and patients are not admitted in excess of that number. Patients usually come according to an appointment previously arranged by the executive staff.

The faculty of the college exercises direct supervision and control over the work, and senior members of the various departments are in daily attendance, for which service they receive no additional compensation.

Great care is exercised in the admission of patients to prevent abuse by those who can afford to pay the fees of private physicians. Every one is submitted to a searching examination into his means, the decision regarding admission being based on the relation between the patient's income, his responsibilities or obligations, and the cost of the needed diagnostic or therapeutic procedure. Those needing hospital or surgical care are sent to institutions with which our staff is affiliated, provided they cannot afford to pay for professional service. If they are able to pay they are given a list of physicians holding appointments in the well-known hospitals, but in no case are they given the name of any physician connected with the college or clinic, and the staff is not allowed to attend any clinic patient outside the clinic.

The chief reasons for establishing the clinic on the basis outlined above may be thus summarized:

1. To provide a larger and richer supply of clinical material for teaching purposes.

2. To render a needed service to a major group in the community.

3. To cooperate with physicians in obtaining an accurate diagnosis for their patients who cannot otherwise procure the services of specialists and laboratory investigations.

4. To reduce and minimize the expense connected with hospitalization and nursing.

5. To advance scientific investigation into the problems of disease, particularly its beginnings.

6. To provide opportunities for young graduates of the college to pursue clinical and laboratory studies under its auspices and receive sufficient compensation so that they will not be diverted to other fields which often pay more but inhibit their development.

WALTER L. NILES, M.D., New York.

Dean, Cornell University Medical College.

"MELLON ISSUES BEER REGULATIONS"

To the Editor:—On reading the communication of Dr. Herz in THE JOURNAL, November 12, I looked for an editorial comment, and was disappointed when I did not find one. I suspect that the editor concluded it beneath his dignity to follow the line of discussion adopted by Dr. Herz.

Dr. Herz evidently has not read carefully the editorial to which he refers, or has purposely misconstrued its meaning in order to "air" his own views on the liquor question. He adopts that old despairing cry of the brewers of "personal liberty," in spite of the fact that all but eleven states have elected, by decisive majorities, to banish the saloon forever. Is the brother for majority or minority rule?

The editor does not state, as Dr. Herz writes, that "every physician who writes a prescription for beer does so from ulterior motives and prostitutes his profession"; and physicians should refer back to this editorial and read it as it is before giving credence to the distorted quotation given above; for if the author did not purposely distort it, he should have read more carefully before attempting to pass it on.

I have a copy of THE JOURNAL of October 29 before me, from which I quote the last paragraph of the editorial in

question, which appears to be the occasion for our New York brother's agitation:

Self-respecting physicians should and will resent any attempts to prostitute an honorable profession. Physicians who are indifferent as to their professional honor can doubtless reap an abundant harvest, so long as these regulations remain in effect. It is inconceivable, however, that the American people will long tolerate such a travesty.

I believe, also, that the self-respecting physician will resent any attempt to place him in the position of successor to the saloon, although I just read of a physician in one of our large cities who recently wrote more than 7,500 prescriptions for liquor in one month. If this is not besmirching an honorable profession, will our brother tell us what it is?

Dr. Herz also cites us to Dr. Hare to support his stand on the liquor question. In this instance, also, I have Dr. Hare's book before me, and find that he sums up the whole subject in a few words, to the effect that alcohol, far from being a true stimulant, is always a depressant.

I also note what appears to me to be the climax of the entire communication, and that is his statement relative to the comparative potentiality of milk and alcohol for harm; and I can possibly account for the silence of the editor, for I can almost imagine I hear him mutter to himself as he reads it: "Oh, what's the use!"

H. M. MOSER, M.D., Terra Alta, W. Va.

[COMMENT.—Letters commenting adversely on the letter of Dr. Herz were also received from Drs. E. S. Nelson, Canton, Ill.; T. J. Kirk, Pittsburgh; A. C. Hansen, Luther, Iowa; Peyton Ligon, Henderson, Ky.; W. S. Warder, Boulder, Colo., and F. W. Starr, Los Angeles. Supporting Dr. Herz have been Drs. E. E. Hamer, Carson City, Nev., and J. L. Kirby-Smith, Jacksonville, Fla. It is impossible to print all of these, especially since they express personal opinions without advancing fact or argument.—ED.]

THE PIRQUET SYSTEM OF NUTRITION

To the Editor:—In concluding his interesting article on the Pirquet system of feeding children in famine-stricken Austria (THE JOURNAL, Nov. 12, 1921, p. 1541), Dr. Carter remarks that there is "ample evidence that the nutritional status of children fed by this method is markedly improved in a surprisingly short time." One may be pardoned for being skeptical as to whether it was not the food rather than the method that was responsible for the happy results. In other words, one must realize that the conditions in Austria were abnormal and the feeding problem there was not so much one of nutrition as of nourishment—or the lack of it. When the trouble is nutritional, "strict mathematical formulas," even when based on "all the accepted principles of nutrition," fail. Individualization is then the only method of approach. One child may have tuberculosis, another anemia, a third may have a poor environment at home, etc. Where calory-weight will fail, nem-pelidisi will hardly prove an open sesame. We may likewise venture a guess that to a famished Austrian child 1,000 nem by any other name would be just as nourishing.

Therefore, whatever merit the Pirquet system may have for abnormal and catastrophic conditions created by war, siege and famine, when human problems are dealt with *en masse* instead of individually, the introduction of this method in this country at the present time is hardly desirable. For one thing, it would serve to focus the attention of the profession on schematic methods of feeding instead of individualization. In addition, it would create a Babel of misunderstanding among pediatricians besides which the perplexities arising from the use of the English and the metric systems would pale into insignificance.

SOLOMON HORWITT, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AUTOMOBILE ANTIFREEZING MIXTURES

To the Editor:—Please publish data regarding antifreeze mixtures for automobile radiators. Give a schedule showing just what percentage of denatured alcohol should be used to escape freezing at given temperatures.

E. J. PEUGELLY, M.D., Ironton, Minn.

ANSWER.—There are several substances used to lower the freezing point of the fluid in automobile radiators, among which are calcium chlorid, glycerin, and denatured alcohol or wood alcohol.

Calcium chlorid is effective in preventing freezing at ordinary winter temperatures, but its use is not recommended, as it not only clogs the radiator spaces, but also actually attacks the metal, owing in part to electrolytic action. This substance is often sold under proprietary names. "Freeze-Proof" was analyzed by the A. M. A. Chemical Laboratory about three years ago and was found to be commercial calcium chlorid.

Many antifreezing solutions contain glycerin, which is slightly injurious to rubber connections. The glycerin is not used alone, but generally with an alcohol.

The following glycerin antifreezing mixture is for a temperature down to 5 F. below zero:

Wood alcohol (by volume).....	15 per cent.
Glycerin	15 per cent.
Water	70 per cent.

For a temperature down to 15 F. below zero:

Wood alcohol (by volume).....	17 per cent.
Glycerin	17 per cent.
Water	66 per cent.

Mixtures of denatured alcohol or wood alcohol and water lower the freezing point, and are probably the least injurious, though on warm days the alcohol will tend to boil and evaporate. A mixture of 1 part (by volume) of denatured alcohol and 3 parts of water is said to withstand a temperature of 0 F. A mixture of 3½ parts of denatured alcohol and 6½ parts of water freezes at about 15 F., below zero, and a mixture of 4 parts of denatured alcohol and 6 parts of water freezes at about 25 F. below zero.

Dyke's Automobile Encyclopedia gives, for 10 F. and above:

Wood alcohol	20 per cent. by volume
Water	80 per cent. by volume

For —7 F. and above:

Wood alcohol	30 per cent. by volume
Water	70 per cent. by volume

In case denatured alcohol is used, the percentage is increased additively by 15, that is, 35 and 45, respectively.

For practical purposes, it is probably better to use only alcohol and water, so that from the specific gravity readings of the radiator solution the amount of alcohol present may be readily determined and the evaporated alcohol thus may be correctly replaced. This cannot be accomplished when a third substance, as glycerin, is present.

CLASSIFICATION OF EXPENDITURES FOR GRADUATE MEDICAL STUDY

To the Editor:—Kindly inform me whether there is a ruling of the Internal Revenue Department relative to the exception from income tax of expenditures for postgraduate study, etc. If possible, give the date and number of this ruling. The deputy collector here doubts the existence of such a ruling. Please omit my name.

V. S. Y.

ANSWER.—The ruling of the Internal Revenue Bureau is that such expenditures are an investment and not current expenses. They come under the same class as the original expenditure for medical education. Expenses incurred in attending meetings of medical societies are deducted so far as they include railroad fare and Pullman charges and the difference between the cost of living expenses at home and those incurred in attending the meetings.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, New Hibernia Bank Bldg. New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

West Virginia July Examination

Dr. W. T. Henshaw, secretary, West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, July 12, 1921. The examination covered 11 subjects and included 132 questions. An average of 80 per cent. was required to pass. Of the 28 candidates examined, 24 passed and 4 failed. Eighteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University.....	(1920)		88.9
Chicago College of Medicine and Surgery.....	(1917)		80
University of Louisville Medical Department.....	(1921)	80.9	82.4
Johns Hopkins University.....	(1920)		90.6
University of Maryland.....	(1920)		88.9
University of Cincinnati.....	(1920)	89.6, (1921)	80.7, 81.2
Western Reserve University.....	(1919)		89
Jefferson Med. College....	(1920)	87, 88.2, 90.2, (1921)	82.9, 90, 90.2
Temple University.....	(1921)		86.9
University of Pennsylvania.....	(1920)		91.1
University of Tennessee.....	(1919)		88.4
Vanderbilt University.....	(1915)		86.5
Medical College of Virginia.....	(1921)		87.9
University of Vienna.....	(1899)*		85
University of Naples.....	(1918)*		80

FAILED			
National University, Athens.....	(1921)*		70
University of Rome.....	(1916)*		70
Undergraduate.....			27
Osteopath.....			28

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta Medical College.....	(1915)		Georgia
College of Physicians and Surgeons, Chicago.....	(1907)		Indiana
University of Louisville.....	(1910), (1917)		Kentucky
Bowdoin Medical School.....	(1891)		Maine
College of Physicians and Surgeons, Baltimore.....	(1895)		N. Carolina
(1915) Virginia			
Maryland Medical College.....	(1905)*		Mississippi
Missouri Medical College.....	(1889)		Texas
St. Louis University.....	(1918)		Missouri
Columbia University.....	(1891)		Virginia
Eclectic Medical College, Cincinnati.....	(1919)		Ohio
Ohio State University College of Medicine.....	(1917)		Ohio
University of Cincinnati.....	(1920)		Ohio
Vanderbilt University.....	(1904)		Missouri
University of Vermont.....	(1908)		Vermont
Medical College of Virginia.....	(1918)		Virginia
Osteopath.....			Missouri

* Graduation not verified.

Washington July Examination

Mr. William Melville, secretary, Department of Licenses, reports the oral and written examination held at Olympia, July 12, 1921. The examination covered 14 subjects and included 140 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 16 passed and 4 failed. Forty candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
College of Physicians and Surgeons, San Francisco.....	(1920)		1
Denver and Gross College of Medicine.....	(1903)		1
Northwestern University.....	(1921)		3
Rush Medical College.....	(1920)		1
Johns Hopkins University.....	(1918)		1
St. Louis University School of Medicine.....	(1920)		1
John A. Creighton Medical College.....	(1920)		1
University of Oregon.....	(1916), (1920, 2)		3
Jefferson Medical College.....	(1920)		1
McGill University.....	(1900)		1
University of Vienna.....	(1905)*		1
Kanazawa Special Medical School.....	(1916)*		1

FAILED			
Loyola University.....	(1918)		1
Rush Medical College.....	(1897)		1
University of Kansas School of Medicine.....	(1920)		1
Kumamoto Special Medical School.....	(1919)*		1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine.....	(1910)		Montana
Georgetown University.....	(1906)		N. Dakota
Bennett Medical College.....	(1915)		Illinois
Chicago College of Medicine and Surgery.....	(1909)		Illinois
(1917) Alaska			
Chicago Homeopathic Medical College.....	(1903)		Ohio
College of Physicians and Surgeons, Chicago.....	(1903), (1907)		Illinois
(1910) Montana			
Loyola University.....	(1917) Montana, (1917, 2)		Illinois
Northwestern University.....	(1913)		Illinois
Rush Medical College.....	(1908) North Dakota, (1913)		Illinois
(1920) Illinois, Ohio, (1921) Illinois			
Medical College of Indiana.....	(1905)		Indiana
State University of Iowa College of Medicine.....	(1897)		Montana
University of Maryland.....	(1915), (1918)		Idaho
Harvard University.....	(1919)		Illinois
Detroit College of Medicine and Surgery.....	(1919)		Michigan
Minneapolis College of Physicians and Surgeons....	(1900)		Montana
University of Minnesota.....	(1921)		Minnesota
Kansas City Medical College.....	(1903)		Utah
Washington University.....	(1901) Indiana, (1912)		Missouri
John A. Creighton Medical College.....	(1896)		Illinois
(1913), (1917) Montana			
Western Reserve University.....	(1919)		Ohio
Jefferson Medical College.....	(1920)		Ohio
University of Pennsylvania.....	(1897), (1912)		Penn.
(1890), (1908), (1919) Idaho			
University of Toronto.....	(1911)		Iowa

* Graduation not verified.

Michigan June Examination

Dr. Beverly D. Harison, secretary, Michigan State Board of Registration in Medicine, reports the written examination, held at Detroit, June 20-22, 1921. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. One hundred and fifty-three candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....	(1916)		79.5
Loyola University.....	(1916)	79.9, 84, (1919)	83
Northwestern University.....	(1921)*	79.3	83.3, 84.3
Rush Medical College.....	(1921)		82.4
Indiana University.....	(1920)		84.3
State University of Iowa College of Medicine.....	(1920)		82.2
Detroit College of Medicine and Surgery.....	(1921)		79.1
80.6, 80.8, 81.1, 81.2, 81.3, 81.5, 81.5, 82, 82.2, 82.4, 82.5, 82.7, 82.7, 82.8, 82.8, 82.9, 83.1, 83.2, 83.3, 83.3, 83.4, 83.5, 83.7, 83.8, 83.9, 84.1, 84.4, 84.5, 84.5, 84.5, 84.5, 84.7, 85, 85, 85.3, 85.5, 85.5, 85.5, 85.8, 85.8, 85.9, 86.2, 86.4, 86.6, 87, 87.1, 87.6, 87.6, 88, 89.4			
University of Michigan Homeopathic Medical School..	(1915)		83.8,
(1921) 81.7†, 83.8, 86.1, 86.9			
University of Michigan Medical School.....	(1919)		80.8,
(1921) 79.8, 80.5, 80.5, 80.6, 80.8, 81.3, 81.6, 81.6, 81.7, 81.8, 82.2, 82.3, 82.4, 82.6, 82.6, 82.7, 82.7, 82.8, 82.8, 82.8, 82.8, 82.9, 83, 83, 83, 83, 83.1, 83.3, 83.3, 83.3, 83.3, 83.4, 83.4, 83.4, 83.5, 83.5, 83.5, 83.6, 83.7, 83.8, 84, 84, 84.1, 84.2, 84.3, 84.5, 84.5, 84.5, 84.5, 84.6, 84.7, 84.7, 84.9, 85, 85, 85, 85.1, 85.1, 85.1, 85.2, 85.3, 85.3, 85.3, 85.4, 85.4, 85.6, 86, 86.2, 86.5, 86.6, 87.1			
Baylor University.....	(1920)		83.4
McGill University.....	(1914)	82.7, (1918)	81.4, (1921)
Queens University.....	(1905)		78.9
University of Toronto.....	(1915)	83.8, 84.9, (1920)	85.6, (1921)
Western University.....	(1917)	80.3, (1920)	82.9, 84.1
University of Palermo.....	(1912)†		79.3

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

Book Notices

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS. By Henry Jellett, B.A., M.D., F.R.C.P.I., and David G. Madill, B.A., M.B., B.Ch., Gynaecologist to Monkstown Hospital, Dublin. With the assistance, in special subjects, of W. R. Dawson, M.D., F.R.C.P.I., H. C. Drury, M.D., F.R.C.P.I., T. G. Moorhead, M.D., F.R.C.P.I., and R. J. Rowlette, M.D., F.R.C.P.I. Third edition. Cloth. Price, \$10. Pp. 1199, with 590 illustrations. New York: William Wood & Co., 1921.

This edition, which appears eleven years after the second edition, is comparable to our American textbooks of obstetrics, and covers the ground with about the same general plan. It consists of ten chapters or parts, in logical sequence, the last one being devoted to consideration of the infant. The book is well made up, printed on good quality paper, in easy type, and is amply illustrated with refined reproductions and semidiagrammatic cuts, some of which are in colors. The text for the most part is accurate and authoritative, is brought well up to date, and is free from errors. Some subjects, such as the toxemias of pregnancy, are handled exceptionally well, and the treatment is described as carried out in the Rotunda Hospital. In a few instances the authors' advice might be held in dispute, as, for instance, on pp. 361-362 concerning the use of pituitary extract. The authors claim that the contractions produced by the drug retain their physiologic characteristics—are rhythmic and intermittent—not tonic, as is the case with ergot; that this is the fundamental principle governing its use in labor, "as it enables us to administer it during any stage of labor." Insufficient warning is given against the injudicious use or, rather, misuse of the drug. The dose of 1 c.c. in the second stage of labor when there is insufficiency of the powers, which is advised by the authors, is considered a huge overdose by most American authors. Before the birth of the child rarely would a dosage of more than 0.18 c.c. (3 minims) be justified, and many authorities consider the drug a safe one to use only after the child is born. Danger of rupture of the uterus is the warning signal that should be sounded under this caption. Again, in the part dealing with the management of face presentation, in discussing the treatment of the mentoposterior position, Jellett says: "If . . . the chin is directed posteriorly, our attitude should be one of watchful expectancy." In just this position expectancy should be replaced by active intervention. Reed's series of 22.6 per cent. out of seventy-five cases of chin-posterior presentation delivered as persistent posterior presentation is mentioned, as is resort to pubiotomy or craniotomy, whereas internal version (podalic), though casually mentioned earlier in the chapter, is not emphasized as the method of choice for delivery after attempts at reposition. Taken as a whole, the book has a definite place in the obstetric library as representative of the Dublin school, and can safely be recommended as a reliable reference work for students and practitioners of obstetrics.

DISEASES OF THE SKIN. A Text-Book for Students and Practitioners. By J. M. H. Macleod, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital. Cloth. Price, \$16 net. Pp. 1307, with 458 illustrations. New York: Paul B. Hoeber, 1921.

This new work, constituting as it does the first large textbook on dermatology to come from the English in some years, and a first edition by a well known dermatologist, is assured careful and critical consideration. The book is divided into the conventional two parts, the first dealing with general considerations, the second with the individual dermatoses. The author's reputation as a histopathologist is well known and, as was to be expected, the sections on anatomy and pathology are excellent. The other sections in this part are adequate and follow the usual lines. The consideration of the various dermatoses furnishes a comprehensive and up-to-date exposition of the subject, and the author seems to have found space in some instances for more extensive detail than is found in most textbooks. As examples of this may be mentioned the amount of space given to the consideration of the various theories of the etiology of psoriasis; the detailed information as to the transmission of leprosy, its history and the experimental work of the past, and the valuable discussion of many occupational disorders. Beyond this, one finds that numerous

topics usually not covered or merely mentioned in many dermatologic textbooks are given full consideration, as in the section on burns from heat, lightning and electricity. The discussion of treatment is of great interest, both in the general chapter on that subject, and under the individual diseases. Here again detailed information is helpful, as in the discussion of the Adamson-Kienböck technic of roentgen-ray treatment for ringworm of the scalp. In addition, the American reader finds mention of many drugs and methods of treatment apparently in common use among the English which are known but little, or not at all, by the majority of us, and one cannot help but feel that in some cases at least these selections are not made judiciously. The section on syphilis is adequate, but comparatively seems to have less space devoted to it than other topics. This criticism can be made elsewhere, also, as the subject of leukemias of the skin, one of constantly increasing importance, receives only half a page for its discussion. The bibliography is limited, and one finds that the references are in large part to British writers, and one notes certain omissions, perhaps as a result of this. Under pruritus and no mention is made of mycotic or bacterial infection as etiologic factors; while under roentgen-ray therapy only dosage regulated by pastils is given, no mention being made of the method introduced by MacKee and Remer. Other instances might be cited. The illustrations include 435 black and white figures in plates and in the text, and twenty-three illustrations in color in fourteen plates. The black and white figures are for the most part good, those in the section on syphilis particularly so, but a few are poor. The colored plates, as is usually the case, often have an artificial and exaggerated appearance which lessens their value. The various disorders of the skin are classified for the most part according to etiology or in topographic groups, an arrangement which does not follow the traditional lines, but which seems satisfactory. The book can be recommended to the physician as a complete exposition of modern dermatology, especially as it is influenced by the best in the British school.

PRÉCIS DE PARASITOLOGIE HUMAINE. Par M. Neveu-Lemaire, Professeur agrégé des facultés de médecine. Fifth edition. Cloth. Price, 22 francs. Pp. 466, with 313 illustrations. Paris: J. Lamarre, 1921.

The appearance of the fifteenth edition of this admirable treatise is an indication that it meets a real need. The author has compressed into brief compass an immense amount of valuable material and presents it in a clear and attractive form. Separate chapters deal with the different types of human parasites, both plant and animal. The major emphasis is laid on animal parasites, to which three fourths of the book is devoted. In each "species," one finds a brief description, a discussion of the distribution, development and relation to disease, as well as treatment and prophylaxis. Naturally, within a work of this compass, all of the items are treated briefly; but the selection of material is good, and the text, in general, thoroughly up to date. A single unfortunate exception may be noted in the case of *Giardia intestinalis*, in which the extensive and valuable recent work of Kofoed and his associates has been overlooked. Synoptic keys of the principal trematode parasites of man will serve to aid in the preliminary orientation of the physician dealing with unknown material, although it must be confessed that where such things are most needed, they are most likely to be pitfalls, and entrap the worker unfamiliar with this field.

PHYSICAL DIAGNOSIS. By W. D. Rose, M.D., Associate Professor of Medicine in the University of Arkansas. Second edition. Cloth. Price, \$8.50. Pp. 736, with 309 illustrations. St. Louis: C. V. Mosby Company, 1921.

This volume is a thoroughly revised and considerably enlarged second edition of a textbook covering the subject of physical diagnosis from the student's point of view. The contents include the clinical anatomy of the thorax; methods of physical diagnosis of the chest, circulatory system and abdomen; the clinical pathology, physical signs, diagnosis and differential diagnosis of a selected list of diseases; and certain other subjects, such as a chapter on roentgenographic examination and an appendix giving a detailed outline of a case history and physical examination chart. Although many of the illustrations are original, the author has found it

necessary to include many from other standard textbooks in order to fill the gaps. All of the topics enumerated cannot be covered adequately in a volume of this size; it is to be regretted that the author has attempted to do so. Such time honored subjects as inspection, palpation and auscultation are adequately treated from the point of view of the student; an attempt is made to explain physical phenomena on a rational basis. It would have been better had the author confined himself to these subjects. The discussion of blood pressure and of the arrhythmias and the chapter devoted to the examination of the nervous system are inadequate. The chapters dealing with the general principles of physical diagnosis are well written, and the selection of subject matter for the student is excellent. Those dealing with special diseases are commendable for the same reasons. It is in these chapters that the real worth of the book lies, and it is because of them that the book may be placed to advantage in the hands of the student.

DIE BEDEUTUNG DER VERSCHIEDENARTIGEN STRAHLEN FÜR DIE DIAGNOSE UND BEHANDLUNG DER TUBERKULOSE. Mit dem Robert Koch-Preis für Tuberkuloseforschung gekrönte Monographie. Von Dr. Ruben Gassul. Paper. Price, 30 marks. Pp. 72. Leipzig: Georg Thieme, 1921.

This monograph was awarded the Robert Koch prize on the advancement of knowledge of various features of tuberculosis. It is a presentation of considerable value, as it is largely a compilation of the works and experiences of the leading German workers in this branch of special medicine. The book is divided into two sections, the first of which is on roentgen-ray diagnosis, the second being on therapeutic considerations of the fight being waged against tuberculosis. In his introduction, Gassul states that, as a result of the war, German physicians everywhere observed that the number of cases of tuberculosis and deaths from this disease increased in alarming numbers. Attempts were made, whenever possible, to advance the war on tuberculosis, but the results were far from satisfactory. In 380 villages of more than 15,000 inhabitants, the incidence of deaths from tuberculosis was 15.7 per cent. in 1913, and had increased to 31.7 per cent. in 1918. In Berlin alone there were 5,738 deaths in 1918, and the mortality is about 500 a month. In other places the death rate has tripled and the disease greatly increased, owing in part to the many cases of latent tuberculosis which became active under the rigors of war duties, and in part to the effects of the blockade. Furthermore, the disease has become more virulent than before the war. Glandular as well as osseous tuberculosis has also greatly increased in frequency. Not only are more children involved, but also the number of the aged is increased. During the last few months all these figures have shown a decided betterment; but they are still too high, and the social and financial questions are more in the foreground than formerly.

Gassul presents the question, What course is the best to pursue in establishing the diagnosis, particularly the early diagnosis of tuberculosis, and what is the best treatment? Surgery has little to offer in the great majority of cases. Specific therapy has not proved its claims. Will roentgen-ray therapy help? Can it alone or in conjunction with other healing methods really help the tuberculosis? As to diagnosis, the roentgen ray has of late found its place as the deciding factor in the doubtful case. The heretofore well established forte of the roentgen ray in the diagnosis of various forms of surgical tuberculosis is now generally recognized. Gassul contrasts the roentgen-ray evidence with that obtained by other clinical methods in the determination of pulmonary tuberculosis, and he describes more or less minutely the so-called Nicol system of shadow interpretation. A classification of types of pulmonary tuberculosis is given which is based on the roentgen-ray shadow features rather than on other aspects of the disease. The roentgen-ray findings in children, the adult and the aged are given, this being a summary of the present day accepted indications of tuberculosis of German roentgenologists. Short chapters are given on the roentgen-ray signs of tuberculosis of the abdominal organs, mainly the kidneys, and on surgical tuberculosis in bone affections.

The matter of ray and light therapy in this disease is covered in the second portion of the book. Gassul describes

the work of many observers, much of which must still be regarded as in the experimental stage. Sun baths and outdoor treatments, and the therapeutic results of the mercury-quartz lamps are given considerable space. Roentgen rays as a therapeutic agent in the war on tuberculosis have from time to time been advocated as of value, and Gassul cites many articles in which this method is praised. In this chapter there are found the only references of the work of American authors. Numerous cases of improvement in this disease which followed treatment by roentgen rays are detailed. Radium and mesothorium also receive notice. Gassul indicates that the optimal therapeutic results are obtained by a combination of several of the different rays properly selected in each case. The book gives much food for thought.

DIATHERMY: ITS PRODUCTION AND USES IN MEDICINE AND SURGERY. By Elkin P. Cumberbatch, M.A., B.M., M.R.C.P., Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital, etc. Cloth. Price, \$6. Pp. 193, with 44 illustrations. St. Louis: C. V. Mosby Company, 1921.

This is a reliable guide for the employment of a useful addition to our armamentarium. The introduction to the subject of the medical usage of high frequency currents is understandable by any one familiar with the fundamental principles of electricity. It has to be appreciated that the medical effect of diathermy is properly defined as the product of heat and not as an electrical phenomenon. In the chapter on surgical diathermy, illustrations from experiments conducted by the author help to an understanding of the technic used for the application of high frequency currents for the destruction of tumors. The various electrodes to be used in the different parts of the human anatomy are enumerated, and their use is explained by the help of numerous illustrations. A valuable feature of this publication is furnished by the mentioning of untoward incidents due to the faulty use of the high frequency current, and hints are given how to avoid them. The text, though concise, is clear, and the practical points are well brought out.

MOTHERHOOD. A Practical Guide for the Newly Married, Including Determination of Sex, Intercourse During Pregnancy, and Prenatal Influence. By H. W. Long, M.D., Neurologist. Cloth. Price, \$3 net. Pp. 195. Boston: Richard G. Badger, 1921.

Among other things, Dr. Long lays particular stress upon the effect of antenatal influence upon the child. He holds that these influences exist and suggests that the mother during her period of pregnancy seek influences that engender "good thoughts": such things as music, good books and fine pictures. He advises her also to keep a diary at this time and, when it is completed, to turn it over to the Euthenic Society as data on the subject. This chapter on maternal impression, because of its possible depressing effect on the mother, might better have been omitted.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. By G. H. Monrad-Krohn, M.D., M.R.C.P., M.R.C.S., Lecturer in Neurology at the Royal Frederick University, Christiania. Foreword by T. Grainger Stewart, M.D., F.R.C.P., Physician to Out-Patients, National Hospital for the Paralyzed and Epileptic, Queen Square, London. Cloth. Price, 6 shillings net. Pp. 135, with 12 illustrations. London: H. K. Lewis & Co., Ltd., 1921.

In this book the author describes a routine method of examination which he has adopted in his neurologic clinic. The outline is sufficiently brief to be practical and sufficiently detailed to save the search of numerous volumes for methods. It is based on a large clinical experience and will be especially useful to the general practitioner who is confronted with a neurologic or psychiatric problem.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Fourth edition. Cloth. Price, \$9.50. Pp. 1132, with 980 illustrations. St. Louis: C. V. Mosby Company, 1921.

This edition of Sutton's book contains numerous additions, especially on the subject of epidermophyton infection. Advantage has been taken of all of the new literature on dermatology, and numerous interesting new illustrations have been added. The popularity of this book may be judged by the rapid appearance of the various editions, a total of four within a few years.

Miscellany

A DEFENSE OF HIGH HEELS

The condemnation of the fashion of high-heeled boots, so much in favor among women, has become a medical commonplace. At last a surgeon has raised a voice in favor of high heels. In a lecture delivered at the Institute of Hygiene, in London, Mr. W. H. Trethowan, orthopedic surgeon, said that of heels the "Cuban" was the most satisfactory for general use, the "Louis" being bad on account of its curved mechanical shape and inefficient support, and also because it weakened the whole sole of the shoe. Children with normal feet did not require much heel. Women, however, favored high heels, and while no doubt some did so purely for mechanical reasons, it was certain that the majority wore them as a response to the relief afforded to the ligaments of the foot. Women, being hampered by skirts, could not get such freedom of movement in the hips as men, and it might be from this cause that they needed the more efficient support afforded by heels. The action of the foot in men was not nearly so marked as in women, as men propelled themselves with the hip movement of long strides, while women walked more with their feet. It was a universal and traditional idea that the majority of troubles in the feet are due to the use of heels; but the anatomy and movements of the foot showed fully that the strain on the long arch must lessen in proportion as the heel is raised. This was the experience of the vast majority of women, in spite of medical advice to the contrary. The most important measure in giving relief in cases of weak or overstrained feet was to raise the height of the heels, and not to lower it, as was nearly always advised. The height of the heel for remedial purposes should not exceed $2\frac{1}{2}$ inches, and in house shoes should not be less than $1\frac{1}{4}$ inches. Naturally, the height should not do more than afford relief. In cases of overstrained feet, slippers must be avoided. Heels not less than $1\frac{1}{4}$ or $1\frac{1}{2}$ inches in height were suitable for general use in healthy feet. Most ready-made boots failed to support the inner border of the foot, and this, with thin and unyielding waists which bulge downward after a few weeks' wear, was largely responsible for the inefficient support and breakdown of the foot. When such an evil was combined with flat heel, the shoe was of the worst description. The majority of people wore shoes too narrow across the toes. Up to a point behind the balls of the toes the snugger and narrower the shoe the better, for a good, tight grip of the instep was desirable.

INDUSTRIAL DERMATOSES AMONG PRINTERS

A dermatosis, called "ink poisoning," which affects those parts of the arms and hands subject to constant contact with colored inks, is known to have prevailed for many years among printers in the large printing and engraving plants of this country. The attention of dermatologists has been attracted by discussions in foreign medical periodicals of cases of a similar dermatosis. The weight of blame for this dermatosis is attributed by foreign writers to the many substitutes for and adulterants of the pure oil of turpentine. Inquiries made of the larger printing and engraving firms of this country disclose the fact that although neither oil of turpentine nor a substitute is used, still the arms and hands of the pressmen develop lesions similar to those described by these writers. The skin lesions vary from slight erythema to ulcerations, and are located on all regions of the forearms and hands, occasionally extending above the elbow. Some of the lesions present a dry and scaly appearance, while others are moist and vesicular. Some have a tendency to coalesce and spread, others are discrete. A history of erythema followed by vesicular eruption, with itching or burning or both, is given by most sufferers, only a few giving a negative history in this respect. A study to determine the possible relationship of the dermatosis to the use of inks was recently

undertaken by the United States Public Health Service and is reported on by W. J. McConnell (*Public Health Reports* 36: 279 [May 6] 1921). The investigation disclosed one significant prominent fact: all persons suffering with dermatosis were found to have dry skin—that is, skin either partially or wholly devoid of natural oiliness; whereas those persons without eruptions had oily skin. This dryness of the skin is the only differentiating factor found to exist with any degree of constancy among the men so affected. The fact that the inks retard healing after abrasion of the skin indicates the presence in them of ingredients, perhaps of chromates, which aggravate an otherwise simple dermatosis. There is, then, reason to believe that the driers in the inks have a tendency to extract the natural oiliness of the skin. The injurious effects of benzol are well known, and it is possible that some cases of the dermatosis had their origin from its use. When it is necessary to use it for cleaning purposes the hands should be protected by gloves.

Experiments in using the inks on the unbroken skin failed to cause a dermatosis or even an irritation. The inks delayed healing to a varying degree when applied after abrasion of the skin; the brown and green delayed healing longest, and the black for the shortest time. All inks, irrespective of color, when removed by the methods in vogue at the plant at the time of this study caused an irritation—and in one case a dermatitis—among those with dry skin. The degree of dermatosis apparently depends on the dryness of the skin, the amount of linseed oil in the ink, and the method of removing the ink. It is believed that the reason why some men develop the condition in a short time and others after a long period of time lies in the degree of natural oiliness in the skin of the individual. Again, with those who use the black ink, which has the largest proportion of oil of all the inks, the trouble is further delayed. It may be that the drier in the inks has a tendency to extract the oil from the skin of some individuals. Those who do not wear gloves when cleaning the plates with benzol may more readily acquire a dryness of the skin. The dry skin might be compared with a blotter, which very readily absorbs the oil in the inks and the pigments which are carried with the oil. These pigments, in turn, are obviously removed from a dry skin with more difficulty than they are from a skin which is already oily and which absorbs little or no additional oil from the inks. More scrubbing is required in the case of the dry skin, and a dermatitis soon begins. The inks retard healing, and from repeating the process daily, a severe case of eczema may develop.

The following prophylactic measures are recommended, and if used constantly and under supervision, will prevent the dermatosis. A supply of lanolin or a mixture of lanolin and olive oil in equal parts should be placed in suitable receptacles in the wash room where the printers and those who handle the inks change their street clothes for work clothes. Before entering the press rooms, each worker should be required to rub lanolin well into the pores of the hands and arms. If the skin feels too greasy after this application, the excess may be wiped off with a clean cloth. At the luncheon period these workers should be supplied with a mixture of sawdust and liquid soap (the sawdust should be moistened with the soap), which, together with warm water, will readily remove the ink without injury to the skin. It is optional with the men to precede the sawdust and soap with the oil supplied by the plant. Before entering the press rooms, the first process described above should be repeated; and at the end of the shift, the second, or cleansing, process should be repeated. The skin lesions respond readily to the treatment with calamin paint. Zinc ore (calamin and a silicate of zinc), pulverized and passed through a 100-mesh sieve, 3 parts; gelatin, 4 parts; glycerin, 5 parts; water, $6\frac{1}{2}$ parts. They were also given a copy of the following directions for using the calamin paint: Melt and paint over the part affected with a single thin layer of paint, and before it has set tap lightly all over with a piece of absorbent wool, so as to form a kind of feltwork with the paint. Allow it to set completely before putting any clothes over it. Leave it on until it begins to come loose; then peel off and apply more in the same manner.

Medicolegal

Roentgen-Ray Photographs as Evidence

(*City of Covington v. Bowen* (Ky.), 230 S. W. R. 532)

The Court of Appeals of Kentucky, which affirms a judgment for \$2,000 damages in favor of plaintiff Bowen for personal injuries received by him in a fall on a defective pavement, says that the defendant city prosecuted its appeal chiefly, if not solely, on the ground that certain roentgen-ray pictures purporting to show the fractures of the bones in the plaintiff's foot and leg were allowed to be introduced in evidence without sufficient qualification of the witnesses by whom they were introduced, and without sufficient verification of the photographs. As the photographed bones were covered with flesh, it was impossible to see them with the natural eye, and therefore to say with absolute certainty that the pictures presented were exact photographs of the conditions of the fractures. But when a roentgen-ray machine is shown to make correct photographs under similar conditions to those in which the pictures in question were made, and that it was operated by an experienced and trained person in that line of work, who performed the work in such a way as to obtain a fair and correct view of the object photographed, and the photographs are correct copies of the plates made by the machine, there is no reason why they, like other photographs, should not be allowed to go to the jury as evidence in cases in which such evidence is relevant. In this case the evidence showed that the photographs in question were made by a skilled and practiced operator of such machines, and the machine was properly focused and was so located to the injured limb and foot of the plaintiff as to give a clear and correct view and impression of the fracture, and that the plates were faithfully reproduced by the photographs. The court holds them to have been properly verified. A photograph is but another way of giving a description of the thing under consideration, and, although pictures sometimes produce the wrong impression, the same may be said of the words of a witness who undertakes to give a verbal picture of the same thing. A picture is not to be rejected as evidence because it does not conform to the other testimony, if it was taken by a person who was experienced and trained in such work and who testifies that it is a true and correct representation of the conditions as they appeared to the witness at the time the picture was taken. The rule with respect to the introduction of roentgen-ray photographs is the same as that governing the introduction of ordinary pictures, except that one offering a roentgen-ray photograph is not obliged to show with the same clearness, as in other cases, that the picture correctly and truly represents the object attempted to be photographed as seen by the witness.

Death from Erysipelas of Insured Physician

(*Bell v. State Life Ins. Co.* (Ga.), 105 S. E. R. 846)

The Supreme Court of Georgia reverses a judgment of the court of appeals which affirmed one on a verdict directed in favor of the defendant on a policy of insurance on the life of a physician. The action was brought by an administrator for the recovery of a disputed double indemnity that was to be paid where it should be shown that the death of the insured resulted from "bodily injury sustained and effected directly through external, violent and accidental means, exclusively and independently of all other causes." The petition stated that on the third day of a given month the physician began to attend professionally a child suffering from erysipelas, and that, while he was attending the child, the physician, in adjusting the glasses that he wore, accidentally caused a scratch or abrasion of the skin on or near his right ear, which scratch or abrasion became infected with the germs of erysipelas that developed on or about the 20th of the month, as a result of which the physician died on the 17th of the following month.

The court of appeals held that, construing the petition in accordance with the natural meaning of the language used, its allegations would seem necessarily to mean that the wound or scratch occurred while the physician was attending his

patient, and that by reason of such exposure to the patient it then and there became infected. Giving the petition what seemed to be the only reasonable and proper construction, the evidence adduced on the trial entirely failed to sustain the case laid, since from the plaintiff's own evidence it was shown that the abrasion on the ear occurred at his office in Atlanta, whereas the patient with erysipelas was a resident of a neighboring city. If the infection occurred as a consequence of a voluntary act of the physician in thereafter subjecting the wound or abrasion to such a serious and dangerous exposure, the defendant would not be liable. The plaintiff, however, contended that the language "while attending an erysipelas patient" authorized a construction, in applying the evidence thereto, that the abrasion of the skin mentioned in the petition occurred at some time between the first visit of the physician to his patient and his last visit, and not necessarily immediately in the presence of the patient; and the supreme court disagrees with the conclusion reached by the court of appeals.

The supreme court thinks that, in applying the evidence, the petition authorized the construction that the abrasion on the ear took place at some time during the engagement of the physician as attending physician to the erysipelas patient. It does not think that the allegations necessarily meant that the abrasion occurred while the physician was actually in the presence of the patient. It was a question to be determined by the jury whether the evidence was sufficient to support the petition. It was said that if the infection occurred as a consequence of the voluntary act of the physician in thereafter subjecting the wound or abrasion to such a serious and dangerous exposure as a visit to a patient suffering from erysipelas, the defendant insurance company would not be liable. The supreme court thinks that this also would be a question to be determined by the jury.

Rulings on Questions as to Physician Advertising

(*Zeigler v. Oil Country Specialties Mfg. Co.* (Kan.), 196 Pac. R. 603)

The Supreme Court of Kansas holds that where a physician testifies on cross-examination that he advertises, it is not error to refuse to allow him to be further cross-examined as to the effect advertising has on his admission into medical associations. The court says that in this action to recover damages for personal injuries a physician who was called as a witness for the plaintiff testified in substance, on cross-examination, that he advertised in the papers. He was then asked if the fact that he advertised did not prohibit him from joining the county medical association. An objection to that question was sustained, and it was not error to exclude that evidence on cross-examination. Whatever there was in the fact of the physician advertising that reflected on his credibility as a witness was contained in his answer, in which he practically admitted that he advertised, and the fact that he was denied admission to the county medical association by reason thereof did not further affect that credibility. Nor was it proper to try to show by a physician who was a witness for the defendant that the county medical association had prescribed a code of ethics for physicians to follow in that county, and to try to show that a physician who advertised could not belong to that association for the reason that he was unethical. That evidence was also rightly excluded. It was an attempt to impeach the physician first mentioned, not by cross-examination, but by direct evidence, other than by showing his general reputation for truth and veracity. That cannot be done. A witness cannot be directly impeached except by proving that his general reputation for truth and veracity is bad.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Surgical Association, Pinchurst, N. C., Dec. 13-15.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, 1921, 22, No. 5

- *Infantile Tetany. B. Kramer, F. F. Tisdall and J. Howland, Baltimore.—p. 431.
- Experimental Albuminuria in Rabbit. H. Saito and K. Gondo, Nagasaki, Japan.—p. 438.
- *Vital Capacity of Lungs and Its Relation to Exercise Tolerance in Children with Heart Disease. M. G. Wilson and D. J. Edwards, New York.—p. 443.
- *Studies of Infant Feeding. XIV. Chemical Studies of Certain Dry Milk Products Used in Infant Feeding. A. W. Bosworth, Boston.—p. 455.
- Clinical and Radiographic Study of Thymus in Infants. K. D. Blackfan and K. Little, Cincinnati.—p. 459.
- *Size of Infantile Palate. B. S. Denzer, New York.—p. 471.
- *Congenital Goiter. Report of Four Cases. W. B. Porter and R. A. Vonderlehr, Richmond, Va.—p. 477.
- *Etiology and Treatment of Ammonia Dermatitis of Gluteal Region of Infants. J. V. Cooke, St. Louis.—p. 481.
- *Abdominal Pain of Throat Infections. J. Brennemann, Chicago.—p. 493.
- Some Records Regarding Absences and Their Causes in Lincoln School of Teachers College. H. H. Mason, New York.—p. 500.
- *Rare Cardiac Anomaly. B. Ratner, New York, and M. E. Abbott and W. W. Beattie, Montreal, Can.—p. 508.
- *Case of Tuberculous Meningitis with Dry Spinal Subarachnoid Space Due to Diffuse Tubercle Infiltration of Spinal Meninges. J. C. Regan and G. W. H. Cheney, Brooklyn.—p. 516.
- Intermittent Fever in Child Due to Mastoiditis. J. S. Leopold, New York.—p. 521.

Infantile Tetany.—Kramer and his associates report observations in confirmation of the previous work of Howland and Marriott on the concentration of inorganic phosphorus in the serum of individuals the subjects of active tetany, the relationship between the sum of the univalent cations, sodium and potassium, and the divalent cations calcium and magnesium. In infantile tetany, the inorganic phosphorus of the serum shows a marked variation. In about half the cases the concentration is normal or slightly above normal. An increase in the inorganic phosphorus of the serum does not seem to be responsible for infantile tetany. The ratio $\frac{\text{Na and K}}{\text{Ca and Mg}}$ is increased. This is almost wholly due to a decrease in the concentration of calcium. The concentration of sodium and magnesium is essentially normal; that of potassium is slightly increased. The increased irritability of the neuromuscular mechanism, which is the essential phenomenon in infantile tetany, is due to the diminution of the concentration of calcium in the serum.

Vital Capacity of Lungs, Exercise Tolerance and Heart Disease.—The vital capacity of eighty-five normal children studied by Wilson and Edwards comprising forty-four boys and forty-one girls and ranging in age from 6 to 16 years, gave an average of 1,870 c.c. per sq. m. surface area; with the boys showing only a 3.5 per cent. larger value than the girls. A group of thirty-six children showing extensive hilus changes and increased pulmonary markings radiating to the lung periphery revealed a reduction in vital capacity of 20 per cent. below the average for normal subjects. In children with heart disease, eighty-eight with normal exercise tolerance showed an average vital capacity of only 2 per cent. below the average for the normals; thirty-eight with diminished tolerance showed an average vital capacity 26 per cent. below the average for the normals; and, five with cardiac failure showed a vital capacity from 30 to 50 per cent. below the average for normal subjects. The thirty-five children (potential group) with a normal exercise tolerance showed an average vital capacity equal to the average obtained for the normals. Vital capacity measurements show a close relation to the heart functional capacity, as gaged by the exercise tolerance.

Value of Dry Milk Products.—The main point in Bosworth's work is that the various dry milk products do not represent the constituents of whole fresh milk. They contain less fat, some contain more protein, sodium carbonate or bicarbonate; there is a change in the chemical arrangement of some of the constituents; and in all but one product

examined there was an increase in the percentage of soluble calcium. This change in the solubility is an important factor to be considered in connection with the use of these dry milk preparations for infant feeding. Cow's milk when used as a food for infants, contains an excessive amount of available calcium and it is this available calcium which is responsible for the soapy stools and protein curds eliminated by most bottle fed infants. From this standpoint, therefore, any method or process which reduces the soluble and available calcium in cow's milk is a very desirable attainment.

Size of Infantile Palate.—Denzer's work establishes the greatest width (30.9 mm.), the greatest height (8.79 mm.), and the $\frac{\text{Height}}{\text{Width}}$: index (28) of the palates of infants under 1 year of age, and may serve as a basis for further studies on the pathogenesis of malocclusion, mouth breathing and attendant facial malformations.

Congenital Goiter.—The absence of toxic thyroid symptoms or other endocrinopathy is especially noteworthy in the cases cited by Porter and Vonderlehr and the lack of pressure symptoms is quite remarkable. The fact, too, that goiter appeared only in male children and finding *Ascaris lumbricoides* in all four cases is also noteworthy. All the goiters were symmetrically enlarged, the most prominent part being the isthmus; their consistency was soft, and they were suggestive of goiters of the colloid type.

Ammonia Dermatitis.—The common erythematous or papulovesicular dermatitis of the gluteal region in infants Cooke asserts is caused by ammonia in the diaper and should be classed with other forms of dermatitis venenata. In both infants and older children with this affection, a characteristic gram-positive bacillus has been isolated from the stools in every case examined. This organism is a saprophyte but has the property of fermenting urea with the production of ammonia. It has been called *B. ammoniagenes*. The evidence presented indicates that "the ammoniacal diaper" and the dermatitis that accompanies ammoniacal urines are dependent on bacterial fermentation of urea. The micro-organism concerned is apparently the same in all cases and infests the diaper from the feces. This infestation can readily be suppressed and the ammoniacal fermentation eliminated by the use of antiseptics in the diaper. With the cause thus removed the dermatitis rapidly disappears.

Abdominal Pain in Throat Infections.—Brennemann is convinced that in the causation of these abdominal pains of throat infections, indigestion, myalgia, grippy aching, neuritis, a Head zone, or a referred pain from the thorax, or from the vertebral column carried along the intercostal nerves, play no part. He directs attention to the mesenteric and retroperitoneal glands. The cause of the pain may be, at least in part, a localized enteritis or colitis, rather than lymphadenitis and possibly some specific or selective localization may account for the fairly constant pain in the umbilical region. This might, perhaps, better than anything else, explain the varying nature of the pain, depending on the site and degree of involvement and on the amount of peristalsis that might be a factor in producing it.

Anomaly of Heart.—Ratner, Abbott and Beattie report a case of cor triloculare biventriculare in mirror-picture dextrocardia with persistent omphalomesenteric bay, right aortic arch and the pulmonary artery forming the descending aorta. There was complete absence of the interauricular septum, and this was associated with an anomalous entrance of the superior vena cava through a "persistent omphalomesenteric bay."

Tuberculous Meningitis.—A case of tuberculous meningitis is reported by Regan and Cheney which presents a rare pathologic condition of the spinal meninges causing a dry spinal subarachnoid space. This was due to the diffuse infiltration of the pia arachnoid membrane, from the cervical to the lumbar region, with innumerable tuberculous granulations producing marked thickening of the membrane, and causing adhesions between it and the dura, almost completely obliterating the spinal subarachnoid space except in the spinal cul de sac. No case reports of a similar nature have been found in the literature reviewed.

American Journal of Physiology, Baltimore

October, 1921, 57, No. 3

- Effects of Pilocarpin on Salivary Secretion in Normal and Febrile Dogs. H. G. Barbour and B. P. Freedman, New Haven, Conn.—p. 387.
- Rôle of Tissue Fibrinogen (Thrombokinas) in Fibrin Formation and Normal Clotting. C. A. Mills and G. M. Guest, Cincinnati.—p. 395.
- Relation Between Vitamin B and Nutrition of Dog. G. R. Cowgill, New Haven, Conn.—p. 420.
- Vitamin Studies. VII. Influence of Fresh Alfalfa on Weight of Testes in Single Comb White Leghorn Cockerels. R. A. Dutcher and S. D. Wilkins, Minneapolis.—p. 437.
- *Anticoagulating Substances in Mucous Membrane of Uterus. J. L. King, Baltimore.—p. 444.
- *Nature of Alcoholic Fermentation. C. C. Warden, Ann Arbor.—p. 454.
- Heat Block of Sensory Fibers in Sciatic Nerve. E. O. Ostlund, P. C. Hodges and P. M. Dawson, Madison, Wis.—p. 470.
- *Comparison of Rate of Diffusion of Certain Substances, Particularly Food Materials, Enzymes and Pro-Enzymes. A. J. Neill, Chicago.—p. 478.

Anticoagulating Substances in Uterine Mucosa.—A pressure juice obtained by King from the mucous membrane of the nonpregnant uterus of the pig frequently yields antithrombin. Antithrombin is seldom obtained from the pregnant organ. There is evidence for the presence of heparin—as described by Howell and Holt—in the tissue juice of the mucosa of both the pregnant and the nonpregnant uterus of the pig. Neither antithrombin nor heparin is obtained with regularity and it is suggested that their presence may be masked by an excess of thromboplastic substance. There is no reason for assuming that these anticoagulating substances have local function in the pig's uterus, though if present in the human being they might inhibit the coagulation of menstrual blood. Antithrombin and antiprothrombin were demonstrated in the mucous membrane of the pig's intestine. Neither fibrinogen, thrombin nor antithrombin were demonstrated in menstrual blood. There is reason to believe that it clots as normal blood as it passes the uterine mucosa and that the discharge consists of serum and small bits of clot. There is some evidence that the thrombin of the serum has combined with antithrombin, forming metathrombin.

Nature of Alcoholic Fermentation.—It is believed by Warden that the experiments summarized in his paper warrant the tentative conclusions that alcoholic fermentation is due to a catalytic process operating at the surfaces of yeast cells, at the colloidal surfaces of yeast juice (zymase), and at artificial surfaces composed of specific fat complexes similar to those found to be present in yeast cells, and that the enzyme of yeast may be regarded as belonging to the cellular antigens.

Rate of Diffusion of Fats and Fatty Acids.—The addition of bile to neutral fats as well as fatty acids, Neill states increased the rate of their diffusion through a collodion membrane, just as it increases the rate of their absorption from the alimentary tract. Glycerol diffuses more rapidly than either oleic or palmitic acids or the sodium soap of these acids. The monosaccharides diffuse through the collodion membrane more rapidly than the disaccharides and these more rapidly than the polysaccharides. As a rule, the more powerful saline cathartics diffuse less rapidly than the less powerful ones. The conspicuous exceptions to this rule suggest that there are factors involved in the action of these cathartics other than simple diffusion and osmosis. The same amino acid, glycocoll, diffuses more rapidly than alanine; and acetic acid, a substance closely related to glycocoll, is more diffusible than propionic acid, a substance closely related to alanine. The enzymes ptyalin and catalase are not diffusible through a collodion membrane. Pepsin is diffusible while pepsinogen is not. Both trypsinogen and trypsin are diffusible, the trypsinogen being the more diffusible. Of all substances used in this investigation, urea was found to be the most diffusible.

American Journal of Roentgenology, New York

October, 1921, 8, No. 10

- *Unusual Case of Pulmonary Neoplasm; Spindle Cell Sarcoma. J. S. Pritchard, Battle Creek, Mich.—p. 555.
- *Dunham's Fans in Roentgen-Ray Study of Granite Dust Inhalation. D. C. Jarvis, Barre, Vt.—p. 560.
- *Case of Osteosarcoma of Femur. L. B. Morrison, Boston.—p. 565.
- Extra Bones in Wrist and Ankle Found by Roentgen Rays. A. H. Pirie, Montreal, Can.—p. 569.

- *Primary Sarcoma of Vertebrae: Report of Four Cases. K. F. Kesmodel, Washington, D. C.—p. 573.
- Physical Foundations of Deep Therapy Treatment. F. Dessauer, Frankfurt-on-the-Main, Germany.—p. 578.
- Effects of Scattered Roentgen Rays in Radiography. R. B. Wilsey, Rochester, N. Y.—p. 589.
- Kearsley Stabilizer. W. D. Coolidge, Schenectady, N. Y.—p. 599.
- Suggestion for Improving Visibility of Apical Field on Chest Radiogram. H. A. Bray, Ray Brook, N. Y.—p. 602.
- Histologic Study of Effects of Radium on Carcinoma of Cervix. C. C. Norris and N. S. Rothschild, Philadelphia.—p. 604.
- Simple Drying Rack for Films. A. Boutros, Denver, Colo.—p. 608.

Sarcoma of Lung.—The first symptoms in Pritchard's case were cough and blood-streaked sputum, associated with afternoon temperature of 100 or 101 F. and a pulse rate of from 96 to 108. Examination failed to reveal any pathology. Nineteen months after the original examination, physical examination of the chest reveal moist râles over the front and back of the right hilum. Fluoroscopic study showed an enlarged right lung-root shadow. Stereorontgenograms revealed a small, distinct, clean-cut, rounded shadow in the upper part of the right lung root. The patient was placed on absolute rest treatment and all symptoms subsided rapidly, entirely disappearing in approximately four weeks from the appearance of the first symptoms. The patient resumed her duties as pupil-nurse and worked steadily without interruption or indisposition, except for a slight unproductive cough, for nearly ten months, when she had a recurrence of her former symptoms. These again disappeared after ten days' rest in bed. Several months later examination showed that the pulmonary pathology had increased to such an extent as to occupy most of the right thorax except the apex and the costophrenic angle. Still a diagnosis was not made. Operation was advised and performed. A tumor weighing 800 gm. was removed. It was found to communicate with the bronchus, and the occasional opening of this probably accounted for the periodical respiratory symptoms, which were followed by a cessation of the same for long periods of time. The similarity of the attacks in this case and those found in many cases of pulmonary tuberculosis was interesting as well as the lack of physical deficiency, such as loss of weight and strength during the sixteen months of tumor development and partial destruction.

Roentgen-Ray Therapy of Bone Sarcoma.—Morrison reports a case of osteosarcoma of the femur with metastasis in the left frontal and right occipital regions in which an apparent cure was effected by roentgen-ray therapy. It is interesting to note that the lesion in the thigh was operated on and a small portion removed for examination (osteosarcoma) though no attempt to eradicate the disease was made, and later there was a traumatic fracture. The lesion in the left frontal was incised and drained; the lesion in the occiput had no surgical interference, and with the same dosage applied here as over the frontal, healing is slower.

Primary Sarcoma of Vertebrae.—In three of Kesmodel's cases there was a history of trauma. The cases were: chondrosarcoma; small round cell sarcoma; fibrosarcoma with giant cells and "giant cell sarcoma."

Canadian Medical Association Journal, Montreal

October, 1921, 11, No. 10

- *Treatment of Pneumonia with Special Reference to Use of Serum. C. P. Howard, Iowa City, Ia.—p. 709.
- *Etiology of Renal Infections. D. W. MacKenzie, Montreal.—p. 714.
- *Spinal Deformity as Cause of Cardiac Hypertrophy and Dilatation. F. G. Finley, Montreal.
- Ganglion of Wrist Region. Report of Two Cases Showing Destructive Tendon Involvement. H. P. H. Galloway, Winnipeg.—p. 723.
- *Cause of "Ammoniacal Diaper." A. P. Hart, Toronto.—p. 726.
- Tuberculous Peritonitis. G. E. Wilson, Toronto.—p. 734.
- A Method of Preventing the Absorption of Intestinal Toxins.—p. 739.
- *Intestinal Tuberculous Infection in Children. H. H. Pitts, Montreal.—p. 740.
- *Case of Woody Thyroiditis. D. Nicholson, Winnipeg.—p. 742.
- Blood Transfusion in Severe Burns in Infants and Young Children. B. Robertson, Toronto.—p. 744.
- Unsuspected Syphilis of Nervous System: Its Laboratory Diagnosis. H. B. Maitland, Toronto.—p. 752.
- *Standardization of Certain Preparations of Digitalis. D. S. Lewis and C. F. Moffatt.
- Research in Medicine. W. C. White.—p. 758.
- Lethargic Encephalitis. A. A. Robertson, Montreal.—p. 762.
- Cause and Treatment of Rickets. H. B. Cushman, Montreal.—p. 766.
- Three Cases of Abdominal Tumor. H. H. McNally, Fredericton.—p. 768.

Serum Treatment of Pneumonia.—In spite of a more or less intensive study of the problems of pneumonia during the past ten years, particularly by the American research student, Howard says, we must confess that no startling advances have been made. However, even the most conservative are forced to admit that real progress has been achieved, and particularly in the recognition of the various types of pneumococci, and the preparation of a serum to combat one strain, at least.

Etiology of Renal Infections.—MacKenzie analyzes in detail 200 cases of pyelitis, twenty-one cases of perinephritic abscesses and 100 cases of renal tuberculosis.

Spinal Deformity Cause of Heart Disease.—Finley records four cases of extreme deformity of the thorax resulting in hypertrophy and dilatation of the heart with cardiac insufficiency. Two of these came to necropsy and showed kinking and narrowing of the great vessels, one of the aorta and the other of the pulmonary artery. It is well recognized that individuals with much thoracic deformity seldom attain old age. Most of them are carried off by pulmonary complications to which cardiac changes are an important contributory cause. Cardiac disease is responsible for no inconsiderable number of deaths occurring about middle life and often carrying the patient off before attaining an age much over fifty. Treatment in advanced cases can only be symptomatic and is then often futile. To avoid such conditions by early treatment of the spinal affection, Finley says, forms the only efficient method of action.

Cause of Ammoniacal Diaper.—Hart is convinced that the ammoniacal diaper is due to external causes, of which the first and by far the most frequent is that an alkali is left in the diaper after washing. The second and a not altogether infrequent cause is contamination of the urine with organisms either from an infection of the genito-urinary tract or from some contamination from the outside. The free ammonia which gives rise to the odor comes largely from the breaking down of ammonium salts in the urine so that among the factors which will influence the condition will be a liberal diet. A child on a full diet excretes more ammonium as ammonium salts than does one on a limited diet and, as has been seen, starvation treatment temporarily cures the condition. More or less correlated with this factor will be the age. In very young infants the condition is seldom met with; it is more marked in older children, who take more food. The acidity of the urine will play a part in that a urine which is near the neutral point will become alkaline and liberate ammonia much more readily, if either of the two external causes are present than will a highly acid urine. The administration of large doses of alkalis, however, will exert an influence by decreasing the excretion of ammonium salts. The concentration of the urine will also play a part, as a highly concentrated urine (one in which ammonium salts are also likely to be in greater concentration) will give off more free ammonia. However, when it is recognized that the ammoniacal diaper is due to external factors, and is not due to any pathological condition in the child, and when it is further recognized that these external factors (the alkali of the diaper and contaminating bacteria) can be removed by thoroughly rinsing for the one and boiling for the other and the condition thereby entirely relieved, then it will be evident from the standpoint of therapeutics that we need not consider all of the minor details which may influence the excretion of ammonia.

Intestinal Tuberculosis in Children.—The two cases reported by Pitts are both examples of generalized tuberculosis—one a miliary tuberculosis, the other a tuberculous meningitis—in which only a limited strictly localized more or less quiescent, tuberculosis of the intestine in an unusual situation, appeared as primary lesion. No tuberculosis existed anatomically elsewhere, with the exception of the mesenteric glands, which were, it appears, infected from the intestine. Important was the entire lack of tuberculous foci in lungs or even in the peribronchial glands. The small intestinal lesions, which in a cursory examination could easily have been overlooked, had led to a considerable involvement of the mesenteric glands alone from which generalization then occurred.

Woody Thyroiditis.—When a physician is consulted by a young or middle aged patient with a hard, smooth, painful swelling of the thyroid with or without thyrotoxic symptoms, Nicholson suggests that woody thyroiditis be considered in the differential diagnosis.

Standardization of Digitalis Preparations.—Seven tinctures and five infusions of B. P. strength were tested by Lewis and Moffatt in twenty-eight different experiments by means of the "eat method." Four tinctures were found to be of satisfactory strength. Three were notably weak. One or two tinctures produced few objective signs of digitalis action while others had a sudden explosive-like toxic action. The infusions were not so satisfactory as the tinctures, only one preparation coming within the standard. The active principles tested, strophanthin and digitalin, were much below standard, and not found to be reliable.

Endocrinology, Los Angeles

September, 1921, 5, No. 5

- Significance of Internal Secretions in Disturbances of Metabolism and Digestion. A. Biedl, Prag.—p. 523.
Endocrine Problems in Pelvic Surgery with Special Reference to Vicarious Menstruation. C. Rosser, Dallas.—p. 537.
New Views as to Morphology of Thymus Gland and Their Bearing on Problem of Function of Thymus. J. A. Hammar, Upsala.—p. 543.
Unusual Disturbances of Endocrine Glands. O. T. Osborne, New Haven, Conn.—p. 574.
Case of Hypophyseal Tumor. M. L. Neff, Phoenix, Ariz.—p. 577.
Heart in Experimental Hyperthyroidism with Special Reference to Its Histology. H. Hashimoto, Tokio, Japan.—p. 579.
Changes in Blood Pressure in Case of Hypervagotonia Caused by Intravenous Injection of Adrenalin. J. J. Izquierdo, Mexico City.—p. 607.

Georgia Medical Association Journal, Atlanta

October, 1921, 10, No. 17

- Robert Battey (1828-1895). H. A. Kelly, Baltimore.—p. 693.
Pyloric Stenosis of Infancy from Surgeon's Viewpoint. C. W. Roberts, Atlanta.—p. 695.
Relation of Public Health Work to Physicians' Reports. T. F. Abercrombie, Atlanta.—p. 703.
Public Health Education in Georgia. R. A. Herring, Augusta.—p. 706.
School Child and His Problems. J. A. Johnston, LaFayette.—p. 708.
Value of Basal Metabolic and Blood Chemical Studies in Modern Medicine. M. F. Morris.—p. 715.
Interpretation of Headaches. M. T. Edgerton, Jr., Atlanta.—p. 718.
Hematuria. F. C. Nesbit, Atlanta.—p. 720.

Iowa State Medical Society Journal, Des Moines

October, 1921, 11, No. 10

- Making of a Diagnosis. W. E. Sanders, Des Moines.—p. 375.
Roentgen Ray in Diagnosis and Management of Fractures. B. Allen, Iowa City.—p. 379.
What War Has Taught Us in Treatment of Fractures. F. R. Holbrook, Des Moines.—p. 382.
Special Field of Neurological Surgery After Another Interval. H. Cushing, Boston.—p. 385.
Prevention and Treatment of Wound Shock in Theatre of Army Operations. D. Macrae, Jr., Council Bluffs.—p. 394.
Iowa Medical Journalism. D. S. Fairchild, Clinton.—p. 400.

Journal of Biological Chemistry, Baltimore

October, 1921, 48, No. 2

- *Quantitative Determination of Amino-Acids of Feeds. T. S. Hamilton, W. B. Nevens and H. S. Grindley, Urbana, Ill.—p. 249.
Synthesis of Inactive Para- and Anti-Hydroxyaspartic Acids (Amino-malic Acids). H. D. Dakin, Scarborough-on-Hudson, N. Y.—p. 273.
Inorganic Blood Phosphate. E. P. Lehman, St. Louis.—p. 293.
*Can "Home Grown Rations" Supply Proteins of Adequate Quality and Quantity for High Milk Production? III. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 305.
*Studies on Blood Sugar. Total Amount of Circulating Sugar in Blood in Diabetes Mellitus and Other Conditions. R. Fitz and A. V. Bock, Boston.—p. 313.
*Effect of Heating Antiscorbutic Vitamin in Presence of Invertase. E. Smith and G. Medes, Poughkeepsie, N. Y.—p. 323.
Effect of Certain Stimulating Substances on Invertase Activity of Yeast. E. W. Miller, Chicago.—p. 329.
Determination of Mono-Amino-Acids in Hydrolytic Cleavage Products of Lactalbumin. D. B. Jones and C. O. Johns, Washington, D. C.—p. 347.
*Zinc and Copper Content of Human Brain. M. Bodansky, Galveston, Tex.—p. 361.
Simplified Form of Apparatus for Air Analysis. C. C. Guthrie, Pittsburgh.—p. 365.
Gas Receiver of Convenient and Practical Form for Sampling Expired Air for Analysis. C. C. Guthrie, Pittsburgh.—p. 373.
*Bacteria as a Source of Water-Soluble B. Vitamin. S. R. Damon, Providence, R. I.—p. 379.
Characteristics of Certain Pentose-Destroying Bacteria, Especially as Concerns Their Action on Arabinose and Xylose. E. B. Fred, W. H. Peterson and J. A. Anderson, Madison, Wis.—p. 385.

- *Excretion of Acetone from Lungs. A. P. Briggs and P. A. Shaffer, St. Louis.—p. 413.
- Carbohydrate Content of King Salmon Tissues During Spawning Migration. C. W. Greene, Columbia, Mo.—p. 429.
- *Vitamin Requirements of Certain Yeasts and Bacteria. C. Funk and H. E. Dubin, New York.—p. 437.
- Effect of Subcutaneous Injections of Solutions of Potassium Cyanid on Catalase Content of Blood. W. H. Welker and J. L. Bollman, Chicago.—p. 445.
- *Citric Acid Content of Milk and Milk Products. G. C. Supplee and B. Bellis, New York.—p. 453.
- *Ammonia Content of Blood, and Its Bearing on Mechanism of Acid Neutralization in Animal Organism. T. P. Nash, Jr., and S. R. Benedict, New York.—p. 463.
- Mechanism of Reduction of Nitrates and Nitrites in Processes of Assimilation. O. Baudisch, New Haven, Conn.—p. 489.
- Physiologic Action of Some Protein Derivatives. M. Ringer and F. P. Underhill, New Haven, Conn.
- VII. Influence of Various Protein Split Products on Metabolism of Fasting Dogs.—p. 503.
- VIII. Influence of Nucleic Acids on Metabolism of Fasting Dogs.—p. 523.
- IX. Alkali Reserve and Experimental Shock.—p. 533.
- X. Influence of Nucleic Acid on Metabolism of Fasting Rabbit.—p. 537.
- XI. Influence of Some Protein Split Products on Metabolism of Fasting Rabbits.—p. 549.
- *Influence of Thyroparathyroidectomy on Blood Sugar Content and Alkali Reserve. F. P. Underhill and C. T. Nellans, New Haven.—p. 557.
- Influence of Food Ingestion on Endogenous Purine Metabolism. W. C. Rose, Galveston, Tex.—pp. 563 and 575.

Amino-Acid Content of Feeds.—The amino-acid contents of oats, corn, cotton-seed meal, and alfalfa, as determined by the Van Slyke method, are reported on by Hamilton, Nevens and Grindley.

Home Grown Rations Supply Sufficient Protein.—Data are presented by Hart and Humphrey which show that it is entirely possible when feeding equal but limited amounts of protein to maintain nitrogen equilibrium and high milk production in dairy cows with a ration composed of either barley or corn supplemented with corn silage and alfalfa hay, but not with the whole oat grain so supplemented.

Blood Sugar in Diabetes.—The total amount of sugar in the blood of seven normal persons varied but did not exceed 7.5 gm. The plasma sugar was almost always considerably greater than the corpuscular sugar, but it did not exceed 4.85 gm. The total amount of sugar in the blood of nine diabetic patients also varied considerably. The highest blood sugar content estimated was 15 gm., and the highest plasma sugar was 10.78 gm. The plasma of the diabetic bloods, relatively, contained much more sugar than did the corpuscles. This suggests that the plasma in diabetes is a vehicle for the transportation of sugar from the body cells, which are unable to burn or store it, to the kidney which excretes it, and that the blood corpuscles are but little concerned with such transportation of sugar, a statement which is supported by the fact that the sugar content of the individual corpuscle tends to be fixed within rough limits. If the number of corpuscles is increased, as in polycythemia, the total corpuscular sugar is increased. If the number of corpuscles is much diminished, as in anemia, the amount of corpuscular sugar is diminished. Glycosuria does not occur unless the plasma sugar exceeds a certain threshold. Blood sugar concentration expressed as milligrams per hundred c.c. of blood or plasma may give misleading information with regard to the total amount of circulating sugar. The threshold at which glucose appeared in the urine of the diabetic patients of this series seemed to lie between 5.20 and 5.36 gm. of total plasma sugar. The total plasma sugar offered a more rational basis of comparison with sugar excretion than did the plasma sugar concentration alone.

Effect of Heating Antiscorbutic Vitamin.—Smith and Medes assert that heating for four hours at a temperature of 76 C. either in the presence of invertase or in its absence, causes a more rapid destruction of the vitamin than heating at 55 C. Heating for four hours at 38 C., does not cause an appreciably greater loss of antiscorbutic value than keeping at room temperature.

Zinc and Copper Content of Brain.—The results of the analyses by Bodansky of four adult brains and of a fetal brain indicate that copper and zinc are normal constituents of the human brain. It appears that during intra-uterine

life there is more rapid storage of zinc and copper in the brain than there is after birth. In this respect the behavior of these elements is similar to that of other inorganic constituents of animal tissues such as iodine, sulphur and phosphorus.

Bacteria Not Source of B. Vitamin.—The experimental data presented by Damon indicate that so far as *B. paratyphosus* B, *B. coli* and *B. subtilis*, are concerned there is no production of vitamin by these organisms.

Excretion of Acetone from Lungs.—The distribution of acetone in whole blood, blood plasma, blood serum, urine and alveolar air of dogs which had been injected with large doses has been determined by Briggs and Shaffer. The results show that the concentration of acetone in urine is about the same as that of whole blood and blood plasma and that the ratio of acetone in blood to that in alveolar air is about 333. The distribution of acetone between alveolar air and blood of human diabetics and of normal fasting subjects was also determined and found to average 355. It is concluded that acetone is excreted from the lungs and kidneys by the physical process of diffusion, thus confirming the recent observations of Widmark.

Vitamin Requirements of Yeasts and Bacteria.—Funk and Dubin have separated from vitamin B a substance which they term provisionally vitamin D and which acts on micro-organisms. Vitamin D appears to be a definite and specific substance stimulating the growth of yeast. *Streptococcus* is more difficult to study because apparently it needs at least two substances for growth. Although vitamin D has been obtained free from vitamin B, the reverse is not true. It is evident, therefore, that most animal tests conducted up to the present were carried out with a mixture of vitamins B and D and will consequently have to be repeated as soon as a clear separation of the two substances can be effected. It may develop that the vitamin D, obtained from yeast, and the vitamin-like substance obtained from proteins, such as casein, may have some special function in the body, and such experiments are now being planned.

Citric Acid Content of Milk.—While there is a marked variation in citric acid content of the milk from individual animals, which may be explained as due to the individuality of the particular animal, certain data presented by Supplee and Bellis however, indicate that the ration may have a slight effect upon this constituent. There is apparently no effect on the citric acid content of milk caused by heating during the manufacture of evaporated, condensed, and dried milks. The results indicate that the amount found in each of these products, if subject to variation, must be attributed to causes other than heat. The parallelism between citric acid content and antiscorbutic properties does not hold true in the case of concentrated milk products; the potency of this factor has been shown to be absent in some of the heated products and present in others. The citric acid content however, seems to be present in all of them apparently to the same degree as found in natural raw milk. The citric acid content of milk decreases during aging in the presence of high developed acidity, and is more rapid in raw milk than in pasteurized milk.

Ammonia Content of Blood.—In view of the findings that there is no accumulation of ammonia in the blood in phlorizinized dogs, or in dogs without functioning kidneys, Nash and Benedict were led to the conclusion that the kidneys themselves must produce the urinary ammonia. The blood of the renal vein is invariably much higher in ammonia content than the systemic arterial or venous blood. The blood from the renal vein averages twice as much ammonia as does the blood from other sources. These differences are so marked as to admit of only one interpretation; viz., that the kidney, instead of excreting ammonia from the blood, forms the ammonia which it excretes, while at the same time it contributes a small amount of ammonia to the blood. Acid or alkali injection have no influence on the ammonia content of the systemic blood. Regarding the kidney as the seat of ammonia production, depletion of the alkali reserve the authors state becomes readily understandable under certain definite conditions. If ammonia is not available within the organism the acids must be transported wholly in combina-

tion with the fixed bases, or with protein. It seems from these results that acidosis in the sense of depletion of the alkali reserve is primarily a kidney disease.

Influence of Parathyroidectomy on Blood Sugar Content.—In spite of contrary findings by Hastings and Murray, repetition of previous experiments leads Underhill and Nellans to the reiteration of a former conclusion; namely, that thyro-parathyroidectomy results in a lowered blood sugar content. After this operation there seems to be little or no change in the carbon dioxid capacity of the blood up to the onset of tetany. After this period there may be a decided tendency toward a diminished alkali reserve.

Journal of Medical Research, Boston

June-September, 1921, 42, No. 4

- Modified McClendon Direct Reading Potentiometer for Use at Varying Room Temperatures. R. N. Nye, Boston.—p. 303.
 *Tonsils as Foci of Infection. R. A. Keilty, Danville, Pa.—p. 315.
 Viability of Meningococcus. H. Weiss, Boston.—p. 321.
 *Relation of Hodgkin's Disease to Sarcoma. T. Mueller, Buffalo.—p. 325.
 *Comparative Study of Wassermann and Sachs-Georgi Reactions. R. D'Aunoy, New Orleans.—p. 339.
 *Cytologic Observations on Pars Buccalis of Hypophysis Cerebri of Man, Normal and Pathologic. P. Bailey, Boston.—p. 349.
 Group of Hydrogen Sulphid Producing Bacteria. L. S. Thompson, Philadelphia.—p. 383.
 *Hyperplasia of Parathyroids in Human Rickets. A. M. Pappenheimer and J. Minor, New York.—p. 391.
 Growth of B. Influenzae Without Presence of Hemoglobin. A. W. Williams and O. R. Povitzky, New York.—p. 405.
 Trypanosoma Lewisi in Boston Rats. S. Warren.—p. 419.

Tonsils as Foci of Infection.—Keilty reports finding of 985 organisms representing sixteen different types and fifty-three combinations occurring in a total of 388 cases. The general character of the organisms is that usually found in oral flora. Streptococcus predominates, closely followed by the staphylococcus, these two organisms occurring in 65 per cent. of the total organisms. This paper offers proof that the tonsils harbor micro-organisms within their bodies and are to be considered as inactive foci of infection. There is nothing to prove that the tonsils are active foci of infection in the sense that organisms present are poured into the circulation or act as stimuli for disease in other parts of the body.

Hodgkin's Disease and Sarcoma.—Two cases of Hodgkin's Disease are reported by Mueller, which show a change in the histologic structure from typical lymphogranuloma to round cell sarcoma or vice versa. In one of the cases the disease exhibited malignant neoplastic properties with invasion of lungs, aortic wall, and spinal canal. From a histologic-anatomic point of view, the opinion seems justified that lymphogranuloma and round cell sarcoma of the lymph nodes are only different expressions of the same process. The cause for the sarcomatous infiltrating course of the disease is to be sought in the individuality of the patient, in the amount and virulence of the causative agent, and the duration of its action on the lymphatic tissue.

Comparison of Wassermann and Sachs-Georgi Tests.—A comparative study of the flocculation reaction of Sachs and Georgi and the original Wassermann reaction was made by D'Aunoy with 2,150 serums obtained from hospitalized cases. Identical results were secured in 98.07 per cent. of tests. In one instance alone was the Sachs-Georgi reaction negative and the original Wassermann reaction positive. All serums in the series showing spontaneous flocculation when using Sachs-Georgi technic gave so-called "anticomplementary results" when using the original Wassermann reaction.

Staining Granules in Pituitary Cells.—A method is given by Bailey for staining sharply and differentially the eosinophilic and basophilic granules in the same preparation. Preparations stained by this method show that although the basophilic and eosinophilic cells arise from indistinguishable reserve cells they develop along constantly diverging lines. The anatomic evidence is shown to be consistent with the view that the lipoid, colloid, hyalin and other changes occurring in the pituitary with age and after certain manipulations of the other glands of internal secretion are purely degenerative.

Hyperplasia of Parathyroids in Rickets.—The observations made by Pappenheimer and Minor bring additional evidence

to bear in favor of the occurrence of parathyroid enlargement in human rickets. This increase in size is due to multiplication of cells, not to an increase in the size of individual cells. The parathyroids in children within the first eighteen months of life consist almost entirely of clear cells belonging to Type I. In human rickets there is no constant or characteristic change in the cell type, and the clear cell still remains markedly predominant. In the cases studied there was no increase in supporting tissues in the parathyroid gland in rickets, and no increase in vascular supply or congestion of the blood vessels not found equally in nonrachitic cases. The state of nutrition of the child had no bearing on the size either of the gland as a whole or of the individual elements.

Laryngoscope, St. Louis

October, 1921, 31, No. 10

- Studies in Otology—Using Pitch Range Audiometer. L. W. Dean, Iowa City.—p. 743.
 Demonstration of Improved Methods of Measuring Tonal Range, Showing Progressive Development of Apparatus. C. C. Bunch, Iowa City.—p. 760.
 Differentiation of Early Meningitis and Mastoiditis. W. J. Mellinger, Santa Barbara, Calif.—p. 772.
 Tonsil Question Up To Date. G. F. Keiper, Lafayette, Ind.—p. 777.
 Syphilis as Factor in Mastoiditis, Producing Symptoms of Sinus Thrombosis. Report of Case. W. G. Shemeley, Jr., Philadelphia.—p. 792.
 Hemangioma of Larynx. T. H. Sweetser, Minneapolis.—p. 797.

Maine Medical Association Journal, Portland

October, 1921, 12, No. 3

- How to Meet Some Daily Problems of General Practitioner. H. E. Marston, North Anson.—p. 63.
 General Practitioner as Business Man and Citizen. D. M. Stewart, South Paris.—p. 68.
 Doctor and Preventive Medicine. A. L. Smith, Machias, Me.—p. 75.

Mental Hygiene, Albany, N. Y.

October, 1921, 5, No. 4

- Significance of Conditioned Reflex in Mental Hygiene. W. H. Burnham.—p. 673.
 Elementary School and Individual Child. E. L. Richards, Baltimore.—p. 707.
 Extra-Medical Service in Management of Misconduct Problems in Children. M. E. Kenworthy, New York.—p. 724.
 Mental Hygiene and College Student—Twenty Years After.—p. 736.
 Mental Hygiene Problems of Normal Adolescence. J. Taft, Philadelphia.—p. 741.
 Suicide in Massachusetts. A. W. Stearns, Boston.—p. 752.
 Function of Correctional Institution. H. M. Adler, Chicago.—p. 778.
 What is a "Nervous Breakdown"? A. E. Johnson, Philadelphia.—p. 784.
 Mental Hygiene and Public Library. M. V. Clark, New York.—p. 791.
 Inadequate Social Examinations in Psychopathic Clinics. D. Q. Hale.—p. 794.
 Eugenics as a Factor in Prevention of Mental Disease. H. M. Pollock, New York.—p. 807.
 Mental Hygiene Problems of Maladjusted Children as Seen in Public Clinic. A. L. Jacoby, Detroit.—p. 813.
 Speech Defects in School Children. S. Blanton, Waukesha, Wis.—p. 820.
 Extra-Institutional Care of Mental Defectives. E. W. Fuller, New York.—p. 828.

Michigan State Medical Society Journal, Grand Rapids

November, 1921, 20, No. 11

- Address of Dean at Opening of Medical School of University of Michigan. H. Cabot, Ann Arbor.—p. 431.
 Is Mortality of Appendicitis Increasing? H. E. Randall, Flint.—p. 435.
 Transduodenal Biliary Drainage a Valuable Diagnostic and Therapeutic Measure. C. F. Stewart, Battle Creek.—p. 438.
 Problems in Care of Industrial Injuries of Eye. H. L. Begle, Detroit.—p. 443.
 Treatment of Subacute and Chronic Otitis Media with Use of Roentgen Ray. R. Beattie, Detroit.—p. 449.
 *Sole Print Identification of New-Born. E. L. Robinson, Detroit.—p. 451.
 Artificial Pneumothorax in Acute Tuberculous Pneumonia, Pulmonary Abscess and Pulmonary Hemorrhage. C. H. Johnston, Grand Rapids.—p. 453.
 Abdominal Pain Relieved by Removal of Apparently Healthy Appendix. B. H. Larsson, Detroit.—p. 456.
 In Final Analysis is Lane's Kink Really a Trouble Maker, or Has It Life Saving Function? H. J. Vanden Berg, Grand Rapids.—p. 460.
 Improved Gastroduodenal Tube. B. C. Lockwood, Detroit.—p. 460.

Sole Print Identification of New-Born.—The Maternity Department of St. Mary's Hospital, Detroit, has instituted routine sole printing of all of the new-born infants. Prints of the soles of the baby's feet and of the first three fingers of

the mother's right hand are impressed on a card, this being done before they are removed from the delivery room. The mother's finger prints are added to prove the baby's sole prints. Prints are made before removal of the patients from the delivery room for the same reason. The prints are classified and filed. A separate index is kept, including the mother's name, babe's name, and classification formula, should it become necessary to refer to any of the prints without a duplicate print to serve as a guide. The apparatus used is the same as is used in taking finger prints.

New York Medical Journal

Oct. 5, 1921, 114, No. 7

- Etiology and Treatment of Eclampsia. B. C. Hirst, Philadelphia.—p. 377.
- *Surgical Endothermy in Malignancy and Precancerous Conditions. G. A. Wyeth, New York.—p. 379.
- Treatment of Carcinoma of Cervix and Uterus by Radium Supplemented by Deep Roentgen-Ray Therapy. R. H. Boggs, Pittsburgh.—p. 381.
- Prophylaxis in Carcinoma. I. Smiley, New York.—p. 384.
- Obstetric End Results of Tracheloplastic Operation. M. O. Magid, New York.—p. 387.
- Drainage in Pelvic Abdominal Surgery. H. Kelly, Baltimore.—p. 390.
- Comparative Value of Whole Ovarian Extract, Corpus Luteum Extract, and Ovarian Residue in Menstrual Disorders. J. C. Hirst, Philadelphia.—p. 391.
- Dysmenorrhea. J. V. Young, New York.—p. 395.
- Two Cases of Acute Inversion of Uterus. W. P. Manton, Detroit.—p. 397.
- Present Status of Treatment of Uterine Fibroids. S. Wiener, New York.—p. 400.
- Unilateral Twin Tubal Pregnancy. Max Thorek, Chicago.—p. 403.
- Review of Recent Obstetric Progress. J. O. Arnold, Philadelphia.—p. 405.
- Practical Prenatal Care. P. Oginsz, Brooklyn.—p. 408.
- Accidents During Delivery. C. M. Stimson, Philadelphia.—p. 410.
- Antenatal Factors of Life and Death—Genetic, Toxigenetic, Gestational and Obstetric. C. W. Saleeby, London.—p. 413.
- Dangers and Treatment of Antenatal Syphilitic Environment. J. H. Siqueira, London.—p. 415.
- Congenital Abdominal Ascites with Other Abnormalities. L. Blumenfeld.—p. 416.

Endothermy for Malignant Disease.—Wyeth is convinced that surgical endothermy on account of its power to attack accessible lesions, can render operable many so-called inoperable cases, and that with radium needles and deep penetrating roentgen-ray therapy it is a trustworthy ally in the fight against malignancy.

Nov. 2, 1921, 114, No. 9

- Pathology of Syphilis of Central Nervous System with Digest of Serological Reactions. R. A. Keilty, Danville, Pa.—p. 497.
- Method of Preserving the Antigenic Properties of Gonococcal Proteins in Glycerol. R. O. Clock and S. D. Beard, Pearl River, N. Y.—p. 499.
- *Floccule Inhibition Reaction in Blood Serum in Syphilis. R. A. Kilduffe, Pittsburgh.—p. 502.
- Nature of Antibodies and Complement in Relation to Immunity. F. Herb, Chicago.—p. 503.
- Syphilis. J. H. Stevens, Boston.—p. 508.
- Unilateral Nephritis. N. P. Rathburn, Brooklyn.—p. 515.
- What the General Practitioner Should and Must Know About Kidney Diseases. H. Halpert, Scranton, Pa.—p. 520.
- Case of Stone in Ureter Voided After Fulguration. W. F. McKenna, Brooklyn.—p. 522.
- Chronic Nephritis with Double Edebohl's Operation. N. W. Vaux, Philadelphia.—p. 524.
- Important Points in Diagnosis and Treatment of Chronic Gonorrhea in Male. B. Rosenthal, New York.—p. 525.
- Defective Teeth as Cause of Two Cases of Infection of Genitourinary Tract and of Two Cases of Asthma. G. A. Rueck, New York.—p. 527.
- Some Aspects of Syphilis in Its Relation to Psychoses and Psychoneuroses. F. H. Barnes, Stamford, Conn.—p. 529.
- Mercurial Therapeutics of Syphilis. L. G. Hadjopoulos, R. Burbank and L. P. Kyrides, New York.—p. 532.
- Practical Control of Venereal Disease in England. E. A. Rout, London.—p. 536.

Floccule Inhibition Reaction in Syphilis.—The technic of the test was standardized by Kilduffe by adding to 1 c.c. of clear, fresh serum in a narrow test tube 0.5 c.c. of 1 per cent. mercuric chlorid. A series of sixty-five serums was subjected to the test being derived from cases for diagnosis. The Wassermann reaction was strongly positive in fourteen cases (plus four), weakly positive in three cases (plus two to plus three), and the remainder of the serums were Wassermann negative. While occasionally the formation of a precipitate was somewhat retarded, in only six cases did flocculation fail to occur after the addition of the mercuric chlorid solution and within the five minute period. One of these serums was Wassermann positive (plus four) the other

five being Wassermann negative. The fallacious results obtained indicate that the rest is unreliable from a diagnostic viewpoint.

Wisconsin Medical Journal, Milwaukee

October, 1921, 20, No. 5

- Plea for Gridiron Incision in Appendicitis. V. F. Marshall, Appleton.—p. 215.
- Gallstones: Their Basal Etiology. E. Henes, Jr., Milwaukee.—p. 220.
- Management of Cardiac Diseases in Children's Dispensary. A. B. Schwartz, Milwaukee.—p. 225.
- Epidemic of Gastroenteritis. G. H. Fellman, Milwaukee.—p. 227.
- Defective Delinquents in Army of Occupation or American Forces in Germany. L. V. Briggs.—p. 230.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 29, 1921, 2, No. 3174

- *Clinical Types of Convulsive Seizures in Very Young Babies. J. Thomson.—p. 679.
- Bilateral Rigidity in Middle Meningeal Hemorrhage. G. Jefferson.—p. 683.
- *Metatarsus Varus. A. S. B. Bankart.—p. 685.
- *Two Cases of Pernicious Anemia with Infective Foci in Alimentary Tract. E. F. Maynard and S. D. Sturton.—p. 685.
- Use of Hot Wire for Investigating Time Relations of Pulse and Characteristics of Voluntary Contraction in Man. A. V. Hill.—p. 686.
- *Etiology and Treatment of Varicose Ulcers. W. R. Grove and H. W. C. Vines.—p. 687.
- Anaphylatoxin. H. H. Dale.—p. 689.
- Certain Electrical Signs of Human Body. M. C. Potter.—p. 689.
- Poison Organs and Venoms of Venomous Fish. H. M. Evans.—p. 690.
- Physiology of Oral Hygiene. J. S. Wallace.—p. 692.
- Chemotherapy of Pyogenic Infections: Antiseptic Properties of Acridine Compounds. C. H. Browning and J. B. Cohen.—p. 695.
- Neurasthenic Element in Midwifery and Gynecology. A. Donald and E. F. Buzzard.—p. 699.
- Extraction of Pin from Right Bronchus in Child. W. B. Brownlie.—p. 705.
- Suprarenal and Pancreatic Hemorrhages Following Operation. C. J. Lewis.—p. 706.

Convulsions in Infants.—In 4,348 children under 4 who were seen by Thomson the fits began during the first three months in 3.5 per cent., during the second six months in nearly 8 per cent., during the third six months in nearly 9 per cent., and during the later six-month periods in between 7.1 and 7.6 per cent. Of 200 cases of convulsions in infants of 3 months and less, seventy-one were due to local injury or disease of the brain or its membranes; seventy-two were due to cerebral disturbance caused by acute disease of organs other than the brain and fifty-seven were due to cerebral disturbance connected with various forms of general infection and of debility. The most remarkable fact about the attacks in the cases of the third class is that in a large majority of the cases they were permanently stopped by a merely temporary chloralization of the patient.

Metatarsus Varus.—Bankart suggests as a treatment in these cases to remove bone from the outer side of the foot. By removal of the cuboid the outer border of the foot is shortened and the metatarsus is abducted and brought into line with the posterior part of the foot. This in Bankart's experience gives the best correction of the deformity with the least disturbance of function.

Pernicious Anemia with Gastro-Intestinal Pathology.—In one case cited by Maynard and Sturton there was a history of colitis, in the second case diarrhea was present. In the first case a definite ring of ulcers was found in the intestine, and in the second an infective focus in the teeth.

Parathyroid Gland Substance in Treatment of Varicose Ulcers.—The first form of treatment used by Grove and Vines was the intramuscular injection of calcium chlorid. The results obtained were not satisfactory. Improvement or retrogression of the ulcer ran roughly parallel with the rise or fall of the ionized calcium content of the blood. The second form of treatment used was the combination of calcium injections with the oral administration of thyroid gland substance. This produced effects which were not markedly different from those obtained with the injections alone. Parathyroid gland substance, $\frac{1}{10}$ grain, by mouth daily, was next used, and with this treatment an immediate improve-

ment seemed to take place. The ionized calcium of the serum rose rapidly to the normal figure, and the local condition showed early signs of healing; it was found unnecessary to continue the calcium injections. In cases treated with parathyroid alone from seven to fourteen days seemed to be the period required for the drug to produce its maximal effect, though the time taken for complete healing to occur was dependent on the size of the ulcer. One-tenth grain of the parathyroid substance is given daily until healing has occurred, and then twice a week for three or four weeks. The ulcers were covered with plain gauze or boracic lotion, though in some cases no dressing at all was used. The best results were obtained when the patient was kept in bed. The fact that parathyroid administration has so great an effect in causing these ulcers to heal seems to point to the possibility that a partial deficiency of the parathyroid secretion may play some part in their causation, and this supposition is strengthened by the fact that the parathyroids are recognized regulators of calcium metabolism.

Journal of Tropical Medicine and Hygiene, London

Oct. 1, 1921, 24, No. 19

Case of Fever Resembling Dengue Occurring at Accra, Gold Coast. J. F. Corson.—p. 253.

Treatment of Fluke Diseases. F. G. Cawston.—p. 254.

Further Cases of Blackwater Fever in British Solomon Islands. N. Crichtlow.—p. 255.

Oct. 15, 1921, 24, No. 20

*New Method of Treatment of Human Trypanosomiasis. C. H. Marshall.—p. 265.

Cases of Bilharzia Disease Treated with Tartar Emetic. F. G. Cawston.—p. 267.

Climate and Health of British Solomon Islands. N. Crichtlow.—p. 268.

Blood Serum Treatment of Trypanosomiasis.—Marshall injects a neo-arsphenamin preparation into a vein and later draws off a quantity of blood into a sterile covered vessel, allows it to clot, and then injects the clear serum into the spinal canal, after an equal quantity of cerebrospinal fluid has been withdrawn by lumbar puncture. The blood has been withdrawn from half an hour to four hours after the injection, and has been allowed to clot for from twelve to forty-eight hours before from 8 to 25 c.c. of the clear serum have been injected into the spinal canal. Only one such injection appears to be required.

Lancet, London

Oct. 29, 1921, 2, No. 5122

Chronic Inflammatory Diseases of Spleen. A. G. Gibson.—p. 885.

*Treatment of Acute Suppuration. F. D. Saner.—p. 891.

*Arrest of Auricular Fibrillation by Use of Quinidin. A. W. M. Ellis and A. E. Clark-Kennedy.—p. 894.

*Acidosis and Toxic Symptoms of Severe Diarrhea in Infancy. R. A. Guy.—p. 898.

Case of Pyonephrosis and Ureteral Calculus. A. Beresford-Jones.—p. 900.

*Belladonna Poisoning from Eating Rabbit. D. Firth and J. R. Bentley.—p. 901.

*Tungsten Rays. W. J. Burroughs.—p. 901.

Relief of Tension Not Drainage.—Saner says that the constant use of the word "drainage" has given rise to the idea that drainage is the chief and most important factor in the treatment of suppuration. Further, in the endeavor to secure "drainage" the drainage-tube per se has become an *idée fixe*. Saner suggests that the word drainage be eliminated and replaced by "relief of tension." The latter phrase does not suggest to the mind a means of drainage, but rather implies an opening, a line of least resistance in the direction of safety, along which the products of inflammation may escape. "Relief of tension" and the creation of a line of least resistance fulfil a fundamental principle in the treatment of acute septic conditions. The relief must be complete and the line must be maintained, and it is in the maintaining this line that the chief difficulties of technic arise. Nature, assisted in this way, will create her own drainage, and will gradually cast out the debris of dead tissue which is in itself harmless, except as a suitable soil for the growth of organisms.

Quinidin in Auricular Fibrillation.—Out of seven cases of well-established auricular fibrillation reported by Ellis and Kennedy in five the administration of from 5 to 30 grains of quinidin by mouth has been associated with return to the

normal cardiac rhythm. In all these five cases the change has been demonstrated by polygraph tracings, and in two of them by the appearance of a crescendo presystolic murmur at the apex. In one of these five relapse occurred soon after the drug was stopped, and again a second time when the dosage was reduced. In two the dosage was only decreased and there was no relapse into auricular fibrillation. In two of the five cases, shortly after the onset of normal cardiac rhythm, embolic infarction of internal organs occurred. The authors point out that the use of quinidin is not without danger, the risk of embolism being a real one. In their cases the improvement in the general condition was not striking, and much less marked than might have been expected and perhaps little more than might be attributed to the prolonged rest in bed. Certainly no dramatic change in the patient's general condition occurred when normal cardiac rhythm was restored. If the drug is stopped tendency to relapse seems to be the rule. That quinidin will take a place in the treatment of cardiac disease seems probable, but the nature of its action and the limitations of its therapeutic value remain to be determined.

Lowered Alkali Reserve in Diarrhea.—In certain of the diarrheas of infancy, symptoms of intoxication, the chief of which is increased pulmonary ventilation, are accompanied by a reduction in the reserve of bicarbonate in the blood plasma. The hyperpnea and the alkali reserve vary inversely. According to Guy, the reserve can be increased to normal by the administration of sodium bicarbonate. Hyperpnea is thus controlled and the general toxic symptoms are alleviated, but the ultimate outcome, in the diarrheal cases at any rate, is little influenced. His observations confirm the work of previous investigators.

Belladonna Poisoning from Eating Rabbit.—Bentley reports three cases of belladonna poisoning resulting from eating the flesh of a rabbit which had been feeding on belladonna leaves.

Tungsten Rays in Superficial Suppuration.—In all cases of superficial suppuration in which Burroughs has used tungsten rays a complete cure has resulted. He used an apparatus consisting of two electrodes of pure tungsten actuated by a current of 100 volts and 5 amperes.

National Medical Journal of China, Shanghai

September, 1921, 7, No. 3

Second Pneumonic Plague Epidemic in Manchuria, 1920-1921. Wu. L. Teh.—p. 98.

Opportunities for Chemical Research in Chinese Materia Medica. B. E. Read.—p. 121.

*Effect of Sun's Rays on Hats in Summer. W. L. Teh.—p. 128.

Life and Work of Medical Students and Doctors. D. Gray.—p. 130.

Urinary Calculus at Canton Hospital, Canton, China. J. O. Thomson.—p. 136.

Best Hats for Summer Wear.—Hats made of different materials and varying in shape were exposed by Wu to the direct sun's rays for certain lengths of time and the temperatures of the thermometers placed inside each hat noted. The most serviceable headgear for summer wear appears to be the stiff, properly ventilated, pith or rag made helmet, lined if possible with green cloth inside. The stiff straw boater, first invented in England and now largely made in Japan, appears unsuitable as it conducts the heat direct and retains it next to the head. The spring felt or velour hat as well as the closely fitting cap should be avoided in the daytime. The soft, easily fitting Tientsin hemp-braided hat introduced this year and costing one dollar each may be recommended because of its comfort, coolness and nonconcentration of heat.

Quarterly Journal of Medicine, Oxford

October, 1921, 15, No. 57

*Sugar Content of Cerebrospinal Fluid; Diagnostic Value, Especially in Lethargic Encephalitis. R. Coope.—p. 1.

*Percentage of Sugar in Blood of Atrophic Infants. R. A. Guy.—p. 9.

*Four Cases of Paroxysmal Tachycardia. E. E. Laslett.—p. 18.

*Clinical Manifestations of Syphilitic Infection on Heart. W. Stobie.—p. 26.

*Concentration of Nitrogenous Metabolic Products in Blood under Physiologic and Pathologic Conditions. H. F. Host and R. Hatlehol.—p. 43.

Exophthalmic Goiter. J. M. H. Campbell.—p. 55.

Results of Gonorrheal Infection of Nervous System. Review of Literature. E. O'Connor.—p. 69.

Diagnostic Value of Sugar Content of Cerebrospinal Fluid.

—A study of the literature on this subject brings out two points: First, a "high" sugar content should not be regarded as a positive diagnostic sign of lethargic encephalitis; second, a low sugar content (provided the fluid is fresh) is a very strong indication of an acute or tuberculous meningitis. Coope's findings in ninety-five cases confirm these conclusions. It has not been possible simultaneously to examine the sugar content of the blood. The method used was that described by Folin and Wu for blood sugar.

Blood Sugar in Atrophic Infants.—The blood sugar of forty-three normal infants was examined by Guy and no constant variation with age was observed. Thirty blood sugar determinations were made in eighteen atrophic infants. Although almost all of the infants were less than 65 per cent. of their expected weight, the percentages of blood sugar fell between 0.06 and 0.08, that is, within normal limits, except in six cases in which less than 0.06 per cent. blood sugar was found. In these six cases, the only common factor observed was vomiting during the day on which the analyses were made. The bicarbonate reserve of the plasma did not vary either directly or inversely with the sugar content of the blood or the percentage of the expected weight of the infant. The blood sugar determined three to four hours after food showed no relationship to the amount of carbohydrate ingested. Estimations were therefore made less than three hours after the ingestion of food. There was no relationship between the percentage of sugar in the blood and the weight trend. Guy concludes, therefore, that the percentage of sugar as usually observed in the peripheral blood cannot be used as an indication of carbohydrate absorption.

Paroxysmal Tachycardia.—In three cases cited by Laslett the paroxysms were apparently induced by excessive indulgence in tobacco. In two cases the paroxysms ceased when smoking was given up, or much limited. In the third case, that of a young man who died suddenly at the end of an attack, there was no opportunity of testing the effect of abstinence but he had indulged very extensively in cigarettes. In the fourth case a history of rheumatism was obtained.

Syphilis of Heart.—Syphilitic infection of the heart may occur in the congenital or acquired form of the disease either at an early or late stage. In the series of cases investigated by Stobie, the anatomic lesions found after death have been: (a) gumma of endocardium, one instance; (b) fibrosis of myocardium, one instance; (c) aneurysmal dilatation of the heart wall, one instance; (d) thickening of endocardium with coronary artery disease, one instance; (e) pericardial effusion containing spirochetes with small gumma under endocardium, one instance. In thirteen out of the eighteen cases of aortic disease investigated evidence of a specific infection was obtained. Out of fifteen cases, three patients with suggestive personal or family histories had positive Wassermann reactions. A mild degree of the Stokes-Adams syndrome, and also alternation of the heart, have been noted. Sudden death occurred in two patients, in one of whom a gumma of the endocardium was found at necropsy, and, in the other thickening of the septal endocardium. The symptoms complained of were anginal and fainting attacks with precordial pain and shortness of breath.

Retained Nitrogenous Products and Uremia.—The pronounced parallelism observed by Host and Hatlehol in four patients between the increasing concentrations of the residual nitrogen, urea nitrogen, and creatinin, on the one hand, and the clinical symptoms on the other, they believe, supports the assumption that there is a causal relation between the retained nitrogenous metabolic products and the clinical symptom complex uremia.

Tubercle, London

October, 1921, 3, No. 1

*Relationship Between Deficiency in Vitamin A and Tuberculosis. S. R. Gloyne and D. S. Page.—p. 577.

*High Altitude and Tuberculosis. O. Amrein.—p. 580.

*Dropped Shoulder as a Sign of Early Phthisis. J. A. Delmege.—p. 583.

Vitamin Deficiency and Tuberculosis.—Three rats fed on a diet deficient in vitamin A and inoculated with tubercle bacilli died (the fourth was killed on the seventh day) earlier

than four uninoculated rats receiving the same diet, but post-mortem no naked eye lesions suggestive of tuberculosis were observed, the deaths being due, in most cases, to nontuberculous pneumonia. Tubercle bacilli were present at death in the spleen or blood of all inoculated rats (twelve, i. e., four from each group), irrespective of the diet they had received: no tuberculous lesions were seen, although some rats were killed as late as the forty-second day after inoculation.

High Altitude and Tuberculosis.—The chief properties of the high altitude climate which are of value in the treatment of tuberculosis, Amrein says are: the low barometric pressure; the low temperature of the air; the dryness and purity of the air, and the large amount of sunshine. Fever in itself is no contraindication; but if permanent fever, beyond 101.5 F., with high pulse with more than 120 is present, the high altitudes ought to be excluded. Pleural effusions are absorbed well, but dry, obstinate pleural irritation may get worse owing to deep breathing. Also the dry catarrhs of the upper air passages, such as chronic rhinitis and pharyngitis atrophicans, may get worse. Laryngeal tuberculosis, generally regarded as a strict contraindication, till some years ago, may do very well, but it depends on the state of the lungs and on regular medical control and care.

Dropped Shoulder Early Sign of Tuberculosis.—Delmege says the presence of dropped shoulder is not diagnostic of the presence of pulmonary tuberculosis unless occupational and other causes can be excluded. The fact of its occurrence on one side is not an indication that the pulmonary tuberculosis is necessarily situated on that side. The importance of "sub-acromial flattening" is an associated sign in dropped shoulder of tuberculous origin.

Bulletin Médical, Paris

Oct. 1 and 15, 1921, 35, Nos. 40 and 42

*Epilepsy. M. Ducosté.—p. 781.

*Associated Diabetes. C. Achard.—p. 813.

Recent Publications on Therapeutics. G. Lyon.—p. 815.

Conservative Cesarean Section: Twenty Cases. Ciaudo.—p. 819.

Epilepsy.—Ducosté considers the *maladie épileptique* from the etiologic, psychiatric and medicolegal standpoints, and states that one solid conclusion may be drawn from his research on the families of 100 epileptics, namely, that epilepsy is not inheritable. Epilepsy is not even familial, he declares, the inevitable anatomic process of proliferation of neuroglia being probably acquired and accidental, possibly from the effects of birth trauma. Marie has recently asserted that the less civilized a people the larger the number of epileptics, because women are delivered clumsily and the children are badly taken care of. The effects of birth trauma, of infectious disease in childhood, of erection of the choroid plexus with hypertension of fluid—all these have been advanced recently as the causes of the characteristic proliferation of the sub-cortical neuroglia. The course of epilepsy is essentially progressive, he reiterates; 75 per cent. die before the age of 20. Sudden death in the course of sleep is not uncommon, but, he adds, the introduction of phenobarbital justifies the highest hopes as it certainly has a specific action on epilepsy. Although, administered alone, it is open to grave objections, this harmfulness can be overcome by giving it with other substances. It promises, administered properly, to modify the prognosis of epilepsy as that of neurosyphilis has been modified by the introduction of arsphenamin. In concluding his review of the medicolegal features of epilepsy, Ducosté remarks that there are no special asylums in France for epileptics; the insane epileptics are interned, but it is a problem what to do with them in their lucid intervals.

Association of Diabetes with Other Diseases.—Achard insists that the glycosuria does not reveal nor is it a measure of the nutritional disturbance which is the fundamental element of diabetes, namely, the incapacity to utilize glucose. A number of disorders generally regarded as complications of diabetes are in fact, he declares, merely the addition to other diseases of this incapacity to utilize glucose—an insufficiency of glycolysis. The same cause may induce this and excessive deposits of fat, for example. Bouchard found diabetes in one of every eight of the obese, and one obese in every five diabetics. Instead of speaking of nutritional dis-

case, it would be more correct to speak of derangement of nutrition in the course of diseases. This is more than a simple question of wording; it offers suggestion for treatment. If we regard diabetes as a disease characterized by insufficient utilization of glucose in degrees capable of engendering glycosuria, this insufficiency will be the pivot for our therapeutics. Dieting will combat it but will not attack the cause. If, on the other hand, we regard diabetes as insufficiency of glycolysis occurring in the course of diverse diseases, that is to say, a secondary and symptomatic derangement, then while combating this nutritional derangement we will go beyond and behind it with our therapeutics, to act on the disease itself. Of course, he adds, the cause of the *maladie diabétogène* still escapes us, but with this conception of diabetes we will seek this cause with greater insistence than in the past. His list of *diabètes associés* is a long one. For example, diabetes or transient glycosuria figures in twelve of Hausemann's ninety-seven cases of acromegaly and in fourteen of Hinsdale's 130. It accompanied the adiposogenital syndrome in one of Achard's cases with a tendency to acromegaly; there was no glycosuria, but the respiratory test and induced hyperglycemia testified to insufficiency of glycolysis. On the other hand, it is rare with exophthalmic goiter, but may accompany an exaggerated growth of hair on the face of women. This "diabetes of bearded women" is extremely variable; in Weil and Plichet's case there was 100 gm. of sugar daily in the urine; in Tuffier's case it was easily reduced, dropping from 70 to 6 gm., or there may be merely transient glycosuria or an extremely variable glycolytic insufficiency.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 29, 1921, 45, No. 27. First half indexed on page 1525

- * Jacksonian Epilepsy with Diabetic Coma. F. Rathery, Cambessedès and Welti.—p. 1265.
- * Plague Bacillus Acute Endocarditis. P. Teissier, P. Gastinel and J. Reilly.—p. 1268.
- Staphylococcus Vaccine Therapy in Enteritis plus Furunculosis. H. Dufour and Debray.—p. 1275.
- * Ditto in Recurring Bronchitis. H. Dufour and Ravina.—p. 1277.
- * Obesity After Epidemic Encephalitis. H. Roger and G. Aymès.—p. 1278.
- * Skin Tests for Sensitization. P. Le Noir, C. Richet, Jr., and Renard.—p. 1283.
- * Paregoric Test for Cerebrospinal Fluid. R. Targowla.—p. 1287.
- Rudimentary First Rib. G. Parturier and Aimard.—p. 1289.
- * Antithyroid Treatment of Hemophilia. C. Oddo and C. Mattei.—p. 1292.
- * Glycemia in Exophthalmic Goiter. P. A. Sainton, E. Schulmann and Justin-Besançon.—p. 1298.
- * Quinin Test in Diagnosis of Exophthalmic Goiter. P. Sainton and E. Schulmann.—p. 1304.
- * Transient Diabetes Following Mumps. M. Labbé and R. Debré.—p. 1306.
- * Arsphenamin Treatment of Acute Chorea. Paulian E. Demetre.—p. 1309.

Jacksonian Epilepsy in Diabetes.—In the case related the diabetes was of a year's standing when the woman of 45 developed intense headache and vomiting; after two weeks, aphasia, and five days later jacksonian epilepsy; fatal coma followed, with right hemiplegia, and glycemia of 6.55. Naunyn has disputed the possibility of acidotic epilepsy, but Labbé and Guillain have reported cases recently.

Acute Endocarditis from Plague.—In one of the four fatal cases of bubonic plague at Paris in 1920, an acute mitral endocarditis with vegetations, the work of the plague bacillus, was found. The young woman died the sixth day from the first symptoms, which had been intense headache, epistaxis and vomiting.

Vaccine Therapy in Bronchitis.—The man of 35 was subject to recurring asthmatic bronchitis, with emphysema; staphylococci predominated in the sputum. A vaccine was prepared from these staphylococci, and he was given four injections in two weeks. His condition was completely transformed, it is said; there is no further expectoration or shortness of breath, and he declares that he never felt so well. Whatever the final outcome may be, the benefit to date is most striking.

Transient Obesity After Epidemic Encephalitis.—Roger and Aymès discuss the mechanism by which two children and two adults in their experience gained about 5 or 7 kg. in weight as they were left with parkinsonian symptoms after epidemic encephalitis.

Skin Test for Anaphylaxis.—Le Noir, Richet and Renard describe five cases of sensitization to certain foods in which application of the substance in question to the skin induced the general anaphylaxis phenomena. This general reaction may be immediate or not until after an interval of from one to twenty-four hours. By repeatedly eliciting the skin reaction it may be possible to accomplish the desensitization. In any event this seems to be the best method for diagnosing the condition of anaphylaxis.

Paregoric Test for the Spinal Fluid.—Targowla states that paregoric contains benzoin, and hence it can be used instead of colloidal benzoin for testing the cerebrospinal fluid. The flocculation does not always parallel that with the benzoin test but, when positive, it has the same significance.

Influence of the Thyroid on Hemorrhage.—Oddo and Mattei report that acute thyroiditis developed on two occasions when sporadic hemophilia was being treated with antithyroid treatment. This arrested the multiple hemorrhages, but induced a very pronounced thyroid reaction. Thyroid treatment, on the other hand, aggravated the hemorrhagic tendency.

Glycemia in Exophthalmic Goiter.—Glycosuria or the complete picture of diabetes is noted in about 3 per cent. of the cases of exophthalmic goiter. Sainton and his co-workers, however, found the sugar content of the blood within normal range in fifteen cases of goiter, including several of the exophthalmic type. The rôle of syphilis in the production of exophthalmic goiter seems more and more evident, they say.

Quinin Test for Exophthalmic Goiter.—Sainton and Schulmann applied Bram's quinin test in ten cases of exophthalmic goiter and two controls. The findings failed to confirm Bram's statements.

Diabetes After Mumps.—In Labbé and Debré's case, severe mumps settled in the pancreas as well as in the parotids and testicles. Eighteen months after apparent complete recovery, 4 gm. of sugar was found per liter of urine, but this glycosuria subsided in a couple of months under dietetic measures, and the young man's health has been excellent since.

Acute Chorea.—Demetre relates that neo-arsphenamin by the vein every second or third day seemed to be responsible for the complete cure of the extremely severe acute chorea in his five cases. The patients were from 9 to 33 years old.

Gynécologie et Obstétrique, Paris

September, 1921, 4, No. 3

- * Thyroid Function and Pregnancy. A. Fruhinsholz and J. Parisot.—p. 169.
- * Hysterectomy in Acute Puerperal Infection. Potvin.—p. 207.
- * Idem. G. Cotte.—p. 227.
- Medical and Social Care for Prospective Mothers. Waegeli.—p. 243.
- Idem. O. Doléris.—p. 263. Concn in No. 4.

Anomalies of Thyroid Function During Pregnancy.—Fruhinsholz and Parisot group certain scattered facts from experimental and clinical experience which throw light on the physiology of the thyroid. Their work was reviewed in the Paris Letter on page 1586. They state in conclusion that the excessive functional strain on the thyroid during a pregnancy may exhaust it beyond repair afterward. Women with much deranged thyroids are liable to have their children display a tendency to glandular anomalies, although of different glands. The effect of parathyroidectomy or thyroidectomy in gravid animals can scarcely be compared with clinical conditions, but the improvement or aggravation during a pregnancy of preexisting thyroid or parathyroid insufficiency paralleled that observed in women. Nearly five pages of bibliography are appended.

Hysterectomy in Acute Puerperal Infection.—Potvin's address was mentioned in the Paris Letter, page 1586. He denounces curetting the uterus when there is retention of placenta scraps, and he disapproves even of *curage digital*, saying that it is a blind procedure and asepsis cannot be counted on. He prefers forceps; in his twenty years of gynecologic practice he has relied on a 28 cm. long, slightly curved forceps, each blade a small spoon with rounded edges. After injection into the uterus under slight pressure of tincture of iodine or of turpentine (1 tablespoon to 1 liter of water), he introduces the forceps, closed, down to the fundus. When it is in contact with the wall, he opens the blades and

then closes them. If there is any scrap of placenta caught between them he feels it at once, and he twists the forceps gently, and the retained scrap is thus pinched off gently, as if with the fingers of a miniature hand. He proceeds to explore systematically in this way the entire inner surface of the uterus. Once convinced that the organ has been entirely emptied, he gently swabs the mucosa with a tampon dipped in pure turpentine, and leaves in the uterus a wick, impregnated with the same. Petrolatum in the vagina prevents smarting. He states that turpentine used in this way is free from toxic action while it has an almost elective action on streptococci. This treatment does not open up any new wounds; only the blood vessels connected with the retained scraps of placenta are opened, but there can be no absorption of septic products as the infected scraps have been removed. If these measures fail, he never repeats the procedure, or if conditions are too grave for any delay, hysterectomy is the logical treatment. When septicemia is once installed, hysterectomy will merely remove the portal of entry and superimpose traumatic shock on the clinical picture. Against the micro-organisms found in the blood, Pinard advises an antiserum morning and night, but Potvin has been more successful with colloidal metals. An autogenous vaccine might be tried, or subcutaneous injections of blood serum from convalescents as Delmas has recently recommended. The indications for hysterectomy are thus much the same as for amputation of a gangrenous limb.

Hysterectomy in Acute Puerperal Infection.—Cotte's address was also summarized in the Paris Letter on page 1586.

Paris Médical

Oct. 1, 1921, 11, No. 40

*Annual Review of Neurology. J. Camus.—p. 249.

*Labyrinth Variety of Epidemic Encephalitis. J. A. Barré and L. Reys.—p. 261.

*Herpes Zoster of Geniculate Ganglion. H. Roger and L. Reboul-Lachaud.—p. 264.

*Reeducation in Ataxic Aphasia. J. Froment.—p. 267.

*Hexamethylenamin in Epidemic Encephalitis. André-Thomas and H. Rendu.—p. 273.

*Spinal Puncture in Syphilis. A. Sézary.—p. 276.

*Radiotherapy in Syringomyelia. J. Lhermitte.—p. 281.

Neurology in 1921.—Camus remarks that epidemic encephalitis and its sequels have focused the attention of neurologists the last year, and, next to this, the nervous system of organic life. The latter has been studied by physicians of all countries and from new points of view, as he describes in detail, with the biologic tests. A few facts have thus been established and a number of theories advanced which lack confirmation as yet. The instructive oculocardiac and pilomotor reflexes and the affinity of certain parts and of these only to certain chemical substances, endogenous or exogenous, are facts of the highest importance. He reminds the research worker not to forget that the functional condition of the organ at the moment, the condition of the nerve centers, emptiness or distention of an organ, whether it is secreting or quiescent, etc., modify the response to the same chemical substance at different times. In concluding his eleven page review, he refers to the important influence of emotions on the organic life. In examining candidates for aviation he found that the most instructive data were those obtained from the intensity, duration, etc., of the vasomotor, cardiac and respiratory reactions to induced emotions.

The Labyrinth Form of Epidemic Encephalitis.—Barré and Reys write from Strasbourg that in twelve of their 100 cases of epidemic encephalitis, the first and long the only symptoms were attacks of vertigo, with weakness and general malaise and occasional nausea. These symptoms subsided under rest and quiet, but the vertigo returned more intense than ever when the subject ventured on the crowded street. There may be complicating parkinsonian symptoms, and unless one thinks of the prevailing epidemic encephalitis, the diagnosis is liable to go far astray. They found quinin often useful in doses not over 5 or 10 cg., two or three times a day, apart from meals. The dizziness, staggering and nausea generally disappeared thereafter. Bromid with sodium iodid or potassium iodid also seemed to shorten the course of these labyrinth disturbances, but several still continue to have their

attacks although milder and less frequent. Among the other drugs tried was scopolamin which seemed useful.

Geniculate Ganglion Syndrome.—The virus of herpes zoster may affect the geniculate ganglion and induce pain and an eruption in the ear, with the general symptoms of herpes zoster, facial paralysis and transient disturbance in hearing on that side.

Reeducation in Cases of Ataxic Aphasia.—Froment describes the principles, the procedures and the results of training in cases of motor aphasia. He emphasizes that there is no necessity for training the muscles, etc. Their function is not lost, and it will be regained when the attention is diverted so as to give them a chance for automatic coordinated action. The aim should be to evoke the memory of the combinations of sounds which characterize words. The trouble in aphasia is less the loss of part of the capital of words than it is the inability to use what still remains. This mental deficit is not very pronounced, but it determines the prognosis. By estimating it before attempting the reeducation, we get an idea of the probabilities of success. The aphasic patient has to be taught entirely different from the child; he has neither the memory nor the attention to profit by abstract ideas. The teaching exercises may have to be kept up for a year or more. In addition to those given by the physician, some member of the family or other dependable and patient person should carry them on daily. The methods, difficulties and results are like those obtained in training the mentally backward.

Hexamethylenamin in Epidemic Encephalitis.—Thomas and Rendu report the case of a previously healthy woman of 43 who suddenly developed epileptiform seizures at night, growing constantly worse, until the fourth night they were almost continuous. Then, after injection of 0.5 gm. hexamethylenamin by the vein, there were no further convulsions. The temperature which had reached 40.2 C. soon returned to normal, and the woman gradually regained consciousness. The diagnosis of epidemic encephalitis was confirmed by the further course and recovery. The drug was kept up for some time. The only trace of the disease now, four months later, is a slight hesitancy in speech. This almost instantaneous and complete arrest of the convulsions after the intravenous injection suggests the possibility of colloidoclasia as the explanation, all conditions happening to favor it at the moment.

Lumbar Puncture in Syphilitics.—Sézary advocates lumbar puncture as a routine procedure on two occasions. The first is after the vigorous starting course, when we are planning to drop to milder medication, and the second is when we are planning to suspend all treatment. The lumbar punctures will confirm our decision or cause us to change it.

Radiotherapy in Syringomyelia.—Lhermitte emphasizes that there is never any trace of a neoplasm in these cavities in the spinal cord traceable to hydromyelia, softening and necrosis, or a hemorrhagic focus. But there is one variety of syringomyelia with proliferation of neuroglia around and remote from the cavity. This gliomatous syringomyelia seems to be amenable to the roentgen rays, and his experience with this has been very favorable. The subjective symptoms subside first, and the use of hands and legs becomes easier. Muscular atrophy, being the result of actual destruction of gray matter, is not modified except that its progress may be arrested. Bone and joint disturbances, however, may retrogress; in a recent case a perforating ulcer on a finger rapidly improved under the radiotherapy. Improvement was also realized in genital and bladder disturbances from this cause. The radiotherapy induces actual retrogression of the lesions to a certain extent, not mere remissions in the course. This was confirmed anew at necropsy recently in a case treated in this way in 1914; the cavity that had been treated had scarcely any trace left of gliomatosis while it was pronounced in the nontreated regions. Unfortunately there are no means of differentiating the form of syringomyelia in a given case except possibly by the success or failure of the radiotherapy. The vertebrae are usually more or less rarefied, so that the roentgen rays traverse them more readily. He makes an exposure from each side, 4 H units of 8 or 9 B penetrating power, with a 4 to 6 mm. filter, and repeats weekly.

Presse Médicale, ParisOct. 12, 1921, **29**, No. 82

*Suprarenal Insufficiency. E. Sergent.—p. 813.

Suprarenal Insufficiency.—Sergent emphasizes that when symptoms indicating suprarenal insufficiency appear, it means the loss of the whole of the suprarenal, not merely a deficit in epinephrin alone. The physiologists and the pathologists are agreed on one point, namely, that the suprarenals are vitally indispensable organs, but they differ as to the reason for this. The suprarenal medulla produces epinephrin, but cholesterolin seems to be a product of the suprarenal cortex, and there is much to sustain the assumption that it is the cortex that is vitally indispensable. The recent research on the low cholesterolin content of the blood in infectious diseases is very suggestive of a new function of the suprarenals. In certain experimental conditions the cholesterolin content of the blood in the suprarenals is increased. Sergent has been treating two patients with Addison's disease with subcutaneous injections of extract of the whole suprarenal gland and cholesterolin in oil. The cholesterolin content of their blood had been 0.9 and 1.1 before this treatment but after ten injections of each series, on alternate days, the cholesterolin content was 1.2 and 1.7, and the asthenia had been notably reduced. These results he regards as quite encouraging, attracting attention to cholesterolin from the point of view of the suprarenals.

Oct. 15, 1921, **29**, No. 83

*The Pilomotor Reflex. André-Thomas.—p. 821.

*The Prognosis in Ileus. A. C. Guillaume.—p. 822.

Examination of Eye in Light without Red Rays. Cantonnet.—p. 825.

Vitamins and Rachitis. M. Nathan.—p. 826.

Oct. 19, 1921, **29**, No. 84

Experimental Research on Eutrophic Action of Fresh Foods. G. Mouriquand.—p. 833.

The Pilomotor Reflex.—Thomas discusses the behavior of the pilomotor muscle deprived of its innervation, pointing out the antagonism between the local reaction and the reflex.

Prognosis in Acute Ileus.—Guillaume has compiled 587 cases of acute ileus given operative treatment by different methods, during the last ten years, and states that 224 died within the first forty-eight hours. The total mortality by the end of the second week was 50 per cent. In the total 3,829 cases compiled in the last thirty years the mortality was 63.2 per cent. In 171 operative cases of strangulated hernia, the mortality was only 29 per cent. He ascribes this difference in the outcome mainly to the fact that strangulated hernia gets operative relief sooner than the ileus. His charts show the rapid rise in the death rate as the days pass after the first symptoms.

Progrès Médical, ParisSept. 3, 1921, **36**, No. 36

*Bismuth in Treatment of Gastric Ulcer. L. Rabinovici.—p. 415.

Anatomy of Uterus. Demelin.—p. 416.

*Diagnosis of Fracture of Neck of Femur. Delbet.—p. 419.

*Orthopedic Treatment of Fractures. H. Judet.—p. 421.

Sept. 10, 1921, **36**, No. 37

Cholesterolin and Fat in Cancer Serum. M. Loeper et al.—p. 425.

Pathogenesis of Traumatic Shock. G. Jeanneney.—p. 425.

Médecine in Brillat-Savarin. Armand.—p. 433.

Bismuth in Treatment of Gastric Ulcer.—Rabinovici explains why some ulcers are refractory to bismuth while others heal under it. Large doses sometimes fail when a smaller amount associated with an alkali proves effectual. The site of the ulcer determines whether it will be coated with the bismuth or escape most of its action, as the bismuth accumulates at the lowest points. For this reason, reclining with the pelvis raised may be the only means to obtain relief after taking the bismuth.

Differential Diagnosis of Fracture of Neck of Femur.—Delbet emphasizes the difference in the outcome according as the fracture is in the neck itself, or close to or involving the trochanter. The subtrochanter fracture slants in a different direction, and traction from the muscles pulls the upper stump into a deforming position. The neck-trochanter fracture, on the other hand, is often bifurcated, and the fragments are not movable. This form of fracture heals smoothly and

regularly, with a good callus, whatever the age. Fracture of the neck proper never heals regularly, and always entails pseudarthrosis when treated by immobilization alone. This form shortens the limb, but it can be walked on for a time without much inconvenience. The stout capsule holds the parts in place at first. As this stretches, the lower stump works up, and the primary shortening of 1 or 2 cm. increases to 6 or 7 in ten days or up to six months. With fracture of the neck, there is outward rotation; with dislocation of the hip joint, there is always inward rotation. With fracture of the true neck, pulling on the leg lengthens it, but when the traction is released, there is a sound of snapping or sensation of rubbing. This does not occur with the cervicotrochanter fracture, as the fragments interlock. He reiterates that the fractured neck has to be strengthened by driving in a peg or long screw, or the equivalent of this, to ward off the otherwise inevitable pseudarthrosis.

Fracture of Neck of Femur.—Judet gives an illustrated description of a method of ensuring regular consolidation with fracture of the true neck without the necessity of an artificial support. He accomplishes this by reducing the fracture as a congenital dislocation of the hip joint is reduced: flexing the thigh to 90 degrees and then extreme abduction. This brings the fragments into coaptation, and a large plaster cast holds them in this position for forty-five or fifty days. The cast is applied in the sitting position. With a supracondyle fracture of the femur, the cast is applied to hold the leg permanently in the position in which reduction was realized under general anesthesia. The leg is flexed to the utmost. Traction is exerted at a right angle to the recumbent body by a skein of yarn passed through the popliteal space while the assistant holds the foot in equinus position, as close to the buttocks as possible. The physician has thus both hands free to reduce the fracture, and a plaster cast is applied to hold the limb in this extreme flexion of the knee. Judet applies this same orthopedic principle in treatment of fracture of the patella. He first punctures and aspirates the blood and secretions two or three days after the accident, and then applies Malgaigne's hooks after local anesthesia at each point where they are to be inserted. The patella heals with this immobilization from without as perfectly as with a wire suture, etc.

Schweizerische medizinische Wochenschrift, BaselOct. 13, 1921, **51**, No. 41

*Idiosyncrasies. R. Doerr.—p. 937.

Tests of the Swiss Gas Mask. F. Rohrer.—p. 943.

Case of Taboparalysis. M. Tramer.—p. 948.

Idiosyncrasies.—Doerr explains that idiosyncrasies are not merely interesting curiosities but objects for fruitful research, experimental investigation, and for causal treatment. They obey Mendel's laws in heredity, and they evidently depend on the chemical constitution, and they are not specific for the species. There are two classes of bodies that induce an idiosyncrasy, those in which only the intact molecule acts, and those in which only a certain grouping of atoms is responsible. He urges study of the heredity of idiosyncrasies as liable to throw light on many problems. Anaphylaxis, on the other hand, he says, is never inherited; at most, the antibodies may pass to the fetus but they disappear not long after birth. He reviews recent American and other literature on hypersensitiveness, and declares that the cellular theory of anaphylaxis is enlarging the horizon. The antibodies are held in the cells, and the antigen induces the reaction by its intense irritation of the antibody-holding cell. It is not the reaction between the antigen and the antibody that kills the animal directly, but the special cells in which it happens to occur. In the guinea-pig, this may be in the bronchial muscle, and this entails death from suffocation. On mixing the antigen and antibody in the test tube, there is always the same flocculation of protein, and this physical change may be what induces the irritation of the cell.

Pediatria, NaplesOct. 1, 1921, **29**, No. 19

*Serum Prophylaxis of Measles. S. Maggiore.—p. 873.

*Elimination of Tartar Emetic in Leishmaniasis. M. Mallardi.—p. 878.

Experiences with Isolated Vitamins. Sandro Tronconi.—p. 886.

*Banti's Disease in Children. A. F. Canelli.—p. 897. Cont'n.

Convalescents' Serum in Prophylaxis of Measles.—Maggiore recalls the success of the Palermo children's clinic with injection of scales or serum in prevention of scarlet fever, varicella and measles. It has put an end to epidemics of these diseases in the institution, as Rutelli published in 1916, and Di Cristina in 1919. [His success with prophylactic vaccination against scarlet fever was described in these columns, Sept. 30, 1916, p. 1049, and March 1, 1919, p. 687. He used for this the desquamated scales.] The research with convalescents' serum for what Maggiore calls the immunoprophylaxis of measles was begun in 1915. The serum was drawn about the tenth day after defervescence, and after addition of 0.5 per cent. of phenol, 2 c.c. was injected subcutaneously. After waiting a day, twice this dose was injected. This proved effectual to prevent the spread of the measles when a case developed in the institution except in cases with very prolonged incubation, and even then, the disease seemed to be attenuated. Convalescents' serum prepared in this way kept active for several months. With this technic, he relates, several hundred children of all ages have been immunized, and there has never been a mishap. The results have always been highly satisfactory, and have allowed the admission of children to the clinic without fear of contagion. The measles cases have been sporadic and mild, and there has been no death from hospital contagion. As measles suspends the tuberculin reaction, the history of the convalescent has to be taken into account in excluding the possibility of tuberculosis, although the fear of transmission of tuberculosis through the serum seems unwarranted, he says, according to our present knowledge. This same method has been successfully tried recently, he adds, by Degkwitz and Pfaundler, but they give only a single injection, with a larger dose, according to the period of incubation, and they make the injection in a muscle. This dose of 3 or 4 c.c. or more they regard as necessary for protection. Their experience has confirmed the excellence of the method, Maggiore continues, saying that this immunoprophylaxis should be applied to the healthy in institutions, colleges, schools, hospitals, etc., in case of serious epidemics. [The Berlin Letter, page 1509, relates the recent experiences with it in Germany. They were also reviewed in these columns, Oct. 1, 1921, p. 1144, and elsewhere.]

The Antimony Metabolism in Internal Leishmaniasis.—Mallardi tabulates the metabolic findings in four children being treated with antimony and potassium tartrate. They indicate a tendency to cumulative action.

Banti's Disease in Young Children.—Canelli reports a case of diffuse fibrous degeneration of the spleen, of the Banti type, in an infant over 14 months old with subacute interstitial hepatitis, chronic enteritis with atrophy of the walls, and an active tuberculous process in the tubes and ovaries. The child had been born at term but had become much debilitated by early and persisting enteritis. He compares with this case the literature on Banti's disease in children.

Policlinico, Rome

Oct. 3, 1921, 28, No. 40

Polymorphism of Syphilis Spirochete. P. Pediconi.—p. 1323.

*Arsenicals in Treatment of Spastic Conditions. C. Porru.—p. 1326.

*Present Status of Uremia. G. Aiello.—p. 1329.

The Arsenicals in Spastic Conditions.—The outcome was disappointing in Porru's experience with paralysis agitans, parkinsonian symptoms after epidemic encephalitis, and spastic paraplegia.

Urea and Residual Nitrogen in the Blood in Kidney Disease.—Aiello's conclusion from his study of recent literature is that the residual nitrogen is a better index of kidney functioning than the urea. Also that extrarenal factors, such as the toxic destruction of albumin, probably cooperate in the uremia.

Oct. 10, 1921, 28, No. 41

*Enrichment of Diphtheria Bacilli. M. Pergola.—p. 1355.

*Myasthenia Gravis. P. F. Zuccola.—p. 1358.

*Suture of Portal Vein. G. Giorgi.—p. 1361.

Oct. 17, 1921, 28, No. 42

Sodium Methylate in Skin and Venereal Disease. P. A. Meineri.—p. 1391.

Torsion of Testis in Infant. G. Matronola.—p. 1392.

Present Status of Juvenile Deforming Osteochondritis. A. Chiasserini. p. 1394.

Bacteriologic Diagnosis of Diphtheria.—Pergola describes what he calls a new method by enrichment which checks development of other bacteria while providing exceptionally favorable conditions for proliferation of diphtheria bacilli and for their recognition. He gives several formulas for fluid and solid culture mediums preferring the following: 100 c.c. of normal blood serum (beef, horse, guinea-pig, etc.); 0.02 gm. potassium tellurite, and one egg yolk. After thorough mixing by agitating, the fluid is sterilized by heating in the water bath to 50 or 55 C. for half an hour on three consecutive days. For the solid medium, only 50 c.c. of serum is used, with 50 c.c. of ordinary agar at 2.5 or 3 per cent., the other ingredients the same as in the first formula. They are added to the melted agar and the mixture is cooled on plates. Both the plate and the fluid medium are inoculated with some of the suspected material, and a plate is inoculated from the latter if the first inoculation is negative. They are all kept at 37 C. After twelve or fifteen hours the effect of the enrichment becomes manifest and grows more and more pronounced. He claims a number of advantages for this tellurite method.

Myasthenia Gravis.—A boy of 7 developed headache, vomiting, strabismus and weakness of muscles. The myasthenia in two months was so extreme he could not hold up his head, as it drooped until his chin touched his sternum. It was the second case of the kind in the neighborhood during a small epidemic of poliomyelitis. The other case terminated fatally, with bulbar symptoms, and pneumonia from aspiration. The condition in the boy has persisted stationary to date, with slight ups and downs. The onset had resembled that of poliomyelitis.

Suture of the Portal Vein.—Giorgi was able to suture the vein promptly after the revolver wound, and there was no further disturbance from this cause. Necropsy five months later showed that the vein had been perfectly repaired without any impairment of its permeability. This had been realized with the ordinary instruments.

Semana Médica, Buenos Aires

Sept. 1, 1921, 28, No. 35

*A Seashore Sanatorium for Children. J. M. Jorge.—p. 257.

*Diagnosis of Renal Tuberculosis. J. Salleras Pagés.—p. 296.

*Intracardiac Injection of Epinephrin. Bermann.—p. 300.

Model Sanatorium.—Jorge devotes forty pages and twenty-one illustrations to the seashore sanatorium and solarium at Mar del Plata. From 200 to 230 tuberculosis children are given treatment there during the year, besides its "vacation colony" for numerous others who seem to be candidates for tuberculosis. The aim is a complete and durable cure, and the child is kept until this is realized. Pulmonary and renal tuberculosis cannot stand the seashore, and the condition grows worse from the very first. The reaction that follows games and exercises at first is recorded for each child, and none are allowed to reach the point of fatigue.

Early Diagnosis of Renal Tuberculosis.—Salleras catheterizes both ureters when slight and capricious hematuria, with some discomfort in the lumbar region, frequent micturition, pyuria, and slight loss of weight suggest tuberculosis of the kidney alone. He also draws the urine from the bladder separately, at the same time. By this means he discovered a supernumerary kidney in one case, the bladder urine differing from both the ureter catheters urine. The urine obtained in the first ten minutes is kept separate from the rest to examine for albumin, as the traumatism from the catheterization may bring blood after the first ten minutes. In inoculating a guinea-pig to detect tubercle bacilli in the urine, a preliminary exposure of the region to roentgen rays hastens the development of the tuberculous lesion in the glands. After drawing the second sample of ureter urine, between the tenth and thirtieth minutes, fresh vials are applied and the output for another thirty minutes after drinking 600 or 800 gm. of water is measured, and the amount compared with the amount of the preceding thirty minutes. Then a fourth and a fifth sample are drawn for comparison. At the end of the two hours the catheters are withdrawn after instilling through them a 1 per cent. solution of silver nitrate. Comparison of the urea in the different samples during the

induced polyuria may also be instructive. He does not regard the methylene blue and similar color tests as dependable, or else they are too complicated for practical use; urea, water and the chlorids are the important elements, from the retention point of view. He discusses further the diagnosis with bladder lesions of different kinds.

Intracardiac Injection of Epinephrin.—Bermann summarizes the experiences in this line reported by Guthmann, Frenzel and Vogt, all of which were summarized in THE JOURNAL at the time.

Sept. 8, 1921, 28, No. 36

The Work of Rudolph Kraus. G. Aráoz Alfaro.—p. 305.

Clinical Forms of Influenza. N. D. Rosso and R. Denis.—p. 308.

What Are Vitamins? J. A. Domínguez.—p. 320.

*Rupture of Uterus at Term. I. Peña.—p. 325.

*Puerperal Infection. T. J. González.—p. 328.

*Spirochetal Bronchitis. G. Segura and L. Puceio.—p. 332

Rupture of Uterus at Term.—Only one of the woman's three childbirths had been normal, delivery in the others having been difficult, but the three children are healthy. After twenty-four hours of ineffectual labor, the uterus ruptured in the lower left segment. The fetus could be palpated in the abdominal cavity. The woman was unconscious from the severe shock, and the fetus and placenta were delivered by hand. She was then left in complete repose, in a slanting position, no tampon, no drain, merely an ice bag to the abdomen plus rectal drip. She gradually recuperated from the severe shock of the rupture and the anemia under heart tonics and on a milk diet. The fifty-first day the tubes were ligated through the vagina to prevent further conception. In another case the rupture occurred while the woman was under the complete influence of an anesthetic, and there was no shock, no hemorrhage; the pulse kept good, and the mucous membranes did not blanch. The rupture was in the lower segment, at the site of the placenta praevia. He warns that in these rupture cases the placenta must be left unmolested until after the extraction of the fetus. In his first case there was no reaction on the part of the peritoneum.

Puerperal Infection.—In the course of this general review, González says that with retention after abortion he merely applies ice to the abdomen; gives 0.2 gm. of quinin every four hours, and disinfects the vulva. The fever declines in a few days and the retained scraps are completely expelled.

Bronchial Spirochetosis.—Castellani's spirochete was cultivated from the sputum of the previously healthy man of 33 who developed sudden pain and cough with bloody sputum; no fever, no headache. The pains, etc., kept up for two months but the appetite was good throughout. The blood in the sputum was a dirty red. The man was an Arab, but he had lived in Argentina for fifteen years, and the cure was complete under a course of neo-arsphenamin.

Archiv für klinische Chirurgie, Berlin

Sept. 17, 1921, 116, No. 4

*Principles for Postoperative Irradiation. O. Jüngling.—p. 557.

*The Colon Bacillus and Coral Kidney Stone. H. Cyranka.—p. 567.

*Abdominal Pain: Auto-Observation. F. Brüning.—p. 598

*Retrogression of Lower Ribs. R. Klapp.—p. 608.

*Pathologic Constitutions and Surgery. E. Payr.—p. 614.

*Prostatitis After Cystostomy. H. Alapy.—p. 642.

*Surgical Treatment of Exophthalmic Goiter. P. Sudeck.—p. 648

*Looser's Disintegration Zones. A. Fromme.—p. 664.

*Habitual Dislocation of Lower Jaw. G. E. Konjetzny.—p. 681.

*Surgical Treatment of Encephalitis. Tilmann.—p. 693.

*Direct Vein-to-Vein Transfusion of Blood. F. Oehlecker.—p. 705.

*Ligation of Veins with Thrombophlebitic Pyemia. M. Martens.—p. 720.

*Experimental Research on Drainage of Wounds with Dry and Moist Dressings. L. Schönbauer and R. Demcl.—p. 731

Postoperative Irradiation.—Jüngling concludes from the experiences he cites from various clinics that postoperative exposure to the roentgen rays is still in a tentative stage, and that the theoretical assumptions on which it is based are of dubious value. In cases of cancer that have proved refractory to the rays before the operation, there does not seem to be much promise of benefit from their postoperative application. At some of the six clinics cited, three years have elapsed without recurrence in 38.7 per cent. of the nonirradiated cases and in 37.7 per cent. in the irradiated (Marburg); in 38.5 and 30.5 (Tübingen); in 32.7 and 47.50 (Rostock), and in 46.6 and 62.5 (Kiel). The amount of the

rays which seems to destroy the manifest cancer growth cells does not seem to be capable of destroying the latent cancer cells. It is possible, he suggests, that quiescent cancer cells are not susceptible to the action of the rays.

The Colon Bacillus and Kidney Stones.—Cyranka expatiates on the calculus-inducing properties of the colon bacillus. In his research, even slight changes in the colloids sufficed to induce production of concretions in urine in the presence of colon bacilli. The congestion and compression in menstruation and pregnancy undoubtedly enhance the virulence of the colon bacilli and induce conditions favoring their passage into the urinary apparatus. In his thirty recent kidney calculus cases with suppuration, 93.3 per cent. were in women. He gives the details of each, tracing the course from the harmless bacteriuria to the gravest empyema cases. The infection of the stagnating urine in the kidney pelvis causes a precipitation of colloids and crystalloids, the same as in the biliary apparatus and in the salivary glands.

Abdominal Pain.—Brüning's analysis of his own sensations under varying conditions has demonstrated that the pain in abdominal organs innervated by the sympathetic is localized in the great ganglia connected with them, not in the organ itself. Abdominal pain at points elsewhere than in the ganglia always indicates participation of the parietal peritoneum. The pain around the umbilicus at the onset of acute appendicitis is caused by contraction of the musculature of the appendix or cecum.

Anomalies in the Lower Ribs.—Klapp ascribes to man's erect attitude the anomalies and retrogression of the lower ribs, as he explains.

Prostatitis After Cystostomy.—Alapy states that in his seventy-three cases of enlarged prostate treated by diversion of the urine through an incision into the bladder, over 25 per cent. of the men suffered severe pain at each micturition and also at defecation and passage of flatus. The explanation is the relics of inflammation in and around the prostate, soldering it firm in its bed and rendering its enucleation very difficult. The cystostomy, therefore, does not always ward off the necessity for prostatectomy. About 25 per cent. will have to be operated on later on account of these recurring and often distressing pains.

Surgical Treatment of Exophthalmic Goiter.—Sudeck has operated in 280 cases, with 16 deaths, that is, in 5.3 per cent. In the same period, 9 patients died without any intervention having been attempted. There were 262 cases of hyperthyroidism, with 0.7 per cent. mortality. The final outcome in all this material demonstrates that exophthalmic goiter is constantly cured when the toxic action from the thyroid can be effectually checked, as by a thorough thyroidectomy. As the hyperthyroidism is cured by this, the exophthalmic goiter is cured with it. Partial operations give inconstant results.

Disintegration Zones.—Fromme refers to what Looser calls *umbauzonen*, meaning thereby a small area in a bone where there seems to be occurring a process of disintegration. He regards these *umbau* zones as a factor in the development of loose bodies in joints and of supposed supernumerary bones.

Habitual Dislocation of Lower Jaw.—Konjetzny corrects the tendency to recurring dislocation by providing a permanent buffer in front of the joint which prevents the abnormal play of the head of the bone. He utilizes the interarticular fibrocartilage for the purpose, severing the meniscus above, drawing it down and suturing it to hold the parts of the joint in place. He gives illustrations of the procedure as he has successfully applied it in three cases.

Surgical Treatment of Encephalitis.—Tilmann urges to operate promptly even in acute encephalitis when it is causing severe symptoms. Among some typical cases described are three in which the disturbances were evidently from the inflammatory process itself. In the others the reparative process following the inflammation was responsible for the epilepsy or other disturbances.

Ligation in Thrombophlebitic Pyemia.—Martens regards the ligation of the vein as not only justified but as directly indicated. Only, he adds, we must operate early, and we must not attempt more than just to ligate, especially when abdominal veins are involved. The results of ligation have

not always been encouraging, but without intervention the death rate is high. Veit saved 6 in 20 puerperal cases; Latzko 10 in 28, and Martens, himself, 7 of his 11 patients in this category. There was metastasis in the others which proved fatal. No injury from the ligation was observed, and in the 2 most favorable cases the chills stopped abruptly after the ligation.

Deutsche medizinische Wochenschrift, Berlin

Sept. 8, 1921, 47, No. 36

- Inactivity as Factor in Muscular Atrophy Following Division of Nerve. A. Lipschütz and A. Audova.—p. 1051.
First Signs of Mediastinal Growths. P. Hanpeln.—p. 1052.
Abortive Cases of Epidemic Encephalitis. A. Wallgren.—p. 1053.
Tuberculosis in Relation to the Peripheral Vascular System. G. Liebermeister.—p. 1054.
Method for Staining Treponema Pallidum. F. Ruppert.—p. 1054.
Significance of Abdominal Sensations. D. Kulenkampff.—p. 1056.
Fatal Hemorrhage After Swallowing False Teeth. A. Plaut.—p. 1053.
The Gruber-Widal Reaction in Cholelithiasis and Pyelitis. R. Korbsch.—p. 1059.
Uterine Hernia in Ruptured Cesarean Incision Scar. M. Ichenhäuser.—p. 1060.
Treatment of Incontinence of Urine. W. Forst.—p. 1060.
Two Cases of Staphylococcus Sepsis. H. Landau.—p. 1061.
Effect of Quartz Lamp on Metabolism. W. Lasch.—p. 1063.
*Frequency of Hutchinson Teeth in Congenital Syphilis. H. Davidsohn and E. Davidsohn.—p. 1064.
Intravenous Use of Calcium Chlorid. H. Beumer.—p. 1065.
Tuberculin Skin Reaction in Relation to Local Milk Hygiene. G. Stern and W. Schultz.—p. 1066.
Apex of Lung in Pleuritis and Pneumonia. F. Koester.—p. 1066.
Simultaneous Infection with Syphilis and Gonorrhea. L. Zippert and F. Stern.—p. 1067.
Surgical Diphtheria in Country Practice. R. Spiegelberg.—p. 1068.
Poisoning with Arsenic Tooth Paste Applied by Dentist. G. Neugebauer.—p. 1069.
Indications for Use of Forceps. L. Blumreich.—p. 1070.
History of Familial Infundibular Thorax. E. Ebstein.—p. 1070.

Frequency of Hutchinson Teeth in Congenital Syphilis.—In fifty cases of congenital syphilis in children more than 6 years old, Davidsohn and Davidsohn found Hutchinson teeth in twenty-four, or 48 per cent., which constitutes, they think, good evidence of the diagnostic value of the phenomenon.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1921, 166, No. 1-4. Barth Festschrift

- *The Danzig Hospital. A. Schmidt.—p. 1.
*Ernst von Bergmann as Army Surgeon. R. Lampe.—p. 10.
*Detubation and Hypoglottic Laryngitis. A. Schulz.—p. 38.
*Acquired Thyroid Insufficiency. Rodenacker.—p. 44.
*Surgery of the Thorax. Vorderbrügge.—p. 49.
*Abscess in the Brain. Linck.—p. 65.
*Return of Symptoms After Gallstone Operations. E. Liek.—p. 106.
*Pathologic Conditions in Metatarsophalangeal Joints. Idem.—p. 126.
*Nature and Treatment of Exophthalmic Goiter. Idem.—p. 144.
*Treatment of Myomas and Metropathies. Senge.—p. 231.
*Surgery of Gastric and Duodenal Ulcers. C. Methling.—p. 237.
*Surgical Treatment of Duodenal Ulcers. A. Schmidt.—p. 242.
*Treatment of Fracture of Base of Skull. Kulcke.—p. 274.

Barth Festschrift.—This number of the *Zeitschrift* is dedicated to Prof. A. Barth on the twenty-fifth anniversary of his assuming charge of the surgical department of the Danzig hospital. The first article is devoted to the hospital, and the second to a review of Bergmann's surgical work as the introducer of the conservative treatment of war wounds.

Tracheotomy and Hypoglottic Laryngitis.—Schulz describes a case in which a supposed tumor in the larynx compelled tracheotomy, but the mass in the larynx proved to be a chronic inflammatory thickening of the mucosa below the vocal cords. It was cauterized through the tracheotomy opening with the actual cautery, and in ten days the patient could breathe through the natural passages. In another two weeks the tracheotomy tube could be discarded. Two years later the voice and respiration were found still normal, the tracheotomy wound well healed, and the mucosa showing no trace of the preceding disturbance. The general condition was not good on account of the preexisting and persisting cystitis. The diagnosis in this case had been possible only with direct bronchoscopy under general anesthesia, and this should never be omitted if other means for differentiation fail. In Zimmermann's case, however, the bronchoscope aggravated conditions so that tracheotomy became necessary while the condition before had been bearable. Possibly laryngoscopy with the head pendent might be preferable. In Zimmermann's compilation of 36 cases, the hypoglottic swell-

ing subsided without the necessity for tracheotomy in all but 2; 23 in the group were children. It is more than probable, Schulz adds, that in certain cases this condition is responsible for the difficulty in detubation after diphtheria. When low tracheotomy is substituted for the high, the rapid subsidence of the swelling in the hypoglottic space testifies that it had been caused or maintained by the irritation from the tube. The laryngoscope can be used through the tracheotomy opening, but direct bronchoscopic inspection proved ample and decisive in his cases.

Acquired Myxidiocy.—Rodenacker emphasizes that the main progress of late in our knowledge of the ductless glands is the recognition of the fact that not one gland but the whole endocrine system is deranged when one gland shows signs of disturbance. In a case described, a boy of 6 presented the cretin aspect and was 4 cm. too short for his age. His vocabulary was limited to five or ten words. He had been a strong and lusty infant but at the age of 6 months had an accidental severe gastro-intestinal derangement, and this seemed to check development in every way. The family history also seemed to indicate a weakness of the entire endocrine system. For these and other reasons Rodenacker did not restrict treatment to thyroid extract alone, but gave suprarenal substance with it. The outcome surpassed all anticipations. In three months the boy had grown 10 cm., and two years after beginning the treatment he had learned to read and write. In mathematics alone he has made no progress. It is evident that no benefit need be anticipated from grafting a single gland or from treatment with a single glandular extract: We must plan to combine several glands according to the age of the subject. We must also have it understood that the deficiency in the glandular functioning will probably entail the necessity for treatment along this line all through life.

Surgery of the Thorax.—Vorderbrügge reviews some of the Danzig experiences in this line, including two cases of recovery after traumatic hernia of the lung.

Abscess in the Brain.—Linck concludes from the experiences related that there is no essential difference in the course or findings between a traumatic abscess in the brain and a pure inflammatory abscess consecutive to ear disease. In two of four cases described the abscess induced only general symptoms, headache and the pressure pulse, but the pre-existing right otitis media gave the clue along with the lack of cerebellar symptoms. The abscess was in the right temporal lobe in one case, and the return of symptoms later with choked disk indicated a second abscess which was found in the occipital lobe. The diagnosis each time had been made by puncture, after several negative punctures with the second abscess. In another case there were no general symptoms indicating an abscess after the trauma of the skull, but the roentgen rays revealed the abscess in the frontal brain as a little air had got into the cavity. The outcome with a brain abscess depends on whether the system is capable of walling in the abscess with an encapsulating barrier or whether it is in a bed of necrotic brain tissue. On direct inspection with the forehead light and speculum, the color of the abscess wall is more yellowish in the latter contingency, and the walls of the abscess crowd together more. In some cases—and these were always the ones with a fatal termination—the walls crowded together so that it was impossible to get a view of the abscess cavity, even when the patient was raised to a sitting position and told to breathe deep and hold his breath. It was possible in three of the four cases described to estimate from the cerebrospinal fluid and the bacteria in the pus that the infection and inflammation were not spreading. In the other case, the increasing turgor in the brain, the appearance of leukocytes in the previously clear fluid, and the choked disk testified to the lack of encapsulation, confirmed by necropsy. He commends tamponing with moderately wide strips of iodoform gauze, without raw edges, through the Voltolini speculum, packing the whole cavity loosely but filling it up to the surface of the brain. The tampon is then held in place with forceps while the speculum is withdrawn, and the external wound is likewise packed with iodoform gauze. Nothing is done blindly. The edema in the brain rapidly subsides and, when the gauze

is changed the second or third day, the cavity is found entirely empty as a rule when examined anew with speculum and forehead light, the patient seated. If pus still lurks in any crevice, this is remedied now. The speculum tamponade is continued until the cavity is covered with healthy young cells; then a rubber drain may be used. This stimulates granulation at this stage. When the encephalitic process is spreading, vaccines or antisera or other general measures may prove useful adjuvants.

Recurrence After Operations for Gallstones.—Liek has operated in 106 of 282 gallstone cases in private practice in twelve years, and 32 per cent. of the 75 traced to date have had recurrence of symptoms, sometimes very severe. One woman of 60 died with symptoms of cholangitis eighteen months after smooth recovery. There was recurrence in 5 cases in which, besides the ectomy and choledochotomy, the hepatic duct had been drained. In one case the common bile duct had shriveled for a stretch of 1.5 cm., obliterating the lumen. This segment was resected and a drain inserted for a few days. There has been no further disturbance since. Such a strictured segment might well explain some of the recurrences ascribed to cholangitis after removal of the gallbladder. Kehr found a stricture of this kind in only 6 of his thousands of gallstone operations, and corrected it by an operation in 5 of them. In Liek's 4 other cases, conditions were not so clear. Distention of the gallbladder without calculi production may have been responsible for the disturbances in certain cases in which after several failures, complete recovery followed the making of an extensive communication between the common bile duct and the duodenum, adhesions having evidently mechanically impeded the flow of bile. To avoid the formation of bands he advises to cut the cystic duct first. This leaves the gallbladder adherent by a strip of connective tissue covered with peritoneum and containing the cystic artery. This bridge is ligated and cut loose from the gallbladder close to its surface. We thus have a broad, well nourished flap of peritoneum which is brought down over the stump of the cystic duct and fastened low down to roof it over completely. Cutting the duct before the artery has several other advantages.

Operative Versus Roentgen-Ray Treatment of Exophthalmic Goiter.—Liek remarks that surgery is losing some of its domain and it has to fight to retain other portions. Surgeons have to admit now, he says, that in the great field of surgical tuberculosis, light and air, sunshine and the arc and roentgen rays accomplish more and better results than the knife and the chisel. But he devotes nearly 100 pages to presentation of data which apparently establish that surgery still holds its own and will continue to hold it against roentgenotherapy so far as exophthalmic goiter is concerned. He compares a series of 100 operative cases in his private practice with 100 similar cases recently reported by Nordentoft and Blume in which roentgenotherapy instead of the knife was used. The ultimate results, he asserts, are all in favor of surgical treatment; only when this fails, should roentgen exposures be considered, and in that case, besides the thyroid, the thymus and ovaries should be irradiated. He presents arguments to demonstrate that exophthalmic goiter is not a disease of the thyroid but of the entire endocrine system, including the brain, which he regards as an important element in this system. The brain is the organ primarily involved in exophthalmic goiter, that is, the central nervous system. This is involved both functionally and as a gland with an internal secretion. He cites a number of striking cases in which exophthalmic goiter developed in direct connection with sorrow or financial disaster or grief at treachery or a fright. It may subside spontaneously or under internal measures, but if not, and in the progressive forms, he says, the most effectual and durable treatment to date is extensive bilateral resection of the thyroid, with ligation of the four main arteries. During and after the operation the morbidly excited and excitable nervous system must be watched over with extreme solicitude. In all the severer cases the operation should be done within the first six months. Extremely intense nervous features and hysteria contraindicate surgical measures. The advantages of thymectomy are still problematical, and in any event do not compensate for the danger.

Uterine Myomas with Severe Anemia.—Senge has been gratified with the constant success of deep roentgen-ray treatment of uterine myomas and metropathies; it never failed him but once. At the same time, he still prefers operative measures when the patient is extremely anemic, always avoiding general anesthesia in these cases.

Duodenal Ulcers.—Schmidt reviews twenty-six cases of duodenal ulcer given operative treatment in Barth's service during a recent ten-year period. In about half these cases perforation had been the first symptom. In four cases the patients had long been under internal treatment for supposed gastric ulcer, and in ten other nonperforated cases there was a history of stomach disturbances for years, months or weeks. He emphasizes the advantages of resection; if this is impossible, he advises closing the pylorus with a strip of fascia or the ligamentum teres, with a Petersen gastro-enterostomy. Dietetic after-treatment is indispensable.

Fracture of the Base of the Skull.—Kulcke reports two operative cases. The interval from the trauma had been eleven to fifteen days, and both patients had acute otitis media, complicated in one case with peripheral facial paralysis and in the other with fever. The functions of the labyrinth seemed to be intact, as also of the vestibular nerve. Roentgen-ray findings were negative or dubious. There had been bleeding from the ear at the accident in both cases, and the circumstances indicated that the focus could be reached by incision of the antrum. This proved to be the case, and a complete cure followed.

Medizinische Klinik, Berlin

Sept. 11, 1921, 17, No. 37

- *What Fractures Can Be Treated at Home? C. Ewald.—p. 1105.
- *Foot-and-Mouth-Disease in Man. A. Hittmair.—p. 1108.
- *Accidental Murmurs and Hypotonia of the Heart. G. Zuelzer.—p. 1111.
- *Pylephlebitis. W. Grönning.—p. 1113.
- *Diabetic Cataract. W. Lippmann.—p. 1115.
- Pregnancy After Severing Both Tubes. Hellendall.—p. 1116.
- *The Meinicke Serologic Test. Epstein and Paul.—p. 1118.
- Ear Disease and the Practitioner. K. Grahe.—p. 1122. Cont'n.

What Fractures Can Be Treated at Home?—Ewald goes through the whole list of possible fractures, describing the measures required for each. Those in which roentgen examination and institutional treatment can usually be dispensed with include simple fracture and bullet wounds of the skull; fracture of a vertebra without injury of the cord; fracture of the pelvis, of the clavicle, of joints, of the upper end of the humerus, and of the ulna alone. Of course complications alter the indications. Fractures in children seldom require hospital treatment, as also infraction of the bones of the forearm, especially of the radius. Fracture of the neck of the femur is particularly amenable to home treatment, but he warns for the necessity of care to prevent shortening of the limb in bed. As the patient sits up in bed, he is liable to slide down in the bed. His trunk thus slides farther down in the bed while the weight of the thigh and leg and the friction hold the limb in its place. The weight of the trunk bears down on the hip joint and the soft callus yields and flattens out. This can be warded off by keeping the trunk more horizontal, and having the knees supported by a high triangular bolster. This opposes effectual resistance to any sliding down of the trunk. The knee must be well flexed so that the patella faces upward. When the shoulders are raised, the bolster under the knees must be made higher. He should stay in bed for three months; Ewald declares that the danger of pneumonia is exaggerated. If allowed to get up before this, he advises to have the hip joint flexed at a right angle, the knees closed, the patella facing upward, and both knees held on an exactly symmetrical line. The injured limb must not have any weight borne on it. While in bed, the legs must be flexed and spread apart to prevent coxa vara, and the patient must be instructed to innervate the quadriceps from the very first day on, and in the third or fourth week to extend the knee, that is, to lift up the leg from the inclined plane into the air.

Foot-and-Mouth Disease in Man.—Hittmair was impressed with the intense salivation in his three cases, and with the changes in the blood. The latter may have differential value.

The erythrocytes ran up to 6,350,000 in one case and to 7,100,000 in another, the hemoglobin to 119 and 107 per cent.; the leukocytes to 14,000 and 11,500, with 35 and 35.7 per cent. lymphocytes, and 2.6 and 2.3 per cent. eosinophils.

Accidental Heart Murmurs from Hypotonia of the Heart.—Zuelzer expatiates on the value of the information to be derived from the fact that the systolic murmur heard on reclining disappears as the subject stands. When one is reclining, the muscles are relaxed, including the heart muscle. This hypotonia of all the muscles causes a weakened heart muscle to drop below the level at which effectual systole is possible. As the muscles are tautened as one stands up, the heart feels the tonic stimulus and functions better, and the systolic murmur disappears. It may disappear likewise when the heart is strengthened by any means. Zuelzer declares that the whole subject of accidental heart murmurs demands revision. The above explanation fits all cases in which the systolic murmur is heard only during reclining or is strongest then. All other explanations that have been advanced can be discarded. The hypotonia of the heart is generally accompanied with vasomotor overexcitability. Anemia alone is not capable of inducing this accidental murmur, but it is common with anemia from constitutional inferiority. One vigorous man recently lost so much blood from hemorrhoidal hemorrhages that the hemoglobin was reduced to 35 per cent., yet there never was a systolic murmur in any position. On the other hand, this conception of myasthenia cordis from weakness, from toxic influences, from the effects of an acute or chronic infectious process anywhere in the body readily explains the cases encountered in such large numbers now, evidently an aftermath of the influenza epidemic. The conception has the further advantage of pointing the way to effectual treatment.

Pylephlebitis.—Grønning advocates more active measures against an inflammatory process in the portal vein, the necropsy findings in the three cases he reports showing that operative intervention would not be particularly difficult. In two of the cases conditions would have been favorable for ligation of the ileocolic vein, and in one case he applied this measure. Braun has done this successfully in two cases, ligating the vein just before it enters the superior mesenteric vein. The symptoms were high fever with sudden onset, severe chills, fluctuating slight jaundice, the liver tender, with, in one case, pains in the stomach and vomiting, and in another enlargement of the liver and spleen, high leukocytosis, and pains in the right side of the chest. Appendicitis had evidently been a cooperating factor.

Diabetic Cataract.—Lippmann has operated for cataract in 53 diabetics over 40 and 10 under 40. Complications developed in 6.06 per cent. His experience confirms the necessity for refraining from the operation until the urine is free from acetone. Of course any preexisting retrobulbar neuritis or retinitis will modify the prognosis and the outcome.

The Meinicke Test.—Epstein and Paul report the application of the third modification of the Meinicke serologic test to 1,100 patients. It proved at least as reliable as the Wassermann test, and has a number of advantages over the latter, they add.

Wiener klinische Wochenschrift, Vienna

Aug. 18, 1921, 34, No. 33

- Rennin Action of Duodenal Secretion. M. Leist.—p. 400.
*Acute Gastric and Intestinal Hemorrhage. H. Finsterer.—p. 402.
Hematologic and Serologic Investigations in Echinococcus Patients. W. Pewny.—p. 402.
Hemeralopia as a Prognostic Symptom in Glaucoma. Blatt.—p. 403.
Changes in Buccal Mucosa After Vaccination. Preisich.—p. 403.
Reposition of Internal Hemorrhoids. A. Hinterberger.—p. 404.
Interim Treatment of Sanatorium Candidates. Ladack.—p. 405. Conc'n.

Surgical Treatment of Acute Gastric or Duodenal Hemorrhage.—Finsterer has operated in 40 cases of acute hemorrhage in the digestive tract and saved all but 10. With duodenal bleeding ulcer, gastro-enterostomy, ligation of the pylorus and compression of the bleeding area with a tampon are the routine procedures, and 6 of 10 in this group were cured; 2 others were referred to the surgeon too late; there had been perforation for ten hours in the third, and the fourth death he ascribes to not having the tamponing done

firm enough. Extensive resection was done in 9 gastric ulcer cases and in 16 duodenal ulcer cases, with recovery of 22, and 3 deaths. In one of the fatal cases the hemorrhage had been continuing for seven days, and no pulse could be detected except in the carotid. In the second fatal case the man was a tabetic in cachexia. The third fatality was from diabetic coma. The mortality from extremely severe hemorrhage in the last 16 cases was thus 6 per cent. while the mortality in 155 ordinary ulcer cases was 4.5 per cent., so that resection with the gravest hemorrhage is but little more dangerous than an ordinary resection operation for ulcer. He advises to operate always in local anesthesia, and to beware of morphin. With severe collapse, ether by the drop; with existing bronchitis, ether by the vein instead of inhalation. The acute anemia has to be combated; in one case he had to have artificial respiration kept up for an hour and a half.

Zentralblatt für Gynäkologie, Leipzig

Aug. 20, 1921, 45, No. 33

- *Vaginal Secretion in Differential Diagnosis. O. Wolfring.—p. 1173.
*Combined Radiotherapy of Carcinoma of the Uterus. I. Amreich.—p. 1177.
Histologic Nature of Ovarian Hemorrhage. P. Lindig.—p. 1182.
Isolated Torsion of Tube in Eighth Month of Pregnancy. A. H. Hofmann.—p. 1188.
The Temporary Sterilization of Women. A. Mülberger.—p. 1191.

Significance of the Vaginal Secretion in the Differential Diagnosis of Acute Appendicitis and Acute Salpingitis.—Wolfring states that, in the etiology of acute salpingitis, the blood stream is so rarely the route of infection that, in general practice, if the seat of an affection is on the right side and the bacterioscopic findings in the urethra, vagina and cervix are of the normal type, appendicitis rather than salpingitis is to be thought of. He emphasizes that, in general, the result of the bacterioscopic examination of the vaginal secretion has marked value in the diagnosis of abdominal affections.

Combination Radium and Roentgen Treatment of Carcinoma of the Uterus.—Amreich gives a survey of the results of this treatment as used in the First University Women's Hospital of Vienna in 1919 and 1920. He also describes the differences between their technic and that of Seitz and Wintz of Erlangen. They used a focal skin distance of 22 cm., 1 cm. less than that used by Seitz and Wintz. In applying irradiation, they use a localizing device which permits an exact centering of the tube and the exact measurement of the distance of the carcinoma area from the point of entry of the rays. They can thus determine what percentage of the surface dosage in a given case reaches the carcinoma, and how many fields must be irradiated in order to reach the carcinoma region with a carcinoma dosage. The results were not so unfavorable, especially when it is considered that they were dealing, in the main, with inoperable cases that would otherwise have been beyond all aid. It is emphasized that the cures cannot as yet be regarded as permanent, as sufficient time has not elapsed; but the women are without subjective symptoms, have increased in weight, and no evidence of the presence of a carcinoma can be demonstrated by inspection, manual exploration or examination of excised tissues.

Gann, Tokyo

August, 1921, 15, No. 3. Paging refers to English summaries.

- *Transplantation of Cancer. M. Nagayo and H. Wago.—p. 9.
*Cancer Grafting and the Seasons. H. Wago.—p. 20.
*Intestinal Cancer and Parasites' Ova. Y. Kazama.—p. 22.
*Statistical Observations on Cancer. T. Harada.—p. 24.

Interspecies Transplantation of Carcinoma.—Nagayo and Wago inoculated dogs and rabbits with tissue from human gastric cancer. They also experimented with mouse carcinoma transplanted into fifty-six albino rats, with seventy-six controls, and rat carcinoma in sixty-three white mice and fifty-eight controls. The injections were made in the mesenteric vein and the liver examined, or into the vitreous body or subcutaneously. In some of the experiments the animals were treated, before or after, with serum from the species yielding the cancer. Numerous photomicrograms are reproduced. The final conclusion is favorable to the assumption that it may be possible, by modifying the conditions in the

recipient, to transplant certain heterogenous cancers to some degree. By the fifth week the microscopic findings were positive in 7.14 per cent. and 2.44 per cent. in the serum treated animals.

Transplanting of Cancers and the Seasons.—Wago relates that in transplanting mouse and rat carcinoma through sixteen generations during the year (500 white mice and 150 white rats) the grafts were successful in 100 per cent. during March to June and also December, but in the other months only in from 80 to 90 per cent.

Intestinal Cancer in Relation to Schistosomiasis.—Kazama's research demonstrated that intestinal cancer seemed to be more prevalent than elsewhere in the regions infested with the Asiatic blood fluke. In nine cases of intestinal cancer he found old ova in the neoplasm in every instance, especially at the margin of the growth. The mechanical and toxic injury from them may have set up the irritation inviting the malignant disease. The Japanese schistosoma lives in the mesenteric veins.

Cancer in Japan.—Judging from the necropsy findings at the Naval Medical Academy in Tokyo, the cancer death rate seems higher than that of Europe, and cancer affects men more than women. The age at outset is mostly 50 to 60; next, 40 to 50. Harada adds that cancer in the poor rarely develops metastasis.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 20, 1921, 2, No. 8

*Heredity and Selection. G. P. Frets.—p. 956.

Classification of Carcinoid Tumors in Small Intestine and Appendix. G. O. E. Lignac.—p. 968.

The Teaching of Ophthalmology in Netherlands Indies. A. de Waart.—p. 974.

Some Old and New Medical Journals. W. S. Stekhoven.—p. 999.

Heredity and Selection.—Frets discusses the influence of selection on the inheritance of properties. His research included measurement of the heads of 214 parent couples and of their children, to a total of 849. The charts show that the heads of the children averaged proportionately to the heads of their parents. Although the influence of Mendel's laws is apparent, yet multiple factors and especially selection, determine the outcome. In the inheritance of disease, he remarks, the assumption that the children either have the disease or do not have it, is untenable. They may have it in a very mild form, and the question then would be whether the third generation would have it likewise in a mild form. He thinks there is an interesting field for investigation in the hereditary transmission of properties with slight differences.

Aug. 27, 1921, 2, No. 9

*Cancer Metastasis in Bones. H. T. Deelman.—p. 1048.

*Migraine and Anaphylaxis. H. A. Lubbers.—p. 1073.

Metastatic Cancer in Bone.—This is a continuation of Deelman's research on metastasis of malignant disease. His previous report dealt with metastasis in lung and spleen. He here analyzes the findings in twenty-seven cases with the primary cancer in stomach, bronchus, kidney, breast, prostate, bladder, pancreas or bowel. The different types of the bone metastasis are shown in four photomicrograms.

Migraine and Anaphylaxis.—Lubbers gives an oversight of what has been written on this subject of late, and describes a case of migraine in which he told the woman to keep a strict record of all she ate and drank. Comparing her records showed that the migraine occurred only when she had eaten beans. The number of leukocytes declined slightly within half an hour after test ingestion of beans, and the migraine developed eight hours after the meal. Skin tests were negative, but preventive ingestion of 0.5 gm. of peptone before eating the beans warded off the attack of migraine, although she felt chilly and drowsy. As the commercial peptone is made from a wide variety of proteins, it is not surprising that among them is the one that corresponds to the migraine-producing element in the beans.

Sept. 3, 1921, 2, No. 10

*Treatment of Asthma on Another Basis. W. S. von Leeuwen and H. Varekamp.—p. 1152.

*The Calcium Factor in Spasmophilia. P. van Paassen.—p. 1162.

Typhoid Simulating Appendicitis. J. P. Hofstee.—p. 1171.

*History of Dentistry. G. H. Bisseling.—p. 1174.

Tuberculin Treatment of Asthma and Hay-Fever.—Van Leeuwen insists that as it seems to be impossible to discover in 75 per cent. of the cases the special protein causing the asthma, the next best thing is to apply measures to reduce the susceptibility. A purin-free diet and large doses of calcium chlorid are useful in this line, but still more effectual is treatment with small doses of tuberculin. Among the reasons which led to trials of tuberculin was the discovery that the persons who displayed an intense reaction to foreign protein always reacted to the skin tuberculin test. He also noted that a hay-fever patient found her symptoms very much improved for two days after a diagnostic tuberculin test. He theorized in consequence that the acute attack of asthma and hay-fever is an allergic reaction, like the anaphylactic reaction, although not identical with it. The condition in the human body which renders it sensitive to tuberculin is at the same time the cause for an abnormal predisposition to allergic reactions in general, and thus to asthma and hay-fever. By injecting small doses of tuberculin we reduce the susceptibility to tuberculosis and also to allergic reactions in general.

Calcium Concentration in Spasmophilia.—Van Paassen's study of this subject has apparently demonstrated that it is the free calcium ions which are important in the pathogenesis of tetany, not the total calcium.

History of Dentistry.—Bisseling traces the history of dentistry through classic literature and back to the first prehistoric mother who pulled out her child's first loose "milk tooth."

Ugeskrift for Læger, Copenhagen

Sept. 1, 1921, 83, No. 35

Experiences with Nirvanol. C. Geill.—p. 1147.

Sept. 15, 1921, 83, No. 37

*Motor Functioning of the Stomach After Contrast Meal. O. Wissing.—p. 1207.

*Poisoning from Acetylene. S. Pontopiddan.—p. 1222.

Chronic Tonsillitis Simulating Pulmonary Tuberculosis. G. E. Permin.—p. 1224.

Motor Functioning of the Stomach After the Contrast Meal.—Wissing had twenty healthy persons take the contrast meal, each four times, with a week's interval. The stomach emptied itself in from two to four hours in almost all of them, but in two not until after four to five hours, and in one not until the fifth hour. Extremely few of his 217 patients with known stomach disease retained the food in the stomach for six hours; a five hour retention must be regarded as a sign of motor insufficiency. He compared further the retention after the contrast meal with the retention after an ordinary Bourget-Faber test meal, and gives the findings in the various groups of different pathologic conditions in the stomach and duodenum. The clinical test meal is a more sensitive index of the motor functioning than the contrast meal, as there was retention with the former far more frequently than with the latter, even when the roentgen examination followed in five hours. The lack of concordance between the two was shown particularly in the fact that often the same patient did not show the same degree of retention with the two. The reason for this different behavior is a mystery. A six hour test meal retention was found much more frequently than a five hour contrast meal retention. Most instructive is the combination of first one and then the other, as they supplement each other.

Acetylene Poisoning.—The symptoms and circumstances indicated phosphoretted hydrogen poisoning in the young mechanic who had been using a blow-flame of oxygen and acetylene. Acetylene gas is supposed to be harmless when pure, but it often contains phosphoretted hydrogen, and the symptoms presented by the young man indicated poisoning with this substance. They included vomiting, headache, dizziness, insomnia, paresthesias and nervousness and slight jaundice. The importance is obvious of detecting this poisoning in time to ward off serious injury of parenchymatous organs. Harbitz states that a few tenths per thousand of phosphoretted hydrogen are enough to cause fatal poisoning, and the acetylene gas in common use frequently contains it. (The Danish term used is *fosforbrinteforgiftning*.)

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 23

CHICAGO, ILLINOIS

DECEMBER 3, 1921

THE DIAGNOSIS OF LATENT OR INCIPIENT DIABETES*

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The diabetic investigations of F. M. Allen began with a research, in the department of Preventive Medicine and Hygiene of the Harvard Medical School, concerning the influence of food factors (especially increased sugar consumption) in connection with the apparently rapid increase of diabetes. In his first publication on this subject, Allen¹ suggested the existence of a large class of predisposed persons in whom the occurrence or nonoccurrence of diabetes might be determined by diet; and in his experimental work he was able to create such a predisposition in dogs by removal of suitable portions of the pancreas, so that the animals remained healthy on restricted diets but developed fatal diabetes on carbohydrate overfeeding.

In subsequent experimental work at the Rockefeller Institute, Allen² proved the existence of a distinct relationship between the internal pancreatic function and the body weight, even when the alterations of weight were due to adding or withdrawing fat. By reduction of the total diet and body weight even the severe forms of diabetes could be arrested, while attempts to increase the total calories and weight with fat or any other food brought a return of the typical symptoms and downward progress. A treatment for human patients was thus developed, based on regulation of the total diet and body weight in proportion to the severity of the diabetes. Joslin³ has recently applied a similar principle to prophylaxis, demonstrating statistically that the vast majority of persons who develop diabetes are those who are overweight, and urging rational restraint of diet and weight as one of the most important means of reducing the incidence of diabetes.

The character of the assumed predisposition of human patients, to which the partial pancreatectomy of dogs may be comparable, also deserves attention. Recent pathologic studies have shown that pancreatitis is common, not only as a chronic but also as an acute process, usually without symptoms permitting of a

clinical diagnosis, but leaving the pancreas more or less scarred and damaged permanently. Allen⁴ has adduced experimental and clinical evidence in favor of the view that such infectious or toxic damage of the pancreas is the primary cause of diabetes. Mitchell⁵ made a clinical study of 116 cases of diabetes, and in the histories of fifty-one of these was able to trace a suggestive relationship between the diabetes and some antecedent infection. In eight instances there was an onset of diabetes during or immediately following the infection, as in a number of cases reported in the previous literature. In the remaining forty-three cases the diagnosis of diabetes was postponed for months or even for many years after the infection in question. If the general correctness of these assumed relationships and the frequency of pancreatic lesions be granted, it must be concluded that there is a considerable number of individuals among the population more or less in danger of diabetes by reason of pancreatic damage, and that an important preventive step may be taken by recognizing these persons and applying early prophylaxis.

The most valuable theoretical contribution to this subject would consist in a combined clinical and pathologic study, as once undertaken by Wille.⁶ This author in 1899 reported the results of a research which consisted in giving glucose tolerance tests to as many hospital patients of all kinds as possible, and then studying the pancreas of all those who came to necropsy. Of 800 patients thus tested, necropsies were obtained on seventy-seven. Some suggestive relationships between the sugar tolerance and the state of the pancreas were thus demonstrated, but there was also a considerable doubtful or irregular list. Many such discrepancies might be obviated by the more accurate methods available today; first, by the finer recognition of pancreatic alterations, especially those of the islands; second, by more exact tests of the function of carbohydrate assimilation.

Formerly dependence was placed on urinary analyses, but the introduction of blood sugar determinations within the past few years has refined the standards of both diagnosis and treatment. Not only may milder grades of impairment of carbohydrate assimilation be recognized, when the hyperglycemia is not sufficient to overflow the threshold of the normal kidney, but also the important factor of renal impermeability may be excluded. In extension of earlier

* From the Physiatrie Institute.

* Read before the Section on Pathology and Physiology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Allen, F. M.: Studies Concerning Glycosuria and Diabetes, Harvard University Press, 1913, Chapters III, X and XIII.

2. Allen, F. M.: Experimental Studies on Diabetes, Series I, J. Exper. Med. **31**: 363, 381 (April), 555, 575, 587 (May) 1920; Series II, Paper 2, Am. J. M. Sc. **161**: 16 (Jan.) 1921.

3. Joslin, E. P.: The Prevention of Diabetes Mellitus, J. A. M. A. **76**: 79 (Jan. 8) 1921.

4. Allen, F. M.: Experimental Studies on Diabetes, Series III, The Pathology of Diabetes, to be published; preliminary outline in Monograph 11 of the Rockefeller Institute, 1919, Chapter VIII.

5. Mitchell, J. W.: Clinical Indications of the Etiology of Diabetes, Medical Record, to be published.

6. Wille, E.: Deutsch. Arch. f. klin. Med. **63**: 546, 1899.

reports of hyperglycemia in a large proportion of cases of arterial hypertension or hypertensive nephritis, O'Hare⁷ has recently shown that many such patients react to the glucose tolerance test with a hyperglycemic curve indicative of mild diabetes. Impaired renal permeability will necessarily prevent glycosuria in many such cases, but the assimilative deficiency indicated by the blood analyses may in all probability correspond to the various grades of pancreatic sclerosis which are frequent in patients of this type. Allen and Mitchell⁸ applied the glucose tolerance test to distinguish the diabetic from the nondiabetic members of a family in which the incidence was high. Allen⁹ advocated the application of this test for purposes of diagnosis and prophylaxis in all persons suspected of being disposed to diabetes, particularly in very obese persons and in all members of diabetic families, and gave examples of early cases revealed by this means. John¹⁰ has recently published observations along this line begun in this institute in association with myself and subsequently continued independently in Cleveland.

given each hour. The individuals thus tested may be classified in three groups, as represented in the three tables.

Table 1 shows the sixteen cases which may be considered normal or approximately normal in their sugar assimilation. Nine of these subjects were supposedly normal individuals, particularly physicians and nurses chosen for controls. Five were hypertension patients, and two were obese persons tested on suspicion of diabetes. One of the supposed normals, Subject 5, departs slightly from the rule; for though the glycemia of 157 mg. per hundred cubic centimeters at the end of the first hour is easily within normal limits, the figures of 148 mg. at the second hour and 138 mg. at the third hour represent an unusual prolongation of the hyperglycemia. There was a similar type of curve in the hypertension patient No. 10. The hypertension patient No. 11 showed, after an ordinary mixed meal, the highest plasma sugar of the series, namely, 126 mg. per hundred cubic centimeters; also the hyperglycemia of 204 mg. at the half-hour period

TABLE 1.—GLUCOSE TOLERANCE TESTS WITH NORMAL ASSIMILATION

No.	Age	Weight, Lbs.	Subject	Plasma Sugar After C H Meal	Glucose Tolerance Test										
					Plasma Sugar (Mg. per Hundred C.c.)					Urine Glucose, %					
					Before Glucose	½	1	2	3	4	Before Glucose	1	2	3	4
1	39	152	Normal.....	111	117	157	136	092	091	...	0	0	0	0	0
2	26	150	Normal.....	116	101	138	120	107	...	...	0	0	0	0	0
3	26	139	Normal.....	...	110	142	107	106	082	...	0	0	0	0	0
4	24	118	Normal.....	...	103	150	127	115	087	...	0	0	0	0	0
5	36	136	Normal.....	103	108	...	157	148	138	112	0	0	0	0	0
6	30	162	Normal.....	113	101	117	109	089	...	071	0	0	0	0	0
7	50	163	Normal.....	...	107	189	175	146	098	...	0	0	0	0	0
8	40	123	Hypertension.....	...	113	192	157	087	106	102	0	0	0	0	0
9	52	143	Hypertension.....	...	101	139	127	103	076	106	0	0	0	0	0
10	60	163	Hypertension.....	...	108	181	164	135	135	101	0	0	0	0	0
11	45	149	Hypertension.....	126	098	204	116	088	088	096	0	0	0	0	0
12	40	123	Hypertension.....	...	113	192	157	087	106	102	0	0	0	0	0
13	20	190	Obesity.....	100	087	102	103	099	079	...	0	0	0	0	0
14	38	222	Obesity.....	...	130	187	077	...	...	...	0	0	0	0	0
15	24	117	Normal.....	...	102	136	127	103	089	105	0	0	0	0	0
16	25	131	Normal.....	...	124	140	121	100	082	...	0	0	0	0	0

METHOD OF STUDY

The present study could not include necropsy examinations, as would have been desirable for following the admirable plan of Wille. The method consisted in blood sugar analyses by the well-known Benedict method, sometimes during digestion of mixed meals, but especially after ingestion of 100 gm. of pure glucose, or in children 2 gm. of glucose per kilogram of body weight. For average sized adults it was considered reasonably accurate to use the arbitrary dosage of 100 gm., as dosage based on the body weight will be subject to the errors of irregularities in the weight of bone, fat and other relatively inert tissues; also, in view of variable rates of absorption, the test cannot be a very finely graded one, but is used in the attempt to reveal any important defect of assimilation. In applying the test, a blood sample was taken from the patient fasting (before breakfast). The glucose was then given dissolved in 200 c.c. of water, followed by a taste of lemon to combat nausea. Blood was then taken at the half hour, and later hourly for four hours. During this time 200 c.c. of water was

after 100 gm. of glucose was the highest in the entire series; but the explanation may have been quick absorption, for the figures at the hour interval and later were distinctly low. In general these sixteen curves correspond to the values described as normal by previous writers, and according to present knowledge they serve to exclude the existence of any diabetic tendency. It is possible, therefore, for patients with marked arterial hypertension to have normal power of sugar assimilation, and also for markedly obese individuals to be free from any demonstrable danger of diabetes.

The fifteen subjects represented in Table 2 were free from any diabetic heredity, as far as the family history could be learned. The first four were supposedly normal individuals, one being a nurse and the other three relatives of diabetic patients by marriage but not by blood. No. 1 is questionable, because after taking 100 gm. of glucose the plasma sugar rose to 214 mg. at the end of an hour, but the test was then ended by vomiting; a test on another day then yielded normal figures. Some suspicion persists because this subject sometimes shows glycemia slightly above the ordinary normal (e. g., 136 mg.) after ordinary mixed meals. The other three supposed normals exhibited plasma sugar curves demonstrating definite impairment of assimilation. Of the next eight subjects, seven were

7. O'Hare, J. P.: Glucose Tolerance Test in Chronic Vascular Hypertension, *Am. J. M. Sc.* **159**: 369 (March) 1920.
8. Allen, F. M., and Mitchell, J. W.: A Case of Hereditary Diabetes, *Arch. Int. Med.* **25**: 648 (June) 1920.
9. Allen, F. M., in *Nelson's Loose-Leaf Medicine* **3**: 73, 91, 1920.
10. John, H. J.: Paper read before the annual convention of the Ohio State Medical Society, 1921.

hypertension patients (No. 10 also obese) and one had marked arteriosclerosis without hypertension. In the test with 100 gm. of glucose, two of these patients excreted no sugar and the others only the barest traces, but the curve of hyperglycemia may be called diagnostic of mild diabetes. The last three subjects in this series came for examination because alimentary glycosuria had been reported by their family physician or in an insurance examination, though sugar was generally absent from the urine. The first of these three (No. 13) showed with the glucose tolerance test a series of plasma sugars which were normal except for the slight excess (195 mg.) at the end of the first hour. The traces of glycosuria indicated a lower renal threshold than in some other cases of the series. Nevertheless, when any person (especially at such an age as 23) responds to a glucose test in this manner, and also has distinct hyperglycemia after mixed meals, is subject to exacerbations with slight infections, and fails to recover normal tolerance in an observation extending over several months, dietary

present, forty relatives of twenty-three of our diabetic patients have been thus examined. This number will be greatly enlarged before a final publication is undertaken or positive conclusions drawn. The results to date, as shown in Table 3, are so striking that these tests are being applied to all available members of the families of diabetics treated in this institute.

In the first example in Table 3, the test was applied to the brother, aged 39, and to the daughter, aged 25, of a man with diabetes. The daughter showed a thoroughly normal assimilation. The brother not only responded with both hyperglycemia and glycosuria in the glucose tolerance test, but also exhibited abnormal hyperglycemia (157 mg.) after an ordinary meal containing carbohydrate. Restriction of diet as suited for the treatment of mild diabetes has accomplished two results for this person: (1) It has relieved him of the pain of a neuralgia which had stubbornly resisted other treatments and (2) it has probably saved him from the outbreak of a frank diabetes some time in the future.

TABLE 2.—GLUCOSE TOLERANCE TESTS, SHOWING IMPAIRED ASSIMILATION WITH NEGATIVE FAMILY HISTORY

No.	Age	Weight, Lbs.	Subject	Glucose Tolerance Test											Diabetic Symptoms
				Plasma Sugar (Mg. per 100 C.e.)						Urine Glucose, %					
				Before Glucose	½	1	2	3	4	Before Glucose	1	2	3	4	
1	22	114	Normal.....	108	189	214	vomited			0	0	0			
2	28	159	Normal.....	108	184	175	104	084	...	0	0	0	0	0	None
3	50	160	Normal.....	117	211	169	120	108	...	0	0	0	0	0	None
4	53	168	Normal.....	152	176	230	vomited			0	0	0	0	0	Fatigue, weakness, nervousness
5	52	134	Hypertension.....	116	214	260	220	143	100	0	trace	0	0	0	Neuritis
6	52	146	Hypertension.....	111	200	230	187	168	105	0	0	0	0	0	Neuritis, weakness, loss of weight
7	62	133	Hypertension.....	104	214	180	150	082	091	0	0	0	0	0	Fatigue, neuritis, nervousness
8	53	147	Arteriosclerosis....	103	207	103	142	142	096	0	.16	0	0	0	Loss of weight, weakness, nervousness
9	50	163	Hypertension.....	106	220	187	166	...	097	0	.20	0	0	0	Neuritis, nervousness
10	55	217	Hypertension.....	115	315	250	178	138	098	0	.20	0	0	0	Sciatica, fatigue, weakness
11	54	187	Hypertension.....	118	217	230	189	142	...	0	0	trace	0	0	None
12	54	187	Hypertension.....	111	162	214	169	150	094	0	trace	.21	0	0	None
13	23	138	Diabetic (?).....	117	255	300	214	150	094	0	trace	.22	0	0	Neuritis, nervousness
14	48	161	Diabetic (?).....	114	181	195	093	088	...	0	0	.25	.11	0	Alimentary glycosuria
15	53	154	Diabetic (?).....	124	182	223	187	143	102	0	.25	0	0	0	Alimentary glycosuria, nervousness
				106	221	187	166	...	097	0	.20	0	0	0	Alimentary glycosuria, nervousness

prophylaxis against diabetes is in order. Subjects 14 and 15 exhibited plasma sugar curves which were clearly diabetic.

From an examination of the right-hand column of the table it will be seen that individuals of the fifteen complained of no subjective symptoms. One of the supposed normals (No. 3) had been pronounced normal by several physicians to whom he had applied on account of feelings of unnatural fatigue and weakness. These symptoms were relieved by a mild antidiabetic diet, which kept his plasma sugar normal. Another supposed normal (No. 4) was relieved of an intractable painful neuritis by similar treatment. The interpretation in the hypertension cases is less simple, because the symptoms might be attributed to either the hypertension or the mild diabetes. In our experience, treatment for diabetes by carbohydrate limitation and reduction of weight has seemed to be beneficial to these patients. We have observed little or no benefit in non-diabetic severe hypertension cases from undernutrition. It may be that the benefits which are sometimes attributed to undernutrition in hypertension will be explainable partly by the limitation of salt and partly by this frequent diabetic complication.

The principal purpose of this paper is to give a preliminary report of an investigation of the members of diabetic families by the method described. Up to the

In the second instance in the table, the father and sister of a diabetic patient were tested. Both were free from symptoms and were supposed to be normal. The sister proved to be normal, except that the glycemia of 136 mg. after a mixed meal was slightly high. Her response to the glucose tolerance test was normal. The father had a clearly abnormal hyperglycemia after an ordinary meal, and reacted to the glucose tolerance test with hyperglycemia and glycosuria of diabetic character.

In the third case in this table, the father, mother and uncle of a patient were tested. The mother and uncle were normal, but the father was obviously diabetic. This case was specially interesting because, according to the family history, given as accurately as possible by these persons, who were highly intelligent and fairly well informed concerning their ancestry, there was a well-marked diabetic heredity on the mother's side and none whatever on the father's side.

In Case 4, tests were applied to the father, mother and brother of a patient. The latter two were excused from the glucose tolerance test, because their low plasma sugar after meals containing abundance of carbohydrate seemed reasonably conclusive in excluding diabetes. The father's plasma sugar (140 mg.) during digestion was suggestive, and the glucose tolerance test confirmed his diabetic tendency.

In Case 5, the mother of the patient was found to be mildly diabetic. In Case 6, the same condition was revealed in both the mother and the father. In Case 7, the son and daughter of the patient were both diabetic. In Case 8, the son and daughter of the patient both reacted normally to the glucose tolerance test, and in Case 9 the father and mother likewise responded normally. These instances were peculiar, in that in two of them the plasma sugar after a heavy carbohydrate meal was found to be 200 mg., and in the other two it was 144 mg. The opposite peculiarity was found in Case 10, wherein the brother of a patient showed a normal plasma sugar during digestion (122 mg.), but proved definitely diabetic in the glucose tolerance test. These findings show that the results of the mixed meal and of the glucose test

from the glucose ingestion because of his low normal blood sugar after a meal. In Case 13, the patient's mother was normal. In Case 14, the father had a slight diabetic tendency. In Case 15, the glucose test of the father was not quite positive, but the plasma sugar after a mixed meal (156 mg.) showed the diabetic character. In Case 16, the daughter of a patient proved to be distinctly diabetic. In Case 17, the patient's sister was normal. In Case 18, there were some further discrepancies between the results of the test meal and the glucose test, but the 15 year old brother of the patient was plainly diabetic, and suspicion attached to some of the others. This is an interesting family, and will be described in greater detail elsewhere. In Case 19, the brother of a patient gave results

TABLE 3.—TOLERANCE TESTS IN RELATIVES OF DIABETIC PATIENTS

No.	Age	Weight	Relation to Patient	Plasma Sugar After C H Meal Mg. per 100 Cc.	Plasma Sugar (Mg. per 100 C.c.)					Urine Glucose, %				Diabetic Symptoms
					Before Glucose	1/2	1	2	3	Before Glucose	1	2	3	
1	39	140	Brother.....	157	133	182	214	142	...	125	0	.23	.43	0 Neuritis
2	25	124	Daughter.....	...	093	166	136	104	117	...	0	0	0	0 None
	50	176	Father.....	150	104	265	250	150	088	091	0	.34	.36	0 None
	26	129	Sister.....	136	100	152	133	129	093	084	0	0	0	0 None
3	37	144	Mother.....	133	111	192	162	125	097	...	0	0	0	0 None
	39	140	Father.....	138	146	182	275	312	106	076	0	2.22	1.45	0 Neuritis
	29	160	Uncle.....	...	100	135	122	100	089	105	0	0	0	0 None
4	51	189	Father.....	140	104	157	220	166	083	...	0	.20	0	0 Weakness, nervousness
	47	216	Mother.....	102	...	...	...	...	...	...	0	0	0	0 None
	11	86	Brother.....	079	...	...	...	...	...	...	0	0	0	0 None
5	45	169	Mother.....	178	081	250	214	164	088	075	0	.21	.10	0 Sciatica
6	42	152	Mother.....	155	136	200	300	157	150	131	0	.24	.20	0 None
	49	208	Father.....	...	115	285	310	145	077	093	0	.50	1.02	.38 None
	29	105	Daughter.....	133	130	238	200	162	127	109	0	.23	0	0 Loss of weight
7	36	136	Son.....	154	103	230	250	125	094	...	0	.38	.40	0 Fatigue, nervousness
	40	165	Son.....	200	102	115	103	...	...	...	0	0	0	0 None
	42	167	Daughter.....	144	114	150	146	112	...	...	0	0	0	0 None
8	49	168	Father.....	200	100	182	122	...	072	096	0	0	0	0 None
	47	159	Mother.....	144	112	147	133	104	096	...	0	0	0	0 None
	17	128	Brother.....	122	110	226	242	187	092	101	0	0	.26	0 Furuncles
10	44	108	Mother.....	205	164	200	189	187	157	142	0	0	0	0 None
11	44	136	Mother.....	177	117	234	189	175	148	125	0	.10	.12	0 None
	18	127	Brother.....	079	...	...	...	...	...	...	0	0	0	0 None
	38	118	Mother.....	115	102	138	120	092	100	...	0	0	0	0 None
14	45	146	Father.....	190	166	230	187	123	105	093	0	0	0	0 Loss of weight
15	54	157	Father.....	156	117	198	175	133	090	...	0	0	0	0 Fatigue, nervousness
16	37	134	Daughter.....	140	120	214	285	209	102	...	0	1.24	.86	0 Weakness, nervousness
17	40	143	Sister.....	133	093	187	143	111	110	079	0	0	0	0 None
18	51	170	Father.....	115	133	162	187	120	078	089	0	.16	0	0 Sciatica
	44	123	Mother.....	168	115	187	150	123	086	107	0	0	0	0 None
	9	88	Brother.....	188	108	209	094	084	130	...	0	Trace	0	0 None
19	15	105	Brother.....	166	125	189	214	166	136	093	0	0.4	0	0 Loss of weight, nervousness
	3	38	Brother.....	111	096	192	138	096	...	...	0	0	0	0 None
	30	145	Brother.....	133	111	214	150	120	108	...	0	0	0	0 None
20	6	180	Daughter.....	150	111	260	295	250	...	...	0	0	0	0 None
	6	61	Daughter.....	172	091	150	214	169	...	...	0	0	0	0 None
	20	135	Mother.....	132	106	162	125	085	078	123	0	0	0	0 None
21	21	187	Father.....	168	121	200	168	130	100	...	0	0	0	0 Weakness, nervousness
	50	164	Father.....	144	151	210	207	...	102	...	0	.20	0	0 Neuritis
23	47	158	Son.....	150	150	242	200	123	103	...	0	.20	0	0 Alimentary glycosuria, nervousness

are not always harmonious, and the details require further investigation. As the meals were not standardized, psychic reactions may furnish much of the explanation. When persons are asked to eat a liberal meal for the sake of a test for diabetes, some of them evidently eat as much carbohydrate as they are able, in order to make the test as severe as possible and learn whether there is anything in the slightest degree wrong with them. They may thus take so much sugar and starch that they impose a heavier burden on their assimilation than in the glucose test. Other persons dread the possibility of diabetes in such a manner that they largely refrain from eating carbohydrate in the test meal, and thus they may show a normal blood sugar, though diabetes is revealed by the glucose test. In Case 11, the mother of a patient was diabetic by both tests. In Case 12, the mother likewise was diabetic by both tests, and the brother was excused

which were suspicious but not positive. In Case 20, the twin daughters of a patient were diabetic in different degrees, though the marked renal impermeability prevented glycosuria. In Case 21, the mother of a patient was normal and the father was probably very mildly diabetic. In Case 22 the father, and in Case 23 the son, of the patient was diabetic.

COMMENT

A discussion of these results may be undertaken in three divisions: (1) as to the diagnostic significance of the tests; (2) as to their theoretical value, and (3) as to their practical value. 1. *Are the tests diagnostic of diabetes?* Provisionally, at least, we regard the tests mentioned as the most delicate and reliable diagnostic method which we now possess for diabetes, in both the negative and the positive sense. On the negative aspect, it is conceivable

that there may be diabetics with impaired intestinal absorption or with profound cachexia or other complicating conditions, so that the blood sugar might remain normal after mixed meals or after ingestion of 100 gm. of glucose; but these combinations are rare and would likewise interfere with the diagnosis of diabetes by any other means, unless the absorption factor should be excluded by the intravenous injection of sugar. On the positive side, some doubtful cases may be anticipated as with all diagnostic methods, and occasional confusion may be introduced perhaps by infections or other transitory causes of lowered assimilation; but when there is distinctly abnormal hyperglycemia after mixed meals, and when the ingestion of 100 gm. of glucose produces an elevation of blood sugar which exceeds the normal in both height and duration, we believe that a definite diagnosis of diabetes is afforded. The observations reported in this paper furnish three grounds to support this view: first, the remarkable number of positive tests of this character in families with diabetes; second, the insensible gradations by which the slighter degrees of impaired assimilation are merged with the cases of alimentary glycosuria and of frank diabetes; and third, the existence of mild diabetic symptoms in a high proportion of the cases which react positively, which clear up under antidiabetic diet and under no other treatment. If this conception is correct, other conditions, such as arterial hypertension and thyroid disorders, may enter in as complications, but the impairment of carbohydrate assimilation revealed by these tests must still be regarded as diabetic and therefore as a symptom of pancreatic disease and not of the complicating condition.

2. *Theoretical Value of the Tests.*—This topic also may be considered in three divisions:

First, all improvements in diagnosis enlarge knowledge. As, with time, the cases once distinguished as alimentary glycosuria were added to the list of true diabetics, so now the number of diabetics is further increased by the blood tests. We must recognize that diabetes is several times as prevalent as indicated by any statistics heretofore, and that the number of actual or potential diabetics in this country probably amounts to several millions.

Second, tests of this kind are practically indispensable for a correct study of diabetic heredity. We have been astonished by the findings shown in Table 3, namely, by the fact that of forty relatives of diabetic patients, having no suspicion of diabetes in themselves, half or more have shown impairment of carbohydrate assimilation. The number of cases to be classed as hereditary is thus vastly increased as compared with any statistics based on the family histories as taken by ordinary methods, and this familial incidence could doubtless be further enlarged if a greater number of relatives of each patient could be examined. Furthermore, the alterations affect not only the number but also the source of the diabetic heredity; e. g., instances in which one parent of a diabetic child gives a history of ancestral diabetes, and the other parent gives a negative family history, but the test shows that the latter parent is actually diabetic; likewise when there is no record of diabetes but the ancestry on one side is obese, yet the test shows that the obese parent has normal carbohydrate assimilation while the thin parent has latent diabetes.

Third, light is thrown on both the primary and the secondary etiology of diabetes. It is evident that there is constantly a considerable element in the population with latent diabetes. This may or may not give perceptible symptoms, and may or may not develop into the active form. It is certain, however, that this latent condition, characterized only by hyperglycemia and perhaps transitory glycosuria after special excesses in sugar or starch, frequently continues not only for months but also for many years. In the first place, therefore, we learn to seek more remote primary causes of the diabetes than has often been customary. When a patient, for example, complains of nervous shock or exhaustion, and glycosuria is found, we need not consider the diabetes as due to the recent nervous disturbance, but may rather regard the nervousness as a symptom of a latent diabetes, the true origin of which may be sought many years back in some infectious pancreatitis. Furthermore, the existence of such a large predisposed element in the population explains how overeating and obesity (since these can never be primary causes of diabetes) can serve to bring on diabetes, as demonstrated by Joslin. By these secondary agencies the incidence of active diabetes may be increased in certain families or entire races, while with frugal living a greater proportion of the latent cases remain latent and the individuals die of some other cause. In the third place, the recognition of this large class of persons with subnormal carbohydrate assimilation but without frank diabetes will probably aid in coordinating clinical and pathologic findings. Opportunity has been lacking for any direct proof of relationship between this subnormal assimilation and pancreatic lesions; but pathologists have long known that the number of cases of pancreatitis at necropsy is far greater than the number of reported cases of diabetes, and it may be anticipated that any extensive organic damage of the pancreas will be found associated with some functional deficiency if the tests are sufficiently exact.

3. *Practical Value of the Tests.*—In addition to the theoretical information, we believe that the tests have a very high practical importance in several ways:

First, in a considerable proportion of cases they furnish a clue for the clearing up of more or less distressing symptoms. This series, though short, proves that diabetes need not reach the point of glycosuria to cause symptoms, but in the stage of simple hyperglycemia may be responsible for neuritis, neurasthenia, feelings of weakness and weariness, etc.; and we suspect that even in this stage it may sometimes predispose to retinitis, cataract, gangrene, furuncles and carbuncles, and other serious complications. It is important that persons with such complaints be tested for their blood sugar both after ordinary meals and after glucose ingestion; and, when there is hyperglycemia, relief may be expected from an antidiabetic diet when other treatment is unavailing.

Second, the tests in our experience seem to contribute to peace of mind. It has been a not uncommon experience for the relatives of a patient to come inquiring whether any of them are in danger of diabetes, in particular for the parents of a diabetic child to ask whether they or their other children are likely to develop diabetes. Some persons take the attitude of not wishing to know, and prefer to have any impending dangers hidden from them; but the majority dread

chiefly uncertainty and wish to learn the facts as fully as possible. If both blood and urine remain normal after heavy mixed meals and after glucose ingestion, diabetes may perhaps not be positively excluded; also, there is no certainty that the individual may not develop pancreatitis next month and thus become diabetic; but it is at least possible to say that the existence of diabetes is practically excluded as far as our present knowledge extends. On the other hand, if the tests reveal an early diabetes, there may be some depression, but this is mingled with thankfulness that the condition was discovered in time to permit of the best results with the least difficulty or privation.

Third, we believe that the most important usefulness of these tests lies in prophylaxis. It is improbable that all these persons showing hyperglycemia will develop active diabetes. Some of the elderly, in particular, will live to die of some other cause. Some of the others will be saved by simple abstemiousness and good luck in escaping infections. The cases will differ greatly in their progressiveness, just as cases of outright diabetes do. Nevertheless, it is highly important to recognize the persons with diabetes in the latent stage, just as the earliest possible diagnosis is important in every disease. This early warning and prophylaxis may show their highest value in some youthful cases; but the very fact of the steady increase of the incidence of diabetes with advancing age is one indication that these diabetic tendencies keep cropping out in the form of active diabetes. This refinement of diagnosis will theoretically multiply the existing number of diabetics by several times, but if applied broadly enough in practice it will diminish the ravages of diabetes and reduce the number of diabetics in the ordinary sense to a degree that has never been possible before. It would be a valuable beginning, as Joslin suggests, to test the urine for sugar as well as albumin several times during every important infection and the following convalescence. As laboratory facilities are extended, it may be possible to reenforce this test with blood analyses, at least in doubtful cases. There are certain suspicious conditions in which tests of both blood and urine should always be made after a heavy mixed meal, and frequently glucose tolerance tests performed for additional security. These conditions are obesity, gallbladder infections, possibly hyperthyroidism or other endocrine disorders, and above all a history of diabetes in the family.

Though there is rarely a diagnostic method for any disease which is infallible, the combined blood and urine tests suffice to reveal an enormous number of latent or incipient diabetic cases, with or without symptoms, which have heretofore escaped diagnosis. Because of the customary progressiveness of diabetes under ordinary circumstances, and because of the belief that such progressiveness can be largely or wholly arrested by proper dietary precautions, our greatest service to these patients may be looked for in the earliest possible diagnosis and prophylaxis, before serious symptoms have ever occurred or severe dietary privations have become necessary.

ABSTRACT OF DISCUSSION

DR. E. P. JOSLIN, Boston: This interesting paper has appealed to all of us because of the possibility presented for detecting more cases of diabetes. In the last year (for the first time, perhaps, in thirty years) statistics have shown that

the mortality of diabetes in this country has been diminishing. Perhaps we shall be enabled to reach early cases of diabetes and even help to prevent the onset of the disease. There were twenty-two cases of gallstones among my first 1,100 cases. The next 1,100 cases of diabetes showed thirty cases of gallstones, possibly because more interest was taken in the discovery of this condition. As few individuals under 30 are liable to gallstones, the proportion of gallstones in this series is much higher than 2 per cent.; indeed, it rises to 4 per cent. or a little more. Presumably a later series will show a still higher percentage. One other factor in the study of gallstones and diabetes was the time of onset of the symptoms of gallstones and of the diabetes. The gallstones began at 43 years in each series, but the onset of the diabetes was at 49 years in the first series and at 45 years in the second, possibly again showing closer attention being paid to the connection of diabetes to gallstones in the taking of histories. Hence, in the prevention of diabetes, one should bear in mind the desirability of removing gallstones when symptoms therefrom develop or even before. As to the detection and prevention of the early cases: The one factor which physicians should bear most strongly in mind in order to prevent diabetes is the relation which it bears to obesity. In a series of 1,000 cases of diabetes there was not one patient who had developed the disease whose weight at 50 or over was 20 per cent. under the standard for the height. Out of 1,000 there were only fifty-five more than 5 per cent. under weight. A second factor, but of less importance, is the information furnished by glucose tolerance tests. The more glucose tolerance tests are done the better, but we must not make a physician far from a laboratory feel that he cannot contribute to the prevention of diabetes because he cannot do this test. He must see that his patients stay underweight. One should be cautious in the interpretation of the test. If the glucose tolerance is negative, do not say, "You are not in danger of diabetes." That is not fair; one does not know how the test will result in another month, six months or a year. On the other hand, even if a glucose tolerance test is positive, one must remember that other reasons for this condition may be present. From a single laboratory test one must be extremely cautious before drawing far-reaching conclusions.

DR. REGINALD FITZ, Rochester, Minn.: I agree in emphasizing the importance of careful history taking. It is thus possible to obtain symptoms suggestive of pancreatitis in a fairly large number of cases. The Mayo Clinic has had one striking example of this: A patient with acute diabetes was found at operation to have multiple pancreatic calculi. After removal of the calculi, the carbohydrate tolerance increased to a surprising degree. This patient probably had an acute pancreatic type of diabetes. Owing to Dr. Joslin's stimulation, Dr. Beeler and I have studied recently glucose tolerance in a series of fat nondiabetic persons, all of whom were at least 10 per cent. overweight for their height and age. Besides making blood sugar determinations we found it important to follow the glycoresis according to the method of Benedict. About one third of our patients were prediabetic according to this test. The Mayo Clinic has had a large series of gallbladder cases complicated by diabetes, and Dr. Joslin's remarks in this regard are interesting. Wilder had made sugar tolerance tests on a lot of nondiabetic patients with diseased gallbladders. Many of these patients have a low sugar tolerance before operation. I have followed the postoperative course for several years of diabetic patients operated on for gallbladder disease in the Mayo Clinic. Removal of the gallbladder often has been followed by improvement, although it has not been curative. I find it difficult to believe that a diseased gallbladder has much more to do with the rate of development of diabetes than do septic tonsils or any other source of infection. Dr. Joslin's remarks in regard to sugar tolerance tests are worth emphasizing. Many papers have recently appeared reporting cases with abnormally low sugar tolerance. Pemberton has found that most patients with chronic rheumatism have a low sugar tolerance, but most patients with chronic rheumatism do not develop diabetes later. Most patients with cancer have a low sugar tolerance, yet the majority of these patients do not develop diabetes. A certain number of patients with hyper-

thyroidism have a diabetic curve of hyperglycemia after eating 100 gm. of glucose, yet true diabetes associated with this condition is comparatively rare. Before we can definitely say, therefore, that every patient with an abnormally low sugar tolerance is prediabetic, we must follow a large series through a much longer time than has been done heretofore.

DR. R. CARRASCO TORMIGUERA, Barcelona, Spain: In one case of well recognized diabetes, a slight case in which I made a test in the same line as Dr. Allen's, the blood sugar tolerance test did not clearly do harm to my patient. With normal people, we have found that some show no clear rise after ingestion of 100 gm. of sugar, but, in general, normal people show clear blood sugar rise, slight but clear, for 100 gm. glucose; but in every diabetic in whom I have found a rise of blood sugar after 100 gm. of sugar, if I have tried giving 50 gm. and sometimes even 25 gm., I have found a rise almost as high as I found with 100 gm. I know very well that I can draw no conclusions from this; but I tell these facts only as indicating a line of research that suggests the possibility of making Allen's tests not with 100 gm. but with lower amounts of glucose which very likely would give the same results and would be sure not to do harm in any case, or at least would increase the possibility of doing less harm in some cases. This amount, 100 gm., I think is based on no special reason; it is only something that remains from the routine amount employed in the test when the sugar was tested; and a normal individual will never show sugar with 100 gm. of glucose, or almost never. In this sense it is most useful to employ just the amount that will practically never give rise to sugar with normal people and in the great majority of cases will give rise to sugar with diabetic patients.

DR. HILDING BERGHARD, Boston: The last mentioned point is interesting. From various experiments of Dr. Cushing and myself, it is well known that 30 gm. and 200 gm. give just the same rise in the blood sugar. The difference is that the increase caused by 30 gm. changes to a decrease in half an hour, more rapidly than is caused by 200 gm. in an hour or an hour and a half. Small doses decrease in half an hour; big doses of 200 gm. decrease in two hours. That is much more important than the degree of increase. The decrease is much more important than we mostly think of in depending on the speed of absorption. If we have a fast absorption, as in gastro-enterostomy, as has been tested out in my own experience, we have a very rapid increase in the blood and even in the urine, just depending on the rapid absorption and rapid increase.

DR. F. M. ALLEN, New York: Of course, the height of the blood sugar curve is presumably governed partly by the rate of absorption of sugar, which may be as rapid after a smaller as after a larger dose. As the absorption and utilization of the larger quantity requires a longer time, the blood sugar remains up longer. The main reason for using 100 gm. was merely the established custom, which gives the advantage of normal standards as determined by the observations of a series of investigators. It may be entirely feasible to conduct such tests with smaller doses, but any one doing so must first establish his new standards. We have seen no harm from a single dose of 100 gm. glucose given on a fasting stomach, and should not be afraid to give it even in the milder grades of diabetes. No one test is to be regarded as infallible, and, like most other diagnostic procedures, the glucose tolerance test is to be interpreted in connection with other clinical facts. Various infections and toxic states may, perhaps, result in abnormal curves, but such states are usually transitory and capable of diagnosis by the usual means. But when a patient, apparently free from any other abnormality, regularly and repeatedly shows abnormal height and duration of the elevation of blood sugar after glucose ingestion and marked hyperglycemia after full mixed meals, we regard the condition as a potential diabetes. As there are wide differences in the progressiveness of manifest diabetes, some cases advancing to a fatal end in a few months while others maintain the character of mild glycosuria for perhaps ten to thirty years, so also there will presumably be differences in the progressiveness of these latent or prediabetic conditions. Some persons of this sort may live out their lives without

ever developing active diabetes, but probably a larger number will develop glycosuria or other symptoms after a shorter or longer time. At any rate, these are the class of persons to whom dietary prophylaxis may be specifically directed, and it is well to recognize them.

AN ERUPTIVE FEVER OF UNUSUAL CHARACTERISTICS IN INFANCY AND EARLY CHILDHOOD*

DAVID J. LEVY, M.D.

DETROIT

In April, 1919, I presented before the Wayne County Medical Society (Detroit) a preliminary report covering some twenty cases of an eruptive fever of unusual characteristics occurring in infancy and early childhood. Pending the opportunity for further study of the blood picture of the condition, publication was withheld. Of late, however, the occurrence has been encountered with increasing frequency so that the observed cases now number about thirty, and it seems desirable not to postpone further the bringing of this condition to general consideration. It is a disease which I have repeatedly observed during the last four years and which I have thus far been unable to identify with any hitherto described exanthem. Briefly, it is a disease of late infancy and earliest childhood, characterized by a period of high fever, followed by complete defervescence by crisis, and, during the early hours of the postfebrile period, the appearance of a macular eruption.

The disease has been observed in both sexes in about equal degree. It has occurred practically exclusively in babies of from 8 to 30 months, chiefly, however, in the second year. There has been no definite seasonal occurrence of it, although it has been most frequently observed during those periods when infection in general is most prevalent. Moreover, there has been no coincident relationship between the occurrence of it and outspoken epidemics of other eruptive fevers, so that I have been unable to explain it as the atypical instance, such as may occur during any epidemic, of some other current infection. The cases, which number approximately thirty, have in some instances occurred sporadically; in other instances, most particularly in recent days, four or five cases have grouped themselves in a manner suggestive of mild epidemics. In no instance, however, could one case be traced to another as evidencing communicability. In no instance were two cases observed in one household—in this connection one should remember, however, the relative infrequency of several children in one household within the age period affected. I have accordingly been unable to form any conclusion as to the incubation period of the disease, and have made no experiments as yet, cultural or otherwise, to determine its specific etiology.

SYMPTOMATOLOGY

A most striking feature of the disease is the sudden occurrence of a high fever in a previously apparently healthy baby. The fever when first noted is generally from 103 to 104 F., and tends to remain between these temperatures and 105 and 106, with no intermission and with very moderate remissions for a period of from seventy-two to ninety-six hours. The highest temperature noted was 106.5 F. With the high temperature

* This paper was first submitted for publication in November, 1919.

there is virtually no subjective discomfort on the part of the child, and no accompanying symptom worthy of note. In one instance, a convulsion ushered in the infection, and in another a somewhat notable disturbance of the circulation accompanied the hyperpyrexia. In only one instance—my own child—was there vomiting or other gastro-intestinal disturbance. Upper respiratory tract symptoms are conspicuously lacking. The posterior cervical lymph glands are palpable as in German measles; almost uniformly, reddening of the buccal membranes has been observed, and in the pre-eruptive stage, a diffuse, uneven reddening of the posterior portion of the hard palate, which may possibly be an enanthem. There occurs, however, a definite, though mild, pharyngitis involving the tonsils and soft palate, but without exudation.

On the beginning or the end of the fourth day, there occurs a complete defervescence by crisis. Generally the child, which has gone to sleep the preceding night with a temperature of from 104 to 106, awakens in the morning with a normal or slightly subnormal temperature. He appears as entirely well as previous to his illness. During the succeeding few hours, the eruption appears—first on the trunk, most frequently in the lumbar and adjacent thoracic regions, and often extending rapidly over the rest of the body, with particular preference for the back of the neck and the scalp, as is the manner of German measles. The face, however, is only slightly affected, and the lesions are relatively few on the arms and the legs. The lesions are often round, more frequently irregular macules of from 1 to 3 mm. in diameter, and are pale rose red, at times, chiefly when scanty, being more distinctly pinkish. They are not elevated. They are always discrete, save for the very occasional grouping of a few macules. In two instances occurring this summer, confluence has been observed accompanying a miliaria of heat origin, and in one case in the fall of 1919 in an infant with an eczematous tendency. At times the lesions may remain few in number, and they are then confined chiefly to the back. When few, they tend to become larger, and these larger isolated macules are sometimes immediately bordered by a narrow whitish areola, probably from 0.25 to 0.5 mm. in width. The eruption is non-itching. It reaches its height in a few hours, fades rapidly, and is generally entirely gone within forty-eight hours. There is no desquamation.

As the cases have occurred in household practice, and as the nature of the process present often was not suspected, particularly in many of the earlier cases, previous to the occurrence of the rash, the blood picture has not been determined in each case observed. However, there has been sufficient opportunity for observation in this respect in the lately observed cases, both in the pre-eruptive stages and eruptive stages, to permit me to state that there are no blood changes worthy of note; there is no increase in the leukocytes, in fact, there is a slight leukopenia as a rule, and there is no apparent change in the normal relationship between the mononuclears and the polymorphonuclears.

Because of the suspicion of pyelitis in all of these cases of high fever without apparent cause, the urine has been well observed in each instance. Save for the minor transitory disturbances incident to any high fever, the urinary and renal findings are negative.

In three instances a reddening of the ear drums was present during the febrile stage. In two instances an otitis media was assumed to be the cause of the fever and paracentesis was performed, without, however,

ensuing discharge. The crisis and rash evidenced the true nature of the infection. It is likely that a mild tubotympanitis accompanied the pharyngitis present in these cases. It is unfortunate that these three cases were among those in which a blood count was not made.

In one case characterized from the outset by a hyperpyrexia—106.5 F.—a suppurative cervical adenitis ensued. No other sequela has been noted in any instance. From this, of course, it is to be deduced that the prognosis is uniformly good for complete and uninterrupted recovery.

As to diagnosis, there remains to be differentiated scarlet fever, measles, German measles and the fourth disease. The foregoing description, I believe, justifies the conclusion that this condition is an infectious disease, which eliminates the necessity of differentiating it from fever and eruption of alimentary or toxic origin. As to the eruption being a drug rash following the therapy employed in the febrile stage, the exanthem is the same irrespective of the drug used or if no drug is used at all.

Scarlet fever is readily differentiated by the absence of angina, the character of the eruption, the time relation between the fever and the eruption, and the absence of leukocytosis, complications, sequelae or desquamation. Likewise the scarlatiniform condition described by Watson is readily differentiated.

Measles is suggested by the four days of fever preceding the eruption. There is a complete absence of the catarrhal symptoms of measles; there are no Koplik spots; there is no fever during the eruptive stage, and the rash is not morbilliform.

The disease more closely resembles German measles. However, it differs from the usual manifestation of rubella in the prolonged period of high fever, the crisis, the nonconfluent eruption, the absence of desquamation, its nonoccurrence in older children, and its low or noncommunicability. However, it is not to be overlooked that it possesses identity with rubella in its blood picture.

From the condition described as the fourth disease, it is further differentiated by the nonscarlatiniform character of the rash and the absence of desquamation.

The treatment is purely symptomatic, and in general is confined to the management of the fever.

Unless the foregoing can be demonstrated to be an ordinary exanthem existing in atypical form due to a variation of the local strain of the virus, we are here dealing with an entity actually constituting a new disease. Until proof to this effect can be demonstrated beyond peradventure, however, it would be well to consider it an anomalous form of rubella, which of all previously described diseases it most closely approaches.

David Whitney Building.

Perinephritic Abscess Simulating Hip Joint Disease.—The *Semana Médica* 27:824, 1920, contains a report by M. Susini and J. P. Garrahan of three cases in children from 17 months to 4 years old in which suppuration around the kidney caused symptoms mistaken for hip-joint disease. The kidneys seemed to be sound and no cause for the abscess could be discovered; this was the case also in Muniagurria's experience. The total six cases confirm the favorable prognosis when the kidney is not involved and the abscess is properly drained. In the youngest child, four months had elapsed before the correct diagnosis was made and the abscess evacuated.

A FEBRILE EXANTHEM OCCURRING
IN CHILDHOOD

(EXANTHEM SUBITUM) *

BORDEN S. VEEDER, M.D.

AND

T. C. HEMPELMANN, M.D.

ST. LOUIS

One morning one of us was called to see a boy about 10 years of age with a temperature of 104. A careful physical examination was absolutely negative. The story was that the previous morning the boy had arisen complaining of slight headache, but had gone to school, some miles out in the country, where he remained all day and played baseball despite his headache and a feeling of malaise. When he returned home he was quite exhausted and did not want his supper. His temperature was found to be 102, and by 1 o'clock in the morning had reached 104. No cause could be found for the rise of temperature, and a second examination was made about 1 o'clock that afternoon, as the temperature had reached 105. The temperature remained high all that evening and night, but was down to about 101 the next morning. The physical examination still remained negative. The lad did not seem very toxic, nor did he complain of any pain. At the examination on the third day three small pale red spots were noticed on the abdomen which had not been present the previous day. These pressed out like a "rose spot," but two of the three were at least three-sixteenths inch (5 mm.) in diameter. The temperature remained high all day, reaching 103. A leukocyte count revealed a total of 3,200 cells, with 80 per cent. lymphocytes. As a result of the low count, it was thought that the child was in all probability developing typhoid fever, and that the sudden onset with high temperature was due to the exercise on the first day of the fever. That evening he vomited after taking some food, this being the first abnormal sign or symptom excepting the fever. A blood culture was taken as well as blood for a Widal test, both of which were negative.

He was seen the next morning (the fourth day) about 9 o'clock and his temperature was down to 100. The entire trunk from the neck to the legs was covered with an extensive macular eruption. The individual lesions were from one-eighth to three-sixteenths inch (3 to 5 mm.) in diameter, rather pale pink, and in some places had coalesced. They disappeared easily under pressure, and were more often macular than maculopapular. There were only a few lesions scattered on the lower part of the face and extremities. By evening the rash had almost disappeared, and it was completely gone by the following morning. The temperature remained down after the appearance of the rash, and convalescence was uncomplicated and uneventful, except that the youngster was thoroughly knocked out by the infection and did not feel up to much for a week or ten days following.

This case, except for the age, is typical of a group of cases which we have observed in practice during the last winter. A period of high fever, lasting usually three days, is followed by the development of an eruption on the fourth day coincident with a rapid fall in temperature to the normal. The eruption, which becomes very extensive in twelve hours, fades within

another twenty-four to forty-eight hours. During the febrile period there is an entire absence of all physical signs or symptoms. There is no coryza, tonsillitis, cough, bronchitis, lymphatic enlargement, splenic enlargement, diarrhea or constipation present. The most striking thing is this complete absence of symptoms accompanying the high fever. One patient waits for the development of a concealed pneumonia or some such cause of obscure fever, when suddenly the rash appears and the temperature drops. Unless one is on the lookout for this strange complex, he will go through several anxious days.

In the last three or four years we have observed occasional instances of this peculiar complex of symptoms, but no especial attempts at studying the group was made until the fall of 1920. During the past winter and spring, however, we have seen more than twenty such cases, in eight of which a blood count was made. The latter showed, with one exception, such striking and uniform deviations from the normal as to appear to be characteristic of the disease, and to lend support to the belief that we were dealing with a definite clinical entity not recognized in any of the present textbooks. The changes in the blood picture consisted of a distinct leukopenia, with a relative lymphocytosis. This, together with the absence of all other clinical signs or symptoms, has enabled us in several instances to forecast the appearance of the rash on the fourth day of the disease. The one count (Case 7 in the accompanying table) in which no relative lymphocytosis was found was made on the fifth day, after the temperature had fallen to normal.

CHARACTERISTICS OF THE DISEASE

Two other striking features of the disease are the apparent absence of contagiousness, and its predilection for affecting infants rather than older children. The essential characteristics of the disease, as we have noted them, may perhaps best be considered in a little more detail.

Onset.—This is abrupt. Careful questioning has failed to elicit any prodromal symptoms. Usually the mother or nurse has noticed that the child has seemed feverish, and on taking the temperature has found considerable fever. The one older child in our series complained of headache and malaise on the first day.

Symptoms.—There are no symptoms except for the fever and the lassitude or depression produced by the high temperature. There is no vomiting, cough, diarrhea or pain, and the most careful physical examination in our cases has failed to discover any abnormal physical signs, such as congested ear drums, inflamed tonsils, swollen gums, lymphoid enlargement, chest or abdominal signs, or symptoms relating to the central nervous system. The postcervical glands are not enlarged. The urine has as a routine been negative. There is, as a rule, an absence of toxic symptoms and only moderate prostration. Despite the high fever, the children usually take their food well. As the fever falls to normal, the rash develops and immediately the infants seem and act as if entirely well. The older boy was somewhat irrational when his fever reached 105, but a little later he desired to get up and wanted to play or have stories read to him. The absence of toxemia with the high fever is noteworthy.

Course.—There is a striking uniformity in the course of the disease. The fever, mounting abruptly to from 102 to 104 or more, remains high, with perhaps slight

* Read before the American Pediatric Society, June 3, 1921.

morning remissions until the fourth day, when, coincident with the appearance of the rash, it falls to normal by crisis and the child acts as if quite well again. Rarely, the temperature falls on the third or fifth day instead of the fourth. Two typical temperature charts are reproduced herewith. The maximum temperature in our experience has been 104 or 105, and there is a

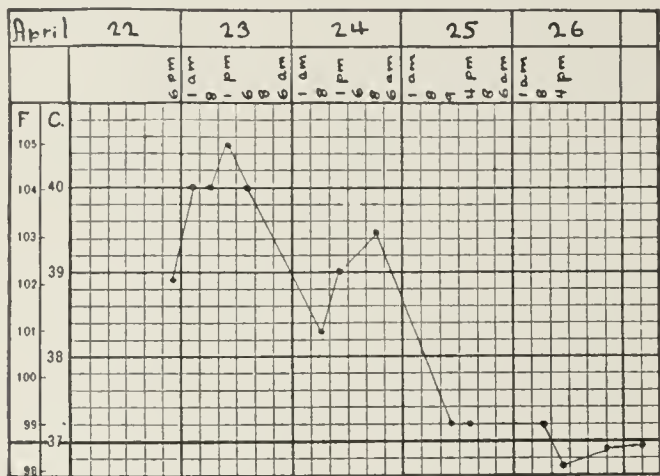


Chart 1.—Temperature in Case 1.

tendency for the fever to be 1 or 2 degrees lower in the morning than later in the day. Convalescence in our series has been uneventful without exception.

Blood.—As shown in the table, there is ordinarily a leukopenia present which may be quite striking, falling

BLOOD EXAMINATION

Case	Age	Day of Count	Temperature	White Blood Count	Lymphocytes	Polymorphonuclears	Notes
1	10 yrs.	4th	105	3,200	80	18	Widal negative, blood culture negative
2	9 mos.	3d	104	3,200	90	7.5	
3	10 mos.	3d	102.6	6,000	88	11	
4	10 mos.	2d	103	7,000	80	12	
		5th	Normal	.....	89	11	
5	14 mos.	3d	104	8,600	..	..	Widal negative
6	15 mos.	3d	103	6,800	75	25	Widal negative
7	3½ yrs.	5th	Normal	6,600	28	72	
8	10 mos.	3d	102	6,600	88	8	

as low as 3,200 cells in two cases. In all but one of our eight cases (Case 7) there was also a relative lymphocytosis present, the lymphocytes amounting to from 80 to 90 per cent. This has caused in several cases the suspicion of a typhoid infection; but in three cases a Widal test was negative. With the exception of a relative increase in lymphocytes and relative decrease in the polymorphonuclears, the other cells apparently stand in normal relation to one another. In one case a blood culture remained sterile. Unfortunately, only one blood culture was taken, and this on the morning that the rash appeared and the temperature had fallen to normal.

Age.—Most of the cases occur between the sixth and eighteenth month. The youngest of the eight children on whom leukocyte counts were made was an infant of 9 months, and the oldest a boy of 11 years. Only two cases have been observed in children over 2 years of age. All of the other unreported cases we have seen have been in children between the ages of 6 months and 2 years.

Communicability.—In none of the reported eight cases, nor in any of the other cases observed but not reported, have we seen a second case in the same family. In Cases 3 and 5 there were two other children in the family, and in Cases 4 and 6 and 7, one other

child. Not only were there two other children in Case 1 exposed, but the lad attended school the first day of his illness and no other cases developed or occurred in the school. So far as we have been able to observe, therefore, the disease seemingly does not belong to the ordinary group of exanthems in childhood transmitted by direct contact. We have never seen a second appearance of the disease in the same child.

Rash.—The eruption—the only characteristic lesion—is quite typical. It appears as the temperature falls, develops rapidly, reaching its height in about twelve hours, and then fades in another twenty-four to forty-eight hours. Desquamation is either very slight or entirely absent. In the older boy, a few (three) lesions were noted on the abdomen twenty-four hours before the rash was fully developed. The eruption is morbilliform, and consists of small, pale red macules or maculopapules, from one-sixteenth to three-sixteenths inch (1.5 to 5 mm.) in diameter. These disappear on pressure like rose spots. The lesions are usually profuse and fairly well distributed over the body, the lower part of the face, the neck and the extremities. There are usually more lesions on the trunk than on the face or extremities. The trunk from the neck to the pelvis has been so covered in some instances that a small coin would touch a number of lesions. Coalescence of lesions, giving a blotchy appearance somewhat suggestive of urticaria, was noted in a few cases. The lesions are more macular than papular, and we have frequently noted a pale areola about the macule.

DIFFERENTIAL DIAGNOSIS

Only three exanthems need be considered.

Measles.—The absence of all catarrhal symptoms and Koplik spots, the character and development of the eruption, and the noncommunicability distinguish the disease from measles. (The older boy had had both measles and scarlet fever.)

Scarlet Fever.—The absence of angina, the onset and course of the fever, the blood picture, the type and course of the eruption and absence of desquamation distinguish the disease clearly and readily from scarlet fever.

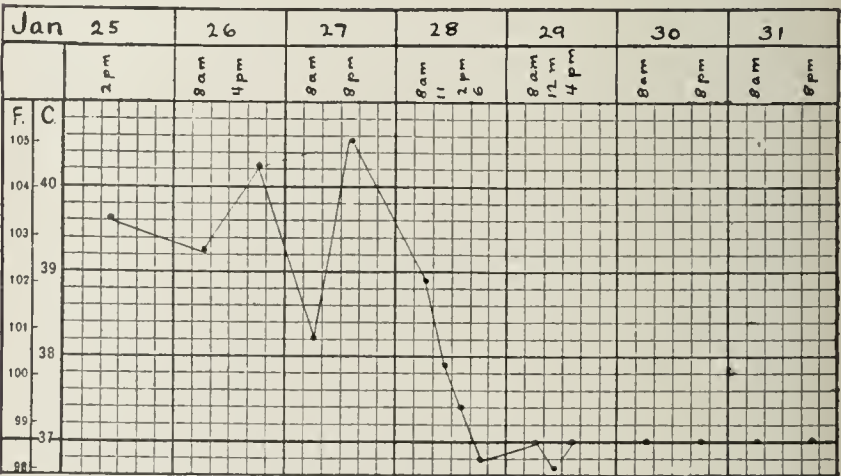


Chart 2.—Temperature in Case 6.

German Measles.—The onset, high fever, late appearance and type of the rash, and absence of post-cervical adenopathy, distinguish the condition from rubella. In rubella the rash appears at the height of the fever and the temperature falls gradually. Moreover, we have a distinctly different blood picture. German measles has not been prevalent in St. Louis this winter, and the fact that the disease has not developed

in other children in the same family or in other exposed children speaks against the condition being an unusual type of rubella.

As the children were receiving no medication, there can be no possibility of a drug rash.

COMMENT

It is our belief that the syndrome is a specific entity which is not described in any of the textbooks on pediatrics or infectious diseases. The distinctive clinical course, the character and type of the eruption, the blood picture, and the noncontagious character of the condition present a clear cut picture to the clinician. Further, it is our belief that this is the same condition which was described by Zahorsky¹ of St. Louis in 1910 as "roseola infantilis" and again in 1913 as "roseola infantum." In the first paper Zahorsky described the syndrome, and in 1913 reported² brief histories of thirty-three cases observed during a period of three years. Only two cases were seen in children over 2½ years of age—one a child of 9 years and the second a child of 14. Zahorsky noted the period of high fever, without symptoms, lasting several days, followed by a morbilliform eruption developing as the temperature fell. His clinical description agrees with the picture we have been observing. Unfortunately, he did not report any blood counts; and in conversation he said that his attention had not been directed to a modification of the normal blood picture.

Zahorsky termed the condition roseola infantilis or infantum—a term used by some of the older authors and dermatologists in describing an indefinite exanthem of childhood. The term has been practically abandoned, as from time to time this group has been separated into different clinical entities—toxic rashes, food eruptions, rubella, etc., and, as stated, roseola infantum is no longer considered as an entity. It is difficult to gather whether or not the syndrome we have been observing is the same as that described in some of these older textbooks, owing to their meager and indefinite descriptions. We do not consider that roseola infantum is the proper name to apply to this syndrome, as the same term was formerly used to describe a large indefinite group of diseases. We therefore suggest the name "exanthem subitum" as being descriptive of the most striking clinical symptom, namely, the sudden, unexpected appearance of the eruption on the fourth day. We believe that we are dealing with a distinct clinical entity which deserves a separate place in medical nosology and a place in our textbooks of pediatrics.

We are presenting this paper with the hope that it may attract further study to the condition with the idea that its definite position may be determined.

1. Zahorsky: *Pediatrics* 22:60, 1910.

2. Zahorsky, John: *Roseola Infantum*, *J. A. M. A.* 61:1446 (Oct. 18) 1913.

Reliability of Wassermann Test.—A certain number of active cases of syphilis in the third or tertiary stage will give negative Wassermanns. This is especially true if the patients have had partial antisyphilitic treatment and have relapsed because the treatment was not completed. The Wassermann test is valuable as an aid to diagnosis and also as a guide to treatment, but the interpretation of its meaning should not be attempted by a person other than a physician. It is often difficult enough for a physician to estimate accurately the worth of a Wassermann test. Certainly such estimates cannot be made by a person without special knowledge of the subject.—M. Knowlton, *Pub. Health Rep.* 36:2310 (Sept. 23) 1921.

OBSERVATIONS ON THE CAST TREATMENT OF GONORRHEAL ARTHRITIS *

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Sir Benjamin Brodie,¹ in the first edition of his *Pathology and Surgery* (1818), section on diseases of joints, describes fully five undoubted cases of gonorrheal rheumatism, and to him must be accorded the credit of formulating the disease. It is generally recognized that gonorrheal arthritis is one of the most serious and damaging complications of gonorrhea occurring, according to most authorities, in from 2 to 5 per cent. of cases.

INCIDENCE

From December, 1914, to May, 1921, 517 patients suffering from gonorrheal rheumatism were admitted to the urologic service of Bellevue Hospital. These patients spent 6,741 days in Bellevue at an expense of \$20,233.00 to the city of New York. Two hundred and ninety were discharged as improved; ninety-five were transferred to the Metropolitan Hospital; sixty were cured; forty left the hospital at their own risk; thirty-seven were unimproved, and five were cured by operation.

TABLE 1.—RELATIVE FREQUENCY OF JOINTS AFFECTED

Joints Affected	Number
Knee	32
Ankle	17
Hip	9
Wrist	6
Foot	5
Elbow	5
Hand	3
Shoulder	1
Spine	1
Heel	1
Costosternal	1

Between August, 1919, and May, 1921, twenty-six of the 517 patients were treated with heavy plaster-of-Paris casts. Two of the patients were girls in the children's isolation ward. These cases were consecutive and not selected; but treatment by cast was twice interrupted, once by a series of about twenty patients treated with Cano's serum and again by fifteen patients treated with sodium iodid. These methods having proved inefficacious, the treatment by casts was resumed.

Of these twenty-six patients treated by casts, eight had single joint involvement and eighteen multiple joint involvement. The relative frequency of joints affected is recorded in Table 1.

The date of occurrence of arthritis after the urethritis manifested itself is shown in Table 2; three out of four cases occurred in the first fifteen days of the acute gonorrhea.

No relapse of the rheumatism has been noted without a new attack of gonorrheal urethritis. In reviewing the past history of these patients, eight were found to have had previous attacks of gonorrheal arthritis, of these six had but one previous attack, one had four and one five previous attacks.

* From the Department of Urology, Bellevue Hospital.

* Read before the Section of Genito-Urinary Surgery, New York Academy of Medicine, May 18, 1921.

1. Brodie, M. W.: *Practitioner*, London 88:34-45, 1912.

These relapsing cases showed the following characteristics:

1. Each relapse of arthritis occurred during the acute period of a reinfection with gonorrhea.
2. Each reinfection with gonorrhea resulted in a new arthritis.
3. Regarding the joints involved at each subsequent attack of rheumatism, the large joints once affected were invariably affected during the next attack; the only difference in joint involvement being in the small joints of the hands and feet. Three patients gave a previous history of rheumatic fever and four of previous trauma of joints.

TABLE 2.—DATE OF OCCURRENCE OF ARTHRITIS AFTER MANIFESTATION OF URETHRITIS

Cases	Day After Manifestation of Urethritis
3.....	3rd
4.....	4th
3.....	5th
2.....	7th
1.....	8th
1.....	11th
1.....	12th
2.....	14th
1.....	15th
1.....	17th
1.....	19th
1.....	45th
1.....	60th
1.....	90th
1.....	120th

SYMPTOMS

A constant intense pain and loss of function of the affected joints is the chief complaint. The patient unusually states that for a number of nights before entering the hospital he has been unable to sleep and gets relief only by a hypodermic injection of morphin. On admission, eighteen patients were not able to walk at all; five could walk with the support of a cane or crutch, and three were ambulatory.

DIAGNOSIS

The diagnosis is founded on the occurrence of arthritis in the course of gonorrhea. All of our patients had intracellular diplococci in the urethral smear and

TABLE 3.—DURATION OF THE ARTHRITIS ON ARRIVAL AT THE HOSPITAL

Cases	Duration of Arthritis
2.....	1 day
1.....	4 days
2.....	7 days
3.....	3 weeks
2.....	5 weeks
3.....	3 days
1.....	6 days
5.....	2 weeks
2.....	4 weeks
2.....	2 months
1.....	3 months

clinical symptoms of urethral or vaginal gonorrhea. As supporting evidence, the roentgen-ray findings and previous history of gonorrheal arthritis during acute urethritis are of importance. A patient admitted to the ward suffering from arthritis is examined by the dentist and laryngologist to eliminate all foci of infection before the immobilization is started. The tonsils are removed if diseased. It was necessary to remove the tonsils of twelve patients (no focus was found in eleven cases, one patient refused operation, two were not examined). The accessory nasal sinuses are treated, if not clear, by

transillumination and the roentgen ray. All teeth shown to be infected by roentgenogram are extracted. A roentgen-ray examination of the joints involved, a Wassermann test, a complement fixation test for gonorrhea and an examination of urethral and prostatic smears are carried out as a routine procedure in every case.

TABLE 4.—PARTS AFFECTED IN RHEUMATIC FEVER AND GONORRHEAL ARTHRITIS

Case No.	Affected Part in Rheumatic Fever	Affected Part in Gonorrheal Arthritis
1	Knees, hips, ankles	Knees, hips, ankles
2	Not stated	Ankles and knees
3	Whole body	Ankles

	Previous Trauma Joints Involved	Gonococcus Arthritis Joints Involved
1	1910, trauma right knee	1920, arthritis right knee
2	1911, fracture right elbow	1919, arthritis right elbow
3	1914, right foot stepped on by army mule	1920, arthritis right foot, right knee, left big toe
4	1899, fracture left elbow	1919, arthritis left elbow, left foot, both ankles, both knees.

The two patients with positive Wassermann reactions received arsphenamin, together with the cast treatment. The arsphenamin apparently did not benefit them. A leukocyte count in eleven cases showed nothing abnormal; the count ranging from 7,000 to 10,000; differential count averaged 60 per cent. polymorphonuclears and 30 per cent. lymphocytes. In nine patients, the red cell count was between 4,500,000 and 5,000,000.

TABLE 5.—REPORT OF DENTIST

	Cases
Teeth in good condition by examination and roentgen ray.....	18
Teeth infected; extracted.....	5
Teeth all extracted before admission.....	1
Teeth not examined.....	1

Many patients are sent to the ward incorrectly diagnosed as having gonorrheal arthritis, e. g., acute rheumatic fever, tuberculosis of joints, syphilitic periostitis and osteitis, gonorrheal myositis and tenosynovitis, acute infectious aneurysm, gout and focal arthritis from the teeth and tonsils. One of the tonsillectomy patients was admitted, Dec. 18, 1919, suffering from a painful and swollen left knee, unable to walk. Gonococci were present in the urethral smear. December 23, the tonsils were removed, and December 31, the patient went home cured.

TABLE 6.—RESULTS OF EXAMINATIONS

	Cases
Wassermann negative	20
Four plus	2
Anticomplementary	2
Not taken	2
Gonococcus fix. negative.....	5
Four plus	11
Three plus	3
Two plus	2
Anticomplementary	4

One of the dental patients was admitted, June 21, 1920, suffering from a swollen and painful right foot which began the week before. July 7, a roentgenogram was made of the teeth and the four infected teeth were extracted. July 20, the patient felt so well that he asked to go home. The patient did not have gonorrhea.

PATHOLOGY

By roentgenogram the pathologic lesion found in the gonorrheal joints were: synovitis, twenty cases; erosion of articular surfaces, two cases; exudative arthritis with atrophy of bone, one case, and infiltration of soft tissue, no osteomyelitis, one case.

The circumference of the joint was obtained before and after the application of the cast to determine the reduction of swelling.

In eleven cases it was from 1 to 3.5 cm. (Table 7).

TABLE 7.—REDUCTION OF SWELLING

Cases	Amt. Reduc. in Cm.	Cases	Amt. Reduc. in Cm.
2	1	1	2
1	1.2	1	2.3
2	1.5	1	3.2
1	1.6	1	3.5
1	1.7		

In a like manner the circumference of the middle of the thigh and calf was measured to determine the amount of muscle atrophy. In the affected leg, it varied from 1 to 7 cm. In the nonaffected leg, it varied from 1 to 5 cm.

One of the patients with erosion of the articular surface of the femur came into the hospital suffering from rheumatism involving the knees, hips, and ankles and contracture of the adductor group of muscles of both legs. The patient had acute rheumatic fever one year before admission, involving all the joints from his waist down. He was confined to his bed for five months at that time. When he entered Bellevue Hospital, the pain and swelling from the gonorrheal arthritis were relieved by casts. When discharged at the end of seventy-three days, he still had contracture of the muscles and was just able to hobble about on crutches.

PROSTATE AND SEMINAL VESICLES

The results of examination of the prostate gland by rectal palpation in this series are given in Table 8.

The seminal vesicles were found to be palpable in ten cases; not palpable in one; slightly enlarged in eight; greatly enlarged in four; indurated in two; empty on stripping in three, and did not empty on stripping in two.

TABLE 8.—RESULTS OF EXAMINATION OF PROSTATE GLAND

Size	Cases	Consistency	Cases	Outline	Cases
Slightly enlarged	17	Indurated	10	Irregular	2
Not enlarged	5	Boggy	2	Adherent	10
		Leathery	1	Regular	2
		Soft	1	Broad and flat	2

The pus in proportion to the lecithin in the prostatic fluid was recorded as variable, never absent (Table 9).

Two cases of acute exacerbation of a chronic arthritis are of particular interest. Both patients had suffered for a year or so from painful toes. They contracted gonorrhea, and the chronic arthritis became so acute that they were compelled to enter the hospital. The roentgenographic report describes an erosion of the inner aspect of the head of the first metatarsal bone and first phalanx; similar gouty changes in the metatarsophalangeal joints of the other toes. The diagnosis was gouty osteoarthritis. The gonorrheal arthritis was improved by immobilization; but the gout was uninfluenced.

PROGNOSIS

Prognosis of treatment by casts depends somewhat on the duration of the arthritis before treatment is started. In none of these cases has ankylosis resulted or an arthrotomy for suppuration been performed. Seventeen of the twenty-six cases in this group have been followed by return clinic for from six to twenty-two months after discharge from the hospital. No relapses have been observed.

TREATMENT

Stockman² says, "My experience has been that the great majority of uncomplicated cases of ordinary severity which require hospital treatment can usually be cured in from five to eight weeks."

The encouraging results obtained from the plaster treatment have been due to the heavy cast, that not only places the affected part at absolute rest but also anchors the patient to his bed. Careful attention to orthopedic principles in applying the cast is of the utmost importance. The joint above and below the one involved must be immobilized; all bony prominences and inflamed parts must be especially well padded with cotton wadding, and the plaster must not be applied too tightly over the joint lest the pressure increase the pain.

TABLE 9.—PROPORTION OF PUS AND LECITHIN IN PROSTATIC FLUID

Cases	Per Cent. of Cases	Per Cent. of Lecithin
2	95	5
2	80	10
1	75	20
1	70	30
5	50	50
1	30	50
3	25	75
1	20	70
2	10	85

METHOD OF APPLYING THE CAST

With the leg as an example and the ankle the involved joint, the method of application is:

1. With the leg in extension, the circumference of the ankle is measured, using the centers of the lateral and internal malleoli as bony "landmarks."

2. The limb is wrapped in one thickness of cotton wadding from the toes to the groin; about four thicknesses of wadding being placed over the heel, malleoli and knee.

3. A posterior splint made of eight thicknesses of 4 inch plaster bandages, extending from the gluteal fold to the tip of the toes, is molded to the conformity of the leg.

4. The assistant holds the limb with the knee in partial flexion and the ankle at right angles to the long axis of the limb.

5. Circular plaster bandages are applied to the limb at a uniform thickness of 1 cm. from the toes to the groin; the points needing extra thickness are just below the knee and above the ankle.

6. A pillow made into a roll about 12 inches in diameter is placed under the knee of the patient for at least forty-eight hours, until the cast is dry, and preferably it is left under the knee continuously, as it steadies the cast.

7. At the end of two weeks, the cast is removed. All the joints are flexed and extended several times,

2. Stockman, B. J.: Brit. M. J. 2:1695, 1911.

care being taken not to flex the limb beyond the point at which pain is produced.

8. The leg is given an alcohol rub; the muscles are massaged; measurements are taken and the cast is reapplied for a second period of two weeks.

9. The cast is then removed; the limb is measured and massaged, and the patient is instructed to move the limb around in bed to get rid of the cast stiffness.

As soon as possible after final removal of the cast, the limb is given heat therapy by means of an electric light baking apparatus. The apparatus is essentially a semicircular piece of sheet iron, about 3 feet long, with ten 50 watt lights. Each end of the oven is covered with a blanket while the limb is being baked.

METHOD OF BAKING

The first four days, the limb is baked for thirty minutes at a temperature of 150 F.; from the fourth to the seventh day the length of time of baking is increased to one hour, the temperature raised to 200 F. and light massage started. After the first week, more active massage is used. The length of time of baking and the temperature are regulated by the patient's response to the treatment.

The patient is permitted to walk on the limb about the tenth day after final removal of the cast, beginning slowly by pushing a wheel chair about the ward.

When the spine, hips or knees are involved, the Hawley fracture table has been used in applying the spica cast; the sacrum and iliac crests being well padded with felt.

The urethral focus was not treated in this group of cases. More recently we have been injecting acriflavine, 1:5,000, into the urethra once daily. The duration of the cast treatment in one third the patients discharged was from eighteen to thirty-six days; in another third, from forty to sixty days, and in another third from sixty to eighty-one days.

After discharge from the hospital, the patients were able to resume their work in two cases in one week; in six cases in two weeks; in two cases in three weeks; in five cases in one month, and in two cases in two months.

Special mention might be made of one case of rheumatism of the spine, hips, knees and ankles. This patient presented a pitiful sight; the mere jarring of the bed would cause him to cry out with pain. He was immobilized from the axillae to the toes for one month. When discharged at the end of seven weeks he was walking well, with good functional results in all the involved joints.

One patient with arthritis of the knee was not influenced in the least by a plaster cast. He was transferred from one of the medical wards with a history of gonorrhea two years before, arthritis for the last year and one pair of intracellular diplococci in the prostatic smear. After casts failed to relieve that patient's pain, Dr. Reginald Sayre was called in consultation. Palliative treatment in the form of a Balkan frame and counterirritation by actual cautery did not improve the condition. The series of roentgenograms showed a progressive type of bone destruction, which finding, added to his clinical course, made tuberculosis a probable diagnosis. Dr. Sayre performed an arthrotomy and found a typical tuberculous lesion.

Various gonorrheal vaccines and serums, sodium iodid and typhoid vaccine were used in a series of forty-nine cases of gonococcus infection of the joints.

Most of these patients were relieved from pain for from twenty-four to forty-eight hours after injection. The length of time that the patient is free from pain depends on the reaction produced. When the temperature falls to normal after the chill, the pain usually returns.

Strapping the joint with adhesive plaster and splinting the joint with boards and gauze bandage have not proved satisfactory because the joint is not adequately immobilized.

Sodium salicylate up to 120 grains in twenty-four hours has not given relief.

During the summer of 1919, a series of eight cases of seminal vesiculectomy for gonorrheal arthritis was observed. The pathologist reported histologically normal seminal vesicles in every case. Cultures from the vesicles were all sterile. On direct smear, one case showed just a moderate amount of pus cells. Three of the patients were relieved from the pain; one of the eight exhibited at return clinic an ankylosis of the wrist, six months after discharge from the hospital.

Recently one patient of the seminal vesiculectomy group was admitted to the ward with a fresh attack of gonorrheal arthritis. He has been a patient in the hospital suffering from gonorrheal arthritis every two years since 1915. He was treated with casts this time and sent on his way to return, we fear, in another two years.

CONCLUSIONS

1. The treatment of gonorrheal arthritis is an economic problem.
2. A patient suffering from gonorrheal arthritis should be warned against contracting subsequent gonorrhea.
3. In gonorrheal rheumatism, the joint involvement is usually multiple.
4. Three out of every four cases of arthritis occur within the first fifteen days after the gonorrhea.
5. Previous trauma or disease apparently is a predisposing factor of gonorrheal rheumatism.
6. Of importance in diagnosis are: (1) the occurrence of arthritis in the course of gonorrhea; (2) previous history of arthritis with an acute urethritis.
7. All possible foci of infection should be ruled out before treatment is started.
8. The cast treatment of gonorrheal arthritis seems to prevent such complications as ankylosis and supuration.
9. Various vaccines, serums, drugs and operations on the seminal vesicles have proved inefficacious in our hands.
10. The cast treatment wholly and immediately relieves pain and cures the patient.

33 West Fifty-Fourth Street.

Function of Hospital Social Service.—A large part of hospital social service is preventive education in hygiene, sanitation, nutrition and domestic habits, all of which are vital to public health and normal life. This kind of treatment constitutes a large part of the new private practice of the physician and it has taken the place of prescribing tablets and infusions. When the health problem is caused or aggravated by a social problem so serious that no effective remedial work can be done until the latter is solved, the case should be immediately referred to a specialized agency, while the hospital social service department continues the health care. —*Hospital Social Service* 4:158 (Sept.) 1921.

THE QUINIDIN TREATMENT OF AURICULAR FIBRILLATION *

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AND

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Digitalis has been a most useful drug in the treatment of auricular fibrillation. It has been particularly effective when there was a rapid ventricular rate and a large pulse deficit. Under its influence the pulse becomes slower and more regular, owing to a lessened conductivity of the His bundle. Digitalis does not, however, alter the fibrillation of the auricles. Nor, until recently, have we known any drug which would do this. Wenckebach,¹ in 1914, reported a case in which quinin was of repeated value in terminating paroxysms of auricular fibrillation, but, in 1918, he stated that it was ineffective if the fibrillation had persisted for some time. In 1918, Frey² showed that quinidin, an isomer of quinin, will restore a normal cardiac rhythm to a certain number of patients suffering from a chronic fibrillation. His observations have since been confirmed by a considerable number of German clinicians and by a few in other countries.

In the present paper we wish to record our experience with quinidin in the treatment of patients having auricular fibrillation. At the same time we shall review the reports of others in order to define the methods employed, the results obtained and the possible dangers of the treatment. Eleven patients have been treated by us, in whose cases the observations have been controlled by frequent electrocardiograms. All of these, except one, were kept in the hospital during the first course of treatment. Of these eleven patients, six failed to recover a normal rhythm, although one of the six developed auricular flutter for a brief period during the treatment. Of the five remaining patients, one recovered a normal rhythm for only a brief period. In another, whose paroxysm of fibrillation had lasted two and a half days, the rhythm became regular after a very small initial dose of quinidin had been taken. The remaining three patients that were successfully treated had had fibrillation for some months, and a normal rhythm has persisted up to the time of making this report. Brief summaries of the case histories follow, the six failures being presented first.

REPORT OF CASES

CASE 1 (No. 63891).—C. W. P., a man, aged 62, with a diagnosis of chronic myocardial disease, angina pectoris and auricular fibrillation, had for ten years been conscious of his heart, and for the last year his symptoms of pain about the heart, attacks of suffocation and shortness of breath on exertion had been much worse. The ankles had been swollen for four months. Examination revealed a marked enlargement of the heart, auricular fibrillation, and a blood pressure of 170 systolic and 110 diastolic. July 6, he was given 1.2 gm. (18½ grains) quinidin sulphate; July 7, 1.2 gm. (18½ grains); July 8, 2 gm. (31 grains) and, July 9, 1.2 gm. (18½ grains). During this time the weight rose from 160½ to 161¾ pounds (72.8 to 73.5 kg.). There was no change in the heart rhythm or rate. A second course of treatment of

1.2 gm. (18½ grains) daily for six days was given in the outpatient department without effect.

CASE 2 (No. 97100).—C. H., a woman, aged 52, with a diagnosis of chronic myocardial disease, mitral insufficiency and auricular fibrillation had first observed symptoms of heart trouble, beginning with marked shortness of breath, palpitation and edema, about two years before admission. Examination revealed marked enlargement of the heart, a systolic murmur at the apex, a blood pressure of 165 systolic and 120 diastolic, and râles, with diminished breath sounds at the bases of the lungs behind. After a preliminary dose of quinidin sulphate, the patient received 1.2 gm. (18½ grains) daily for three days, without effect on the rhythm. The weight fell from 122½ to 117½ pounds (55.5 to 53.3 kg.).

CASE 3 (No. 83985).—K. S., a woman, aged 64, with a diagnosis of arteriosclerosis, myocardial disease, auricular fibrillation and achlorhydria, had a gastric complaint which began after an attack of influenza in February, 1920. In April, 1920, an electrocardiogram showed auricular fibrillation. Examination revealed a large heart, with a poorly transmitted systolic murmur at the apex. August 1, the patient received 0.6 gm. (9 grains) of quinidin sulphate; August 2, 1.2 gm. (18½ grains); August 3, 1.6 gm. (25 grains); August 4, 1.6 gm. (25 grains); August 5, 2 gm. (31 grains); August 6, 1.6 gm. (25 grains), and, August 7, 1.6 gm. (25 grains). The weight fell from 177½ to 176 pounds (80.5 to 79.8 kg.). August 3, the pulse was rapid and regular. The electrocardiogram revealed auricular flutter, but this was replaced on the following day by fibrillation. Beyond this, the cardiac rhythm was not altered.

CASE 4 (No. 86117).—M. G., a woman, aged 37, with a diagnosis of mitral insufficiency, myocardial disease, fibromyoma of the uterus, artificial menopause, induced by the roentgen ray, and auricular fibrillation, had had frequent attacks of tonsillitis. Cardiac symptoms began about May, 1920, and the electrocardiogram taken in June, 1920, showed auricular fibrillation, which had been continuous. After 0.4 gm. (6 grains) of quinidin sulphate on the morning of July 6, 1921, the patient became very faint and the heart was more rapid. She was then given large doses of digitalis, and the quinidin sulphate was reduced to 0.2 gm. (3 grains) three times a day for two days. The next day she was given 1.6 gm. (25 grains), and on the following day, 0.4 gm. (6 grains). The pulse again became soft and the patient felt apprehensive, so that the treatment was discontinued. Later, in the outpatient department, she received 0.8 gm. (12½ grains) a day for a period of two weeks, without effect on the irregularity.

CASE 5 (No. 58443).—L. K., a woman, aged 61, with a diagnosis of arteriosclerosis, myocardial disease and auricular fibrillation, had had palpitation and shortness of breath on exertion for many years. In September, 1917, there was a normal cardiac rhythm, interrupted by numerous ventricular extrasystoles, and in March, 1919, a normal rhythm. The duration of her fibrillation previous to entering the hospital in August, 1921, could not be ascertained. The systolic blood pressure was constantly more than 200. In five days the patient received 20 c.c. (5½ fluidrams) of the tincture of digitalis and 9 gm. (139 grains) of quinidin sulphate, with no effect on the fibrillation.

CASE 6.—J. D. M., a man, aged 50, with a diagnosis of myocardial disease and auricular fibrillation, had had paroxysms of irregularity beginning at about the age of 23, and recurring at intervals of about once a year, until the attack which began in March, 1919. Since that time the heart had been constantly irregular. Records showed auricular fibrillation. During the week beginning August 13, the patient took quinidin sulphate, at first in daily doses of 1.2 gm. (18½ grains), and later in daily doses of 1.6 gm. (25 grains), with no effect on the fibrillation. Toward the end of the week he developed an erythematous rash and suffered from some palpitation.

CASE 7 (No. 84234).—G. P., a man, aged 67, with a diagnosis of arteriosclerosis, myocardial disease and auricular fibrillation, first came to the outpatient department in April, 1920, complaining of shortness of breath and choking spells. At this time his heart action was irregular, and he improved under digitalis. His heart trouble had forced him to give up

* This study was aided by the Felton account.

* From the Department of Medicine, Leland Stanford Junior University School of Medicine.

1. Wenckebach, K. F.: Ueber Chinin als Herzmittel, Berl. klin. Wehnschr. 55: 521, 1918.

2. Frey, W.: Ueber Vorhofflimmern beim Menschen und seine Beseitigung durch Chinidin, Berl. klin. Wehnschr. 55: 417, 450, 1918; Chinidin zur Bekämpfung der absoluten Herzunregelmässigkeit (Vorhofflimmern), Deutsch. Arch. f. klin. Med. 136: 70 (April) 1921.

work in December, 1920. Records taken in March and June, 1921, showed auricular fibrillation. Examination revealed a markedly enlarged heart. The blood pressure was 218 systolic, and 110 diastolic. July 11, he received 0.6 gm. (9 grains) of quinidin sulphate and was then given 0.4 gm. (6 grains), three times a day, until noon of July 17. His heart became regular on the evening of July 16, after he had taken 6.8 gm. (105 grains) in all during six days. Except for the 0.8 gm. (12½ grains) taken on July 17, he took no more quinidin. During his rest in the hospital he had improved gradually. The change to a normal rhythm was not accompanied by any subjective sensations or by any objective improvement other than the change in rhythm. The pulse rate averaged 70, both before and after the change. The weight was not altered. The blood pressure fell slightly. The patient subsequently returned from time to time to the outpatient department. His rhythm remained normal, the last observation being made, October 31. Subjectively he felt better, having lost the sense of oppression in the chest and the orthopnea. The dyspnea on exertion was also better.

CASE 8 (No. 91015).—A. B., a man, aged 35, with a diagnosis of chronic endocarditis involving the mitral and aortic valves, auricular fibrillation and syphilis, gave a history of rheumatism and repeated attacks of tonsillitis. He had had a chancre. Since the beginning of 1919, the patient had had shortness of breath on exertion. Palpitation had also been an annoying symptom. Examination revealed a markedly enlarged heart with mitral and aortic murmurs. The blood pressure was 105 systolic and 65 diastolic. The Wassermann reaction was positive. An electrocardiogram taken in March, 1921, showed auricular flutter, the auricles beating at a rate of 240. The pulse was for the most part regular, but the rate varied from approximately 120 to 80. Early in July, 1921, the pulse became very irregular and the record showed auricular fibrillation. July 18, he received 0.8 gm. (12½ grains) of quinidin sulphate, and on July 19 and July 20, 1.6 gm. (25 grains). The pulse was regular on the morning of July 20, after he had received 2.4 gm. (37 grains) in all. On the morning of July 21 the pulse was still regular, but the patient complained that he did not feel so well. Objectively he appeared distressed, his epigastrium was swollen and his liver had become distinctly larger. In two days his weight had increased from 128¾ to 134 pounds (58.4 to 60.8 kg.). Evidently, in spite of the return to a normal rhythm, compensation had become worse. He was given 12 c.c. (¾ fluidrams) of the tincture of digitalis during the following twenty-four hours. The next morning the records showed heart block. The auricular rate was about 88 a minute. At times the ventricles followed the auricles regularly with a P-R interval of from 0.22 to 0.26 second; at other times occasional ventricular beats were dropped out; and at still other times the ventricles beat independently with an idioventricular rate of about 42 a minute. Since no heart block had been present for more than twelve hours after the final dose of quinidin sulphate, the disturbed conduction could hardly have been due to this drug alone. On the other hand, the block began after only 8 c.c. (2½ fluidrams) of the tincture of digitalis had been taken. Apparently this patient was unusually susceptible to this effect of digitalis. The possibility that quinidin may have been responsible for this susceptibility will be discussed later. After all medication had been discontinued the heart block gradually lessened, and disappeared within three days. The P-R interval was then 0.2 second. The patient returned occasionally to the outpatient department and was seen, October 15. The heart remained regular. The decompensation was only moderately improved.

CASE 9 (No. 96877).—A. P. R., a man, aged 33, with a diagnosis of chronic endocarditis with mitral insufficiency and paroxysmal fibrillation, had had inflammatory rheumatism, in 1905; one paroxysm of irregularity, in 1918, and another in 1920, each of which lasted about forty-eight hours. The present paroxysm began, July 16, 1921, and had lasted a little more than two and a half days at the time he entered the hospital. The electrocardiogram showed auricular fibrillation. At 1:45 p. m., he received 0.2 gm. (3 grains) of quinidin sulphate, and at 2:45 p. m., 12 c.c. (¾ fluidrams) of tincture of digitalis. At 3:30 p. m., he noticed that his heart was beating regularly, and the record showed a return

to normal rhythm. He was immediately relieved of the apprehensive sensations in his chest. His heart has been regular since then.

CASE 10 (No. 92992).—A. A. J., a man, aged 70, with a diagnosis of coronary sclerosis, myocardial disease and auricular fibrillation, in February, 1921, following a cold, had developed marked shortness of breath and a sense of constriction in the throat. These symptoms had persisted. Examination revealed an enlarged heart and an enlarged, not tender liver. Electrocardiograms taken in March, in May and in August showed in addition to the auricular fibrillation, a negative T in Lead I, evidence of left ventricular preponderance, a Q-R-S interval of 0.1 second in Leads I and III, and numerous ectopic beats arising in the ventricles. August 23, he received 0.6 gm. (9 grains) of quinidin sulphate, August 24, 1.2 gm. (18½ grains), and August 25, a single dose of 0.4 gm. (6 grains). In all, 2.2 gm. (34 grains) was given. Records taken on the afternoon of August 24, and during August 25 showed a sinus rhythm interrupted by numerous ventricular extrasystoles. On the morning of the 26th, records showed a return of the auricular fibrillation. On account of the poor general condition, which had not changed during his stay in the hospital, it was decided to give the patient digitalis and to repeat the quinidin at a later date. August 26, he received 16 c.c. (4½ fluidrams) of tincture of digitalis and August 27, 4 c.c. (65 minims) more. The general condition remained much the same until the early morning of August 28, when, after going to the toilet, he developed an acute decompensation, from which he died eighteen hours later. Necropsy disclosed coronary sclerosis and a dilated heart.

CASE 11 (No. 81564).—W. J. S., a man, aged 38, with a diagnosis of chronic endocarditis involving the aortic and mitral valves and auricular fibrillation, gave a history of rheumatism and, between March and November, 1920, occasional attacks of dyspnea. Since November he had been weak and short of breath and had had considerable palpitation. He was treated at the San Francisco Hospital in May, 1921, at which time his heart was markedly irregular. August 23, he received 0.6 gm. (9 grains) of quinidin sulphate, and, August 24, 1.2 gm. (18½ grains). The pulse was regular on the morning of August 25, and the quinidin was discontinued. The patient showed a remarkable improvement following the restoration of the regular rhythm. Previously, despite prolonged and well directed digitalis treatment, he was unable to walk even slowly without discomfort, he had considerable gastric distress after eating, and he had frequent paroxysms of dyspnea at night, of an asthmatic character. During the treatment he lost more than 5 pounds (2.3 kg.) in weight, and all the troublesome symptoms became less marked. When seen a week later he said he could climb ordinary stairs and hills without excessive dyspnea and could eat without discomfort. He slept well and his extremities were no longer cold. The liver which had been at the level of the umbilicus could no longer be felt. These conditions were also present up to October 13.

THE RESTORATION OF A NORMAL RHYTHM

We have seen that five of our eleven patients recovered a regular sinus rhythm, but that in one case this continued for only a short period of time. The results obtained by others are presented in the accompanying table.

Of factors which seem to influence the restoration of a normal rhythm, the most important appears to be the duration of the fibrillation. As we have pointed out, Wenckebach came to the conclusion that quinin was effective only in the paroxysmal type of fibrillation. While quinidin appears to be more effective than quinin, it too is more effective when the fibrillation is of recent onset. Frey states that in his series the normal rhythm was restored in thirteen of twenty-four patients who had been suffering from fibrillation less than a year; whereas it was restored in only five of nineteen patients in whom the fibrillation had lasted

more than a year. Haass remarks that his failures were chiefly among those who had been suffering from fibrillation for a long time. Among our cases the duration of the fibrillation was estimated thus: in cases of unfavorable outcome, one year, two years, eighteen months, fourteen months, and two and a half years; of favorable outcome, fifteen months, two months, preceded by flutter, three days, six months, and ten months.

Age does not seem to influence the results. The type of lesion appears to be of less importance than the degree of decompensation. Frey states that among his cases decompensation and dilatation of the auricles both affected the results unfavorably. Benjamin and Kapff state that the degree of decompensation noted when the patient is first seen is of less importance than the degree of compensation to which the patient can be brought by treatment. For this reason they strongly urge a preliminary course of digitalis and rest before the administration of quinidin.

The size of the dose necessary to restore the normal rhythm has varied to an extraordinary degree. Jenny states that in one patient normal rhythm was restored

CASES OF AURICULAR FIBRILLATION TREATED WITH QUINIDIN

Author	Number of Cases	Normal Rhythm Restored	Recovering a Normal Rhythm Per Cent.	Maximum Dose per Day Advised Gm.	Grains
Frey	50	21	42	1.2	18½
Bergmann	9	6	67	2.0	31
Wybauw	25	14	56	1.5	24
Klewitz	13	1	8	1.0	15½
Weisser	11	4	35	...	..
Boden and Neukirch	17	6	35	2.0	31
Haass, H.	44	27	61	0.8	12½
Benjamin and Kapff	27	18	67	2.0	31
Jenny	18	17	94	3.0	46½
Levy	4	2	50	1.2	18½

after 0.5 gm. (8 grains) of the drug was given, whereas another patient took 15.5 gm. (240 grains) during the course of ten days before restoration occurred. In Case 9 of our series the patient recovered from the paroxysm after taking 0.2 gm. (3 grains) of the drug, and one may well question whether he would not have recovered equally soon had none been taken. An inspection of the table reveals that Haass obtained excellent results with small doses. If we disregard his report, the value of results obtained paralleled the size of the doses employed. Jenny, who obtained a remarkable number of successes, did not hesitate to use very large doses, while Klewitz with his poor results used small doses. Furthermore, De Meyer states that he obtained no result when he used 0.75 gm. (11½ grains) daily for three days.

DURATION OF NORMAL RHYTHM

When one recalls that the paroxysmal type of auricular fibrillation is essentially a recurring condition which tends in time to become permanently fixed, it is not surprising that relapses occur after the normal rhythm has been reestablished by the use of quinidin. In our small series, one patient relapsed within forty-eight hours, while the others have maintained a regular rhythm during a period of observation of from two to four months. Frey states that in his series of compensated cases four patients relapsed within a week and seven maintained a regular rhythm for more than a

month. Jenny states that, at the time of his report, the rhythm of one of his patients had been regular for five months. Boden and Neukirch state that of seven cases in which the rhythm became regular, in only one did it remain so for as long as nine months, when this patient also relapsed. Obviously, we may expect a relapse after a successful treatment; but it is too early as yet to define the maximum length of time that a patient may remain free from a recurrence of the fibrillation.

THE EFFECT ON DECOMPENSATION

One should distinguish clearly the immediate effect of quinidin from the effect which eventually follows the restoration of a normal rhythm. Quinidin, like quinin, appears to be a cardiac depressant. Any improvement in circulation is apparently due to the restoration of a normal rhythm and is therefore an indirect effect of the drug. Furthermore, the degree of improvement depends on the degree to which the symptoms and the decompensation were dependent on the irregularity itself. Experience with paroxysmal fibrillation indicates that in some cases at least such symptoms as palpitation, precordial distress and dyspnea become worse during the period of irregularity. This is particularly true if the ventricular rate is very rapid during the paroxysms. In such cases the restoration of a normal rhythm might be expected to remove many of the troublesome symptoms. In other cases, and especially in those in which there is a moderately slow and not very irregular pulse, the conversion to a regular rhythm could hardly be expected to make much difference. Finally, when symptoms depend less on the irregularity than on changes in the heart muscle or valves, they would not be much altered by a change in rhythm.

The effect on decompensation of a restoration of the normal rhythm by quinidin has, in fact, varied greatly in different cases. Boden and Neukirch state that they have not observed a favorable effect on decompensation, and that two patients became worse, with a lessened diuresis. On the other hand, one of Bergmann's patients showed a remarkable improvement. Most authors state that their patients usually felt subjectively improved when regular rhythm had been restored.

In Case 10 of our series, no appreciable subjective or objective improvement accompanied the change to a normal rhythm. In the other four cases, definite subjective improvement, accompanied by more or less objective improvement, followed restoration of a normal rhythm. All experienced relief from the palpitation and the discomfort about the precordium. In Case 11, there was, in addition, a striking improvement in compensation. The patient had previously been thoroughly treated with digitalis and had been taking digitalis more or less for months. Despite this, he was almost totally incapacitated, with marked shortness of breath on exertion, edema and swollen liver. Following restoration of normal rhythm all signs of marked decompensation disappeared, and the patient stated that he was better than at any time since the onset of his serious cardiac symptoms, about a year before. In Case 8, the decompensation increased during the administration of quinidin. The dyspnea became worse, the liver became distinctly larger, and the patient gained 5 pounds (2.3 kg.) in weight in a few days. Following 12 c.c. (3¼ fluidrams) of tincture of digitalis all medication was withdrawn, and the patient subsequently felt better than he had before the treatment had been instituted.

METHOD OF ADMINISTRATION

Some patients appear to be unusually susceptible to quinidin. For this reason a small preliminary dose is recommended for the first day. We usually gave 0.2 gm. (3 grains), three or four times, the first day. After this we gave 0.4 gm. (6 grains), three times a day, and later gradually increased to 0.4 gm. (6 grains), four or five times a day. We did not exceed a total of 2 gm. (31 grains) in twenty-four hours. Most authors place the maximum at this or a lower level, but Jenny states that one may increase the dose to 3 gm. (46½ grains) in twenty-four hours.

The return to normal rhythm has occurred most frequently on about the third day of full treatment. After the fifth day, few cases have become regular, although occasionally this has happened as late as the tenth day. The first course of treatment, therefore, should last about a week. If this fails a second course may be given, later. The latter is usually begun without the preliminary small doses. Occasional patients have become regular during the second course of treatment when the first had failed. If the normal rhythm is reestablished, the quinidin has usually been withdrawn by gradually diminishing the dose. In our cases it was withdrawn abruptly. When relapses were frequent, they were avoided in some instances, by giving the drug regularly for an indefinite period of time.

An important question, to which no final answer can yet be given, concerns the combination of digitalis and quinidin medication. In many ways the two drugs appear to be antagonistic. Particularly pertinent to the present discussion is the fact that large doses of digitalis frequently convert an auricular flutter into a fibrillation; whereas, under the influence of quinidin, the change from fibrillation to a normal rhythm has in a number of instances shown an intermediate stage of flutter. Frey advises against the combination of quinidin and digitalis, and his advice appears to have been generally followed. In two of our patients, the palpitation, increased heart rate and poor quality pulse which developed during the administration of quinidin were promptly relieved by digitalis. We are inclined to think, however, that the administration of digitalis may have lessened their chances for recovering a regular rhythm. The occurrence of heart block after both drugs have been given will be discussed later.

According to Frey, marked decompensation lessens the chances for recovering a normal rhythm. Patients with such a marked decompensation should first be given the usual treatment for decompensation, including digitalis. After allowing time for some of the digitalis effect to disappear, quinidin treatment may be instituted.

UNTOWARD RESULTS

Many patients recover a normal rhythm with no disagreeable or alarming symptoms. In our experience and in the experience of others, loss of appetite with perhaps slight nausea or even vomiting, palpitation, increased heart rate, and a small and soft pulse are not uncommon effects of the drug. Since recovery of a normal rhythm may be preceded by increased heart rate, either regular or irregular, together with palpitation and some precordial distress, Benjamin and Kapff, as well as others, have advised that these symptoms be disregarded. Too great caution at this stage of treatment may lessen the chances of restoring a normal rhythm.

More serious symptoms may occur either with or without warning. One of our patients with palpitation, increased heart rate and precordial uneasiness, fainted when she sat up. Alarming collapse has been recorded several times. One of Haass' patients, who had taken 2.8 gm. (43 grains) of quinidin in three and a half days, suddenly became pulseless and cyanotic, and stopped breathing; after which a regular rhythm set in. Frey records two cases in which the respirations stopped.

Several fatalities have been reported. In none of these was the drug clearly responsible for the death. Nevertheless, in view of the fact that quinidin may at times cause alarming symptoms or may lessen compensation, one hesitates to assert that it could not contribute to a fatal issue. In both of Bergmann's fatal cases, the heart was badly decompensated, and neither patient received large doses of the drug. One died four days after the quinidin had been stopped, the other shortly after a relapse to fibrillation and a repetition of the drug administration. In one of Benjamin and Kapff's fatal cases, the patient had a serious decompensation and received in all 4.8 gm. (84 grains) of quinidin. Death occurred from bronchopneumonia, four days after stopping the drug. Their second patient had fair compensation. She received small doses of quinidin (apparently 0.8 gm. [12 grains] in all), but reacted to even small doses, with palpitation and precordial distress. Shortly after becoming regular, the heart suddenly stopped, and the patient died. In our fatal case, the patient had poor compensation and the electrocardiogram showed evidence of serious myocardial disease. He received in all 2.2 gm. (34 grains) of quinidin sulphate during the course of three days. He died more than three days after the last dose and seemed in his usual condition until eighteen hours before his death. At this time he developed an acute dilatation following a visit to the toilet. Necropsy revealed coronary sclerosis with cardiac hypertrophy and dilatation. None of the patients in the fatal cases received large doses of quinidin. In four of the five the heart was badly decompensated and apparently had serious myocardial disease. At most quinidin was only a minor factor in contributing toward the fatal result. The sudden death of one patient in fairly good compensation shortly after the establishment of a normal rhythm is not easily explained, and no necropsy was permitted in the case. Should further deaths of this type be reported, the field of usefulness of quinidin will be restricted.³

In Case 8 of our series, the patient developed a transient heart block. He received in all 4 gm. (62 grains) of quinidin sulphate and was then given digitalis on account of an increase in the decompensation. The block developed after 8 c.c. (2 1/6 fluidrams) of digitalis tincture had been taken. So far as we could determine, no digitalis had been taken shortly before the patient entered the hospital. We have not discovered other reports in the literature of heart block after quinidin medication, and we would be inclined to regard this as a coincidence were it not for two facts. In the first place, the administration of large doses of quinidin to animals has caused block, and on the basis of such experiments Schott specifically warns against the combination of quinidin and digitalis. In the second place, one of us has seen in consultation a patient

3. Since this article was written, a patient in fairly good compensation was treated with quinidin and died suddenly shortly after his heart had become regular.

who had had auricular flutter and who had received for some time a combination of digitalis and quinidin. When seen, he was having periods of complete heart block associated with the Stokes-Adams syndrome, between which the rhythm was normal. A few weeks after withdrawal of the medicine, these attacks disappeared.

CONCLUSIONS

1. Quinidin will restore a normal heart rhythm in a certain proportion of cases of auricular fibrillation.
2. Recent onset of the fibrillation favors restoration of a normal rhythm.
3. With return to a normal rhythm the general condition of the patient is frequently improved, and occasionally there is a very striking improvement even when digitalis has failed to maintain compensation.
4. On the other hand, quinidin may in certain cases produce alarming symptoms and may, during its administration, have an unfavorable influence on compensation.
5. In view of the possible dangers associated with its administration to cardiac patients, quinidin should be given only after decompensation has been treated by other methods, after an exact diagnosis of the cardiac condition has been made, and when the patient is kept under careful observation.
6. Combinations of quinidin and digitalis should probably be avoided.

EFFECTS OF THE ADMINISTRATION OF QUINIDIN SULPHATE IN AURICULAR FIBRILLATION*

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This report is presented as a preliminary study of "the action of quinidin sulphate upon the fibrillating auricles, an action but recently discovered and perhaps one of the most remarkable and dramatic which is now known to therapeutics."¹ The reader's indulgence is requested for the scattered nature of this report, which is due to the rather brief period in which this study was made.

Quinidin is one of the four better known alkaloids of cinchona bark: namely, quinin, quinidin, cinchonin and cinchonidin, quinidin being the dextrorotatory stereoisomer of quinin.

Quinin, "das Opium des Herzens," has been used by the older physicians for many years for its sedative action on the heart. It is stated that Skoda² first recommended its use in heart disease. Its introduction into the therapy of auricular fibrillation dates from 1914, when Wenkebach³ described its administration in a Dutch merchant suffering from auricular fibrillation. This man, living in, and acclimated to, the Dutch colonies, was accustomed to take quinin for malaria and other ills and found that, curiously enough, it also controlled his periodic heart attacks. Frey,⁴ in 1918,

following experimentation with various cinchona bark alkaloids, found that quinidin was less toxic and more effective than any of the others, and, because of the better solubility of quinidin sulphate, advocated its use rather than the pure alkaloid. Since his publication, a rather extensive literature on the action of quinidin has appeared.⁵

The present report deals with seven cases of chronic auricular fibrillation, one case of paroxysmal auricular fibrillation, and one of auricular paroxysmal tachycardia.⁶ In each case, 0.2 gm. (3 grains) of quinidin was administered the first day as a preliminary idiosyncrasy test. The second day, 0.4 gm. (6 grains) was given at 8, 12, 4 and 8 o'clock, and continued daily thereafter, until either a normal cardiac mechanism resulted, until sufficient had been given in the refractory cases to make it clear that no such effect could be obtained, or until some signs of intoxication had been produced. Electrocardiographic tracings were made as a control and at varying intervals thereafter to study its effects. Careful daily bedside notes of symptoms and physical and laboratory findings were made. Of the eight cases of auricular fibrillation, four responded with the development of a normal cardiac mechanism (sinus rhythm) and four remained unaffected. I shall discuss the latter group first.

In general, it may be said that these four patients all suffered with moderately advanced, or advanced heart failure, as shown by such findings as generalized edema, cyanosis and orthopnea. Three of the four improved under digitalis. They varied in age from 13 to 50 years. Two were cardiorenal cases with hypertension, one a mitral stenosis, and one a postinfectious myocarditis. The maximum dose given was 24.4 gm. (376½ grains) over a period of three weeks. Quinidin and digitalis were given in various combinations: simultaneously, digitalis first, followed by quinidin, and vice versa. By no method was it possible to restore a normal cardiac mechanism in any patient suffering with advanced circulatory failure. As far as could be ascertained, no untoward effects were experienced except possibly in Patient H. S., who suffered from advanced heart failure with right bundle branch block, whose decompensation over a period of many months had failed to respond to digitalis.

The cases in which a normal cardiac mechanism was established are as follows:

CASE 1.—A woman, aged 45, suffering from mitral stenosis of eight years' duration with early heart failure, developed a sinus rhythm after 1.8 gm. (28 grains) of quinidin (Fig. 1). Up to the present time the sinus rhythm has persisted approximately four months, the latter three of which have transpired without further administration of the drug. It is interesting to note that, with the establishment of the sinus rhythm, both the evidence of right preponderance and the slight suggestion of early heart failure disappeared. She states that, since the restoration of the normal heart beat, she has felt somewhat better.

CASE 2.—A man, aged 70, suffering with general atherosclerosis, chronic myocarditis, diabetes mellitus and auricular fibrillation, secured a sinus rhythm after 1.8 gm. (28 grains) of quinidin, lasting ten days without quinidin. Sometime between the tenth and the nineteenth day thereafter he experienced a relapse to fibrillation. A second sinus rhythm, secured after 3.2 gm. (49½ grains) of quinidin, persisted fourteen days with 0.4 gm. (6 grains) daily, but fibrillation

* Read before the Chicago Society of Internal Medicine, Oct. 24, 1921.

¹ From the Medical Services and the Electrocardiographic Laboratory, Michael Reese Hospital.

1. Lewis, Drury, Ilescu and Wedd: Brit. M. J. 2:514 (Oct. 1) 1921.

2. Skoda, quoted from Romberg: Krankheiten des Herzens, Ed. 3, 1921, p. 384.

3. Wenkebach: Die unregelmässige Herztätigkeit und ihre klinische Bedeutung, Leipzig, Engelmann, 1914.

4. Frey, W.: Ueber Vorhofflimmern beim Menschen und seine Beseitigung durch Chinidin, Berl. klin. Wchnschr., 1918; Weitere Erfahrungen mit Chinidin bei absol. Irregularität, Ebenda, 1918.

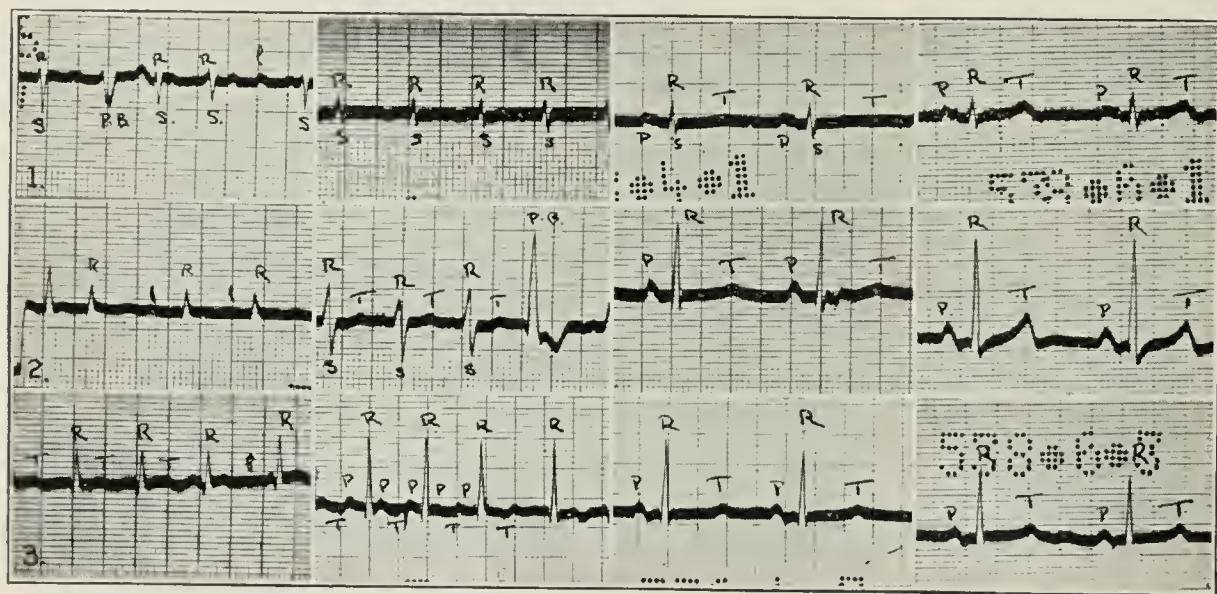
5. Compare Levy, R. L.: Restoration of the Normal Cardiac Mechanism in Auricular Fibrillation by Quinidin, J. A. M. A. 76:1289 (May 7) 1921.

6. Because of the securing of additional cases, it was decided that the case of paroxysmal tachycardia be reported at a later time.

recurred after three weeks without quinidin. Since this time, no further quinidin being given, his fibrillation has persisted.

CASE 3.—An assembler, aged 43, suffering with mitral stenosis, auricular fibrillation of two years' duration and recurrent heart failure, developed a sinus rhythm with auricular extrasystoles after 3.2 gm. (49½ grains) of quinidin (Fig. 2). In the transition between the irregular and regular pulse, after 2.4 gm. (37 grains) of quinidin had been given, clear evidence of the retardation of the auricles and the development of impure flutter may be seen. This patient suffered many recurrences of fibrillation as soon as the drug was stopped, followed by as many restorations of sinus rhythm with varying amounts of quinidin. He received in all 8.2 gm. (126½ grains) of quinidin while in the hospital, and 8.4 gm. (129½ grains) as an ambulatory patient.

CASE 4.—A life insurance agent, aged 58, with distinct signs of exophthalmic goiter and a metabolic rate of 45 plus, has experienced, in the past two months, three attacks of periodic heart irregularity, which electrocardiographic tracings have shown to be paroxysmal auricular fibrillation. As the last attack persisted somewhat longer than the earlier ones, and because of the increasing severity of the thyroid symptoms, he entered the hospital for treatment and, after 1.4 gm. (21½ grains) of quinidin sulphate, a return to his normal heart rate was experienced.



June 28, 1921 June 29, 1921 June 30, 1921 July 7, 1921
Quinidin, 0.2 gm.; Quinidin, 1.2 gm.; Quinidin, 0.4 gm.; No quinidin for one
right preponderance; rate, 140. sinus rhythm; rate, 62; week; sinus rhythm;
rate, 136. disappearance of right rate, 58.
preponderance.

Fig. 1 (Mrs. I. B., aged 45).—Mitral stenosis, early heart failure, auricular fibrillation: establishment of sinus rhythm and compensation with small amount (1.8 gm.) of quinidin, persisting four months (last examination), three weeks without quinidin.

No serious mishaps occurred in the observation of these "successful" cases. Various of these patients complained at different times of nausea, vertigo, transitory weakness, headache and tinnitus aurium. Two of them believed they had less cardiac palpitation, were more comfortable, and experienced improved sleep and appetite with the establishment of a sinus rhythm. Two noticed no change. Most of them developed an early tachycardia of from 20 to 25 beats over their previous pulse rate and, subsequently, a bradycardia of from 45 to 55 with the establishment of a regular pulse. Two developed auricular and ventricular extrasystoles. The total urinary output in three patients was increased.

COMMENT

The mechanism and significance of the restoration of the normal heart beat is of surpassing interest in this action of quinidin sulphate. Santesson,⁷ in 1893, and F. B. Hofmann,⁸ in 1915, have shown that quinidin

depresses the rhythmicity, contractility and irritability of the heart. Boden and Neukirch,⁹ working with the perfused, isolated rabbit and fetal heart, showed that quinidin slows the heart rate, causes paralysis of the auricle, shortens the auriculoventricular interval, and results finally in paralysis of the ventricle.

While these earlier views are interesting and valuable, perhaps the most clarifying work on this fascinating action of quinidin is that recently presented by Lewis and his co-workers. Drury and Iliescu¹⁰ show clearly, by taking sternal leads, that a progressive retardation in the auricular rate is obtained from the two hourly administration of quinidin, an initial rate of 450 being reduced to 200. During this retardation, the small, frequent, fibrillary waves change to the slower, larger ones of impure flutter. As the auricles are slowed the ventricular rate rises, owing to a decrease in the auriculoventricular block.

The explanation of this tachycardia, which we also noted in our cases, was foreshadowed by Frey.¹¹ Lewis believes that the maximum effect from any one

dose of quinidin is obtained two hours after the dose, so that if a longer interval is allowed to elapse between dosages the maximum effect is lost. The actual point of attack of quinidin on heart muscle is explained by Lewis on the basis of his theory of circus movements. He believes that it affects both the refractory period and the conduction time of the circus wave, and that if the gap between the crest and wake of the reentrant wave is narrowed and finally closed, fibrillation will cease and the pacemaker again regain control. The maintenance of the gap depends on the balance between the refractory period and conduction time. As they are mutually opposed and both slowed by quinidin, the end-result, the persistence of fibrillation or the restoration of sinus rhythm depends on which effect dominates.

SUMMARY

Summarizing briefly my experiences from this rather limited number of cases, I feel it should be strongly emphasized that, for the present, quinidin sulphate is primarily of use in studying the mechanism of fibrillation of the auricles. I therefore believe it desirable to sound a warning against the use of quinidin as a general therapeutic procedure for the treatment of various types of disorderly heart rhythm. When it is used, it should be considered a problem of clinical investigation, with careful observations and controls and judicious use in the question of dosage.

Quinidin, apparently, is not without danger, as witness the reports from various observers of sudden collapse—syncope, apnea and pulselessness—and the

9. Boden and Neukirch: *Deutsch. Arch. f. klin. Med.* **136**: 181, 1921.

10. Drury and Iliescu: *Brit. M. J.* **2**: 512 (Oct. 1) 1921.

11. Frey, W.: *Deutsch. Arch. f. klin. Med.* **70**: 136, 1921.

7. Santesson: *Arch. f. exper. Path. u. Pharmacol.* **32**: 327, 1893.

8. Hofmann, F. B.: *Die Wirkung einiger anorgan. Salze und des Chinins auf die Tätigkeit des Säugetierherzens*, *Ztschr. f. Biol.* **66**, 1915.

recent warning of Mackenzie¹² and Orr¹³ as to the danger of emboli from the setting free of small clots of blood which have formed during the abnormal state of the auricle during fibrillation and flutter, and which may be set free in the circulation when the auricle resumes its normal systole.

Another interesting problem which this work raises is the explanation why the cases of fibrillation with associated advanced heart failure fail to respond. At present all one can say is that the myocardial changes in heart muscle failure are so profound and widespread that the pacemaker is permanently unable to secure dominance over the auricle, even with the assistance of this powerful drug. In this relation, the literature contains one or two interesting examples of the reestablishment of compensation, without the use of digitalis, at the time of the restoration of the normal mechanism by quinidin. Von Bergmann,¹⁴ for example, cites a particularly striking example. My first case, Mrs. I. B., is a pertinent one, evidence of improvement of compensation being noted both clinically and electrocardiographically with the onset of sinus rhythm.

The explanation why, in certain cases, the restored sinus rhythm persists, and in others does not, is likewise wanting at the present time. The suggestion lies near at hand that the first group, those which persist, are merely examples of paroxysmal fibrillation, cases which will develop a sinus rhythm simultaneously with rest in bed or with no special method of treatment. There is little to be said against this view, and the conclusion as to the actual therapeutic effect of the drug in any given case is difficult to reach, a difficulty similar to the evaluation of the therapeutic effect of many medical measures.

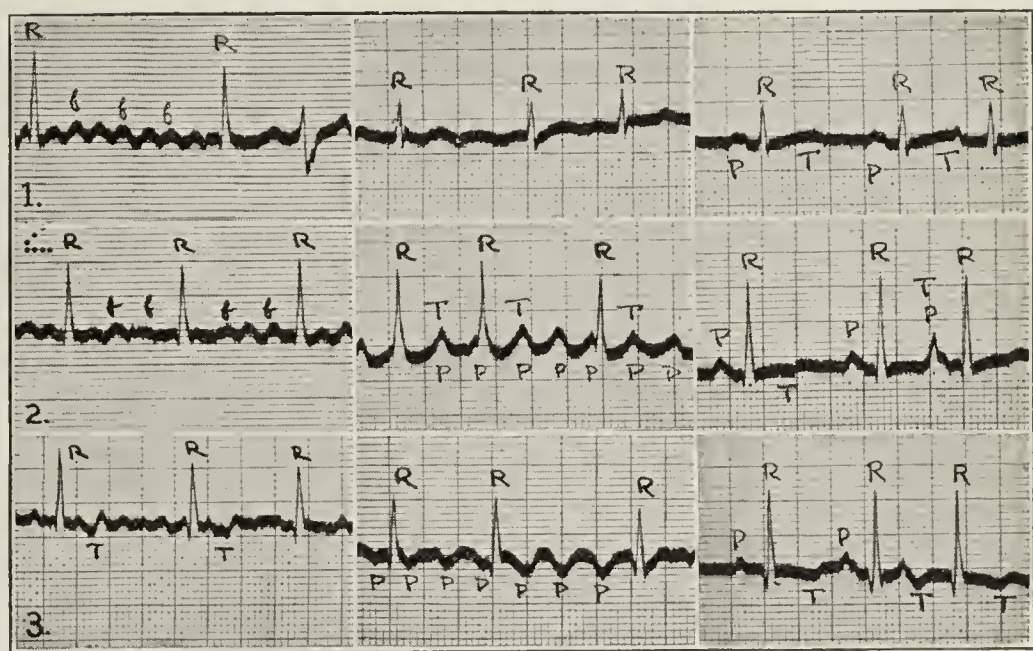
Does chronic auricular fibrillation jeopardize a patient's health or shorten his life? Is it necessarily an undesirable phenomenon, and should measures of any kind, quinidin or other drugs, be administered for its control? I have in mind several patients whom I have watched for quite a few years, who have a persistently irregular pulse, with no other signs of cardiac disturbance. Should an attempt be made with them to restore their sinus rhythm and, if it is restored, will they live longer, be more comfortable and work more efficiently? Mackenzie cites the case of a man, aged 60, with an auricular fibrillation who consulted him fifteen years before, who was told not to worry and to lead his normal life, and that he needed no treatment. This patient did so and today is alive and well. I believe that such questions can only be answered by following a large number of cases over a considerable number of years, and that many more clinical observations and statistical studies of fibrillation, with and without quinidin, must be made before even an attempt at answering this and related questions may be undertaken.

Finally, the criticism that restoring the normal rhythm with quinidin does not of itself effectively treat the basic cause of the irregularity, I fully agree with. My last case of recurring paroxysmal fibrillation, one

of the findings in the general picture of a Basedow complex, is a moot case. Nevertheless, accumulated and extended experience and careful study will ultimately portray the confines of these disease problems, much more fundamental than fibrillation itself.

CONCLUSIONS

1. Quinidin sulphate has been administered in seven cases of chronic auricular fibrillation and one case of paroxysmal auricular fibrillation.
2. Four cases of chronic auricular fibrillation, with advanced heart failure, failed to respond to quinidin with the establishment of a normal sinus rhythm.
3. In three cases of chronic auricular fibrillation, without advanced heart failure, the normal cardiac mechanism was restored with varying amounts of quinidin. In one case the restoration was permanent (four months). The other two cases relapsed to fibrillation at varying intervals after quinidin was discontinued.
4. The case of paroxysmal fibrillation under quinidin showed distinct periods of shortening of the duration



June 20, 1921
No quinidin; auricular
fibrillation; rate, 72.

June 23, 1921
After 2.4 gm. of quini-
din; auricular flutter; rate,
103.

June 24, 1921
After 3.6 gm. of quini-
din; sinus rhythm; auricu-
lar extrasystoles.

Fig. 2 (J. M., aged 43).—Mitral stenosis, auricular fibrillation: establishment of sinus rhythm with quinidin; frequent recurrences of fibrillation; development of auricular flutter in transitions.

of the paroxysms, and gave evidence of prevention of recurrences during its administration.

5. In the transition between fibrillation and sinus rhythm, in the successful as well as the unsuccessful cases, a moderate tachycardia, retardation of the auricular rate and evidences of impure flutter were found. Synchronously with the establishment of sinus rhythm, a bradycardia of varying intensity has been noted.

6. The action of quinidin in fibrillation is a fascinating problem, extremely complex, worthy of further study and not without untoward effects to the patient. Questions of exact mode of action, therapeutic value, dosage, indications and contraindications in practice must be reserved for wider knowledge.

Small Hospital.—The small or isolated hospital problem is the problem of forming the lines of communication to 6,000 hospitals scattered throughout the country away from the large centers of population, that each may know of the other's policies, that each may get the help needed on its special problem when it is needed.—A. R. Warner.

12. Mackenzie, J.: *Brit. M. J.* 2: 576 (Oct. 8) 1921.

13. Orr, J.: *Brit. M. J.* 2: 576 (Oct. 8) 1921.

14. Von Bergmann: *Zur Chinidinterapie des Herzens*, München. med. Wehnschr., 1919.

CLINICAL EXPERIENCE WITH QUINIDIN
IN AURICULAR FIBRILLATION *

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AND

HUBERT MANN, M.D.

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Within the last few years, the alkaloid quinidin has been found to have the power of stopping, at least temporarily, the common disturbance of cardiac mechanism, called auricular fibrillation, in about one-half the cases in which it has been tried. The method of administration and dosage of quinidin have varied considerably. In general, oral administration of quinidin, or quinidin sulphate, in doses of 0.2 to 0.5 gm. (4 to 8 grains) has been the practice. The total daily dosage has generally been from about 1 to 1.8 gm. (15½ to 28 grains), although Faber¹ has given as much as 3.5 gm. (54 grains) in a day. Hecht² gave quinidin intravenously, as did also Boden and Neukirch.³ Our practice has been as follows: The patient is given a preliminary probatory dose of 0.2 gm. (3 grains), and this is repeated once after two hours. If no symptoms of hypersusceptibility to the drug develop, the therapeutic administration of the drug is begun on the following day. Headache, nausea, faintness, flushing, tachycardia, palpitation or mental symptoms, developing after the test doses or during the treatment, call for increased care in administration and occasionally for temporary discontinuance of the drug. During the period of therapeutic administration, the patient receives from 1 to 1.6 gm. (15½ to 25 grains) of quinidin a day, in from three to five divided doses. Owing to the rapid elimination⁴ of the drug, there is no cumulative effect, and the treatment can be continued for a week or more with safety. It should be emphasized that with the precaution of testing every patient with two probatory doses, and not forcing the quinidin when it is not well tolerated, we have had none of the alarming symptoms reported in the literature, i. e., cessation of respiration, unconsciousness or pulselessness.⁵

We have collected all the published cases from the medical literature that was available to us, and we have summarized the results of the treatment in the accompanying table. A detailed record of six of the twenty-two unselected cases of auricular fibrillation in which we have used quinidin treatment is given herewith.

REPORT OF CASES

CASE 1.—A woman, aged 54, had had auricular fibrillation continuously since May, 1919, i. e., for more than two years. There were hypertension, some cardiac hypertrophy but no evidence of any valvular defect. Several electrocardiograms

showed auricular fibrillation. Quinidin therapy was started, June 21, 1921. The first day, two probatory doses of 0.2 gm. (3 grains) were given. On the second and third days, five doses of 0.2 gm. (3 grains) were given. On the fourth day after the second dose of 0.2 gm. (3 grains), the heart rhythm was found to be regular. An electrocardiogram was taken and showed normal rhythm. No more quinidin was given. The heart rhythm continued to be regular, and the last electrocardiogram, taken Oct. 5, 1921, still showed normal rhythm. The total amount of quinidin given was 2.8 gm. (43 grains).

CASE 2.—A woman, aged 41, suffering from mitral stenosis and insufficiency, with a rheumatic history, was known from electrocardiographic evidence to have had auricular fibrillation since June, 1920. Quinidin therapy was started, May 21, 1921. The first day, the usual two probatory doses of 0.2 gm. (3 grains) were given. The second day, five doses of 0.2 gm. (3 grains) were given. An electrocardiogram showed a change in the mechanism from auricular fibrillation to auricular flutter. On the third day, after two more doses of 0.2 gm. (3 grains), the heart rhythm was found to be regular. This was confirmed by electrocardiogram. No more quinidin was given. Frequent electrocardiograms throughout the next five months showed persistence of normal rhythm and no recurrence of fibrillation. The total amount of quinidin given was 1.8 gm. (28 grains). An interesting feature of this case was the fact that the diastolic murmur of mitral stenosis with fibrillating auricles developed a presystolic accentuation after normal rhythm had been restored.

CASE 3.—A man, aged 43, with no previous history of cardiac disease, had been struck by an automobile three weeks before observation, being only slightly injured but greatly frightened. He soon began to complain of palpitation, weakness and precordial distress. An electrocardiogram taken May 5, 1921, showed auricular fibrillation. The patient was treated for ten days with rest in bed and no drugs; but the fibrillation, as shown by repeated electrocardiograms, persisted. May 15, quinidin was started; and after two doses of 0.2 gm. (3 grains) each, normal rhythm returned. The patient left the hospital a week later with no recurrence of fibrillation and no evidence of any cardiac disability. It is noteworthy that the return to normal rhythm took place after only 0.4 gm. (6 grains) of quinidin.

CASE 4.—A woman, aged 30, with a double mitral lesion of unknown etiology had had auricular fibrillation for at least one month previous to treatment. April 4, 1921, two doses of 0.2 gm. (3 grains) of quinidin were given. The following day, 1.2 gm. (18 grains) was given; and on the third and fourth days, 0.8 gm. (11 grains) was given. An electrocardiogram then showed normal cardiac rhythm, after a total dosage of 3.2 gm. (50 grains) of quinidin. May 10, fibrillation recurred, and 0.6 gm. (9 grains) of quinidin produced auricular flutter which changed back to fibrillation in a few days. May 20, regular rhythm was restored by 1.4 gm. (22 grains) of quinidin in two days. May 28, an electrocardiogram again showed fibrillation, and June 2, regular rhythm was again restored after 1.4 gm. (22 grains) of quinidin. July 5, the rhythm was still regular.

CASE 5.—A man, aged 39, with a history of auricular fibrillation for at least one year previous to admission, had no evidence of cardiac valvular disease. The heart was normal in size, with no murmurs. There had been some loss of weight with a slight von Graefe's sign; basal metabolism was normal. September 12, after a total of 2.4 gm. (37 grains) of quinidin, an electrocardiogram showed normal rhythm, which has persisted up to October 5, with no recurrence of fibrillation.

We are greatly indebted to Dr. M. A. Rothschild for his courtesy in permitting us to include this case. It seemed probable to Dr. Rothschild that the patient had had exophthalmic goiter, the original cause of the fibrillation.

CASE 6.—A woman, aged 44, with mitral stenosis and insufficiency of rheumatic origin, had auricular fibrillation, proved by electrocardiogram. A total of 15.2 gm. (4 drams) of quinidin caused the fibrillation to become impure flutter and produced a slowing in the flutter rate; but there was never restoration of normal rhythm, and after the quinidin was

* From the Medical Department (Services of Drs. Brill and Libman), Mount Sinai Hospital.

1. Faber, K.: *Ugesk. f. Læger.* **83**: 577 (May 5) 1921.

2. Hecht, A.: *Wien. klin. Wchnschr.* **6**: 171, 1917.

3. Boden, E., and Neukirch, P.: *Deutsch. Arch. f. klin. Med.* **136**: 181 (June) 1921.

4. Wiechmann, E.: *Ueber die Ausscheidung des Chinidins im Harn*, *Ztschr. f. d. ges. exper. Med.* **7**: 155, 1918.

5. Frey (Berl. klin. Wchnschr. **55**: 417, 451, 1918) states that one may attempt to combat the depressing effect of quinidin with caffeine, one of the theobromin preparations, or camphor. He also recommends strychnin for its central effect, more particularly for its effect on the respiratory center. Two letters appeared in the *British Medical Journal* for Oct. 8, 1921—one by Sir James Mackenzie, the other by Dr. James Orr. They point out the increased dangers of embolism from intra-auricular thrombi, as a result of the change from flutter or fibrillation of the auricles to normal rhythm. Mackenzie also suggests that quinidin should be employed only in those cases of auricular fibrillation which do not respond to digitalis or strophanthus and which require treatment for heart failure.

stopped, the fibrillation persisted essentially unchanged. This slowing of oscillatory flutter rate by quinidin was repeated several times, as may be noted in the accompanying electrocardiograms.

COMMENT

An analysis of our twenty-two cases shows that in nine the fibrillation was changed to a normal rhythm, and in two others the auricles responded by a change to either pure or impure flutter. The age of the patient seemed to play no definite part in the success or failure of the treatment. The youngest patient who responded was 27 years old and the oldest was 69. One boy of 15, with a severe cardiac insufficiency, failed to respond. Sex did not appear to be a factor. A long previous duration of fibrillation did not necessarily indicate that the atrium would fail to respond, for in one of our successful cases the patient had been known to be suffering from fibrillation for more than three years, another for at least two and one-half years, and a third for more than two years. Still, we are distinctly under the impression that the cases of long standing and with advanced organic lesions are less likely to respond than those with recently established fibrillation. From the etiologic factor associated with the fibrillation, we could not predict the result of quinidin administration; we have seen success and also failure in each of the three common groups of cases, i. e., the valvular, the atherosclerotic and hypertensive, and those due to exophthalmic goiter.

The duration of the change in mechanism after quinidin has been variable; the shortest interval has been six days. Our whole experience with the systematic use of the drug extends over only five months. Two of our patients continue to have normal mechanism, three and one-half and five months, respectively, after each was given a single series of quinidin. One other patient has had two recurrences of fibrillation, but each time has responded to quinidin. Still another woman responded to the first series; but, on suffering a relapse of fibrillation, she failed to respond to rather intensive dosages of quinidin.

The quinidin not only affected the cardiac rhythm but also caused various inconstant changes in the shape of the electrocardiogram. These changes consist essentially in slight alterations of the relative heights of the Q, R and S deflections and in the shape of the T wave. Teleoroentgenograms of several of our patients before and after the change from fibrillation to normal rhythm

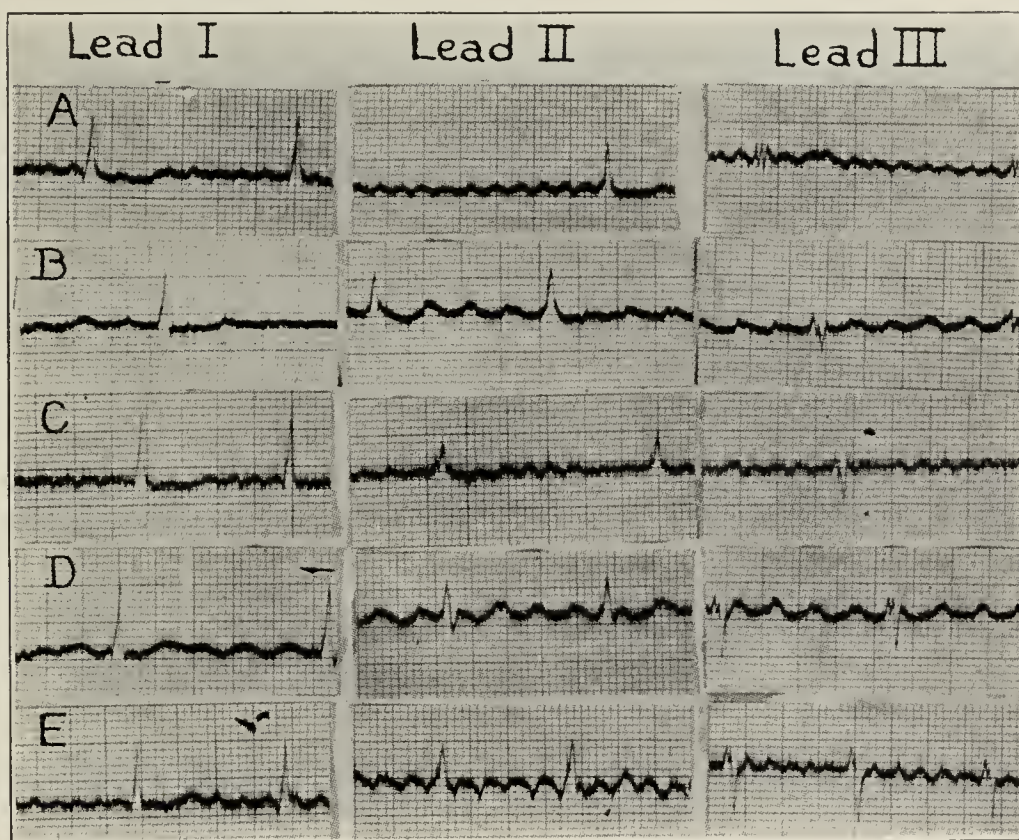
failed to show any significant or appreciable change in the shape or size of the heart. After the appearance of regular rhythm, in at least two of our cases, the diastolic murmur of mitral stenosis showed a presystolic accentuation. We hope to take heart sound records of such changes in the murmur.

An observation which we regard as significant with respect to the way in which quinidin acts on the heart resulted from our investigation of the effect of quinidin on the rate of flutter in those patients who, during the administration of the drug, exhibited either pure or impure auricular flutter. This effect is strikingly illustrated in Case 6. Before quinidin therapy was started, the electrocardiogram of this patient showed an impure auricular flutter, with an auricular rate of about 490 a minute. After two days of quinidin therapy, the flutter rate fell to about 285 and continued low until the quinidin was stopped, whereupon the auricular rate increased to about 450. On a second exhibition of quinidin, the flutter rate fell slowly to about 280, and

rose again to about 500 when the drug was discontinued. The accompanying chart shows several electrocardiograms of this patient and illustrates graphically the effect of quinidin on the flutter rate. Another case of impure flutter showed a similar drop from a flutter rate of about 500 to 300, and still another showed a slowing from 460 to 300, at which point pure flutter replaced the impure flutter.

Several German observers⁶ have noted a similar phenomenon; but the significance of this observation has not been emphasized. If we bear in mind the probable mechanism of flutter and impure flutter, as re-

vealed by Garrey⁷ and Mines,⁸ in their experiments on circus contractions, and by Lewis,⁹ in his extensive work on flutter and fibrillation, we are impelled to believe that a decreased flutter rate means a decrease in the rate of conductivity of auricular muscle. We know from the early work of Santesson,¹⁰ corroborated later by Hofman,¹¹ that quinidin decreases the irrita-



Electrocardiograms from Case 6, illustrating the reduction in oscillations as a result of the administration of quinidin. Ordinates: 1 division = 10^4 volts; abscissas: 1 division = 0.04 second. Record A, taken April 20, before the administration of quinidin, shows impure auricular flutter with a flutter rate of about 490 a minute; in B, taken April 25, after the administration of 3.8 gm. (58 grains) of quinidin in four days, the flutter rate is about 285; in C, taken May 2, five days after stopping the quinidin, the flutter rate is about 450 again; in D, taken May 23, after 3.8 gm. (58 grains) of quinidin administered during the four previous days, flutter rate is about 280, and in E, taken May 28, two days after stopping quinidin, flutter rate about 450. Numerous other electrocardiograms showed other rates, depending on the amount of quinidin given.

6. Von Bergmann, G.: München. med. Wchnschr. **66**:705, 1919. Boden and Neukirch, Footnote 3. Faber, Footnote 1. Frey, W.: Deutsch. Arch. f. klin. Med. **136**:70 (April) 1921. Hecht, Footnote 2.

7. Garrey, W.: The Nature of Fibrillary Contraction of the Heart, Am. J. Physiol. **33**:397, 1914.

8. Mines, G. R.: On Dynamic Equilibrium in the Heart, J. Physiol. **46**:349, 1913.

9. Lewis, T.: Heart **7**:117, 127, 131 (April) 1920; *ibid.* **7**:293 (Aug.) 1920.

10. Santesson, C. G.: Ueber die Wirkung einiger Chinaalkaloide auf das irreguläre Froschherz und auf den Blutdruck des Kaninchens, Arch. f. exper. Path. u. Pharmacol. **32**:321, 1893.

11. Hofman, cited by Frey, W.: Deutsch. Arch. f. klin. Med. **136**:70 (April) 1921.

bility of auricular muscle. These two actions of quinidin, depression of the irritability and of the conduction rate in a fibrillating auricle, will tend to lessen the frequency and complexity of the fibrillatory contractions and thus will favor the establishment of a regular flutter or the reassertion of the normal sinus control.¹² The fact that fibrillation generally originates under conditions of increased rate and increased irritability lends support to this view.

Clinically, the fact that quinidin will often restore normal rhythm in the perpetually irregular heart is now well established. It may be questioned whether the patient is any better off for such a restoration of normal mechanism; and it may be answered that in most instances he is decidedly improved clinically. The question of the degree of improvement, if any, depends in part on the causative factor of the fibrillation; such

ventricular valves to be in the proper position for closure at the beginning of ventricular contraction and (c) also cause the ventricular musculature to be under slightly increased tension at the moment of contraction, thus insuring optimal conditions for the propulsion of blood.

2. The ventricles, instead of contracting at irregular intervals and with varying force, now contract at regular intervals and with constant force, thus insuring a proper period of rest between contractions and optimal conditions for efficiency of the ventricular muscle. Ventricular irregularity, including premature and abortive beats, is considered by Eyster and Swarthout the main factor in decreasing ventricular output in auricular fibrillation.

3. The normal sinus control, which is lost to a great extent when the auricles are fibrillating, is now restored and the heart is enabled to respond to varying demands by appropriate changes of rate. Experimentally, Eyster and Swarthout¹³ have found that the induction of auricular fibrillation in dogs decreases the cardiac output 40 per cent. The clinical improvement in a patient immediately following the restoration of normal rhythm is frequently striking, being marked by relief from dyspnea and palpitation and by rapid subsidence of edema and pulmonary congestion.

PUBLISHED CASES ILLUSTRATING THE EFFECT OF QUINIDIN ON AURICULAR FIBRILLATION

Author	Total Number of Cases Reported	Un-affected by Quinidin	Changed to Flutter	Normal Rhythm Restored
1. Benjamin and von Kapff (Deutsch. med. Wehnschr. 47:10 [Jan. 6] 1921)	27	9	..	18
2. Von Bergmann (München. med. Wehnschr. 66:705, 1919)	9	3	..	6
3. Boden and Neukirch (Deutsch. Arch. f. klin. Med. 136:181 [June] 1921)	17	10	1	6
4. Faber (Ugesk. f. Læger 83:577 [May 5] 1921) ..	2	1	..	1
5. Frey (Deutsch. Arch. f. klin. Med. 136:70 [April] 1921)	50	23	6	21
6. Hecht (Wien. klin. Wehnschr. 6:171, 1917)....	2	2	..	..
7. Jenny (Schweiz. med. Wehnschr. 51:272 [March 24] 1921).....	18	1	..	17
8. Klewitz (Deutsch. med. Wehnschr. 46:8 [Jan. 1] 1920)	13	8	4	1
9. Leschke and Ohm (München. med. Wehnschr. 68:65, 1921).....	1	..	..	1
10. Levy (J. A. M. A. 76:1289 [May 7] 1921)...	4	1	1	2
11. Schott (Deutsch. Arch. f. klin. Med. 134:208, 1920)	2	..	..	2
12. Wenckebach (Die unregelmässige Herztätigkeit und ihre klinische Bedeutung, 1914, pp. 125 and 128).....	2	..	..	2
13. Wisser (Inaug. Dis., Cologne, 1920).....	11	7	..	4
14. Drury and Ilescu (Brit. M. J. 2:511 [Oct. 1] 1921)	13	6	1	6
	171	71 (41%)	13 (8%)	87 (51%)

cases as resulted from a transitory toxic condition or trauma are more likely to be benefited than those which have as an underlying cause such permanent conditions as valvular defects, arteriosclerosis or myocardial degeneration. The mere change in mechanism from auricular fibrillation to normal sinus rhythm results in increased cardiac efficiency for several reasons:

1. The auricles instead of fibrillating now contract regularly and not only (a) propel some blood into the ventricles but also (b) tend to cause the auriculo-

SUMMARY

1. Quinidin checks auricular fibrillation in about 50 per cent. of the cases, as is evidenced by a summary of all published cases taken almost entirely from the continental literature.

2. The clinical value of the drug, properly administered, is demonstrated in our series of twenty-two cases of auricular fibrillation. Nine of these showed a response by the restoration of normal rhythm, and two others by a change to either pure or impure flutter.

3. Its effect is significant in the reduction of the oscillatory rate of impure flutter.

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TRIGEMINAL NEURALGIA *

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It is a fact well known to those called on to treat trigeminal neuralgia that, although deep and peripheral nerve alcoholization and peripheral neurectomies are productive of relief, the pain invariably returns in the average period of about a year. When these regions are again dealt with, each subsequent period of relief becomes of shorter duration and less profound, until such a stage is arrived at as to afford no relief whatsoever.

The purpose of this paper is to establish two paramount points:

1. I have discovered that the buccal branch of the inferior maxillary division, though affected very often,

12. Since sending this article to THE JOURNAL, two papers by Lewis and his collaborators have appeared in a recent number of the British Medical Journal. They noted constantly the same slowing of the oscillatory rate, as we observed in three cases, and present a most interesting explanation of the mechanism by which quinidin interrupts auricular fibrillation (Drury, A. N., and Ilescu, C. C.: The Restoration of the Normal Cardiac Mechanisms in Cases of Auricular Fibrillation by Means of Quinidine Sulphate, Brit. M. J. 2: 511 [Oct. 1] 1921. Lewis, Drury, Ilescu and Weed: The Manner in Which Quinidine Sulphate Acts in Auricular Fibrillation, Brit. M. J. 2: 514 [Oct. 1] 1921).

13. Eyster, J. A. E., and Swarthout, E. C.: Experimental Determination of Influence of Abnormal Cardiac Rhythms on Mechanical Efficiency of Heart, Arch. Int. Med. 25: 317 (March) 1920.

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

is hardly ever diagnosed, and different from the supra-orbital, infra-orbital and mandibular branches; the "trigger zone" is vague and may sometimes give the impression that the neighboring nerves are the affected ones. For want of better language I have named this phenomenon a "mirrored trigger zone."

2. Deep alcohol injections are more difficult and less certain, even in the hands of experts, than are well placed peripheral injections. Patrick,¹ who has had as large an experience as any in this country, admits in his report on 150 patients that he failed entirely in 26 per cent. of cases, was "partially successful" in 43 per cent. and absolutely successful in only 30 per cent. To this should be added that alarming sequelae have followed this procedure. Patrick, Cushing² and others have reported quite a few complications of a grave order following deep alcoholization.

INJECTION OF THE BUCCAL NERVE

Aside from Blair's mentioning the buccal injection, I have never encountered, in the voluminous literature on trigeminal neuralgia, the buccal as a branch susceptible of becoming affected. It was more by accident than ratiocination that it dawned on me that this nerve "mirrored" itself in adjacent tissues, not only as a trigger zone, but even as to the sharp paroxysmal pains. When the buccal nerve is affected, patients may complain of the auriculotemporal, infra-orbital or mandibular region. The reason becomes clear, once the course and distribution of the buccal nerve is recalled.

Figure 1 shows that the buccal nerve is given off at the anterior or motor root of the third division of the trigeminal nerve. The diameter of its trunk is almost equal to that of the lingual or mandibular nerve. Therefore, it is a nerve of appreciable size. Emerging between the two heads of the external pterygoid muscle, it passes forward on the inner surface of the tip of the coronoid process of the ascending ramus; then coursing obliquely downward and forward, it pierces the posterior fibers of the buccinator muscle, ramifying its substance. Here, in my opinion, is the probable explanation of the mirroring: The buccinator muscle decussates at the corner of the mouth so that the lower central fibers pass into the upper lip and the upper central fibers pass into the lower lip (Fig. 2). I am firmly convinced that this intersection of fibers is the cause of the mirroring, nor do I think that it is stretching a point so to construe it. Another peculi-

arity: The buccal nerve, though coming off of the motor root, is the only sensory branch supplying the buccinator muscle. Further, all the muscles of mastication are supplied with motor nerves from the above referred motor root of the fifth pair, except the buccinator, the buccinator receiving its motor supply from the facial or seventh pair of cranial nerves. Still further, the buccal nerve not only gives off a deep temporal branch but, as I have shown by dissection, may give off superficial temporal branches.

The buccal nerve, being surrounded by and occupying the middle ground of the other sensory branches, lends itself to stimulation on the slightest provocation. Thus, because of its course as it is given off from the anterior root of the inferior maxillary division, it is easily disturbed by the mere opening of the mouth. Talking, eating or sipping brings the buccinator muscle

into play, and this is sufficient to bring on a paroxysm. Touching the cheek from within or without the mouth, shaving, washing or wiping the cheek is sure to start a paroxysm. To make the diagnosis more obscure, the buccal nerve will "mirror" itself so that to the operator it appears to be definitely this or that branch. Usually he is almost certain that either the infra-orbital or the mandibular is the affected branch. I know that my readers, like myself, have reoperated or reinjected a certain area time after time until the patient was, like ourselves, discouraged and exhausted. The pain not only persisted but became accentuated in its severity. These patients were, if operated on by

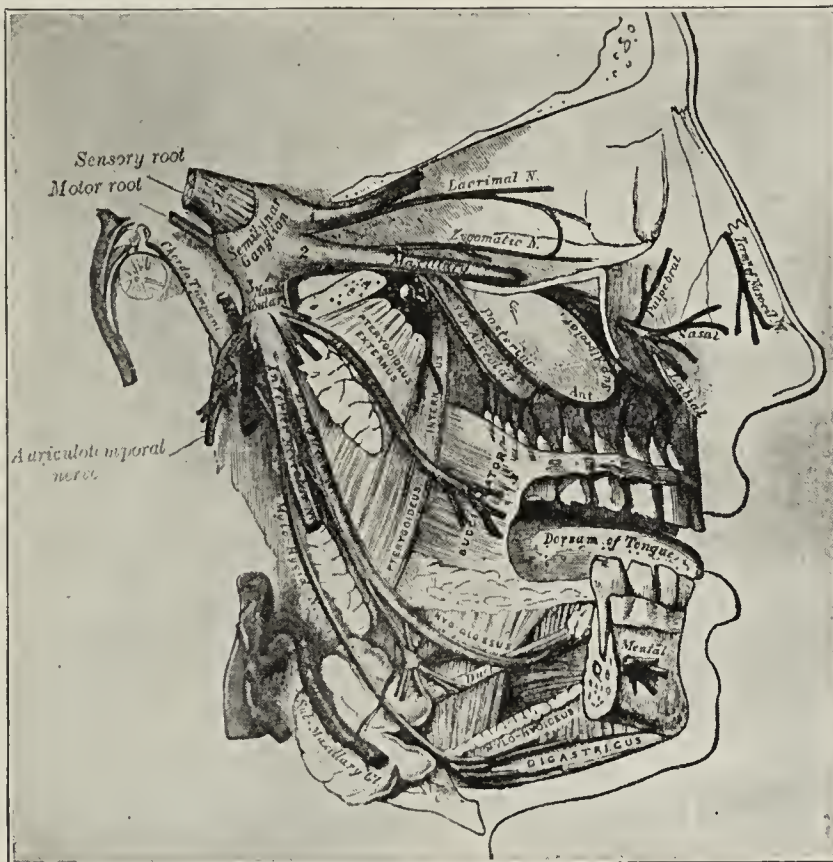


Fig. 1.—The buccal (buccinator) nerve is to be seen as the first and highest branch of the third division.

capable neurosurgeons, finally relieved by intracranial operations. At this time I wish to attest to the fact not only that intracranial neurectomies are effective but also that the operation is not so fraught with dangers as many suppose it to be. I have seen and known several people whose sensory root has been severed or gasserian ganglion removed; who were operated on by both Southern and Eastern surgeons and whose recoveries from the operation were as uneventful as, if not more so than from ordinary abdominal operations.

To return to our discussion: I have noticed that the buccal branch is rarely primarily affected. As a rule it becomes affected after the patient has gone through the gamut for a year or more. The lingual nerve is also given to mirroring itself in neighboring tissues. A single instance of several occurrences will suffice:

Mr. V., aged 55, had suffered with trigeminal neuralgia for over a year. To all appearances it seemed to be the right infra-orbital. Subjectively, he informed me that by touching the right upper second bicuspid with the tip of his tongue he would start the pain. In the belief that the right infra-orbital was the guilty one, it was injected; but the next day the patient returned with the same tooth complaint, although the

1. Patrick, H. T.: The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia, *J. A. M. A.* **58**: 155 (Jan. 20) 1912.

2. Cushing, Harvey: The Rôle of Deep Alcohol Injections in the Treatment of Trigeminal Neuralgia, *J. A. M. A.* **75**: 441 (Aug. 14) 1920.

3. Blair, V. P.: Surgery and Diseases of the Mouth and Jaws, St. Louis, C. V. Mosby Company.

entire distribution of the infra-orbital nerve was anesthetic. When I touched his tooth with finger or instrument no paroxysm was elicited, but when I touched (with my finger) the tip of his tongue a violent and agonizing pain resulted, but mirrored in the right upper jaw. The lingual was immediately injected, and the pain has not returned.

Whether or not my opinion is shared as to the frequency of the elusive buccal branch becoming affected, I would suggest a blocking of it in the recurring patient. It is a procedure incapable of doing harm, and the technic for blocking it is simplicity itself.

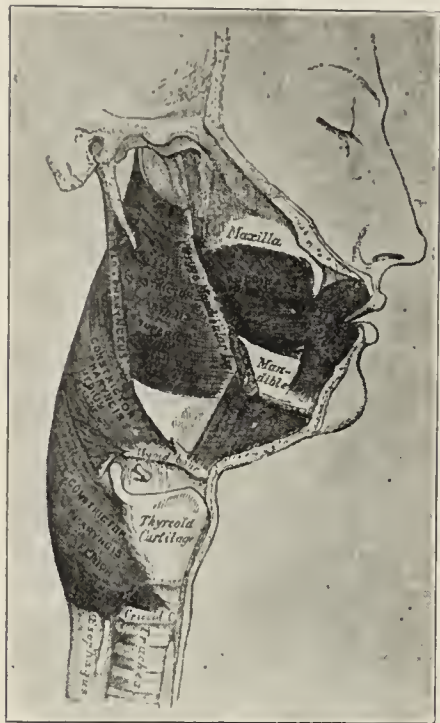


Fig. 2.—The intersection of the buccinator fibers can be seen at the corner of the mouth.

Since the buccal nerve is affected in nearly all cases that have gone for a year or more, either it should be injected at the tip of the inner surface of the coronoid process, or it can be blocked a centimeter below and behind the mouth of Stenson's duct. Both points are reached intra-orally. I have, however, devised an extra-oral method that I think is easier for the average to master.

The patient widely opens his mouth and a gag is inserted on the unaffected side. He is then instructed to pucker his lips, at the same time drawing the upper lip downward. This attempt makes the coronoid process conspicuous both to palpation and to vision. The needle is then inserted through the cheek just beneath the most prominent portion of the zygomatic bone, and advanced backward to reach the inner surface of the tip of the coronoid process (Fig. 3). One c.c. of alcohol I have found to be sufficient. It is certainly gratifying to see patients who have been entirely relieved in every instance in a series of fourteen cases. This statement can be vouched for by several local surgeons who have either seen the patients or have themselves made the injections. It is my opinion that injections made at the foramen ovale, although successful as far as the sensory root is concerned, may entirely miss the motor portion, and since the buccal is a branch of the latter, the patient may go unrelieved.

ADVANTAGE OF PERIPHERAL INJECTIONS

Not only is blocking of the maxillary branches at the foramen ovale and rotundum uncertain, but the period of relief is not longer than when peripheral measures are taken. The latter is, I am firmly convinced, because only the peripheral twigs are ever affected and, therefore, central injections, even when successful, are blocking superfluous branches. I arrive at the conclusion that only the peripheral branches are affected, first, because the patient's trigger zone and proper peripheral treatment has never led us out of the following nerve distribution: supra-orbital, infra-orbital, the trochlears and mental branches. Secondly, the paroxysms of pain are always located by the patient as peripheral, never deep. To be sure, there are cases

of deep pains, such as otalgia and sphenopalatine (Sluder's) neuralgia; also neuralgia due to pulp stones, impacted teeth, exostosed teeth, intracranial tumors, etc.; but they do not have the characteristics of trigeminal neuralgia, and, therefore, are not germane to our discussion.

It is interesting to hear what success we have met in peripheral injections: Whether it is due to the small lumen of the 42 mm. needle making it easy to find and follow the infra-orbital canal, or whether it is due to the use of pure alcohol, rather than the diluted, I do not know; but I find the canal in 100 per cent. of cases, and my average patient is free from pain for over one year. For the last few months I have been adding a few drops of formaldehyd solution, believing that it will help as a tissue fixer. The supra-orbital and supratrochlear injections are just as successful; but, in order to prolong the effect, 1 c.c. should be injected for each branch, and both branches should be injected as a matter of routine. The lingual can be seen at the base of the tongue and is easily injected with 1 c.c. of solution. If the lingual is to be injected in the pterygomandibular fossa, 2 c.c. of 95 per cent. alcohol is to be used. This injection is also 100 per cent. successful. This applies to the buccal as well. The auriculotemporal can easily be injected, as it crosses the root of the zygoma. (This branch is rarely affected; the buccal, when affected, mirrors in this region as before explained.) A dull needle should be used for this injection so as not to penetrate the vessels in the vicinity. The mandibular branch is the only one that does not offer a 100 per cent. success, and for that reason we prefer to remove it intra-orally. The operation when done intra-orally not only obviates a scar, but facilitates the removal of the incisive and, what is more important, the labial

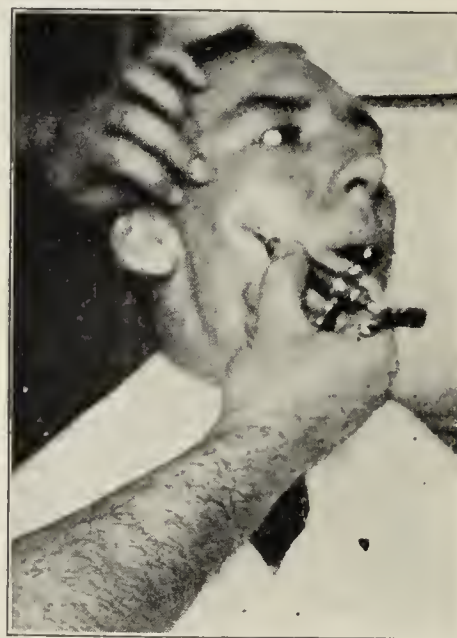


Fig. 3.—Technic for extra-oral buccal injection.

and mental twigs. Bear in mind that I am stressing twig avulsion as more important than trunk removal. I am not at present prepared to say, but it appears that recurrent tic douloureux is due as much, if not more, to anastomosis after avulsion or injection, than to regeneration. Needless to say that, prior to injection, 1 c.c. of 1.5 per cent. procain-epinephrin solution is injected in order to prevent pain. Some operators will not anesthetize locally or with a general anesthetic, claiming that the conscious patient is of help. My experience is that the patient can be injected objectively, and, therefore, I prefer a local or general anesthetic.

COMMENT

The etiology and pathology of trigeminal neuralgia are unknown. This statement applies to all that has ever been written on the subject. It includes (although I for several years believed the contrary) impacted

teeth, abscessed teeth, teeth with pulp stones and teeth whose roots press on nerve trunks. Exostosed roots, jagged alveoli following extractions—in short, no dental disturbances are capable of producing a single case of trigeminal neuralgia. I wish that every dentist and physician that first meets the patient afflicted with this tormenting disease, with the unmistakable symptoms accompanying it, would bear this in mind. If they could only realize that the instalment plan of extracting the patient's teeth; that dieting, climate, roentgen rays and violet rays are worse than useless, the patient would be spared much suffering and expense. It is also well to bear in mind that, though an infected antrum or small cyst or other condition be



Fig. 5.—This patient, after having the right gasserian removed, developed neuralgia on the opposite side.

present along with tic douloureux, the clearing up of the antrum or other condition will not in the least influence this dreadful malady, as they are merely coincidental.

It seems that the recital of the characteristics of this malady could be endless and still comparatively few recognize it. And the suggestions for treatment that one meets would be ludicrous if deprived of their disastrous effects. Extraction of teeth is about the oldest of ineffective treatment, and, as Cushing observes, few maladies can vie with this in the number of suggested remedies. Snake venom has been seriously advocated. Sir Arbuthnot Lane⁴ asserts that the removal of the colon has cured trigeminal neuralgia.

One characteristic that is paramount above all is that the patient will invariably state that the pain is the most excruciating of all pains. This includes any injury he has received; acute appendicitis, renal colic, or other pain.

Figure 5 shows a case in which, after an intracranial operation, the patient had the opposite (left side)

affected. As a bilateral gasserian was contraindicated, she was referred for injection. The injection was made into the infra-orbital foramen with relief from pain for two years. Recently she complained of pain and her buccal nerve was injected with the result of completely stopping her paroxysms. A crawling sensation, however, still persists.

CONCLUSIONS

1. Dental disorders do not cause trigeminal neuralgia, nor do cranial tumors. When either are present they are merely concomitants. The etiology is, unfortunately, unknown.

2. Deep alcohol injections are entirely too uncertain and do not offer relief from pain for a period exceeding proper peripheral injections.

3. Intracranial operations in the hands of the skilled are not as dangerous as reported.⁵

4. Because of its course, the long buccal nerve encroaches upon both the second and third distribution. Furthermore, the decussation of the buccinator muscle into the orbicularis oris makes it possible for the mirrored trigger zone to assert itself.

Fourth National Bank Building.

HISTOPATHOLOGY OF APICAL REGION OF TEETH WITH PARTLY FILLED ROOT CANALS*

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Teeth with root canals partly filled because of failure to introduce the filling material down to the apical opening have never been carefully studied by histologic methods,¹ nor is there any record of experimental work of this kind done on animals. This study is concerned, however, with human teeth extracted for the most part because of disease, of either the peridental or the apical region. Such material from the clinics of the Northwestern University Dental School was chosen for a preliminary study because of its availability and because no other human material was to be had with histories and roentgenograms. It is undoubtedly true that the conditions present in such material are not average, and that the regenerative and reconstructive changes are close to the possible minimum, for in every case they represent clinical failures. This must be considered in any interpretation of the following results.

It was early found in our work that, to handle any considerable number of teeth, the conservative, well tried histologic methods were too time consuming. On this account, after considerable experiment, the frozen section method was chosen. Decalcification was carried out in 5 per cent. nitric acid, which contained 40 c.c. of solution of formaldehyd to each liter, and daily changes of the solution were made. At the end

5. Da Costa: Modern Surgery.

* From the Research Laboratory of Northwestern University Dental School.

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Davis, in a paper read before the Institute of Dental Teachers at Indianapolis in January, 1921, described a series of studies made by him on teeth with partly filled root canals. He thought that with mechanical removal of part of the pulp, so-called "surgical amputation of the pulp," the apical portion of the canal became filled with a solid core of "bone." His preparations were all made by grinding, and were dry and unstained.

4. Lane, Arbuthnot: Chronic Intestinal Stasis.

of two days the teeth were cut into blocks suitable for sectioning, and the decalcification was continued for one to two days longer. The short time employed yielded much more clearly stained preparations. For the structure of the pulp and peridental membrane nothing gave more uniformly good results than hematoxylin and eosin, but afforded no differentiation of the hard structures. In our hands the Schmorl thionin-picric acid stain furnished precisely this differentiation. By using these stains in alternation it was possible to study the relationship of all the soft and calcified structures. Contrary to our expectations, the sections held together surprisingly well, and so far no embedding method has been used, although the serviceability of the Sahlkind² cherry gum method has suggested itself. Where desirable, serial sections can be cut by this method, though somewhat thicker than those cut without any effort to keep the order intact. Formaldehyd fixation has been most satisfactory,

characteristic of low grade infection; or a formless mass of necrotic tissue. Where cellular structures are present, they are often embedded in a fibrous network best developed close to the wall of the pulp chamber, and continuous with a similar fibrous layer covering the end of the root in the place of the peridental membrane. At that part of the circumference of the root where the capsule of the chronic abscess, if present, is attached to the peridental membrane and the cementum, these two sets of fibers become fused, i. e., those of the abscess capsule and these which have just been described. This junction point is important, for it is here, if anywhere, that the thickening of the cementum is noteworthy. This connective tissue layer and framework adjacent to the wall of the pulp chamber and the cementum of the root tip is most important, for in its meshes are harbored blood vessels, osteoclasts, and other cells engaged in absorption of both the cementum and the dentin of the root end.

So far absorption has not been found in these studies except under these conditions, that is, the presence of osteoclasts and connective tissue cells. One cannot help being impressed with the fact that large numbers of various pathologic wandering cells are often found in the meshes of the alveolar abscess just on the other side of the organized covering of the root end. This type of abscess corresponds rather closely to one of the two described by Gilmer.⁴ In the second type neither absorption nor regeneration of soft or hard tissues occurs except under conditions like the foregoing or in the presence of an intact or partly intact peridental membrane.

The opposite extreme is found in root ends in which the apical portion of the pulp canal contains a more or less intact pulp, with vessels, nerve filaments, typical pulp cells and occasionally typical odontoblasts. The planes of contact of this pulp with the filling material are marked either by a layer of fibrous tissue or a layer of calcified material, and this calcified material may be amorphous, or may resemble

secondary dentin, or more frequently cementum. Such pulp tissue lies in canals greatly narrowed by symmetrical or asymmetrical deposits of secondary dentin, cementum or amorphous calcium deposits. All the spaces unoccupied by hard tissues and filling material are occupied by such pulp tissue. It seems apparent that some of the hard material in and about the pulp chamber has been deposited since the filling, but much of the narrowing of the lumen goes back to a much earlier period (Fig. 1).

Closely akin to this are these apical pulp chambers that contain soft structures more or less undifferentiated. In some of these teeth this pseudopulp extends up to the apical end of the filling material and others not so far, leaving, apparently, a more or less empty space between. Some of the pictures of such teeth are striking: the ancient, irregularly round erosions into the dentin still distinguishable but now filled by cementum or some similar substance exactly molded

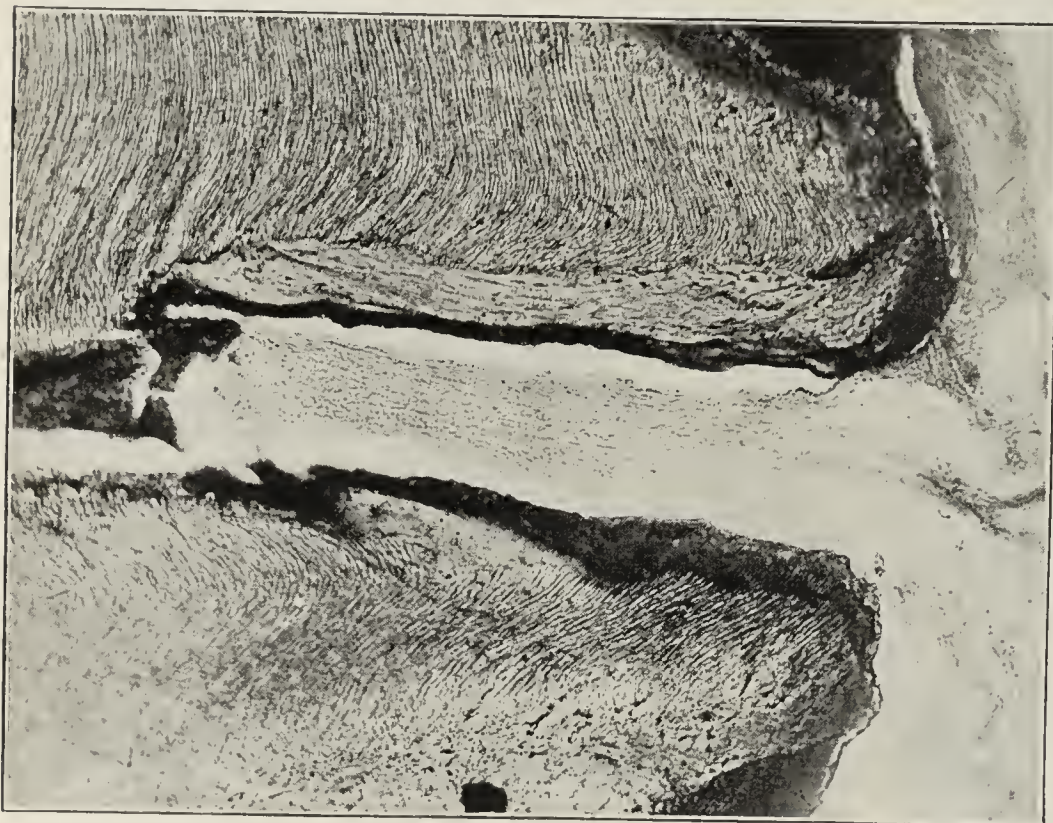


Fig. 1.—Apical opening of a tooth with a partly filled root canal, containing atypical pulp tissue. There is no evidence of any active process, either absorption of the root or regeneration.

although the Zenker fixation yielded better stained sections with hematoxylin and eosin and the various coal tar dyes used especially for bacteria. The long fixation as proposed by Skillen³ has been used in a few cases, and it is worth noting that the pictures of the hard structures in the apical region obtained by it and by the Schmorl method are essentially the same, though varying in some of the minute details.

The largest single group of like changes occurring in the apical regions of these teeth with partly filled root canals are those found in the presence of infection, most of which are classified as chronic alveolar abscesses. Destructive changes are the rule, and the layer or layers of cementum covering the root end are quite narrow, though hypercementosis is often present, and in so characteristic a location as to seem to be a part of the change.

The unfilled portion of the pulp canal is either empty or contains an unorganized mass of the cells

2. Sahlkind, J.: *Compt. rend. Soc. de biol.* **89**: 811, 1916.

3. Skillen: *Dental Cosmos*, June, 1920.

4. Gilmer: *Proc. Inst. Med. Chicago* **3**: 118, 1921.

into the cavities formed by the ancient absorption. There is evidence of the presence of still active cementoblasts in this pseudopulp with the embedding of their fibers into the newly formed calcified hard tissues

and an interlacing network of fibrils, and the mixed character of the junction of the cementum and dentin is very prominent, with occasional club shaped terminations of the dentinal tubules in apparent connection

with the spaces in the cementum. There is nothing to distinguish the structures of this portion of these teeth from those in teeth with entirely intact pulps, when prepared and stained in the same way. The periodontal membrane of all but the infected roots is everywhere normally attached to the cementum. It has an ample blood supply so that nutrition is sufficient.

Out of twenty-nine teeth examined there are apical foramina that are empty or that contain granulation tissue in nineteen; there are five apices with living pulps, four with undifferentiated cellular structures, and seven with foramina closed with calcified plugs. Evidently infection is the most serious accident that may happen to the apical region of a partly filled tooth. This is borne out by the fact that in each of two molar teeth with three roots all partly filled, one root of each contains a living pulp, two roots of one and one root of the other are the site of noteworthy chronic infections, and the multiple foramina of the third root of the latter are practically closed by hard cores.

The existence of living pulps in these apical canals can be explained only on the assumption either that a living pulp was not damaged beyond the end of the root filling, or that a living pulp, though badly mutilated or damaged by the process of filling and sterilizing the root canal, was

Fig. 2.—High power field from the wall of the root canal of the apical portion of a partly filled tooth. The eroded border of the old wall is now filled by cementum, which has greatly reduced the diameter of the pulp chamber now occupied by an atypical pulp.

lining the pulp chamber. In other teeth this soft tissue lies within a pulp cavity which is but little changed either by absorption or by deposit is of hard substance. This pseudopulp tissue is vascular, and consists of a more or less fibrous network in the meshes of which, close to the pulp wall, are found cementoblasts (Fig. 2).

The complete or nearly complete closure of the unfilled apical portion of the pulp canal by hard structures is found in a number of cases. There is nothing remarkable about such a closure: it is merely the end-result of the changes already described. In the smaller accessory foramina such a closure seems to be the rule, but it is much rare in the larger, principal canals. In teeth with living pulps, such closures of the smaller foramina have frequently been found; so, no doubt, many of these seen in teeth with partly filled pulp canals were closed before the fillings were inserted. The structure of this plug of calcified material more often resembles cementum rather than dentin, or it may be quite amorphous, or lamellated like the markings of a fossil crinoid. It is the rule that the cementum covering the roots of teeth in this group is unusually thick, and this thickness may attain a very noteworthy degree, though the periodontal membrane seems to maintain its normal width, as long as infection is absent. Spherical concretions are occasionally found in it but never of any notable size (Fig. 3).

In all of these apices where constructive changes are in progress, the cementum is richly supplied with lacunae

able partly to regenerate itself through the activity of cells or groups of cells, perhaps attached to undamaged blood vessels.

It is possible and even probable that this sort of pulp tissue may be an extension from the periodontal membrane of the apical region. This seems very likely in the group of atypical pulps. It may not be

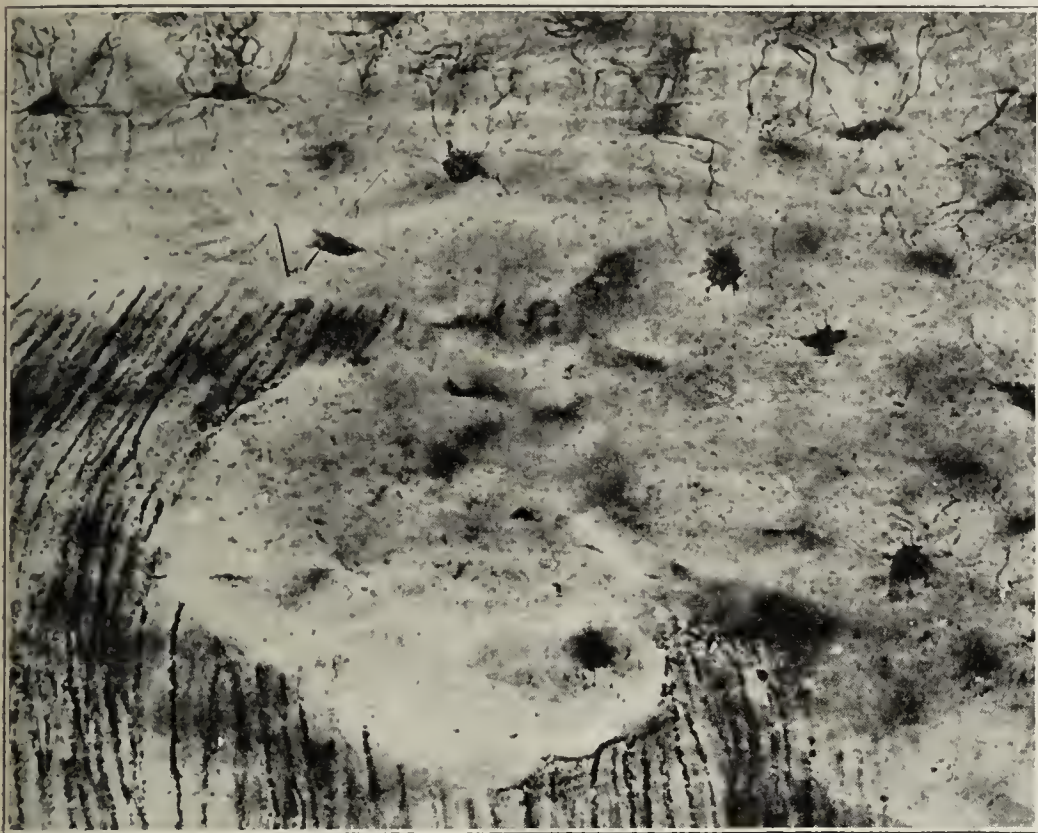


Fig. 3.—Two foramina of the apical region occupied by calcified cores. This bicuspid has fillings in both root canals and hard cores in all the apical openings.

peridental membrane, but because it is a constructive tissue, repairing the erosions of previous absorptions, and because the hard tissue deposited by it is similar in all respects to the apical cementum, it seems reasonable to assume that it may have originated from the peridental membrane. However, in many respects the pulp of the apical portion of the tooth does not always react like that of the middle or coronal portions, and the fibrous tissue framework and the cementum producing cells may resist insult better than the odontoblasts, the pulp cells and the nerves. These atypical pulps may be the remnants of otherwise destroyed pulps.

Although the number of teeth examined is too small for generalizations, yet the clinical opinion that constructive changes do take place about the apexes of many teeth with partly filled root canals seems to be justified. In the second place, the apical portions of many teeth with partly filled root canals, judged by the same standards as are usually applied to teeth with intact pulps, are living structures. In the third place, infection is the most serious hindrance to the regeneration of the apical region, or to the complete closure of the unfilled canal by calcified plugs. And in the fourth place, it should be suggested that uneven closure of the unfilled canal may be a serious matter. The opinion is advanced that purely local conditions are of more importance than general conditions, that regenerations are more apt to be successful in root canals in which the distance between the apical end of the filling material and the apex is not too great, and that the small lumen or the lumen with a wide apical opening tapering toward the filling is more likely to escape unfortunate complication.

THE ABDUCTION TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR

CONSIDERED AS THE EXPONENT OF RADICAL
REFORM *

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The object of treatment of a fracture is to restore the symmetry of the broken bone, because the primary cause of nonunion is separation of the fragments, and because deformity entails loss of function. To accomplish this object the method must be adapted to the mechanics of the injured part, and the result, therefore, is primarily determined by the skill and efficiency of the one who selects and applies it.

To these accepted conclusions, fracture of the neck of the femur has been the single exception; for in this instance, according to a leading treatise on fractures, "the ideal object of treatment, restoration of form and function, is rarely to be attempted or even sought. . . . The first indication is to save life, the second to get union, the third to correct or diminish displacements."

Ostensibly, these indications are in the interest of the patient, on the assumption that treatment as applied to other fractures, even if practicable, would be, in

most instances, either dangerous or futile; actually they represent the subordination of surgical principles to inadequate mechanics.

This statement may be readily verified, since the basis of all treatment in common use is traction on the limb, which, however efficient for fracture of the shaft of the femur, is manifestly inadequate in this situation, because the neck of the femur projects laterally. Thus, traction can at best appose the fragments in a lateral and therefore insecure relation.

This inadequacy was clearly presented by Sir Astley Cooper in the statement that the primary causes of nonunion were separation of the fragments by spasmodic action of the muscles, which it was impossible to control by extension or otherwise, and lack of mutual pressure of the fragments, which in fracture of the small part of the neck was essential to repair. One would hardly advise, therefore, "the breaking up of an impaction" which assured the apposition of the fragments, nor subject a feeble subject to the dangers and discomforts of prolonged confinement with so slight a prospect of success. The treatment of the fracture, therefore, if applied at all, has always been essentially perfunctory.

Bissell,¹ from an analysis of the treatment in three representative New York hospitals, concluded that it was practically useless. And it is stated by Henderson² that of 120 cases of ununited fracture at the hip observed at the Mayo Clinic, not one had received proper treatment at the time of the injury. Failure, either partial or complete, has been the natural sequence. According to an authority, "In all cases, function is forever impaired, and irrespective of the position or character of the fracture, or of union, or of nonunion, shortening of the limb and lameness are the inevitable results."

Such results, were any other fracture concerned, would be ascribed to defective treatment; but in this instance, it is assumed that they are determined by the mechanical or physical or nutritive obstacles to repair rather than by the character of the surgical intervention.

The abduction method is by contrast radical and revolutionary, simply because, being mechanically adequate for its purpose, fracture of the neck of the femur, in all operable cases, is treated like other fractures, in complete disregard of the qualifications and restrictions of conventional practice and of the conclusions that uphold it.

The abduction method is adequate because it utilizes the anatomy of the hip joint both to correct deformity and to appose displaced fragments, external appliances being entirely subsidiary to the internal, or natural, splinting.

Normally the neck of the femur projects forward and upward from the shaft. As the limb is abducted, the head of the bone descends in the acetabulum, the movement being finally checked by tension on the capsule, by contact of the upper border of the neck with the rim of the acetabulum, and by the apposition of the great trochanter with the side of the pelvis.

In the attitude of complete abduction, the neck of the femur lies in an approximately horizontal plane. In this plane only can the fragments of a fracture of the neck be brought end to end, and as the head is

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Bissell: Philadelphia M. J., May 30, 1903.

2. Henderson, M. S.: Surg., Gynec. & Obst. 30: 145 (Feb.) 1920.

fixed in the acetabulum, the tension on the capsule assures direct mutual pressure of the fractured surfaces, which is, according to Cooper, essential to repair. Security is further assured by the inclusion of fractures of the subcapital type within the acetabulum, by the apposition of the trochanter and the pelvis, and by the complete muscular impotence that the attitude assures.

The practical application of the treatment for complete fracture is as follows:

The patient, having been anesthetized, is placed on a pelvic support with a perineal bar, the shoulders resting on a box of equal height. Two assistants make manual traction on the extended limbs, drawing the perineum firmly against the bar and completely reducing the shortening on the injured side; the surgeon meanwhile lifting the thigh upward, if it is below the plane of its fellow. The limb is then rotated slightly inward, thus completely apposing the fragments. Both limbs, extended and under manual traction, are then abducted to the full limit, on the sound side first, to demonstrate the normal range and to balance the pelvis. When this limit is approached on the injured side, tension on the capsule assures the alinement of the fragments, and forces a resistant contact. A long plaster spica is then applied, which, by fixing the limb in complete abduction, full extension and slight inward rotation, assures the security of the internal splinting.

The treatment of the incomplete fracture is practically the same. The characteristic deformity of fracture of the neck of the femur is a downward and backward displacement of the neck in relation to the shaft (*coxa vara*).

This deformity causes outward rotation and direct shortening of the limb; but what is of far greater importance is the limitation of abduction and the secondary or apparent shortening due to upward tilting of the pelvis, on the injured side. The correction of deformity, therefore, is essential to functional repair, and it may be very easily accomplished by adjusting the position of the shaft which is under control to that of the neck. Thus, the neck, being displaced downward and backward, is in a relation to the acetabulum that in an unbroken bone would require abduction and inward rotation of the shaft; one therefore places the limb in this attitude and fixes it during the period of repair.

In most instances, by the manipulation already described for complete fracture, the shortening of the so-called impaction may be as easily reduced as if the separation were manifestly complete. If, however, the resistance is greater, as in the incomplete fractures of childhood, or when treatment has been delayed, manual traction is supplemented by downward pressure on the projecting trochanter and more effectively by natural leverage. For since the range of normal abduction is dependent on the upward inclination of the neck of the femur, its depression must limit abduction by contact with the upper border of the acetabu-

lum. This contact fixes the neck, and by the leverage of the extended limb against this fulcrum the limb may be abducted, and then rotated inward to the required degree. Correction of deformity is the first essential of functional repair; and, far from endangering union, it is the most effective means of promoting it, since restoration of the normal contour apposes the fractured surfaces which were displaced by the distortion.

The subsequent treatment is the same for all forms of fracture. The head of the bed is raised one or two feet, in inclination which, as contrasted with that required for traction, is far more comfortable, and because of its influence on the blood supply more favorable to repair. The patient is turned at intervals from side to side and completely over to the ventral position, without discomfort or danger of displacement; thus, bed sores and hypostatic congestion may be prevented. If feasible, patients may be transported daily to the open air, and fixation in the abducted attitude even permits locomotion without injury as has often been demonstrated by young and unruly subjects. The spica is retained from eight to twelve weeks, or until it may be assumed, or demonstrated by roentgen-ray examination, that union is sufficiently firm to permit movement of the limb. On its

removal, the patient should remain in bed, devoting if possible several weeks to muscular re-education and to the restoration of motion in the disused joints, the limb being drawn out to the limit of abduction at regular intervals by the attendant.

Weight bearing is not permitted until free and painless movement and roentgen-ray examination indicate stability of repair.

Thus, what may be termed the physiologic treatment of fracture of the neck of the femur, at least of the central type, is rarely completed within a year; and, if early locomotion is desired, a protective hip brace should be provided. Adequate protection is almost as essential to restoration of function as the correction of the deformity, and its complete neglect in the conventional routine explains much of the final disability in cases in which the fracture has united.

The abduction treatment, bring exact and purposeful, requires in its application qualifications similar to those for other surgical procedures of like importance; namely, an understanding of its mechanical principles, sufficient familiarity with anatomic landmarks to assure the restoration of the normal relations, and the ability to apply a secure and comfortable plaster spica, since this is the only form of splint that is usually at command.

Conventional treatment, by contrast, makes no such technical demands, since according to the indications quoted, "Restoration of form and function is rarely to be attempted or even sought." One is obliged, therefore, in the face of established custom and tradition, to present an argument for what would be considered obvious were any other fracture concerned. It is evident that the greater the obstacles to repair,

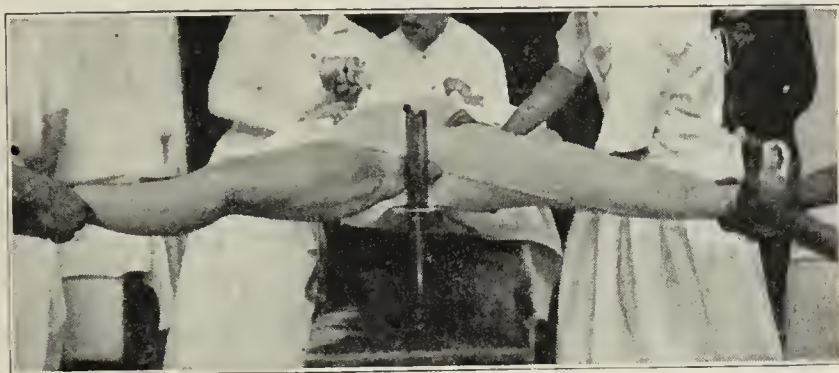


Fig. 1.—Second stage of the abduction method as applied for central fracture of the neck of the left femur. The shortening having been reduced by manual traction, the two limbs are abducted to the normal limit. Slight inward rotation is combined with complete abduction and extension.

whether mechanical or nutritive, the more directly is it dependent on favorable opportunity, namely, the accurate apposition and fixation of the fragments. Nor can it be questioned that the abduction method is adequate to assure this opportunity, since its attainment may be demonstrated by the roentgen ray at the time of the operation and at intervals thereafter. The practical issue is no longer whether efficient treatment of the fracture is practicable. It is whether it is worth while, in view of its danger to life, its essential futility, and the danger to repair of disturbing a fortuitous fixation, the three assumptions that support what has been aptly termed the surgical ritual.

The abduction treatment is designed as a standard routine for operable cases of fracture of the neck of the femur; but the impression that the typical patient is aged or infirm, and that the treatment of the fracture is of minor importance, is so firmly established that the advocate of efficiency must, in order to gain a hearing, follow the conventional order and consider unfavorable cases first.

It is, of course, difficult to estimate the danger of treatment apart from that of the injury in an old person, but it seems reasonable to assume that the abduction treatment, which relieves pain, permits change of posture and thus prevents hypostatic congestion and bed sores, is less dangerous than treatment that confines the patient to the back, and in many instances less dangerous than nontreatment, with its almost inevitable consequences. Furthermore, it appears from recent investigations with the roentgen ray, notably by Bassett,³

that the fracture in the aged is usually at the base of the neck, and that the central fracture is more common in the young and vigorous. Thus, from both the nutritive and the mechanical standpoints, the prognosis is apparently more favorable than has been believed.

Moreover, it would appear that repair is primarily a question of opportunity rather than of nutrition, since other fractures unite readily in aged subjects, while nonunion after fracture of the neck of the femur occurs even in childhood under conventional treatment. It seems fair, therefore, to conclude that the danger to life in aged subjects is primarily from the injury and its consequences, and that conclusions as to nutritive incapacity are purely speculative, since the opportunity for repair has rarely been assured by conventional treatment.

The last question is of far greater importance, since it concerns the restoration of function, for which the first essential is the correction of deformity, or what is called "the breaking up of an impaction." Impaction, in this situation, has always had peculiar conventional significance. It implies, apparently, a telescopic inclusion of one fragment in the other that

assures fixation and thus union. This is, however, merely a traditional interpretation of physical signs that is rarely confirmed by roentgen-ray examination or by treatment. Almost the only resistant deformities are the incomplete fractures of childhood and the partial epiphyseal displacements of adolescence. The correction of deformity by the abduction method, supplemented as it is by secure fixation, actually favors repair, because it apposes the fractured surfaces, which in most instances are completely or partly separated by the distortion.

Since it has always been accepted as a rule of practice that "impactions" should be protected, the effect of deformity on joint function, and as a cause of the discomfort and disability supposed to be inevitable after this injury, has been practically ignored. This point of view is illustrated by a well known authority, who, in advocating artificial impaction for intracapsular fractures as the only hope of union, states that fractures at the base of the neck "get well

anyhow, under any form of handling, good or bad," and are therefore of comparatively little therapeutic interest.

If this is true, the practically universal disability that follows this injury must be explained in great part by uncorrected deformity and its consequences, rather than by nonunion; and now that an adequate means of correction is at command, the reduction of deformity which must embarrass function should be as much a matter of routine as in treatment of any other joint fracture.

In recent years, evidently in recognition of the mechanical inade-

quacy of conventional methods, primary operative intervention has been advocated. It should be apparent, however, that artificial impaction or the insertion of nails or screws can serve no purpose other than to appose the fragments at the expense of injury of the reparative tissues—an apposition that can be effectively assured by the abduction method if properly applied.

It is assumed that an autogenous bone peg will stimulate, and thus hasten repair; but the operation thus far has been limited to vigorous individuals who should have recovered without it. I conclude, therefore, that primary open operations are indicated, as for other fractures, only in cases in which the fragments cannot otherwise be apposed.

When the abduction method was a novelty, the appeal for efficient treatment was of necessity made to reason, and in this final paper of the series, the same line of argument has been followed, although its contentions have long since been amply confirmed by actual experience. In my own practice, there are very few exceptions to the routine application of the treatment, and the results compare favorably with those of other fractures of the lower extremity in patients of the same type.



Fig. 2.—Elevation of the head of the bed and the attitude that prevents hypostatic congestion and bed sores. The application of the shirting within and without is shown in the two illustrations, which are of the same patient.

3. Bassett: *Les fractures du col du fémur*, Paris, 1920.

As concrete evidence, two contrasting reports may be cited: that of the British committee on fractures in which the results were classed as good in but 23 per cent., and that of Campbell⁴ of an approximately equal number of cases treated by the abduction method in which the good results were approximately 94 per cent.—a balance of 70 per cent. in favor of efficient treatment.

CONCLUSIONS

The title of this paper has, I think, been justified by the exposition presented.

It has been demonstrated, both technically and practically, that fracture of the neck of the femur, in the great majority of cases, is amenable to treatment in accord with surgical principles, and that the results are more directly determined by the efficient application of these principles than are those of any other fracture.

The abduction method is the exponent of radical reform, because it has established a standard to which treatment must eventually conform, since the tenets on which conventional practice is based, having been disproved and discredited, can no longer assure immunity for inefficiency, incompetence and neglect.

FRACTURES OF THE FEMORAL NECK AND TROCHANTERS

A RATIONAL TREATMENT*

CHARLES E. RUTH, M.D.

DES MOINES, IOWA

It is my intention to present here a method of treatment of fractures of the neck and trochanters of the femur which may be relied on to produce as good results as any other known method and which is not subject to the limitations which bar these others from universal use.

Normal anatomy shows many muscles influencing the position of the femur. With the thigh in extension, the powerful iliopsoas acts as an internal rotator, the head of the femur in the acetabulum resisting this muscle internal to the line of muscle action. This characteristic is in addition to the principal function of the muscle, that of flexion, becoming less marked the more nearly the thigh approaches a right angle with the trunk, but never losing it entirely except in certain injuries which disturb the normal relation of the femur with adjacent parts. The iliopsoas is inserted into the lesser trochanter, crossing not far above the insertion of the neck of the femur, on which it exerts considerable pressure when the thigh is extended and the muscle contracts. There are twenty other muscles which directly influence the position of the femur, the most important of which are the gluteus maximus, long head of the biceps, semitendinosus and semimembranosus, all extensors; the obturators externus and internus, gemelli, piriformis and quadratus femoris, which are external rotators. It is with these muscles, next to the iliopsoas, that we are most con-

cerned, for they are the principal factors in producing, with the iliopsoas, the normal muscle balance.

From the rim of the acetabulum, running outward and downward, is the capsular ligament, which becomes a close fitting sleeve around the neck of the femur, almost completely enclosing it as far as the trochanters where it joins the femur. From this close fitting sleeve pass many vincula to the head and neck.

The blood supply to the neck arrives by two routes. The arteries supplying the trochanters also supply the distal part of the neck, whereas the source of supply for the proximal end is the artery entering the head through the ligamentum teres. The anastomosis between these two sources is not good. In the aged these vessels may also have undergone atheromatous changes. The point of poorest blood supply is the narrow part of the neck.

Diagnosis of unimpacted fracture of the neck of the femur is made on the history of a fall, blow or strain which produces sudden pain in the hip, thigh or knee, or all three, inability to use the limb, the presence of

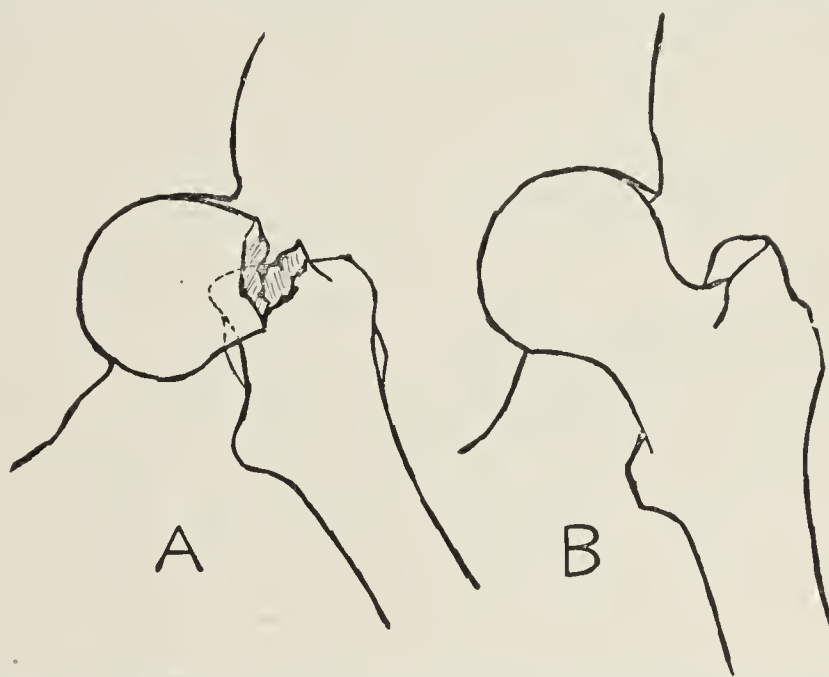


Fig. 1 (Dr. C. V. Z., aged 54).—A, fracture through narrow part of the neck; treated for ten weeks by longitudinal and lateral traction. B, after five years: no shortening, and no impairment whatever of range of function.

shortening, flattening of the hip, trochanter behind and above the normal level as compared with the injured side, external rotation, preternatural mobility, occasional crepitus which it is not advisable to elicit, and the roentgen ray.

On fracture of the neck of the femur, the resistance to the action of the iliopsoas is moved from the head of the bone to the great trochanter, which, lying outside the line of action of this muscle, changes it into a powerful external rotator, thus causing the very evident eversion, the external rotators mentioned a moment ago now acting with the iliopsoas instead of opposing it as they do under normal conditions. This change in the action of the iliopsoas can be easily demonstrated on the cadaver or by artificial muscles fitted to the femur and innominate bones, as I shall now show. For the same reason, solution of the continuity of the femoral neck, the muscles of extension and flexion now act together to produce the shortening which is so characteristic of this condition.

In this fracture the proximal fragment is not actively displaced because no muscles are attached to it, the position it occupies being determined by the position assumed by the proximal end of the distal

4. Campbell, W. C.: *Ann. Surg.* 70: 600 (Nov.) 1919.

* Read before the Section on Orthopedic Surgery at the Seventy-second Annual Session of the American Medical Association, Boston, June, 1921.

* Because of lack of space, this article is abbreviated in *THE JOURNAL*. The complete article appears in the Transactions of the Section and in the author's reprints.

fragment. This naturally follows from their common relation to the capsular ligament. However, the distal fragment being rotated externally, a gaping of the fracture line is produced anteriorly into which nonbony tissue is forced by the overlying muscle.

Successful treatment depends on reduction and maintenance of reduction until union has taken place and the callus hardened sufficiently to withstand normal muscle tension. The underlying principle in maintaining this reduction rests in using the capsular ligament as a splint. If force can be applied to counteract the abnormal muscle pull and make tense the capsule, we immediately have all the fragments of the neck falling into line, tightly bound down by the tension of the capsule, the many vincula dragging into position any small reluctant fragment that may resist. Thus maintained, union is inevitable, provided the patient has vitality to live a few weeks and the circulation in the neck exists at all.

All other successful methods of treating this fracture depend on the same principle, that of using the capsular ligament as a splint, with the force which

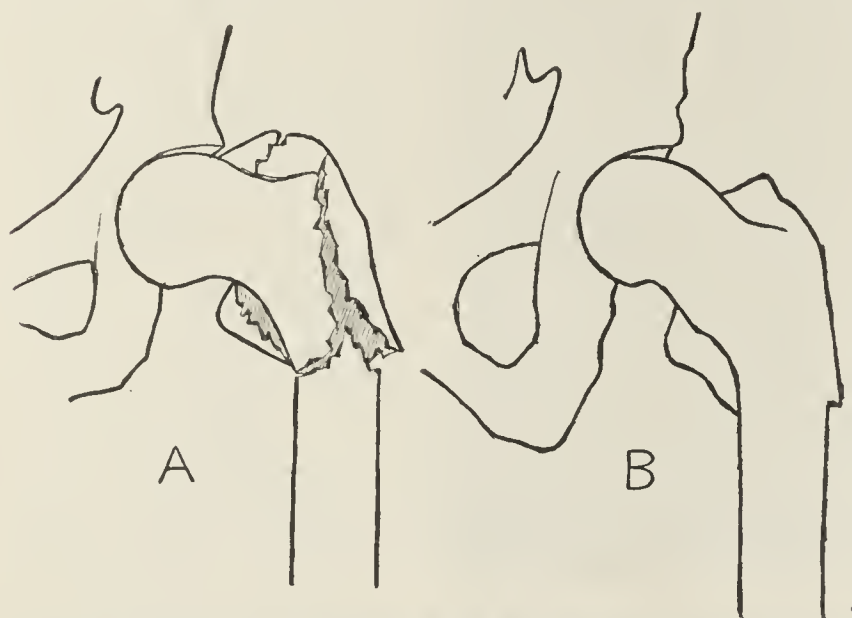


Fig. 2 (Henry D., aged 26, referred by Dr. O. J. Fay).—Patient fell 18 feet. *A*, neck at right angles to shaft; anatomic treatment, eight weeks; no shortening. *B*, consolidation complete after eight weeks; range of passive motion unimpaired; no shortening.

produces the tension of the capsule applied in a different way. Whitman abducts the thigh until the trochanter bears against the rim of the acetabulum. Further force makes the capsule tense, and resolution takes place as indicated before. Jones uses an abduction frame to produce the force and maintain reduction instead of the plaster spica as advocated by Whitman.

This tension of the capsule and reproduction of normal position I produce by traction in two directions, the resultant artificially reproducing the force once represented by the unfractured neck. Heavy longitudinal traction counteracts the shortening of the limb. Lighter traction outward, upward and forward, with relation to the supine patient, combined with a twist to rotate the thigh inward, counteracts the flattening of the hip, posterior displacement due to weight and the external rotation.

Application of traction in these two directions is not difficult, but requires care. Diagnosis having been made, the patient is given a narcotic, if one has not already been given, and the patient placed in the room in which he is to undergo treatment. The bed should have a spring which does not sag, and a smooth, firm

mattress. The door of the room should be wide enough so that the bed can be rolled out to the roentgen-ray laboratory whenever verification of the reduction may be indicated. The apparatus may now be applied.

A stick carrying a pulley at the upper end is nailed or lashed to the foot of the bed in line with the desired traction, the pulley being at such a height as to be in an extension of the line from the hip to the foot, and leaning from the bed at sufficient angle so that the weight will clear all parts of the bed and apparatus. A pail or bag of sand is placed near at hand and a cord run through the pulley but not attached to the weight. In a similar fashion another stick, carrying two pulleys, is attached to the side of the bed on the patient's injured side, the pulleys being about a foot above the level of the hip and the same distance nearer the head of the bed. These pulleys may be arranged one above the other or side by side, as may be convenient, and cords are run through them, the outer ends of which are attached to pails or bags of sand. The adhesive plaster having been prepared in proper lengths and widths, the gauze protection is removed and then lightly replaced, as it is much easier to manipulate with the gauze on, but readily removable. If the fabric is weak it will be better to double it before applying, for it is very annoying to be called by the nurse a few hours afterward and told that the adhesive plaster has torn in two. The doubling is accomplished by superimposing a second layer on that already prepared.

The leg is now shaved throughout the entire length, washed with alcohol and ether, and dried. Beginning at the ankle, the adhesive plaster is now applied, about a foot being left overhanging at the ankle end to fasten to a spreader. As the adhesive plaster is applied, the loosely attached gauze protection is removed from the gummed surface. This makes it possible to apply the adhesive plaster more quickly, easily and smoothly because it is not constantly sticking to the bedding and itself. It is most essential for the adhesive plaster to be applied smoothly, without fold or wrinkle, for such folds and wrinkles are productive of much discomfort and a frequent cause of broken skin and consequent difficulties. Spiral strips may be used to reinforce the longitudinal strips, if needed. These may be separate from or integral with the longitudinal ones. None of these must cross the knee cap, nor must the spirals be so short as to interfere with the circulation. No traction adhesive plaster is applied closer to the perineum than 4 inches. The free ends of the longitudinal strips are now attached to the spreader, and the leg bandaged with a gauze bandage to hold the adhesive plaster in place.

A piece of fiber or binders' board, 4 or 5 inches wide, long enough to encircle the thigh two thirds and curved to fit the inner surface, is well padded with cotton held on with gauze bandage and adhesive plaster. A 4 inch strip of adhesive plaster is now applied to the inner surface of the thigh behind the vessels, close up to the perineum, and carried under and around the thigh to the outer side. When the circle is nearly completed, the padded binders' board is applied to the inner surface of the thigh as close as possible to the perineum, with the anterior edge behind the vessels so that no pressure is made upon them. The adhesive plaster is then brought over the binders' board and

firmly attached thereto. Another strip of adhesive plaster is now passed entirely around the thigh over the binders' board, to which the gummed surface adheres. This strip is made sufficiently long so that the free ends may be tied to cords running over the lateral pulleys to their respective weights, the lower end carrying a weight of from 12 to 18 pounds, the upper, 5 or 6 pounds. The cords may now be adjusted for proper length and allowed to exert their power.

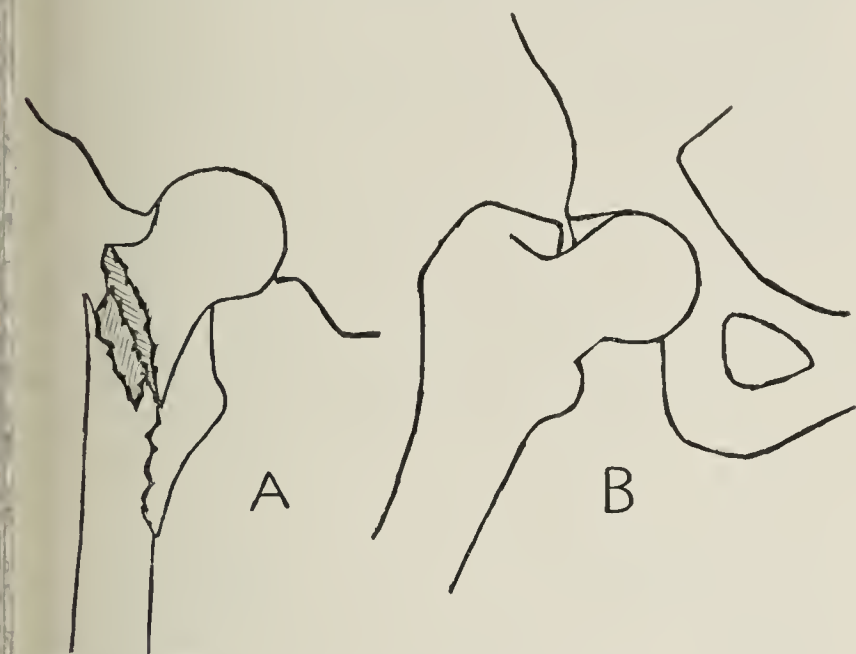


Fig. 3 (J. W. S., aged 42, lineman, referred by Dr. O. J. Fay).—Patient fell 25 feet. A, fracture of forearm. B, eighteen months after injury; no shortening; no impairment in any way.

The bed is raised on shock blocks at the foot and on the injured side. The foot of the bed on the injured side is raised 12 inches, the opposite side 8 inches, the post at the head on the injured side 4 inches. These heights are not absolute, but may be increased or decreased to correspond with the amount of traction applied.

Everything is now ready for reduction. The operator flexes the knee on the thigh and the thigh on the trunk, both to a right angle, at the same time increasing the eversion. This maneuver frees all soft parts from between the fragments. With the joints flexed the knee is brought to the midline, correcting the eversion, extension is made strongly on the thigh to raise the trochanter to the normal level, and the leg is extended while under heavy traction by the operator, who discontinues this longitudinal traction after an assistant ties the spreader to the cord of the longitudinal traction apparatus. A second assistant may aid lateral traction during this process by outward pressure with his hand, or the operator may himself increase this traction in a similar way. The fracture is now reduced and the traction in both directions operating in a proper manner. This traction, continued for four weeks, will find the patient able to rotate the thigh outward and inward, the trochanter describing the arc of a circle, the center of which is the bottom of the acetabulum, thus proving union of the fracture.

In impacted fractures of the neck, it is not always possible to make a diagnosis without the roentgen ray. Pain may be severe but not increased on passive motion. Deformity may be absent or pronounced, and the patient may walk. In any case, in a little time without treatment the softening which occurs, owing to absorption of the roughened bone at the fracture line, which precedes consolidation, will produce disimpaction with all the evidences of complete fracture.

Impacted fractures without displacement do not call for breaking up the impaction, but do require the apparatus to be applied. This is done in the regular manner, omitting altogether the method of reduction. Impacted fractures, with deformity, call for the apparatus to be applied and reduction accomplished as in fractures without impaction.

Fractures through the base of the neck show the same displacing tendencies as those through the narrow part of the neck, and, because these fractures are partly within and partly without the capsule, there is still a great restraining tendency by the capsule to hold the fragments in position, and the capsule can still be used as a splint. For these reasons the treatment for fractures through the base of the neck is the same as that for unimpacted fractures through the narrow part. In this locality the vascularity is greater and repair is more certain. Impaction may occur, but I have never seen such a case.

Trochanteric fractures present fewer difficulties than those mentioned before, even when they are badly comminuted, because the blood supply is much better and the interposition of nonbody tissue less likely. The dense aponeurotic investment of the trochanteric insertion of the gluteal muscles usually prevents wide separation of the greater trochanteric fragments, provided no great manipulative force has been used in attempted reduction.

Trochanteric fractures cannot be said to be uniform in their characteristics. They vary greatly. There may be a single break or comminution into many fragments. When there are many fragments, the injury is usually due to a crushing force. Both trochanters may be attached to the proximal fragment, or one attached to the proximal fragment and the other to the distal fragment. At times both trochanters may be entirely separate from either fragment.

In fractures in which the lesser trochanter is torn off, the entire attachment of the iliopsoas is usually carried with it. In such cases there is slight tendency for eversion of the limb. The addition of the Hodg-

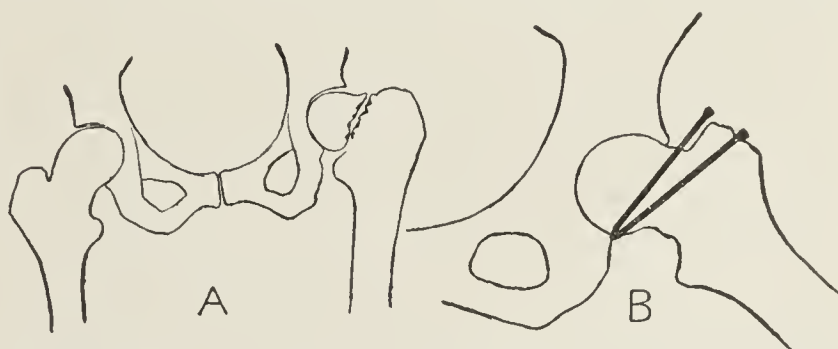


Fig. 4 (Mrs. G. S., aged 53, referred by Dr. Ira Gibson).—A, three months after fracture; without treatment. B, poorly nailed without opening fracture line; treated eight weeks by the longitudinal and lateral traction, and then by Phillips splint for six months; result, no shortening or impairment of function; patient does all her housework five years after injury.

kins splint and the Balkan frame will make the treatment somewhat easier and insure a more satisfactory result. After the adhesive plaster is applied as for fractures of the neck, the leg is swung in the splint with the knee slightly bent, and the thigh is flexed on the trunk at an angle of about 30 degrees from the horizontal. This flexion approximates the torn off lesser trochanter to the position it normally occupies. Reduction, as for neck fractures, is not indicated, the longitudinal and lateral traction being adjusted to place and keep the fragments in normal position without

other force. The position of the fragments must be verified with the roentgen ray from time to time, especially during the first few days, that the apparatus may be adjusted to the best advantage, if perfect adjustment was not accomplished at the time of original attachment.

In fractures through the trochanters beyond the digital fossa, the obturators and gemelli are inclined to rotate the proximal fragment backward and place it in eversion and abduction. When this occurs, it is necessary to abduct the limb to bring the fragments into close apposition. To maintain the abduction it is essential to tie the uninjured limb loosely to the opposite side of the bed; otherwise the patient will swing the trunk into line with the longitudinal traction.

In all these fractures, union is usually present within four weeks after treatment has been instituted, at which time the lateral traction is removed. Union having taken place, the longitudinal traction may be removed with safety at the end of four more weeks,

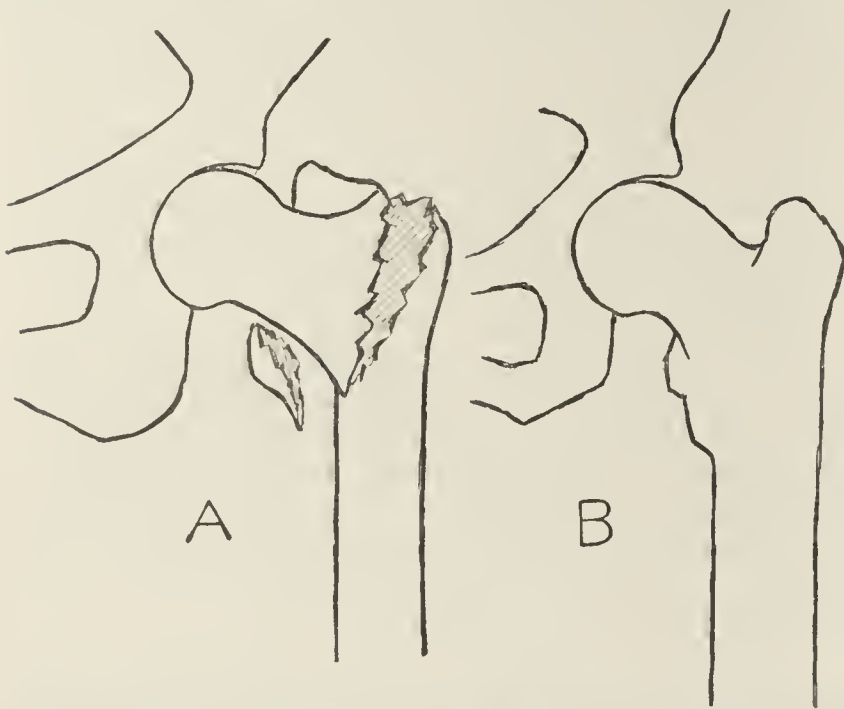


Fig. 5 (Mrs. J. A., aged 91).—A, under anatomic treatment seven and one-half weeks with thigh flexed 30 degrees. B, seven and one-half weeks after fracture; in four months, range unimpaired; patient walking with crutches and beginning to bear some weight.

the callus being sufficiently hard to withstand the normal muscle pull without body weight. Crutches, with or without braces, must be used for from four to ten months to prevent the strain of the body weight from bending the soft callus and producing shortening. The patient should be able to walk without crutch or stick at the end of six months in all trochanteric fractures, eight months in fractures of the base of the neck, and one year in fractures of the neck at the narrow part. The surgeon must be careful not to allow patients to attempt to bear body weight on the limb too soon, taking into account the location of the fracture, the speed of repair of a fracture in this location, and the age, weight and physical condition.

The first essential in this treatment is accurate diagnosis. If the roentgen ray is not available, the fracture should be treated from beginning to end as one through the narrow part of the neck. The number of pounds used for the traction lines will vary with the patient. Fifty pounds may be needed for the longitudinal traction in a strong young man or an old man who has a spastic paralysis. In spastic cases of central origin the muscles do not tire, and the amount of traction may not be lessened, as is usually done after a few

days, in the ordinary case. The lateral traction seldom requires more than 25 pounds, usually less, divided between the upper and lower sides of the thigh in the proportion of 1 to 3. There is no absolute way to judge the correct weights except by the position the leg assumes from day to day. If the leg shortens, the longitudinal traction must be increased. If the foot is everted more than normally, that must be adjusted. The leg must be measured and inspected for bad adjustment each day, which must be corrected if present.

Failure by this method is due, first, to faulty reduction. Soft parts are still interposed between the fragments, and their coaptation has not been attained. The nurse has not been warned that the traction must not be eased off or removed for any cause for even one moment of time until the surgeon himself attends to it. Sufficient traction has not been made to produce and maintain normal position of the leg. The patient himself has lessened the traction, during the absence of the nurse, in order to take a position more to his liking. The family or other visitors have attempted to adjust the apparatus to conform to their own ideas. The patient has walked too soon without aids.

I claim for this method that it is as certain as any method now known, simple, easy of application and universally applicable to all classes of fractures in this location. The apparatus may be easily improvised out of boards, sticks and empty spools when prepared materials are not available. The patient is not uncomfortable if the apparatus has been properly applied and reduction successfully accomplished. Excellent care may be taken of the patient at all times, he may be raised to a semisitting position with the assistance of two persons, and the nurse can then easily reach his back for cleansing and rubbing. This position may be assumed for long periods of time and hypostatic pneumonia thereby rendered unlikely. Bed sores need never occur. If the patient enters with them he may be speedily cured while under treatment for the fracture, as I have demonstrated many times. The bed pan can be used without difficulty, the patient assisting in the placing of the pan by flexing the uninjured leg until the heel is in contact with the buttock. He can then raise himself with very little aid. In a similar way the buttocks, anus and lower part of the back can be cleansed and cared for. In cases in which the Balkan frame is used, this maneuver is even easier, because much of the weight is already supported by the apparatus. Patients entering with severe pain are greatly relieved immediately on reduction and the application of the apparatus. After forty-eight hours the patient reaches a degree of comfort that makes the use of a narcotic unnecessary. Enough knee action by passive motion may be attained to prevent subsequent stiffness. No anesthetic is required at any stage of the treatment. No operation is necessary.

SUMMARY

1. Normally the iliopsoas is an internal rotator, but when the neck is fractured it becomes an external rotator. In fractures of the neck it overlies the fracture line and forces nonbony tissue between the fragments. It is thus the greatest factor tending to displacement and nonunion.

2. This method uses the capsular ligament as a splint by making the capsule tense through the application of traction in two directions.

3. The application of the traction needed is not difficult, but requires care in the angles at which the traction is set, the amount of traction and the attachment of the adhesive plaster to preserve the skin in good condition.

4. Impacted fractures should not be broken up if there is no deformity, but the apparatus is applied to prevent the disimpaction, with all the evidences of complete fracture, which follows the absorption of the rough surfaces of the fragments prior to consolidation.

5. Impacted fractures with deformity are broken up, reduced and treated the same as nonimpacted fractures.

6. Fractures through the base of the neck present the same deformities as those through the narrow part, and require the same treatment.

7. Trochanteric fractures repair more easily and rapidly. No forcible reduction should be attempted, but the traction of the apparatus depended on to reproduce normal position. When the lesser trochanter is

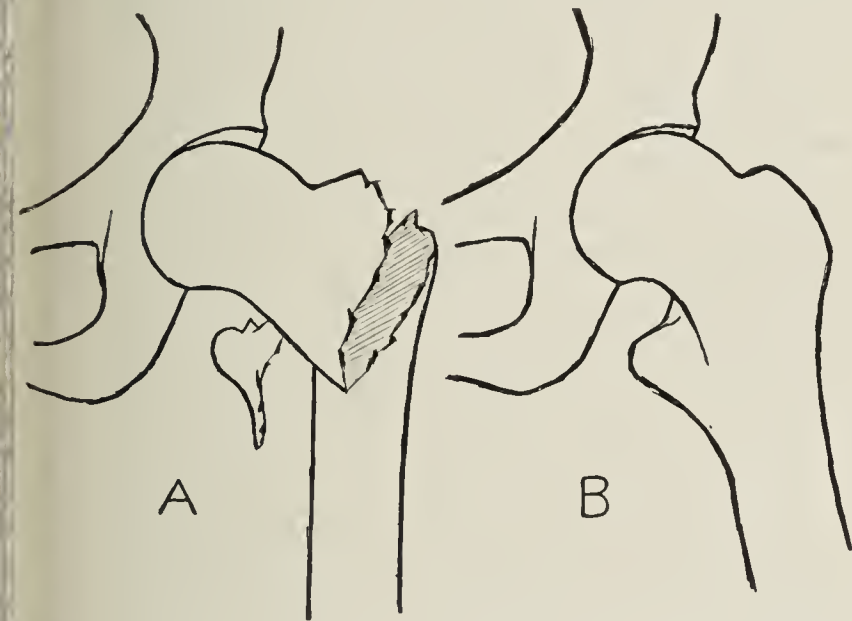


Fig. 6 (Mrs. R., aged 72).—A, treated by longitudinal and lateral traction six weeks. B, no shortening; no impairment whatever of range or use; patient now 79 years old and can walk 3 miles without limp or halt.

torn off, the leg is placed in a Hodgkin splint and swung from a Balkan frame, the thigh flexed on the trunk.

8. Union occurs within four weeks, after which the lateral traction is removed. In four weeks more all apparatus may be removed, and the patient walks without aids in from six months to one year.

9. Essentials are: accurate diagnosis, complete reduction, sufficient amount of traction, and daily verification of the position during the early part of the treatment.

10. This method is correct in principle, simple of application, convenient during treatment, and satisfactorily efficient.

Forced Labor.—Another procedure that should come up for consideration and comparison is hurrying the third stage of labor by expression of the placenta with the first uterine contraction after the child has been delivered. This is definitely unphysiologic in that it takes time for the uterus, by its contraction and retraction, to separate and expel the placenta and produce proper uterine hemostasis. While this practice may be safe in the hands of the trained specialist, it is bad practice and bad teaching for the practitioner and for students.—J. O. Polak, *Am. J. Obst. & Gynec.* 2:239 (Sept.) 1921.

FINAL RESULTS OF FRACTURE OF THE NECK OF THE FEMUR

WITHOUT TREATMENT, OR WITH WORSE THAN
NO TREATMENT *

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The purpose of this paper is not to advocate any new form of treatment for fractures of the neck of the femur, or to criticize any of the usual methods of treating such cases, but to report the cases that have come under my observation in private practice during the past twenty-nine years, in many of which, without any treatment whatsoever, excellent results were obtained. From this I do not mean to argue that fractures of the neck of the femur should not be treated at all; but I do think that the conclusion is justified that some good results are due fully as much to the natural tendency of the fractures to unite as to the treatment they receive.

The fact that intracapsular fractures of the neck of the femur do sometimes unite without treatment appears to be proof that there is nothing inherent in an intercapsular fracture that necessarily leads to nonunion. It is true that there is little external callus in intercapsular fractures, but this influences the ultimate union only so far as it delays the time when the limb may be safely used. In fractures of the shaft of the femur the external callus is often very abundant, and because of this the limb may be safely used long before the end-to-end union is solid. When the end-to-end union is solid, the external callus is mainly absorbed. If as much time were given for the end-to-end union in fractures of the femoral neck to solidify before weight carrying is attempted as it takes for the external callus in fractures of the shaft to disappear, there would be fewer cases of "nonunion" and fewer bad results.

The relatively greater frequency of nonunion and delayed union of fractures of the neck of the femur over other fractures is due to the fact that these fractures are not usually treated as other fractures are treated. The principles of treatment should be the same for all fractures, namely: The broken surfaces should be approximated as accurately as possible, "set," and then immobilized—held continuously in that relation until union has taken place; and the limb should not be used for full weight carrying until the union has become strong.

When the neck of the femur is fractured and not impacted, the broken surface of the lower fragment turns forward and rides upward, and the broken surface of the upper fragment turns downward and backward.

I know of no way of "setting" these fragments except by Whitman's method of traction, abduction and inward rotation of the limb. Traction pulls the upward-riding lower fragment down, and abduction and inward rotation bring the broken surfaces near together, and tense the capsule to hold them in place. Whether this is done by hand, as Whitman does it, or

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of case reports and illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

by some mechanical appliance seems to me to be immaterial so long as it is done with a full knowledge of just what it needed and just what each movement does. To use a Hawley table or other traction device unintelligently is quite as bad as to use a stupid assistant unintelligently. Nor ought it matter whether one immobilizes the "set" fracture with a plaster cast of Jones' modification of Thomas' double hip splint, or some other device. There are more men in this country who can put on a good plaster splint than there are men who can put on a Thomas splint properly; and a plaster cast is more "fool-proof" than a Thomas splint in the after-care of the patient. The Thomas splint, properly used, does give a little better immobilization, but it cannot be used if one wishes to get an old person on his feet early, long before the union is secure, as I often do, even as early as the end of two weeks. A good plaster cast needs little or no care by surgeon or nurse. A Thomas splint needs attention at least twice a day by the nurse to prevent pressure sores and frequent inspection and adjustment by the surgeon.

The time required for all broken bones to unite strongly is not at all well considered by the rank and file of the men who treat fractures. Because of the fact that many fractures are sufficiently strongly united for safe use in four or five weeks, many practitioners thoughtlessly assume that all fractures unite in that short time, and that any fracture not strongly united after a few weeks is one of delayed union or nonunion. Nothing could be further from the truth. Even in fractures of the shaft of the femur in strong and healthy persons in middle life, strong, dependable union may not arrive until more than four months have passed. In fractures of the neck of the femur in which there is little or no external callus and, when weight carrying is attempted, the new union is subjected to a transverse breaking strain, a much longer period of protection may be necessary. Most fractured bones are so circumstanced that during the period of solidification they are at most subjected only to a bending strain; but a fractured femoral neck is also subjected to a twisting strain every time the bedpan is used unless protected by a plaster cast or a Thomas splint or some other rigid posterior support. Treatment of these fractures by weight-and-pulley traction tends to increased motion at the fracture every time the muscles relax in sleep and contract on awakening; and a long straight side splint from axilla to foot prevents abduction, in which position only can the fragments be brought fairly into apposition and be held there by a tense joint capsule. It is, of course, granted that patients treated by traction and by long side splints do frequently recover with good union; but so do patients not treated at all except by rest in bed. The cases on which this report is based are evidence substantiating the last statement.

During the past twenty-nine years in Chicago I have in my private practice seen forty-one cases that had no treatment, or worse than no treatment: such as treatment by weight and pulley traction, or manipulation under an anesthetic because of the mistaken diagnosis of "dislocation." In twenty of these untreated adult cases (out of a total of thirty-five adult cases) the result was good and the victim was ultimately able to walk without a cane. There were two good results in cases treated by weight and pulley traction. Two

without treatment had "fair" results. Six had bad results. And in five cases the final result is unknown. My letters of inquiry were not answered.

I have purposely omitted all charity cases; all cases treated by Whitman's method—the method I have for many years employed when possible; all cases treated by the Thomas hip splint, which has given me union in every case in which I have used it; all cases treated by the Ridlon long traction splint; and all cases in which operation was performed either with or without spiking the fragments together, because I believe that cases treated by any of these methods for a sufficiently long time will result in strong union—in "a good result."

When I have read the details of these cases, it may be objected that I have not proved bony union in all of the "good results." This I admit. But, if you please, "I will redouble." I contend that any patient with fracture of the neck of the femur who ultimately recovers—no matter how treated, or not treated, or mistreated—who recovers so far as to be able to walk without crutch or cane and without pain, has a good result; and that it is immaterial to the patient whether the union is of solid bone or not. Further, I know that a union that may appear in the roentgenogram to be bony may not be bony; and a union that in the roentgenogram may appear no union at all may be found ultimately to be bony union. My main plea is: Let us estimate the results in these untreated cases as fairly and as generously as we estimate the results which we obtain when we use our pet methods. In all these good results that I am reporting there can be no doubt that a better length and a better position would have resulted from treatment by the abduction method; and that treatment by a plaster splint, a Thomas or a Ridlon splint would have lessened the duration of the disability and the number of fair results and bad results; but we must also admit that if cases had not been manipulated under the mistaken diagnosis of dislocation, and if all patients had been kept sufficiently long in bed there would have been fewer bad results to report.

The conclusion which I am forced to draw from a careful consideration of these cases is that there is no anatomic or physiologic reason why fractures of the neck of the femur should not unite and result in useful limbs, and that wrong diagnosis, neglect, and even maltreatment is often not enough to prevent a good result.

CONCLUSIONS

1. All fractures of the neck of the femur should be treated with the limb in full abduction, and when not impacted should be pulled down and turned with the toe forward.
2. Impacted fractures with no more than three-quarter inch shortening should be treated with a Thomas hip splint or a plaster cast without disengaging the impaction.
3. Patients who cannot be treated in either of these ways should rest in bed without treatment for at least four months, and should not carry full weight on the leg as long as any sensitiveness remains.
4. All patients who can be treated by the Whitman method or by Thomas' splint and abstain from weight bearing as long as sensitiveness remains can expect a good result.

5. Of patients resting in bed without treatment for at least four months, more than 50 per cent. may expect ultimately a good result.

6. No case of hip injury should be assumed to be a dislocation unless the femoral head can be felt out of the socket, or shown to be out by a roentgenogram.

7. A limb that is found to be adducted, rotated outward and short after a hip injury should be assumed to be a fracture of the neck of the femur, because the usual dislocation is backward and upward, giving a limb that is short, rotated inward, and somewhat flexed.
7 West Madison Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. WHITMAN, RUTH AND RIDLON

DR. CHARLES E. THOMSON, Scranton, Pa.: I have been using the Whitman abduction treatment for twenty-seven years, during which time I have treated 110 cases. I obtained good results in ninety-seven cases. Seventeen patients died as a result of the accident, or as a result of some intercurrent disease before union could take place. Two had no bony union, one was complicated by an old knee condition, which necessitated removing the cast before the union was firm: the fragments afterward separated. The other case took on a "crazy kind" of growth instead of a bony union, the nature of which I have never been able to determine. I have at all times been most enthusiastic over the abduction and fixation treatment, and believe that practically all will end in bony union if properly reduced and retained. My youngest patient was 14 years old, the oldest 90 years. The latter had, in addition to the fracture of the neck, a fracture of the shaft, below the trochanter. She was treated by straight extension and fixation and made a good recovery. I think it is not well to pass without a word of warning against the fact that 50 per cent. of the patients recovered with good functional limbs, without treatment or worse than no treatment, lest it should give practitioners who are inclined to be lazy an excuse not to treat their patients; even if only 50 per cent. remain uncured it is a good reason why all should be treated, when a cure in practically all may be anticipated.

DR. A. J. OCHSNER, Chicago: My experience with the method of treatment of fractures of the hip described by Dr. Ruth covers a period of twenty years. At the present moment I have three patients, two of them over 80 years old, under his treatment. Before my attention was directed to this form of treatment I had employed a number of methods then in vogue with unsatisfactory results corresponding to those just described by Dr. Ridlon. Our results with Dr. Ruth's method have been so satisfactory that I have employed the Whitman method in only a few cases, but also with excellent results, although this method appeals to me very much, especially from a theoretical standpoint. Most of our patients walk without any troublesome limp, without any outward rotation of the extremity, and with perfect union of the bone; and in quite a few cases it is difficult to tell which hip was fractured. They are very comfortable under treatment, provided this is carried out with proper care. The downward traction must be sufficient to overcome shortening, and the outward traction must be just sufficient to hold the foot in a vertical position, or with a very slight inward rotation so that the toes turn a trifle inward. These patients can use the bedpan with comfort, and moving about in bed does not seem to interfere with obtaining a good result. Had our experience been less satisfactory with this method, I am sure that we should have adopted Dr. Whitman's method, which undoubtedly gives most excellent results; but the heavy plaster-of-Paris cast is less comfortable than the double weight and pulley extension. Were I to have a fracture of the hip while still young, I should choose the Whitman treatment because, if applied properly to begin with, a good result is assured. If I should acquire such a fracture fifteen or twenty years hence, I should desire Dr. Ruth's treatment because I should still be sure of a good result with greater comfort; and if ten or fifteen years older, the treatment described by Dr.

Ridlon would probably seem the most desirable because it would leave me perfectly free from restraint.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I consider that due emphasis should be made of the seat of the fracture. Those of the trochanter and through the base of the neck do not present a real surgical problem. Such fractures unite by bony union with rare exceptions. Our problem is the central or intracapsular fracture, where nonunion occurs with greater frequency than in any part of the skeletal system. Of 115 fresh fractures, about 60 per cent. were of the central type, or the neck proper, and 90 per cent. of these gave strong bony union with excellent functional result. I have for years been an exponent of the Whitman method, but Dr. Ruth has shown us that bony union can occur by this treatment. In the slides presented, however, the position was not as accurate as can be secured by the fixed abduction of Whitman, and coxa vara was apparent in several cases with no bony union. In the Whitman position, too much abduction or overabduction is possible, which I have demonstrated by the roentgen ray before applying casts. I am sure that union in few cases has been broken when the limb was adducted after removal of the cast. The powerful leverage could obviously do this. I have applied casts in 140 cases if we include those of nonunion by operation methods. Only five deaths occurred, which refutes the objection to plaster casts. I understood Dr. Whitman to say that impaction did not occur. I have seen a number of patients who were able to walk for several weeks with only slight lameness though with definite impaction. In one case there was no abnormality, no shortening and motion in every direction normal. This patient called at the office in four weeks with definite impaction and shortening. Dr. Ridlon stated that many patients with ununited fractures had good functional result without treatment or worse than no treatment. This I also have seen when the break occurred near the head with the neck, or distal fragment within the acetabulum. Such a condition does not require operative treatment, except for relief of pain.

DR. EDWIN W. RYERSON, Chicago: It cannot be doubted that Dr. Ruth and Dr. Whitman have demonstrated that bony union can occur after fracture in any part of the neck of the femur. The method of Whitman is more efficient, I think, than that of Ruth because the bones will grow together faster if they are touching each other than if they are pulled away a little from each other, as the application of the lateral traction of Maxwell and Ruth will do; but the Ruth method is valuable for some patients who cannot safely take an anesthetic. For all the other cases the Whitman method is the method *par excellence*, and I think he should be given the greatest credit for devising this method. The one difficulty that prevents its universal adoption is that there are not enough men in the country who understand how to apply the long spica plaster cast, and there are not enough places equipped for this purpose. The use and the preparation of the proper kind of plaster-of-Paris dressings is not universal. As Dr. Thomson pointed out, it is not necessary to have any special table; you can do the work on anything by making traction with a sheet between the thighs. By the use of the Whitman method the knee is kept in an extended position, and in the aged it requires sometimes many months before the full range of motion in the knee joint returns. The plaster should be shortened to the knee as soon as union is well advanced, and active and passive motion at the knee joint should be encouraged. This point is often overlooked.

DR. EDWARD H. BRADFORD, Boston: A case of fracture of the femoral neck was successfully treated by means of a traction appliance with an abduction attachment which has proved of service in the treatment of hip disease at the Canton institution for crippled children. In two weeks after the accident the patient was able to sit in a chair and soon to stand and in a short time to walk with the aid of a splint and crutches. The treatment became ambulatory after a few weeks. Traction was omitted as soon as consolidation began. The perineal crutch was continued in walking for nearly three months after the accident. There was no question of the nature of the fracture, as the patient was examined by competent surgeons and the site of the break and the extent of the displacement at the time of fracture was shown by roentgenogram. The result was surprisingly good. The splint not only had given sufficient fixation to secure consolidation but also

had corrected displacement in the fractured fragments. The absence of bandage interference with the normal circulation in the limb and the early movement of the joint secured muscle and ligament suppleness. Perfect motion resulted in all directions without shortening. At the end of a few months the patient was able to use the injured limb as well as the other, and to walk several miles with freedom.

DR. L. S. KEMP, Boston: The type of appliance used was the abduction splint. The patient had shortening at the time of fracture, but there is no shortening now. She was injured, February 18, and was discharged, June 9, in splendid condition from the hospital and went to her son's home. Since then I have had eleven cases treated in the same way and they have all come out equally well.

DR. WALTER G. STERN, Cleveland: In a choice of these two successful methods of treatment of fracture of the hip joint I prefer the Whitman method. As intimated in Ridlon's paper, in many parts of the country they still do not know that intracapsular fractures of the hip are curable. Many men advise that these patients are not to be treated because a fracture here does not unite. The publication of Ridlon's paper will do much good because, as I understand it, it contains the message that fracture of the hip joint in the old or the young has no inherent tendency not to unite. Ridlon also mentioned three cardinal symptoms, but he said nothing of crepitation and abnormal mobility. Nor are these symptoms necessary for diagnosis. A man who practiced very little but who was superintendent of a soldiers' and sailors' home said that if any person above the age of 50 slips and falls, and cannot get up from the floor, he undoubtedly has fracture of the hip joint. It is even not necessary to fall to the floor for older people to get a fracture of the femur, a sudden twist, a slip or a lurch to the side may fracture the hip by torsion, and as a result of the fracture the patient falls to the floor.

DR. FRED H. ALBEE, New York: I am sure that Ridlon intended to convey that efficient fixation would cause the bone to unite, and wished to counteract the impression that these cases are hopeless of attaining results. We cannot possibly sanction the nontreatment of intracapsular fracture of the neck of the femur. I have a large number of ununited fractures of the hip coming to me all the time, and most of the patients have either not been treated adequately or not treated at all. We should draw a careful distinction between transtrochanteric fractures and fractures of the neck of the femur. Dr. Ruth starts out well in pointing out the displacing elements, but I cannot follow his deductions as to the treatment indicated. Flexion of the thigh neutralizes the displacing effect of the psoas magnus muscle, and if carried out would make unnecessary lateral traction, which I believe is contraindicated. I am sure the Whitman abduction treatment is preferable. It brings the fractured ends together and holds them firmly. As to the remark that three different types of treatment of fracture of the neck of the femur should be selected for three different periods in life, I cannot agree. I believe that the Whitman abduction method is indicated for all periods of life. In extremely old people, when applied without using an anesthetic, besides furnishing the best treatment to secure union it offers by all means the lowest mortality. The plaster spica should be so applied that it does not cause pain. A good fracture table is necessary for this work, especially when an anesthetic is not used. Care should be taken to avoid too much abduction, especially in cases of long standing nonunions, as erosion has always shortened in a varying degree the femoral neck. In such cases a posture of extreme abduction levers apart the fractured ends. Following the insertion of the bone graft peg for nonunion, only a slight amount of abduction should be used.

DR. GEORGE B. PACKARD, Denver: If the details are carried out in any one of the three methods, the results will be good. Some years ago Dr. Ruth showed us the exact way of doing this work and I have followed his method ever since. The results have been so satisfactory that I have never tried any other method of treatment in these cases.

DR. HORACE R. ALLEN, Indianapolis: Every mechanical principle in use has affixed to it exact, definite and unalterable qualities; and from these inherent and generic qualities it cannot deviate, no matter how suave the great surgeon may be who trifles with it. There are also a few laws con-

cerning broken bones: One of them is that bones grow together in the position in which they are held. So all any fracture needs after reduction is maintenance of reduction. This reduces our selection to the little group of "fixation forces for fixation purposes." Dr. Whitman uses a fixation force for a fixation purpose when he secures the trochanter or distal fragment firmly against the soft tissues adjacent to the acetabulum. Dr. Albee, with transfixing bone pegs, uses fixation forces for fixation purposes. Doubtless there are other methods of employing fixation forces for fixation purposes that work equally well. For over twenty years I have known of a bloodless method that requires no anesthetic or analgesic from the time of injury until complete recovery. By this method, femurs unite regularly and are the exact length, or, if desired, they may be held longer or shorter during the process of bony union. However, there is little hope for better surgical principles until the mechanical principles on which surgery is founded undergo a process of reform and rearrangement. We have just heard advocated the use of the weight and pulley, and its use is highly recommended in at least a ton of our up-to-date treatises on surgical principles. The idea of maintaining a constant distance or location of a bone fragment by tying a constant, acting force to it does sound a little queer, and as a matter of fact it is queer. The constant active force of gravity is all right and also unalterable. It so happens that it is a very inappropriate force with which to attempt fixing constant distance. This is especially true since it is to be opposed by the most inconstant of all forces, namely, muscle contraction. Muscles contract involuntarily as well as voluntarily. Also they tire out and then contract or jerk or undergo tremor or spastic contractions. The little weight tied to the pulley is never commensurate with the pulling capacity of the opposing muscles. That is why patients can remain in their tilted beds. Why argue when it is so easy to select appropriate forces?

DR. FREDERIC J. COTTON, Boston: I am glad to see that we are coming to what seems the most important thing. We have talked at cross-purposes for years, and now the real facts seem to have come out, namely, that there are two types of fracture of the intracapsular and the extracapsular, entirely different in problems presented and in results. Fractures outside the capsule often enough do badly, but as a result of failure to get and maintain position and to avoid contractures. There is no risk of nonunion in this class of cases. With extracapsular fractures we have first to get good position (checked by the roentgen ray); second to maintain this position (checking with the roentgen ray) and so avoid coxa vara. Convalescence may legitimately be shortened if handling is adequate. I have had patients who have walked in three months. In this class of cases I prefer traction, though you can often get good results with simple abduction. In "subcapital," "intracapsular" fractures, fractures of the neck proper, on the other hand, the real problem is one of nonunion. A lot of these cases have healed with any kind of treatment or without treatment; and though they may have some deformity, there is not necessarily any disability if there is union. The thing that counts is the question of union pure and simple, bony union preferred, close fibrous union admitted. There is no question that more or less abduction is the favorable position. How far this will bring about bony union is not so much the immediate question. It limits contractures and probably minimizes the tendency to displacement. I doubt if it (or any method) can insure bony union in the old and feeble. Case after case with apparently firm impaction in which repair goes on for several weeks will show a breakdown afterward. This I have seen in many natural impactions, in three artificial impactions, and under carefully carried out extreme abduction. In my opinion, the question is therefore one of securing good reduction or at least good enough reduction, and then maintaining the most balanced position, which is, of course, abduction, and then long maintenance of protection so as to give the patient repair that will "stand the gaff," and that includes care for a long time. I think, if it is understood, that these are two classes to be treated differently in regard to reduction and after-care the matter will be clear. It is a question of a clear conception of two types of fracture and what we must do with each.

DR. C. V. ZWALUWENBURG, Riverside, Calif.: A fracture of my hip, involving the small part of the neck of the femur was treated practically "not at all," to quote Dr. Ridlon, but, we made an effort to carry out Dr. Ruth's ideas. I feel that I have a perfect result. The roentgenogram revealed fracture at the middle of the neck with displacement to one fourth the diameter of the bone at that point. This treatment is very comfortable. Another point is plenty of weight in the extension, abduction of the femur just as Whitman does it, with the side pull in addition to a rotating pull, and a little weight to keep the toe in. The roentgen ray shows a perfect result, but the comfort is the point I would like to emphasize. The point about the extra weight is that it allowed me to sit up in bed resting on a back rest. The other point is the time necessary for union to take place. We frequently do not give enough time for union to occur. My plea is for more time before the patient is allowed to get out of bed. My surgeon, Dr. W. W. Richardson of Los Angeles, said "You can get up after seven or eight weeks." As I was comfortable, I decided to lie there ten weeks. I was on crutches six months from the time of the fracture.

DR. CHARLES E. RUTH, Des Moines, Iowa: I made it a point in presenting these cases to show the considerable number that were successfully treated by amateurs. One of the principal points in connection with the treatment I have advocated for thirty years is that no anesthetic is required for reduction. About one man in a thousand can put on a plaster cast well. If I were suffering from fracture of the neck of the femur and could not have the treatment I have advocated and used so many years, I should want the Whitman treatment, if I could get a plaster expert to apply it. But a very obese individual with the Hottentot variety of buttocks suffering from fracture of the femoral neck could, in ten days after application of the plaster, have an adjustment of the fracture only in imagination.

DR. ROYAL WHITMAN, New York: The abduction treatment is the exponent of reform because, being mechanically adequate for its purpose, surgical principles are applied in the treatment of fracture of the neck of the femur, regardless of the conclusions adapted to inadequacy that have thus far governed conventional practice. I do not recognize the significance of the distinction between extracapsular and intracapsular fracture, emphasized by Dr. Campbell and Dr. Cotton, implying, apparently, that in the one case efficient treatment is essential to union, while in the other its character is of little consequence because, whether the treatment is good or bad, repair follows. If repair is so certain in the extracapsular fracture, all the more attention should be paid to the restoration of normal function by the complete correction of the deformity, now made practicable by the abduction method, and by adequate after-care, on which the result is dependent. I did not say that impaction does not occur. I said that impaction is an ancient conception dating from a time when there was no means of demonstrating the actual condition. In a very large majority of cases of so-called impaction there is actually no impaction whatever, as demonstrated by the ease with which the deformity can be reduced under anesthesia. Impactions, whether actual or imaginary, should always be reduced whenever the deformity impairs the free movement on which function depends. I can hardly agree with Dr. Campbell as to the danger of overabduction. I conclude that it must be remote, since in the practice of others I have rarely seen the limb placed in sufficient abduction to assure accuracy and security of adjustment. I think the Maxwell-Ruth method is the only traction method that deserves serious consideration. It is, however, not comprehensive in its scope in the sense of correcting resistant deformity, and unfortunately the skill and persistence which have made this treatment so successful at the hands of Dr. Ruth can never be at general command. The method has been before the profession for more than fifty years, yet it has made practically no impression on the futile conventional routine. The same objection may be made to Dr. Bradford's abduction splint, even admitting that it has all the advantages claimed for it, that neither the apparatus, nor the training required to make it effective is at command. The abduction method has three great advantages over any other—comprehensive mechanical effectiveness, single control, and general availability. It should become, therefore, the basic routine

when the traditional teaching to which the textbooks as a class are still loyal that the result in this particular fracture is determined by chance, rather than by the opportunity for repair that may be assured by positive treatment, has been finally repudiated.

DR. JOHN RIDLON, Chicago: There is only one criticism that I have to answer, and that is Dr. Thomson's remark that he thinks it is a mistake to publish my paper. It does not pay, in his opinion, to tell the truth about the patients who recover without treatment. I admit that it has not paid me. Nevertheless I will tell the truth. If one can treat a patient efficiently—and the most efficient treatment is the Whitman method—it should be done that way. If one can treat it efficiently by the Jones method or double Thomas hip splint, or by the Bradford method, it is well. But if one cannot treat a fractured femoral neck efficiently, it should not be treated at all; let the patient lie in bed until he gets well.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BROMIPIN 10 PER CENT.—Brominized Sesame Oil, 10 per cent.—Merck. A bromine addition product of sesame oil, containing from 9.8 to 11.2 per cent. of bromine in organic combination.

Actions and Uses.—Bromipin, 10 per cent., acts like the inorganic bromides; but, since it yields its bromine more slowly, it is thought to have less tendency to produce brominism. The combination is not broken up in the stomach; but a portion of the bromine is split off as soon as the compound enters the intestine; the remaining compound is readily absorbed, and, as in the case of other fats, it is largely deposited in the tissues where it is slowly split up. Bromipin, 10 per cent., is said to be more lasting in its action than the bromides.

Dosage.—Four Cc. (1 fluidrachm), which may be increased in cases of epilepsy to from 8 to 30 Cc. (2 to 8 fluidrachms). It may be given in emulsion with peppermint water and syrup, or pure, flavored with oil of peppermint.

Marketed by Merck & Co., New York, under U. S. patent 774,224 (issued Nov. 8, 1904; expired), by license of Chemical Foundation, Inc., U. S. trademark 32,002.

Bromipin 10 per cent. is prepared by action of bromine chlorid to produce the required brominization.

Bromipin 10 per cent. is a yellow oily liquid, having an oleaginous taste.

To 1 Cc. of bromipin 10 per cent. and 1 Cc. of chloroform add a few drops of phenolphthalein solution. The addition of 0.3 Cc. (1 drop) of half-normal sodium hydroxid produces a red color (*limit of acidity*).

Saponify about 3 Gm. of Bromipin 10 per cent., accurately weighed, by boiling with 25 Cc. of alcohol and 5 Gm. of potassium hydroxide in a porcelain dish. Evaporate to dryness on a water bath and incinerate the residue over a gentle flame. Dissolve in water to make exactly 200 Cc. and filter. Acidulate 50 Cc. of the filtrate in a separator with diluted sulphuric acid; add 20 Cc. of carbon tetrachloride and 5 Cc. of freshly prepared chlorine water. Shake thoroughly and allow to separate. Repeat this until further additions of chlorine water do not cause the aqueous layer to become yellow. Draw off the carbon tetrachloride solution. Add 10 Cc. of carbon tetrachloride, agitate and draw off the solution, uniting it with the first carbon tetrachloride solution. Repeat the extraction with a further portion of 5 Cc. of carbon tetrachloride. Pass the carbon tetrachloride solution through a dry filter into a flask and add potassium iodide solution. Shake thoroughly and titrate the free iodine with tenth-normal sodium thiosulphate. The amount of bromine found is not less than 9.8 per cent. nor more than 11.2 per cent.

Sanation, Not Cure.—Each morbid phenomenon is the resultant of many causal factors, and in consonance with this therapeutic measures must be directed against a multiplicity of pathogenetic forces. In a word, we now put in the place of the conception of cure the conception of sanation. This is indicated by a change of vocabulary. We tacitly drop the term cure and employ instead the terms clinical improvement, recuperation, recovery, convalescence and restoration of health.—A. Wright, *Lancet* 2:644, 1921.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . Six dollars per annum in advance

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SATURDAY, DECEMBER 3, 1921

QUESTIONNAIRE ON ALCOHOL AS A THERAPEUTIC AGENT

Various statements have been made as to the views of the medical profession on the therapeutic value of alcohol, whether whisky, beer or wine. The profession is quoted both as being in favor of and opposed to its use. So far as we know, no attempt has been made to ascertain the opinions of any considerable number of physicians on this question. In order to secure the views of a representative cross-section of the medical profession, a referendum is being taken this week. The questionnaire¹ has been carefully prepared, so that each physician can express his opinion on the important points in connection with the whole proposition. It is sent to forty thousand physicians—every other name on our mailing list. This list includes

1. QUESTIONNAIRE ON ALCOHOL AS A THERAPEUTIC AGENT:

[Write answers only on this page. If you desire to comment, use reverse side.]

1. In what line of practice are you engaged? General practice?.....
Specialty?.....
(State Specialty)
2. (a) Do you regard whisky as a necessary therapeutic agent in the practice of medicine? Yes ☐ No ☐
[By "whisky" is meant distilled liquors, whether whisky, brandy, gin, or rum.]
(b) If "yes," in what diseases or conditions do you regard whisky as necessary?
3. (a) Do you regard beer as a necessary therapeutic agent in the practice of medicine? Yes ☐ No ☐
[By "beer" is meant beer with the same alcoholic content as prevailed before prohibition went into effect, also ale, stout, porter, etc.]
(b) If "yes," in what diseases or conditions do you regard beer as necessary?
4. (a) Do you regard wine as a necessary therapeutic agent in the practice of medicine? Yes ☐ No ☐
(b) If "yes," in what diseases or conditions do you regard wine as necessary?
5. (a) Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws? Yes ☐ No ☐
(b) If "yes," how many such cases have you known in the last year?....
6. How many times have you found it advisable to prescribe these liquors in a month?
Whisky..... Beer..... Wine.....
7. Is the prescribing of alcoholic liquors forbidden by your state law? Yes ☐ No ☐
If "no," do you hold a federal permit? Yes ☐ No ☐
8. (a) The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write? Yes ☐ No ☐
(b) If "yes," what should the limit be?
9. (a) In your opinion, should physicians be restricted in prescribing whisky, beer and wine? Yes ☐ No ☐
(b) If "yes," what restrictions should be made?

(Postoffice Address)

(State)

Please sign your reply, not for publication, but in order that we may know that it was filled out by a qualified physician. If you do not care to answer the questions, kindly return this questionnaire, with or without your signature. Return to American Medical Association, 535 N. Dearborn St., Chicago, Ill.

Stamped return envelope enclosed.

Fellows of the Association, members of the organization, and nonmembers. In addition it is sent to ten thousand physicians who are neither members of the organization nor subscribers to THE JOURNAL, selected in a similar manner from the A. M. A. Directory. These lists cover the whole country. A study of the questions will show that they are not leading and can not influence in any way the opinion of the physician who replies. This referendum is of the utmost importance, and it is sincerely hoped that every physician who receives the questionnaire will immediately give it his careful consideration. It is the duty of every physician who receives this questionnaire to express his opinion.

THE PROBLEM OF OXYGEN THERAPY

That the living organism needs oxygen no one will gainsay. The fact has been appreciated almost since the days when this gas was first recognized as a chemical entity. Where the call for oxygen comes from was not so promptly understood. It has been evident for some time, however, that the place of oxidation in the body is in the active cells, not in the blood as was formerly maintained. Furthermore, the science of physiology can today say with assurance that the quantity of oxygen taken up by the cells is conditioned by their needs rather than by the supply. The cells take what they require and leave the rest. The amount of oxygen passing from the blood to the tissues depends on the difference between the pressure of oxygen in the blood and in the tissues. The higher the oxygen pressure in the blood, the greater will be the amount of oxygen passing from the blood of the capillaries into the tissues in a given unit of time. Hence, as a recent writer¹ has clearly expressed it, oxygen diffuses from the place of higher pressure to the place of no pressure or low pressure. In the active tissues the oxygen tension is always low, and it is usually supposed that there is then no oxygen pressure at all inside the cells. The dissociation of oxygen from the hemoglobin of the blood occurs with great rapidity, but it is greatest where the differences in pressure are greatest. It follows, therefore, that the oxygen pressure in the blood must be sufficiently high to supply the needs of the cell in the brief interval of time that the blood is passing through the capillaries.

The consequences of the more extreme reductions in oxygen intake with a resultant imperfect aeration of the arterial blood with this gas are well known. Mountain climbing, ballooning and aviation have furnished striking illustrations. The periodic breathing, nausea, headache, impaired circulation, and even more serious progressive damage to the central nervous system, heart and other organs are now generally ascribed "solely

1. Manual of Medical Research Laboratory, War Department, Air Service, Division of Military Aeronautics, Washington, 1918, p. 11.

and simply to lack of oxygen." Whether anoxemia is a phenomenon of any considerable frequency under ordinary atmospheric conditions has until lately been more problematic. It is stated that the existence of cyanosis is *prima facie* evidence of lack of oxygen in clinical disease. One must bear in mind that not only the amount of oxygen available but also the tension at which it is present determines its availability. At low tensions, such as the venous blood often shows, oxygen may pass cells unused because the impetus for diffusion is lacking.

With the development of accurate methods for the direct determination of the degree of oxygen saturation of the blood in man, evidence has been accumulated to show that an actual lack of oxygen, in the sense of its availability to the tissues, actually occurs not only in experimental or other rare conditions but also in diseases of man. This has recently been shown anew to be true, for example, in cases of cardiac insufficiency and related conditions,² in some patients with pneumonia,³ and even in epidemic (lethargic) encephalitis, in which an extreme type of shallow breathing develops.⁴ It is logical, therefore, to consider seriously the possibility of adequate oxygenation in such persons. The difficulties do not lie in any danger from undue intake of oxygen, for no abnormal increase in vital processes occurs even when mixtures very rich in the gas are inhaled. The problem is rather one of technic of securing an actual introduction of more oxygen into the lungs under mechanical conditions of tolerable comfort. The usual haphazard methods of oxygen administration are of slight avail. With more effective breathing devices, Barach and Woodwell⁵ of the Massachusetts General Hospital were able to increase the arterial saturation with oxygen through inhalation of the gas by patients with cardiac insufficiency. The venous saturation was also frequently increased accordingly. Relief of cyanosis and the slowing of the pulse were the outstanding objective changes. The blood pressure, vital capacity, arterial and venous carbon dioxide content, urinary excretion, and rate of respiration showed no definite changes from short periods of oxygen inhalation. Subjectively, the patients usually said they felt more comfortable or that their breathing was better, but they were rarely enthusiastic. In pneumonia the somewhat comparable results were sufficiently impressive to permit the conclusion that oxygen therapy has a rational rôle in the treatment of the disease. The Boston clinicians state that oxygen inhalation for one-half hour was sufficient in the mild or moderate cases of anoxemia to elevate the arterial

saturation and cause clinical improvement. In the severe cases, from one to two hours was necessary. The effect of a single administration was, in the main, temporary. The effect of repeated and prolonged administration produced persistent beneficial changes in the oxygen saturation of the blood and in the pulse, breathing, color, comfort and mental condition of the patient. It cannot be stated too emphatically that to combat anoxemia, oxygen must be given effectively. The numerous evidences now on record pointing to the possibilities of helpful applications of oxygen inhalation should stimulate investigators to devise more ingenious and comfortable outfits for accomplishing the purpose aimed at. If the project is defensible, a way to accomplish it must soon be found.

NEW INVESTIGATIONS ON ICTERUS

Some problems associated with the etiology and diagnosis of icterus have been attacked recently from two points of view: French investigators have considered chiefly the elimination of various constituents of the bile, while some Dutch physicians have studied bilirubin in the blood. Brulé,¹ who has been investigating the problem for several years alone and in conjunction with other French workers, places the greatest importance on the question of dissociation between the elimination of bile pigments (bilirubin and urobilin) and of bile salts. Both are found in the urine in cases of mechanical obstruction to the outflow of bile. In hemolytic icterus, only bile pigment is present (urobilin). In a third—the greatest—group of cases attributed to hepatic insufficiency, both groups can be present in the urine.

Hijmans van den Bergh² has investigated practically the same problem by another method; he applied the diazoreaction for a fairly exact determination of bilirubin in the blood serum (it is not present in blood corpuscles). Among other important results he found that there are two sorts of bilirubin in the blood serum, or at least that it reacts in different ways, according to whether its increase is due only to a mechanical obstruction or to other causes. This he calls dynamic icterus. The bilirubin of the mechanical icterus reacts with the diazoreagent in the uncoagulated serum ("direct reaction"), is largely adsorbed by the coagulum of proteins formed by alcohol, oxidizes more readily and is more readily excreted than bilirubin of the other group, which accounts for the fact, for example, that a hemolytic icterus usually does not excrete bilirubin, but urobilin only. This second group gives the reaction only when the serum has been coagulated by alcohol (indirect reaction). In normal serum a small amount of this kind of bilirubin is constantly present. It is considerably increased in pernicious anemia, while

2. Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy with Determinations of the Blood Gases. I, In Cardiac Insufficiency and Related Conditions, *Arch. Int. Med.* **28**: 367 (Oct.) 1921.

3. Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy, II, In Pneumonia and Its Complications, *Arch. Int. Med.* **28**: 394 (Oct.) 1921.

4. Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy, III, In an Extreme Type of Shallow Breathing Occurring in Lethargic Encephalitis, *Arch. Int. Med.* **28**: 421 (Oct.) 1921.

5. Barach and Woodwell: Footnotes 2, 3 and 4.

1. Brulé, M.: *Recherches récentes sur les ictères*, Paris, Masson et Cie, 1919.

2. Hijmans van den Bergh: *Der Gallenfarbstoff im Blute*, 1918.

there is usually a low level of bilirubin in carcinoma. Diagnostic difficulties can arise only when metastases in the liver cause a mechanical retention, but then the reaction is direct and can even serve as the first sign of metastasis.

Icterus neonatorum, Lepehne³ has confirmed, following van den Bergh's method, cannot be attributed to a mechanical stasis, for it gives the indirect reaction. The formation of bilirubin in the spleen in pernicious anemia and in some intoxications has been proved directly by comparison of the amount of bilirubin in the vessels. The question whether bilirubin can form outside the liver (e. g., also in extravasates) is definitely settled in the affirmative.

These researches are a classical example of the influence a method has on the results. Through both methods new facts and explanations have been derived. Brulé's "retention due to hepatic insufficiency" perhaps corresponds with van den Bergh's "dynamic icterus," or a combined dynamic and mechanical icterus. Retentions due to lesions of the hepatic ducts in Brulé's terminology are identical with mechanical icterus. The icterus due to blood changes is van den Bergh's pure "dynamic icterus." The yellow color of the skin cannot be considered the cardinal sign of icterus. The increased amount of bilirubin in blood which always precedes visible discoloration and which can be determined exactly, must now be our criterion.

QUINIDIN IN HEART DISEASE

Rarely has a drug made a stronger or more dramatic bid for immediate acceptance as a valuable therapeutic agent than has quinidin in auricular fibrillation. Emerging from its obscurity where it was known only to the few as an isomer of quinin, this compound has suddenly leaped into the bright light of popularity, winning instant applause because of its startling effects in certain types of cardiac irregularity. To see a heart that has been constantly irregular for one or two years because of a fibrillating auricle lose its lawless and rapid beat within a few hours under the influence of a small amount of this drug, and resume normal rhythm and rate and maintain these for months, must attract the attention of even the most skeptical clinician or the most confirmed therapeutic nihilist. Such a phenomenon announces the advent of a new and virile agent in the treatment of heart disease.

The conclusions of the few clinicians who have thus far reported their investigations are in remarkable agreement as to the fact that in about half of the cases of auricular fibrillation, quinidin is capable of restoring to the sino-auricular node the control of the heart, so that, for a time at least, the working of the heart is normal. Evidence is accumulating to the effect that this is due to the action of the drug on the auricle. In many

cases, in addition to the disappearance of the arrhythmia there has been such subjective and objective improvement in other respects that it seems clear that one is dealing with an agent of power which, if rightly used, may be of great service in practical therapy.

But any new therapeutic agent that is proved to be of even slight value is liable to be misused. Physicians, like other people, are naturally optimistic as to treatment. We grasp eagerly at that which gives even frail promise of help; we are impressed only by the favorable in the medical report; we are unconsciously influenced by the skilfully constructed circular of the drug house that advocates the use of the remedy; the pressure from the public which clamors for something to be done in time of sickness warps our sounder judgment, and, before we are aware of it, we are participating in the indiscriminate and irrational use of remedial measures whose mode of action is but imperfectly understood, and which on closer analysis, or after disappointing or perhaps disastrous experience, are found to be of use only to a very limited degree. Thus, serums, vaccines, certain hypnotics and other drugs, as well as many surgical operations, have had their day of fanatic vogue before their real value has been slowly established.

If our readers will study carefully the three articles on quinidin that are printed in this issue of THE JOURNAL,¹ they will note that, while the authors are fascinated by the possibilities of the application of this drug in medicine, they are wisely conservative in their statements and frankly admit that much is yet to be learned concerning its proper use. Why is it without influence in 50 per cent. of cases of fibrillation? Why, when it is efficient, is the effect in such a large proportion of cases transitory? Is it of service especially in the more recent cases? Is it advisable to give it in conjunction with digitalis? What are the elements of danger in its employment? Can the alarming symptoms that sometimes follow its administration be guarded against? Does the possibility of their occurrence or of fatal consequences justify us in using the drug at all? While it may slow the heart and restore its rhythm, does it really increase the heart's efficiency? These and other similar questions are suggested by the reports that have been published up to the present. It is to be hoped that the solution of these questions will not be attempted by wholesale and indiscriminate adoption of the remedy by the profession in every type of rapid and irregular heart. Only unsatisfying and disconcerting personal impressions, perhaps serious consequences, will be the result of an unscientific investigation of this kind. The true facts concerning the drug will be arrived at only through a continuance of the methods adopted by those who have thus far written on the subject—thorough study of individual cases, careful daily records of findings, electrocardiographic

3. Lepehne: Series in the *Deutsches Archiv für klinische Medizin*, the latest, 135, Nos. 1 and 2, 1921.

1. Pages 1793, 1797 and 1800.

interpretation of the heart's action, necropsy control where possible, impartial and not hastily reached conclusions. Incidentally, such a study of this interesting drug may bring forth new facts concerning the mechanism of the normal and pathologic heart beat.

Current Comment

BACTERIA IN THE BILE FOLLOWING SPLENECTOMY

Maurizio Bufalini,¹ who has investigated the number of bacteria excreted by the bile in splenectomized guinea-pigs, found fewer organisms than in normal controls. The examination of the blood revealed the reason: There are decidedly fewer germs circulating in young animals in the first ten days after splenectomy than before such operations are performed. Bufalini is guarded in his conclusions and cites the views of other authors, who warn against generalization of results obtained in one species of animals or microbes. Yet these experiments add another instance of increased resistance of animals after splenectomy, in spite of the trauma thus inflicted. A similar fact is the increased resistance of red corpuscles of such an animal against hypotonic solutions and the increased resistance of the animals themselves against several hemolytic poisons—considering only the experiments performed on the normal spleen. The best results in pathologic cases were obtained by its removal in hemolytic icterus and in Banti's disease, and some good influence was apparent in cases of purpura with diminution of blood platelets. No bad results apparently follow the removal of the spleen. This is a sad fact for the views held by teleologists. The functions of this mysterious organ offer a promising field for research.

SMALLPOX AND VACCINATION IN RECENT MONTHS

In his *History of England*, Macaulay described smallpox as "the most terrible of all the ministers of death." "The havoc of the plague," he continues, "was far more rapid, but the plague visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover." One hundred and twenty-five years have elapsed since the first vaccination performed by Edward Jenner in 1796. Persons living today, when the great menace that once conquered even America is no longer feared, can scarcely appreciate the true significance of the tribute which Thomas Jefferson paid to Jenner in these words: "You have erased from the calendar of human afflictions one of its greatest. Yours is the comfortable reflection that mankind can never forget that you have lived; future nations will know by

history only that the loathsome smallpox has existed, and by you has been extirpated." In the light of these comments, it seems almost incredible that the U. S. Public Health Service should find it possible to report more than 16,000 cases of smallpox in eight states alone in which the histories were furnished in 1920; while, from information supplied by only seven states, more than 18,000 cases have been reported with history during the first six months of the present year. In Minnesota, for example, 8,238 of these smallpox cases were actually reported.¹ The real lesson, however, is to be found in the statistics of vaccination for this formidable array of patients. More than two thirds of the entire 34,000 afflicted had never been successfully vaccinated. About one twentieth of them had been vaccinated more than seven years before the attack; and, of the remainder, the histories were in most cases uncertain with reference to their vaccination status, or were not obtained. Only 2 per cent. of the patients were actually reported to have been vaccinated within seven years prior to the attack. Again the lesson to the public is clear and imperative—and there is little left for the consolation of the antivaccination cult, which is doubtless responsible directly or indirectly for some of this unnecessary suffering.

WHITE HAIR

Accounts of the sudden loss of color in hair are occasionally found in popular literature, and legendary accounts of phenomenal blanching of the hair over night or within relatively brief periods are widespread. One explanation advanced is that the white appearance is due to the entrance of air into the hair—a conception recently reiterated by the physical chemist Bancroft² of Cornell University. Strong³ had previously expressed a doubt, based on microscopic examination, whether gray hairs ordinarily contain any more air or other gaseous material than do colored hairs. Recently he⁴ has pointed out anew that hair consists of numerous cornified epithelial cells more or less incompletely fused together. In the case of human hair, most of the structure is cortical. These cells furnish a vast number of external and internal reflecting surfaces, as can easily be seen by placing a white hair on the microscope stage with no mounting fluid. When pigment is present, the incident light is more or less extensively absorbed, according to the amount of pigment, before reaching the deeper cells. The amount of undispersed light reflected depends, of course, on the number of internal reflecting surfaces not screened by pigment. There is always some reflection of undispersed light by the hair cuticle, no matter how much pigment is present. Admitting that white in hair structures is due to failure of pigment formation in the follicle before cornification takes place, the blanching of hair must be a slow process determined by the rate of its growth. Consequently the reports of sudden blanching of the hair must be regarded as inherently improbable.

1. Vaccination Histories of Smallpox Patients, Pub. Health Rep. 36: 2555 (Oct. 14) 1921.

2. Bancroft, W. D.: Applied Colloid Chemistry, 1921, p. 198.

3. Strong, R. M.: Observations on Gray Hair and Alleged Sudden Blanching of Hair, Anat. Rec. 14: 52 (Jan.) 1918.

4. Strong, R. M.: The Causes of Whiteness in Hair and Feathers, Science 54: 356 (Oct. 14) 1921.

Association News

ST. LOUIS SESSION

Hotel Headquarters for the Scientific Sections

The Local Committee of Arrangements for the annual session to be held in St. Louis, May 22-26, 1922, has designated the following headquarters for the Sections of the Scientific Assembly:

Section	Headquarters
Practice of Medicine.....	Hotel Statler
Surgery, General and Abdominal.....	Hotel Jefferson
Obstetrics, Gynecology and Abdominal Surgery..	Hotel Claridge
Ophthalmology	Planters Hotel
Laryngology, Otology and Rhinology.....	Marquette Hotel
Diseases of Children.....	American Hotel
Pharmacology and Therapeutics.....	American Annex
Pathology and Physiology.....	American Annex
Stomatology	Warwick Hotel
Nervous and Mental Diseases.....	Majestic Hotel
Dermatology and Syphilology.....	Majestic Hotel
Preventive Medicine and Public Health.....	Warwick Hotel
Urology	Maryland Hotel
Orthopedic Surgery	Hotel Jefferson
Gastro-Enterology and Proctology.....	Maryland Hotel

Dr. Louis H. Behrens is chairman of the Subcommittee on Hotels. He may be addressed at the office of the Local Committee of Arrangements, 3525 Pine Street, St. Louis.

The Subcommittee on Hotels requests those desiring hotel reservations to write directly to the hotel of their choice. It also suggests that this shall be done at an early date and that duplicate reservations shall not be made. If difficulty is experienced in securing the desired accommodations, the hotel committee on request will assist in every way possible. Arrangements have been made with the several hotels so that all communications will be referred to the Subcommittee on Hotels in case the hotel addressed is unable to provide the desired accommodations.

CONFERENCE OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

(Continued from page 1744)

Second Meeting—Friday Afternoon, November 11

SYMPOSIUM ON COOPERATION BETWEEN THE CONSTITUENT AND COMPONENT BRANCHES AND THE AMERICAN MEDICAL ASSOCIATION

(a) Cooperation in Organization

DR. ALEXANDER R. CRAIG, Chicago: From the time of its origin, the germinal idea of both the House of Delegates and the Scientific Assembly was recognized in the conducting of our annual sessions. In reality, in the reorganization at St. Paul, in 1901, only three modifications were made from the methods that had been followed previously: (1) The right to representation was restricted to constituent state associations; (2) the number of delegates was limited to 150 (at the St. Paul session, 1,767 "delegates" were registered); (3) the delegate body was dignified by giving to it a distinguishing name, the House of Delegates, and by assigning to it a place for holding its meetings separate from those at which the scientific program was presented. The reaction they effected in the constituent state associations was wonderful. Instead of no relationship or an extremely loose tie that almost universally existed between state associations and county or district medical societies, these local organizations quickly assumed the intimate association, as component branches, with the state bodies, and the latter acknowledged themselves as federated into the American Medical Association. Instead of functioning for but three or four days each year during these annual sessions, the state associations maintained their activities without cessation. Immediately all branches of the organization commanded an increased interest, and membership and Fellowship increased rapidly. It is an interesting fact that since 1901 this Fellowship has increased from 9,841, Jan. 1, 1901, to 53,404, Nov. 1, 1921, and that the membership now numbers 87,816.

As executive officers of this organization, we may congratulate ourselves on the machinery that has been built up. But we must remind ourselves that even so perfect an instrument is inert except as we supply it with a living force. The accomplishment of the organization's objects depends far more on our efforts than on the machinery that is at our command.

Within a year or two after the reorganization, practical uniformity was attained in the essential features of organization. This rapid development undoubtedly was due largely to the suggestion made by the Committee on Organization that each of the state associations should maintain a council and that each of the councilors should be "organizer, peace-maker and censor for his district." In a word, this council served as the Committee on Organization in the state association. In some of the states the councilors have continued to stimulate the activity of the county societies; in others, the councilors have not been active. In fact, in a few of the states the council has been relieved of responsibility for maintaining the organization because those who held the office neglected the services that the Council could have rendered. At present, the council in many instances is regarded merely as a court of appeal in judicial matters. This is a mistake. The council should not only serve as a court, but it should also be in fact the active agent for guiding the organization within the state. The councilors should perform services similar to those undertaken by the district superintendents in the Methodist Church, or by the deputy grand masters in the masonic order; i. e., they personally should visit, correspond with, and through other means supervise and stimulate the activities of the county societies. To do this work effectively will entail considerable thought and effort.

The value of reports at frequent and regular intervals from the component county medical societies to the state secretary should be emphasized. Each meeting of a component society should be reported to the state secretary. If a system of regular reports was in effect, these would give the state secretary an opportunity to check back and to know what county societies are active and which ones are failing to function.

Another fundamental principle of organization is that the component societies should furnish to every honorable physician within their jurisdictions an opportunity to obtain membership, to advantage by the social and material stimulus and the educational opportunities incident to his union with his professional confrères. At the same time, it is incumbent on the component county societies to maintain proper discipline over the members of the organization; that is to say, physicians who exploit the public, who fail to appreciate their responsibility to their profession, should be called to task by their fellows in the profession and should be made to conform to the established ideals which have for their purpose the service to be rendered to the public.

On the average, possibly from 60 to 70 per cent. of the licensed physicians who are actively engaged in the practice of their profession nominally are members of our county medical societies. The proportion varies in different localities. The active cooperation of each member in the welfare of the organization should be secured.

The county societies should be assisted in developing the social as well as the scientific features that will interest and hold the members. Too frequently the social life of the local society is neglected. While providing for advancing friendly relations between physicians, most careful attention should be given to developing the scientific work in the local societies. The executive officers of the state associations, the secretary and the councilors particularly, can render a valuable service by stimulating this latter phase of the work.

One of the problems that the organization should consider is found in the statement that there are numerous communities throughout the United States, especially in the less densely populated areas, where the people are alleged to be suffering because of an insufficient supply of physicians. If this is true, the organization is responsible for meeting a serious public need. First of all, the facts in the case should be determined. The organization is competent to do this through an investigation that could be carried out by each state association in

cooperation with its component county branches. Any need found to exist could be supplied in large part through publicity in the official organs of the state medical associations with the cooperation, when needed, of THE JOURNAL of the American Medical Association.

(b) Cooperation with State Medical Associations

DR. N. P. COLWELL, Chicago: The reorganization that has taken place in medical education during the last seventeen years was made possible by the cooperation and support which the Council received from the medical profession represented by the various state medical associations. Since it was created in 1904, the Council on Medical Education has been in almost constant touch with these associations. The Council at once urged the appointment of state committees on medical education, and by 1906 these had been appointed in forty-five cases. Through these committees the state societies were kept informed in regard to the educational standards proposed by the Council, to the changes needed in medical education and the progress being made.

In the work with hospitals there has been an increasing cooperation between the Council and the state medical societies. The work of the American Medical Association with hospitals began in 1904, when a list was prepared for publication in the American Medical Directory and a large amount of detailed information in regard to all hospitals was collected.

In 1912, to encourage the general adoption of the intern year the Council made a special survey of all hospitals. A circular letter was sent to the 2,424 hospitals having twenty-five or more beds asking especially in regard to the use of interns. Replies were received from 2,185, or 90 per cent., and, of those replying, only 852 were regularly using interns and provided places for 3,006 medical graduates. In many of these hospitals the internships extended over eighteen months or two years so that places were available for only about 2,000 of the 4,000 students, approximately, who were being graduated each year.

In 1913 a questionnaire was sent to all hospitals asking for information, and on the basis of these reports a provisional list of hospitals approved for intern training was prepared. A proof copy of this list was sent to a committee of three prominent physicians in each state, who checked the list, eliminating unworthy hospitals and adding the names of others which deserved to be included. Following this revision in 1914, the first list of hospitals approved for intern training was published, and in 1915 a complete list of the state committees was published. There was still an insufficient number of internships available to provide places for all graduates.

In 1915, a second questionnaire was sent to all hospitals having fifty or more beds. Besides the information thus collected, numerous inspections and further investigations were made by state committees, so that in 1916, a more reliable and complete list of hospitals approved for intern training was published. In the third general survey of hospitals, which was begun in 1918, the state advisory committees again took a prominent part. The total bed capacity of hospitals then seeking interns was 270,500 and, to meet the demand, approximately 6,000 interns were needed. Not all these hospitals could be supplied with interns, even if the number of students graduating annually were doubled—a decided change from the situation in 1915. This greatly increased demand for interns was undoubtedly due to the improved standards of medical schools whereby their graduates were better qualified.

Whatever work may be done in the improvement of hospital service, no organization occupies a position so advantageous as that of the American Medical Association with its various state organizations. The work will hereafter deal with all hospitals, and it is proposed to establish lists not only of those approved for intern training, but also of those which are worthy of approval as nonintern hospitals.

(c) Cooperation in Legislation

DR. FREDERICK R. GREEN, Chicago: Education of the public has produced innumerable special societies, each demanding special laws to secure its particular ends, without cooperation

or coordinated plan of campaign. These organizations have created many salaried positions. This has produced the professional social welfare worker.

All our state and city boards of health have been created in the last fifty years. Bills authorizing new health organizations, enlarging the powers of existing bodies or asking for increased appropriations and personnel, come before every legislature. Efforts to regulate and restrict the practice of medicine have resulted in numerous bills. Like the homeopaths and eclectics of fifty years ago, the osteopaths, optometrists, chiropractors and others keep up a continual agitation. Individual enthusiasts, fanatics and cranks contribute their quota, while ambitious politicians promote schemes for social and sanitary reforms.

As a result of all these causes, every legislative body is now deluged at every session with bills on every conceivable phase of health and control of disease. It is impossible even to list the various measures. Seven years ago, there were introduced into the forty-two state legislatures then in session more than 1,000 public health bills. The legislative committee of one state society endorsed thirty-five bills, presumably only a fraction of the total number introduced. Every organization, faction and sect has measures which it is promoting. We have had for the last twenty years an orgy of legislation. Apparently the American people are going to be made healthy and moral in spite of themselves, if it can be done by law.

In this legislative scramble, there has been no system and little discrimination. Many proposed laws, such as sterilization and so-called eugenic laws, have been impossible of enforcement or unconstitutional in their provisions. An immense amount of effort has been wasted in experiment. One state is seeking to adopt what another state is trying to repeal. We have no policy and no objective.

It is conceded that much of our progress in health conservation has been due to proper laws. A certain amount of law enactment in this field is necessary. But efforts to accomplish all kinds of social and sanitary reforms by laws have reached a point where a definite policy and a definite program have become absolutely necessary, in order to separate the good from the bad, the useful and constructive from the visionary and fantastic, and the practical and effective from the unpractical and meddlesome.

The reorganization of the American Medical Association in 1902 made it possible to undertake activities that had been discussed for fifty-five years. The substitution of a House of Delegates of 150 members for a mass meeting of 2,000 created a small compact working body for the effective transaction of business. The result has brilliantly justified the change.

The development of THE JOURNAL, under the masterly direction of its editor, has placed the Association on a sound financial basis. But the reorganization has had little effect on the other problems of the profession. Nearly twenty years have elapsed. Our organization today is like an army that has been engaged in a protracted campaign involving long marches over a wide territory. We have a highly organized headquarters and general staff, but it is too far from the headquarters to the firing line and the different parts of the army have gotten out of touch with each other. Instead of an organized, disciplined army, carrying on a single plan of campaign, we are rather groups of skirmishers, each group carrying on its own fight without regard to the other units involved. To use the phraseology of the late war, we have no liaison service. We need to consolidate and organize our outposts, to close up the gaps in the line, and, above all, to establish better communications between our different units, and especially between headquarters and the field.

We have plenty of machinery, but it is not coordinating. We need to connect up the different parts, to work out a definite policy and plan of campaign that can be followed by all our units.

The first essential for effective cooperation is definite knowledge. Just as the proprietary medicine and nostrum problem was vague and ill defined until THE JOURNAL established the Council on Pharmacy and Chemistry and its laboratory for the analysis of these products and the preparation of specific reports, so legislative problems cannot be solved without thorough study.

The Hughes law, passed three years ago in Ohio after a long educational campaign, was probably the best law ever drafted for whole-time county health officers. It was held unconstitutional on account of the classification of cities, a question which had nothing to do with its health provisions. This spring, the Illinois Supreme Court declared the Illinois Medical Practice Act of 1917 unconstitutional, because the requirements for the professional education of drugless healers were discriminatory and inequitable, a point which has been repeatedly passed on by supreme courts in many states. No one can draft a sound law without knowing what the courts have already decided regarding the questions involved. The collection, digesting and indexing of all supreme court decisions on public health was taken up ten years ago by the Council, and is now practically completed.

It is only through close cooperation between headquarters and the leaders in the field that a practical plan of campaign and a policy can be worked out. No one man is big enough and wise enough to do it. It can only be developed by combining all our knowledge, wisdom and experience. Most health problems are state and local problems and their solution, so far as they can be solved by legislation, comes under the police power of the state. The most important part of our machinery must always be the state medical association working through its legislative committee, or, as in California, Oregon and Washington, through auxiliary bodies.

The National Legislative Committee, made up of the chairmen of the various state committees, meeting with the Council at least once a year or oftener for the discussion of legislative policies, will form the connecting link between the national and the state organizations. Instead of meeting at the time of the midwinter conference as heretofore, it should meet in the fall, so that there will be ample time after the meeting for the chairman of the national and state committees to communicate with the other members of the committee and with the county committeemen and to work out plans for the coming session of the legislature.

The proposed plan involves coordination of existing rather than creation of new machinery. It includes:

1. A state legislative committee of which the chairman shall be the member of the National Legislative Committee; each state committee made up of as many members as may be advisable but including the president, the secretary and the attorney for the state association as ex-officio members. This committee should have permanent headquarters and the necessary equipment to carry on its work.

2. The National Legislative Committee, made up of the chairmen of the state legislative committees, to meet at least once a year with the Council to map out a program for the coming year; the expenses of the committeemen in attending this conference to be paid either by the American Medical Association or the state association or both. This National Legislative Committee would be to the American Medical Association what the Republican and Democratic National Committees are to their parties.

3. The Council on Health and Public Instruction of the American Medical Association, as the legislative committee of that body, charged with the responsibility of formulating the policy of the Association on national questions, and of maintaining at the headquarters office a legislative laboratory in which material on legislative questions can be prepared for state legislative committees.

4. Frequent joint meetings of the legislative committees of neighboring states, to be attended by the officers and committees of the groups of states and by the secretary of the Council for the discussion of conditions and plans. These conferences to be held long enough before the meetings of the state legislatures to allow ample time for carrying out any plans agreed on. The expenses of the members in attending these meetings to be paid by the American Medical Association, the state associations paying a part, as and when they may be able to do so. These conferences would enable the state committees to agree on a united plan of action and would make it possible for the secretary of the Council to learn at first hand of conditions in each state and to tell each committee or group of committees what is going on in other states.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Hospital Dedicated.—St. Elizabeth's Hospital was recently opened in San Francisco under the Sisters of Charity, to be operated for the care of unmarried mothers and their babies.

Personal.—Dr. Henry S. Rogers has been appointed health officer and secretary of the board of health of Petaluma, to succeed Dr. Arthur G. Lumsden, who is still on the board. The health board voted a year ago that each officer on the board should take the office of health officer for one year and then be succeeded by another member.

Medical Practice Law Upheld.—The federal court of California recently brought in a decision denying the restraining order asked for by W. Frank Willis, a chiropractor, to prevent the board of medical examiners from enforcing the provisions of the medical practice act as applying to chiropractors. This practically ends the case, since the constitutionality of the California practice law has already been confirmed by the United States Supreme Court.

Appointment to Study the Narcotic Evil.—The governor has appointed Dr. John A. Reily, medical superintendent at Patton, as a member of the committee created by the last session of the legislature to study the narcotic evil, and if deemed advisable recommend the construction of a hospital for the care of narcotic users. The committee will report at the next session of the legislature. At the present time narcotic addicts are treated at the hospitals for the insane.

Convictions for Illegal Practitioners.—Recent news items state that Fred J. Oakes of San Francisco and M. J. Holt of Oakland, both chiropractors, were convicted of practicing in violation of the medical practice law.—It is reported that on November 9, E. B. Hubley, a chiropractor, who three or four years ago advertised extensively in the Los Angeles papers as "Backbone" Hubley, was convicted of violating the practice law of California and is said to have paid a fine of \$200.

Hospital News.—Bids for constructing the psychopathic ward of the county hospital will be opened, December 27. The specifications call for an expenditure of approximately \$25,000. According to a statement of plans by Dr. Harry E. Zaiser, superintendent, there will be a miniature court room where persons alleged to be insane and considered violent will be brought, instead of before a public court. The ward will contain twelve rooms, six on each floor, and wire mesh will be used instead of iron bars. Well equipped hydrotherapy and electric baths will be installed in the basement.

COLORADO

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Medical Society Organized.—The physicians of Yuma have organized the Yuma Medical Society, with Dr. George B. Bilsborrow as president and Dr. John P. Ham, secretary.

Campaign for New Hospital and Medical School.—The University of Colorado is waging an active campaign to raise the remaining \$200,000 necessary to insure the erection of the new medical school and state hospital. Toward the \$1,500,000 which the project will cost, the General Education Board has pledged \$700,000 and the state has appropriated \$600,000, both sums contingent upon the raising of the \$200,000 balance by the university. An effort will be made to obtain one dollar from each of 200,000 citizens of Colorado.

CONNECTICUT

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Yale Silliman Lectures.—Dr. Clemens Pirquet, professor of children's diseases, University of Vienna, Austria, began a series of Silliman lectures at Yale University, December 1, under the general topic of "Modern Pediatrics."

FLORIDA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Organization of Health Units.—As a result of agreement between the state board of health and international health board of the Rockefeller Foundation, the state can maintain in four counties a staff of trained workers consisting of a physician, a sanitary inspector and several public health nurses. Dr. Platt W. Covington has been lent to the state to assist in organizing the health units.

GEORGIA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Proposed Cancer Hospital.—According to a recent action taken by the joint hospital and charities committees of the city council, the proposed cancer hospital and clinic at Grady Hospital, made possible by the \$500,000 bequest of the late Albert Steiner, will be entirely apart from the control of the hospital and charities committee of the city council, and will be supervised by the trustees for Mrs. Steiner. The cost of the building is estimated at \$100,000, and it will be equipped with modern radium and roentgen-ray furnishings at a cost of about \$150,000. An expert will be employed to take charge of the cancer ward. This will make Grady the first hospital south of Baltimore to be specially equipped for the treatment of cancer. The operation and maintenance of the ward will be provided from the income of the balance of the Steiner fund and the proceeds from patients who will pay for diagnosis or treatment. The city of Atlanta will furnish nurses, food, heat, light, water and the necessary janitor service.

ILLINOIS

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

New Office Created for St. Clair County.—By action of the board of supervisors, the office of assistant county physician for the indigent colored residents of East St. Louis and Stites townships has been created. Dr. Newman M. Sykes was elected to the office.

County Medical Society Meeting.—A meeting of the Sangamon County Medical Society was held, November 14, at Springfield, under the presidency of Dr. Harrison C. Blankmeyer. Dr. Max Einhorn, professor of medicine of the New York Post-Graduate Medical School and Hospital, spoke on "Recognition and Treatment of the Minor Disturbances of the Digestive System." Dr. Einhorn also conducted a clinic at St. John's Hospital in the afternoon preceding the meeting.

IOWA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Iowa Medical Women.—The new officers for 1922 of the State Society of Iowa Medical Women are: president, Dr. Josephine Wetmore Rush, Mason City; vice president, Dr. Jennie M. Coleman, Des Moines; treasurer, Dr. Eleanor M. Hutchins, Woodward, and secretary, Dr. Julia F. Hill, Grinnell.

MARYLAND

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Personal.—Dr. William S. McCann has assumed his new duties as associate professor of medicine at the Johns Hopkins Medical School. Before coming to Baltimore, Dr. McCann was instructor in medicine at Cornell University Medical School and assistant visiting physician at Bellevue Hospital, New York.

Lecture on Child Hygiene.—The regular lecture at the Johns Hopkins University School of Hygiene and Public Health was given, November 28, at the school. Dr. S. Josephine Baker, director, Bureau of Child Hygiene, Department of Health, New York, spoke on "The Place of Child Hygiene in a Public Health Program."

MINNESOTA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

History of Hennepin County Medical Society.—Dr. Arthur E. Benjamin, Minneapolis, has written and presented to the society a history of the Hennepin County Medical Society

from its organization. This history contains the names of officers from the beginning and of 156 deceased members, and also gives the names of ninety-two members who have moved from the city.

NEW JERSEY

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Dr. Costill Honored.—The Mercer County Medical Society turned its annual banquet, November 9, into a testimonial dinner to Dr. Henry B. Costill, Trenton, president of the New Jersey State Medical Association.

Health Meeting.—A joint session of the forty-seventh annual meeting of the New Jersey Sanitary Association and the fifteenth annual meeting of the New Jersey Tuberculosis League will be held at Laurel-in-the-Pines, Lakewood, December 9-10. Among the speakers are: Dr. James Alexander Miller, president of the National Tuberculosis Association, who will discuss "The Newer Aspects of the Tuberculosis Movement," and Dr. Theobald Smith, Rockefeller Institute for Medical Research, Department of Animal Pathology, Princeton, who will speak on "Bovine Tuberculosis as a Contributory Source of Human Tuberculosis."

NEW YORK

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Personal.—Dr. Starr C. Hollis has been appointed as health officer and registrar of vital statistics of Adams for a term of four years beginning Jan. 1, 1922.

New York State Society of Industrial Medicine.—The annual meeting of this organization will be held at the Onondaga Hotel, Syracuse, December 10. A symposium on "Industrial Medicine and Its Relation to the New York State Compensation Law" will be held. Dr. Patrick H. Hourigan of Buffalo is president.

Institute in Public Health Nursing.—The New York State Department of Health is conducting a two weeks' institute in public health nursing in Albany from November 28 to December 10. The course will consist of lectures and field work. No fee is required. Further information may be obtained by addressing Dr. Charles C. Duryee, state department of health, Albany.

New York City

A Plea for the Hospitals.—William Fellowes Morgan, chairman of the executive committee of the United Hospital Fund, has issued a statement asking the support of the entire city for the city's hospitals. He states that the hospitals must have each year \$4,000,000 in gifts in addition to their earnings and endowments. The annual campaign to raise this fund is under way.

NORTH CAROLINA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Ninth District Medical Meeting.—At a recent meeting of the Ninth District Medical Society, held in Salisbury, Dr. George A. Ramsauer, China Grove, was elected president, Dr. Minor R. Adams, Statesville, vice president, and Dr. Isaac W. Taylor, Morganton, secretary. The society will hold its meeting next year at Morganton, the last Thursday in October.

OHIO

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Summit County Medical Society.—At the meeting of the society, held, November 3, Dr. William A. Cochrane of Edinburgh, Scotland, gave an address on "The Treatment of Injuries of the Hand and Wrist."

Trumbull County Medical Association.—At the recent meeting of the society, held at Warren, Dr. Lawrence Litchfield, Pittsburgh, spoke on the "Practical Consideration of the Patients Instead of the Disease."

Cancer Clinic.—During cancer week a permanent cancer clinic was opened at Columbus. The medical staff is composed of Drs. Andre Crotti, Columbus, medical director; James F. Baldwin, Columbus, consulting surgeon, and Wells Teachnor, president of the Ohio State Medical Association. Sessions of the clinic will be held every Tuesday and Friday from 2 to 4 p. m.

PENNSYLVANIA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Personal.—Dr. Edwin D. Funk, Reading, formerly associated with the department of pathology in the Jefferson Medical College Hospital at Philadelphia, has assumed his duties as resident pathologist to the Reading Hospital.

County Societies Pass Resolutions Against the Use of Beer as Medicine.—The Washington County Medical Society and the Venango County Medical Society, at recent meetings of their organizations, went on record against the use of beer as medicine.

Philadelphia

Scarlet Fever Cases Increase.—A total of 143 new cases of scarlet fever were reported to the bureau of health the week of November 21, compared with ninety-five for the week before.

Municipal Radium Clinic.—Philadelphia opened the first municipally owned and operated radium treatment clinic in the United States, November 30, at the Philadelphia General Hospital.

New Trustees for Jefferson College.—Five newly elected trustees of Jefferson Medical College are: Robert P. Hooper, R. Sturgis Ingersoll, James M. Willcox, John H. McFadden, Jr., and Benjamin Harrison Brewster, Jr.

Hospital Celebration.—The fiftieth annual celebration of the incorporation of the Presbyterian Hospital at Thirty-Ninth Street and Saunders Avenue was held at Witherspoon Hall, November 25. The Rev. Dr. Marcus A. Brownson opened the meeting with prayer, after which there were addresses by Henry N. Paul, president of the hospital; Dr. William E. Hughes, of the medical staff; John H. Finley, president of College of the City of New York, and Dr. John B. Deaver.

Appointments to the University of Pennsylvania School of Medicine.—Dr. Glen E. Cullen has recently been elected associate professor of research medicine, and Dr. Goldschmidt, former lecturer in physiology in the School of Medicine, Cornell University, Ithaca, N. Y., has been elected assistant professor of physiology in the School of Medicine. Dr. James Harold Austin was elected, last spring, professor of research medicine, to succeed Dr. Richard M. Pearce, who resigned to accept a position with the Rockefeller Foundation.

Personal.—Dr. Sydney R. Miller, Baltimore, president, American Congress of Internal Medicine, addressed the section on general medicine of the College of Physicians of Philadelphia, November 25, his subject being "The Utilization of Laboratory Methods."—Dr. William P. Graves, professor of gynecology, Harvard Medical College, addressed the Obstetrical Society of Philadelphia at the annual invitation meeting, December 1, in Cadwalader Hall, College of Physicians, his subject being, "The Development and Function of the Ovary." A reception and buffet supper at the Rittenhouse Hotel immediately followed the scientific program.

PHILIPPINE ISLANDS

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Maternity Hospital at Lingayen.—A maternity hospital has been established at Lingayen, Pangasinan, through the help of the Insular government, which augmented the fund of the puericulture center in Lingayen. The staff of the hospital consists of one physician, one nurse and one apprentice nurse, who is at the same time in charge of the puericulture center.

RHODE ISLAND

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Physician Elected to State Legislature.—Dr. Edgar F. Hamlin, Slaterville, president of the Woonsocket District Medical Society, has recently been elected to succeed Joseph E. Kelly, Waterford, in the general assembly.

WISCONSIN

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Appointment on State Board of Medical Examiners.—Dr. Robert B. Cunningham, Cadott, has been appointed by the governor as a member of the state board of medical examiners for a term to expire July 21, 1925.

State Department of Health Appointment.—Dr. Henry B. Sears, Beaver Dam, has been appointed by the state board

of health as deputy state health officer for the northwest district of Wisconsin, with headquarters at Eau Claire, to succeed Dr. Valentine A. Gudex, who has been assigned to the state department at Madison in the bureau of communicable diseases.

Resolution to Curb Drug Traffic.—The Milwaukee County Medical Society has taken its first step to curb the drug traffic in Milwaukee County. At a meeting of the society held, November 10, the president, Dr. John J. Seelman, presented a resolution asking the society to go on record favoring laws which will help curb the illicit traffic in narcotic drugs, and urging the society to back any movement which will provide institutions for the treatment of addicts. Wisconsin legislators at Washington, D. C., are urged to introduce or support legislation to curb the drug traffic.

Tri-State District Medical Meeting.—The Tri-State District Medical Association held a four-day session at Milwaukee, November 14-17, under the presidency of Dr. George V. I. Brown, Milwaukee. The following officers were elected: Dr. James R. Guthrie, Dubuque, Iowa, honorary president, and Dr. William J. Mayo, Rochester, Minn., honorary president of clinics; Dr. John E. O'Keefe, Waterloo, Iowa, president; Dr. Horace M. Brown, Milwaukee, president elect; vice presidents, Dr. Joseph Evans, Madison, Wis., Dr. Edwin P. Sloan, Bloomington, Ill., Dr. George Fuller, Keokuk, Iowa; managing director, Dr. William B. Peck, Freeport, Ill.; secretary-treasurer, Dr. Domer G. Smith, Freeport, Ill. Peoria, Ill., was selected as the meeting place for 1922, and Des Moines, Iowa, as the 1923 convention city.

CANADA

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Surgeon Wounded.—Sir Andrew McPhail, professor of medicine, McGill University, Montreal, and editor of the *Montreal Medical Journal*, was shot in the shoulder, November 15, at this home, by Lewis Ogulnic, who later committed suicide.

Additional Provision for Welfare Work.—Dr. Charles J. Hastings, medical officer of health, Toronto, has been successful in obtaining a further grant from the city to enable the health department to carry on its social welfare work until the end of the year.

Opening of New Medical College.—Recently, the new medical college of the Western University at London, Ont., was formally opened by the provincial minister of education, the Hon. Dr. Grant. The college was erected and equipped at a cost of half a million dollars. In his address, Dr. Grant urged upon the citizens of the community the necessity for local assistance and financial support to the university.

Personal.—Dr. William E. Sinclair, formerly resident physician in the Babies' Hospital, New York City, has recently established himself in practice in Toronto.—Dr. Wilfred T. Grenfell, in an address before the Empire Club, Toronto, told of the efforts to combat beriberi, prevalent in the isolated districts of Newfoundland and Labrador, by the hospitals he has established on the Labrador coast. Dr. Grenfell will continue his campaign during the winter for permanent endowment of the hospitals, schools and orphanages in Labrador and Newfoundland.

Graduate Courses at University of Toronto.—As a result of the success of the graduate courses held some time ago by the Faculty of Medicine of the University of Toronto, arrangements are being made for similar courses next month. Provision has been made for three courses, one in medicine, one in surgery, and one in obstetrics and gynecology to be run concurrently from December 19 to December 24. Under this arrangement it will be possible for a candidate to avail himself of more than one course. Registration will be limited in medicine to sixty students, and in surgery to thirty. Clinics will be held twice each day. It is considered that a week's concentrated work in a large hospital will produce better results than it is possible to obtain in the extension lectures that are given throughout the province by the faculty.

GENERAL

[READ THE FIRST EDITORIAL IN THIS ISSUE—AND ACT]

Tri-State Medical Meeting.—The seventeenth annual meeting of the Tri-State Medical Society, which includes the states of Louisiana, Arkansas and Texas, will be held at Shreveport, La., December 6-7, under the presidency of Dr. Frank H. Walke, Shreveport.

The Academy of Ophthalmology and Oto-Laryngology.—It has been announced that the next annual meeting will be held, Sept. 18-23, 1922, at Minneapolis, where the academy will be entertained by the Minneapolis Academy of Ophthalmology and Oto-Laryngology, and the various meetings will be held on the campus of the University of Minnesota.

Appointment to National Research Council.—Dr. E. D. Ball has been appointed by Secretary Wallace as the representative of the Department of Agriculture on the research information service of the National Research Council to take the place of Dr. Carl L. Alsberg, resigned. The secretary has also named Dr. Frederick B. Power, for many years director of the Wellcome Research Laboratory of London and now in charge of the phytochemical laboratory of the bureau of chemistry, as a representative of the bureau in the division of federal relations in the place of Dr. Alsberg.

The Southern Medical Association.—The fifteenth annual session of the association was held at Hot Springs, Ark., November 14. Dr. Seale Harris, Birmingham, Ala., was elected president, and Dr. William C. Dabney, Augusta, Ga., secretary. The next annual meeting will be held at Chattanooga, Tenn. In compliance with the established custom of recognizing the greatest work accomplished during the year by a member in the interests of humanity and the scientific advancement of surgery, the retiring president, Dr. Jere L. Crook, Jackson, Tenn., bestowed a gold medal on Dr. Kenneth M. Lynch, Charleston, S. C., for his laboratory work and accomplishments in the study of tropical medicine.

Medical Items in Congressional Appropriations.—The first deficiency appropriation bill presented to Congress, which promptly passed the House of Representatives, contains many items for medical and hospital services. The sum of \$150,000 is appropriated for continuing the construction of the Gallinger Hospital in the District of Columbia. For the improvement and betterment of medical and hospital services by the U. S. Veterans' Bureau, \$25,000,000 is appropriated, while \$40,000,000 is appropriated for vocational education of ex-service men. The U. S. Public Health Service is allowed \$635,000 to be used for medical, surgical and hospital work, for quarantine service and to cover incidental expenses of transportation; \$1,000 is appropriated for the prevention of epidemics, and \$106,500 for the support of the National Home of Disabled Soldiers at Hampton, Va. After its passage by the House, the measure went to the Senate and will be taken up at the regular session in December.

Regulations Proposed for Sale of Surgical Supplies.—Regulation of the traffic in sutures and surgical ligature material is contemplated in a bill introduced in the House of Representatives by Congressman Johnson of Washington. Shipment in interstate or foreign commerce of suture or ligature material for human surgical use that is without sterilization labels or that is not packed and prepared in containers against contamination is forbidden. Every manufacturer must hold a license granted by the Secretary of the Treasury, who is authorized to enforce the proposed act with full powers to enter and inspect any plant manufacturing suture or ligature materials. A board is established, composed of the Surgeon Generals of the government services, to draw up regulations for the control of the manufacture and sterilization of suture and ligature materials. The Secretary of the Treasury may revoke licenses in case of violations, and a penalty of a \$1,000 fine with imprisonment of not more than a year is affixed to the measure.

Bequests and Donations.—The following bequests and donations have recently been announced:

Pathological Laboratory, Mount Sinai Hospital, New York City, an additional gift of \$150,000, to be known as the Adolph Lewisoohn Foundation.

St. Vincent's Hospital and the Roman Catholic Orphan Asylum, New York City, each \$100,000, by the will of Daniel J. Carroll.

The Portsmouth Hospital, the Chase Home for Children and the Home for Aged Women, Portsmouth, N. H., each \$25,000, by the will of Woodbury Langdon, Portsmouth.

Lynn Hospital, \$50,000; Lynn Day Nursery, \$5,000, by the will of Mrs. Mary Johnson, Lynn, Mass.

Waldo County Hospital, Belfast, Me., \$8,000, by the will of Charles F. Sadft of Belfast.

Boston Hospital for Incurables, the Perkins Institute for the Blind, and the Floating Hospital, Boston, each \$5,000, by the will of Mary L. Locke, of Newton, Mass.

Augusta General Hospital, \$5,000, by the will of Joseph H. Briggs, Winthrop Center, Me.

Maine Eye and Ear Infirmary, Portland, Me., \$5,000, by the will of Charles E. Whidden of Westbrook.

Home for Nurses of the Methodist Hospital, Princeton, Ind., \$5,000, by Thomas L. Carrithers of Gibson County.

Salem Hospital, Salem; Beverly Hospital, Beverly; Florence Crittenden League of Compassion and the Boston Nursery for Blind Babies,

each \$250; The Malden Hospital, \$500, by the will of Charles L. Gould of Topsfield, Mass.

New England Sanatorium and Benevolent Association, \$500, by the will of Rosewell B. Lawrence of Medford, Mass.

Residence, valued at \$12,000, with all furnishings deeded as a gift to Sunnyside, a home for the aged, at Hastings, Neb., by two brothers named Frahm.

New hospital at Grove City, Pa., \$5,000, to purchase a roentgen-ray machine, by the Kimberly Charitable Fund.

LATIN AMERICA

Personal.—The Swedish Medical Association at a meeting in September elected as foreign members the two professors of dermatology at Rio de Janeiro, Dr. F. Terra and Dr. E. Rabello, and also the director of the dermatologic service at the leading hospital, Dr. Werneck Machado.

FOREIGN

Typhus in Poland and Galicia.—The *Münchener medizinische Wochenschrift* states that typhus is increasing in Poland and Galicia. Between April and September, 122,934 cases were recorded.

Far Eastern Medical Congress.—The fourth annual Far Eastern Medical Congress was held, August 6-13, Batavia, under the presidency of Dr. D. Vogel. It was opened by Dr. D. Fock, governor general of the Dutch East Indies, and a congressional excursion was made to the nearby district where the governmental plague fighting service has recently been at work. The Japanese delegates included Dr. S. Hata of the Kitasato Institute for Infectious Diseases, and Dr. M. Magayo of the Tokyo Imperial University.

International Aviation Congress.—The medicophysiology section of the First International Congress on Aerial Navigation which convened at Paris, November 15 to 26, was in charge of Prof. C. Richet, aided by Prof. A. Broca, Professor Guillaumin, Prof. J. Camus and Dr. Crouzon, member of the governing board of the Aéro-Club of France, and Dr. A. Pettit, secretary general of the Société de biologie. The secretaries were Dr. Garsaux, chief of the medical service of aerial navigation, and Dr. Béhague, also of this service.

Medical Esperanto Association.—This international association has been revived since the war, and headquarters have been established at Lille in charge of the president, Professor Vanverts, and the vice president, Dr. Briquet, rue de la Bassée 31, Lille, France. On request, a small pamphlet describing Esperanto will be sent to physicians. The honorary presidents are Professors Gariel and Richet of Paris; Dr. Cass of England is secretary. The International Esperanto Review, the organ of the association, is to be revived.

Prize to Jacobæus.—The Jubilee prize of the Swedish Medical Association was awarded in September to Dr. H. C. Jacobæus for his publications on the cauterization of pleural adhesions in pneumothorax treatment of tuberculosis. The prize award stated that this is only one link in a long chain of works on the surgery of the lung with the aid of the thoracoscope. He is now visiting in this country, and delivered the Mütter lecture on surgical pathology at the November 2 meeting of the College of Physicians of Philadelphia, as already mentioned.

Housing Distress in Germany.—Abderhalden publishes in our German exchanges this week an appeal to the profession to aid in a comprehensive effort to relieve the housing distress. He states that in Hamburg Brandt found 5,600 families living in one or two rooms and a tuberculous member of the family in one of each seven or eight homes of the kind. In Berlin, he adds, one third of the populace are living in one room homes, and in Hamburg 16,000 people are without homes. He says that at least 600,000 more dwelling places are needed at once, and urges all organizations of physicians to unite to remedy this evil. He asks for a direct expression of opinion from each medical organization.

Deaths in Other Countries

Dr. W. H. Erb, professor emeritus of clinical medicine at Heidelberg, whose name is connected with numerous nervous diseases, atrophy, paralysis, points, signs, etc., aged 81.

Dr. A. Adamkiewicz, formerly professor of physiology at Cracow and for a time at Vienna, aged 71. The list of his works is a long one but he is best known by his advocacy of his "Cancroin" which he insisted would cure cancer.—**Dr. F. Lewandowsky**, professor of dermatology at the University

of Basel, aged 43.—Dr. A. Laastad, a roentgenologist of Bergen, Norway.—Dr. G. Drouineau of La Rochelle, France, honorary inspector general and member of the board of the Assistance Publique, aged 83.—Dr. Arie Mijnlief of Arnhem, at one time president of the Netherlands Medical Association, aged 68.—Dr. J. Schieck, long director of the Dresden deaf-mute asylum, aged 81.—Our exchanges also record this week the death of two physicians from automobile accidents, Dr. E. Turnowsky of the Austrian army staff and Dr. Cools of Ghent.

Government Services

Award of Honor Medals Discontinued

The act of Congress, approved July 9, 1918, authorizing the President to award the Congressional Medal of Honor, the Distinguished Service Cross and the Distinguished Service Medal of meritorious acts performed during the war, provided that these awards must be made within three years from the date of the performance of the act justifying the award. November 11 having marked the third anniversary of the signing of the armistice, no further awards for these army medals can be made. The only exception to the three-year limit in the act was in the case of men in the army at the time of the passing of the act who have been previously recommended for the medal of honor and whose meritorious acts, while not justifying the award of that medal, did justify the award of the Distinguished Service Cross or Distinguished Service Medal.

Instruction of Medical Officers

The funds available will not permit more than five officers of the medical department, National Guard, to attend the regular army medical field service school at Carlisle, Pa., instead of thirty, as was originally intended. Applications to attend the school should reach the Militia Bureau of the War Department by Jan. 15, 1922. The course at Carlisle begins March 13 and lasts until April 24. No one will be detailed for study at the Army Medical School, Washington, D. C.

Bill for Reorganization of Public Health Service

Before the final adjournment of the extra session of Congress, Senator Watson of Indiana introduced a bill in the Senate providing for the reorganization of the commissioned personnel of the U. S. Public Health Service. A similar measure had been previously presented to the House of Representatives by Congressman Dyer. The proposed act provides for the commissioning in the regular service of 550 reserve officers, and a system of promotions based on term of service is established. The term of the Surgeon General is fixed at four years, his appointment to be made by the President with the consent of the Senate from the commissioned officers of the U. S. Public Health Service, thus preventing the selection of an outside physician. The hygienic laboratory is reorganized with seven professors, and a corps of nurses, dietitians and reconstruction aids is inaugurated. There is no change in pay in the commissioned personnel of the service. The bill was referred to the Committee on Finance of the Senate.

Additional Duties for Public Health Service

Additional duties and functions will be assigned to the Public Health Service if Congress approves the request recently made by Secretary of the Treasury A. W. Mellon to provide officers and men of the U. S. Coast and Geodetic Survey with medical and hospital services and supplies. Secretary Mellon and Secretary Hoover have approved the proposal that officers and men in the Coast and Geodetic Survey shall receive the same medical and hospital care, at government expense, as that supplied to officers and men in the Navy. As the coast and geodetic survey is a bureau of the Department of Commerce, there is no existing authority under the law for men in this service to receive the benefits above mentioned. Secretary Mellon has acquiesced in the arrangement to have this work done by the U. S. Public Health Service, which is one of the bureaus under the Treasury Department. Final action will not be taken until the new session of Congress in December.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 7, 1921.

Epidemic of Scarlet Fever and Diphtheria

Not since 1893 has the autumn epidemic outbreak of scarlet fever and diphtheria been so severe in London as this year. An epidemic of the two diseases is responsible for 9,000 patients in the metropolitan fever hospitals, and fresh cases are being admitted at the rate of 200 a day. Fortunately, the outbreak is in a mild form. Among 6,000 cases of scarlet fever in hospital there has been only one death during one week, which seems to indicate a great change in type. Among 2,447 cases of diphtheria there have been twenty-seven deaths. The following explanation has been advanced of the extent of the epidemic. It is noticed at the London fever hospitals that epidemics revolve in a circle of seven years. In 1914 there was a severe outbreak, and the previous similar one occurred in 1907. Consequently, preparations were made for the present one. It has also been suggested that the great drought of the past summer was partly responsible. During the eight weeks ending November 5, the average number of cases under treatment was 5,424, and the average number of deaths 4.5 each week.

The Declining Birth Rate

The National Birth-Rate Commission is again investigating the question whether there has or has not been a decline in fertility due to natural causes. Mr. Charles E. Pell gave evidence. He laid down the law that "the same conditions which cause a high or a low death rate cause also a high or a low birth rate, and the conditions which cause a low death rate are good feeding, easy circumstances, healthy surroundings, and a high development of intelligence and nervous energy." He thought that there had been an immense decline in natural fertility. He quoted figures from Paris showing that among 445 couples prominent in the campaign for large families, 170 were childless, and the average number of children for one family was one and a third, while only seventy-five had more than two children. But each couple could more easily have supported twenty children than a working-class family could support one. Unless one accepted the obvious conclusion that this result was due to natural causes, one had to assume that more than a third had taken troublesome precautions from the very marriage to avoid the birth of a single child. That was to assume that they were models of unnatural egoism and gratuitous hypocrisy, though they were among the most enlightened and patriotic members of society. Turning to the facts of biology, it would be found that the contraceptive theory was quite unnecessary. From the very beginning of organic evolution the degree of fertility had been graduated down to suit the death rate. If nature could do this through the unnumbered ages, she should do it now. Exactly similar results to those now appearing in human society were produced under similar circumstances throughout the animal and vegetable kingdom. Throughout human society the birth rate rose and fell with the death rate with remarkable regularity, if the necessary allowance were made for the varying age and sex composition of the populations concerned. This was true whether comparisons were made between different countries, different classes or different periods in the history of the same country. Dr. Halford Ross had shown that when hygienic measures in the Suez Canal zone caused a heavy fall in the death rate, the birth rate fell with it. Fertility bears a direct relation to social status, and social status implies different conditions of life. We are

forced to the conclusion that a natural law is at work by every line of argument, and this spares us the necessity of assuming a state of moral decadence among the ablest and most intelligent classes.

The Anthrax Problem

At the international labor congress in Geneva, Professor Armstrong, Australian employers' delegate, submitted a resolution that the committee considers that the question of the universal and compulsory disinfection of wool and hair infected with anthrax, in its humanitarian aspects, has not yet been sufficiently studied to justify the conclusion of an international convention; that the conference should request the governing body of the international labor office to appoint an advisory committee to which the governments of France, Great Britain and Germany, as representing the users, and Australia, India and South Africa, the producers, should be invited to send representatives, and that this committee should be invited to examine the question in all its bearings and present its report to the conference in 1923; that the chairman of the proposed advisory committee should be appointed by the British government; that the inquiry should at first be mainly by correspondence; that when meetings of the committee become necessary, they may be summoned by the chairman in London, and that cooperation of a representative from the United States be invited. While accepting disinfection as the only effective means at present of protection of workers, the committee regards the eradication of the disease among animals as the ultimate solution, and is of opinion that the advisory committee should be instructed to report on this subject.

Soldiers' Artificial Legs: A Lighter Type

The number of men who have lost limbs during the war amounts to 41,000. A committee appointed by the ministry of pensions has been inquiring for some time into the arrangements for the supply and repair of artificial limbs. It has now issued a report. The evidence shows that complaints have been made concerning the artificial legs supplied for amputations above the knee. The wooden legs supplied were in most cases unnecessarily heavy. The ministry, with the assistance of the makers, has designed standard pattern wooden limbs combining the latest improvements in mechanical efficiency and lightness, which will shortly be available for issue. The committee thinks that the new wooden limb will prove satisfactory for most of the cases, but that the approved light metal limbs should be supplied when recommended by the surgeon.

PARIS

(From Our Regular Correspondent)

Nov. 4, 1921.

Anesthesia in Genito-Urinary Surgery

Among the many questions reviewed at the twenty-first French congress of urology, recently held in Strasbourg, the subject of anesthesia in genito-urinary surgery awakens the most interest. In their communication, Drs. Maurice Chevassu and F. Rathery, associate professors of the medical department of the University of Paris, first considered general anesthetics. They laid particular stress on the advantages presented by ethyl chlorid, given in very small doses, either for a short narcosis or for the quick execution of a stage of an operation difficult to perform without a local anesthetic. Nitrous oxid should be given only by a competent anesthetist. It does not seem to be very toxic even with the admixture of a small quantity of ether. Though it by no means produces complete abdominal rest, it does not seriously impede renal operations, but it should be seldom used in operations on the pelvic ureter or extensive operations on the bladder. Chevassu and Rathery do not advise its use in operations in which the

patient must be placed in a lithotomy position, for if the patient rouses slightly it is particularly troublesome for the surgeon. Nitrous oxid is, in principle, especially indicated in patients with low blood pressure and those suffering from shock. It is contraindicated in patients with high blood pressure and probably dangerous in those with a maximal pressure above 20 (Pachon apparatus). It would be contraindicated in all those subject to pulmonary congestion—especially the aged and the tuberculous—unless it is given by means of a long tube, which reduces considerably the intense cold of its vapors.

Ether does not agree with subjects whose lungs are the least bit weak. Having, like nitrous oxid, a tendency to raise the blood pressure, it is, like the latter, indicated in frail people and patients with cachexia or low blood pressure. But its toxicity for the kidneys and liver being much greater than that of nitrous oxid, the latter is preferable in most cases in which ether would otherwise be indicated.

As regards chloroform, which is no doubt the most toxic of the general anesthetics in common use, it still retains its reputation for being easily handled and for offering ideal facilities to the surgeon. The low blood pressure that it tends to produce constitutes a special indication for subjects with high blood pressure. Its mild action on the lungs renders it the preferred general anesthetic for those with pulmonary difficulties. But for patients whose kidneys and liver demand cautious treatment it must be considered the worst of all.

From these facts it appears that there remains in genito-urinary surgery an important place to be filled by local anesthetics. With ordinary infiltration anesthesia induced by 0.5 per cent. solutions of procain, a great many present-day operations in genito-urinary surgery may be performed; for example, incision of perinephritic abscess, renal biopsy, renal decapsulation, nephrotomy and nephrostomy, operations on the bladder, cystotomy, operations on the prostate (including prostatectomy), and urethral and periurethral operations. Instead of injecting the anesthetic directly into the operative zone, the operative area can be circumscribed by an anesthetized circle, so as to block the nerves in the whole region enclosed by this circle. This method of regional anesthesia should not, however, be allowed to supplant infiltration anesthesia of the tissues to be incised, which is also at times very practical. Both methods have their indications. If, in operations performed on a relatively large area, the operative region is naturally circumscribed, there is no advantage derived from the use of regional anesthesia for linear incisions in such circumscribed areas, and this is usually the condition in genito-urinary operations.

It is also possible to secure anesthesia of the kidney by injecting a local anesthetic into the solar plexus and its afferent and efferent branches. The weak point in splanchnic anesthesia is found in its inconstancy, due probably to the fact that the technic has not been thoroughly established as yet. The essayists mentioned also spinal anesthesia or rachianesthesia, which has made unquestionable progress during the last few years. However, in spite of this progress, spinal anesthesia seems to present many uncertainties for the genito-urinary surgeon; these uncertainties are much greater in renal operations than in pelvic and especially perineal operations. In this connection, we must not lose sight of the absorptive power of the mucous membranes of the urethra and bladder; while the pelvis absorbs more quickly still. In view of the toxicity of cocain, Chevassu and Rathery hold that it is never advisable to inject it into the bladder or the urethra. Solutions of procain, on account of their weak toxicity, seem especially indicated here.

Dr. Hogge of Liège reported some sixty observations of general narcosis with nitrous oxid, during which no rousing

or other accidents were noted. Examination for azotemia, before and after the intervention, shows insignificant differences. Its harmlessness for the kidneys and liver has been proved by examination of the urine not only of genito-urinary patients but also of those whose cases come under general surgery. One of the advantages of narcosis with nitrous oxid is that patients may be allowed to drink soon after the operation. Hogge regards general anesthesia with nitrous oxid as an ideal procedure in genito-urinary operations, especially in operations on the prostate, but it should be administered by a conscientious and expert anesthetist.

Dr. Gayet of Lyons endorses spinal anesthesia by means of procain, which he considers the preferred procedure in prostatectomy and cystostomy. Few accidents have been noted. Caffein suffices to suppress the tendency to lypothymia. Meningeal accidents are to be feared only in young, neuro-pathic and injured subjects, and it is better in such cases to refrain from this form of anesthesia. Dr. de Smeth of Brussels held that, in operations on the kidney, general anesthetics are the easiest to use, in spite of their toxicity, which, moreover, can be attenuated by Billroth's mixture (chloroform, alcohol and ether). When the technic of splanchnic anesthesia shall have become more practical and more certain in its results, a great step forward will have been realized. Local anesthesia by infiltration is the preferred method in cystotomy, hydrocele, varicocele and phimosis. Spinal anesthesia exerts no harmful action on the kidney; it can be applied to prostatectomy and to all operations on the perineum. De Smeth's statistics covering 1,200 cases show a mortality of 0.25 per cent. with this method.

Dr. J. Abadie of Oran reported the results of his experiments to determine the prophylactic action of caffein given subcutaneously in depressing disturbances due to spinal cocainization. He recommends the prophylactic injection of caffein, as he has often noted its effectiveness. It is better to give the injections two or three hours before the operation. The elevated position is to be preferred. Dr. Le Clerc Dandoy of Brussels discussed his own personal method of applying general anesthesia, which he has employed with success in 150 cases during the past two years. He proceeds thus: An hour and a quarter before the operation is to be performed, the patient is given a hypodermic injection of an ampule containing ethylmorphin hydrochlorid (dionin), heroin, morphin and scopolamin (hyoscin) hydrobromid, the proportions depending on the sex, the muscular condition, and the habits of the subject with respect to alcohol. After an hour and a quarter, the anesthesia is completed with a mixture (administered by the drop method) composed of 20 gm. of chloroform, 20 gm. of ether and 10 gm. of ethyl chlorid. He claims these advantages for his method: no period of excitation or semiawakening; the patient retains a rosy color, and has no tendency to syncope. What is most remarkable is the small quantity needed of the mixture. For an anesthesia lasting one hour, the quantity of chloroform used does not exceed 6 or 8 gm. The patient comes out from under it very quickly and vomiting rarely occurs.

Dr. Pasteau of Paris, taking the view that an anesthetic is always dangerous, endeavors to administer only a minimum of the least harmful anesthetic. General anesthesia being more harmful than local anesthesia, we should resort to the latter as much as possible, and particularly to infiltration anesthesia, which permits, during the operation, the elimination of most of the liquid that has been injected (procain). Thus, most urethral incisions, perineal incisions of prostatic abscesses, cystostomy, and lumbar incisions can be made without general anesthesia. General anesthesia is, however, necessary in some cases. In many cases we must know when to use secondary or complementary general anesthesia to

finish an operation begun with local anesthesia. Spinal anesthesia may be useful, but it is not advisable in males when an instrument has to be introduced into a urethra that has become too flabby. For bladder operations and especially for lithotripsy, chloroform, to which Pasteau always adds 25 per cent. of ether, remains most practical, since of all anesthetics, it is the easiest to handle.

Professor Jeanbrau of Montpellier stated that spinal anesthesia constitutes a method with many advantages in urology, being equally good for difficult explorations as well as for all operations on the superior and inferior urinary organs. The advantages are these: The capacity of the bladder is increased, while the sensitiveness of the bladder is diminished to a greater extent than in anesthesia by inhalation or in local anesthesia. During the course of the operation abdominal rest is complete, and relaxation of the walls is perfect. The results are excellent, and patients who had previously been anesthetized with chloroform or ether were unanimous in their preference for spinal anesthesia, which, moreover, does not affect the liver as do ether and chloroform.

At the close of the session, Drs. Chevassu and Rathery remarked that spinal anesthesia seems to have warm advocates among the urologists. There are very few, however, who have not been witnesses of grave, even fatal, accidents. For his part, Rathery stated that he had observed in certain subjects to whom spinal anesthesia had been applied paraplegias that seemed to be explainable on no other ground. He thinks it would, therefore, be of interest to observe, for several months after the operation, subjects anesthetized by this method, in order that definite knowledge of possible harmful after-effects might be secured. Chevassu held that, aside from the late accidents, the number of immediate or almost immediate deaths constituted an exceedingly strong incriminating charge against the method. The administration of a stimulant (strychnin, caffein) with a view to combat the depressive phenomena commonly associated with spinal anesthesia seems to be regarded, more and more, as indispensable.

MADRID

(From Our Regular Correspondent)

Oct. 20, 1921.

The Red Cross

The Spanish Red Cross received so many gifts for the Moroccan war that it was hardly able to handle them. Spain showed in this respect a generosity far above what could be expected, but a lack of organization was also unfortunately apparent. Much money was wasted, and the country knows too well that if the funds had been well administered the results would have been much better.

The Army Medical Corps in the Melilla Campaign

The occupation of the Rif region in northern Morocco has been for many years a true nightmare for Spain. Every summer as soon as the Moroccans have gathered their crops, an outbreak is expected which may materialize or not, but which is always planned and preached by the marabouts or Moorish holy men. Last summer, an avalanche of fanatical Moors fell on the eastern part of the Spanish zone in Morocco, slaughtering every Christian they could seize. All prisoners were killed except the few who fell into the hands of a rebel chief, educated in Spain. The Rif troops razed several towns, including Nador and Zeluan, massacring all the inhabitants. A cry for revenge echoed this event in Spain. The Spanish army medical corps has gained new glory in this campaign. It is a fact that it was not provided with the necessary resources, but the efforts of the medical officers supplied the deficiencies in material. The number of deaths among medical officers is so large that the government has not

published complete figures, and the lists are being given out partially. All chiefs of columns, all those who exercised military authority in Morocco, have laid stress on the unfailing self-sacrifice of every member of the army medical corps. In many cases, medical officers who had received several bullet wounds kept on rendering their services at the front until they finally died. The casualties in this branch of the service were much higher than those of any other branch. This is partly due to the fighting peculiarities of the Rif Moors, who, as is well known, do not respect Red Cross signs, medical formations or trains of wounded, their tactics consisting in attacking in masses at the very moment when fighting is stopped, when the soldier is exhausted after a day's fighting under the burning sun, and the resultant confusion affects transportation of the wounded. Besides their military duties, our colleagues in the African army are charged with the duty of sanitation in the field. The Moors have not buried the bodies of those killed when they made their first advance, and the Spanish troops as they move forward find the corpses of those killed three months before, still unburied.

BERLIN

(From Our Regular Correspondent)

Nov. 3, 1921.

Influence of the War on the Mortality of the Civilian Population

Extensive statistical studies on the period from 1910 to 1914 show a mortality of 3.72 per thousand for arteriosclerosis, myocardial disease and apoplexy (exclusive of heart defects), whereas during the war period from 1915 to 1919 the record was only 3.01 per thousand. The mortality for diabetes from 1910 to 1914 was 0.44 per thousand; for 1915-1919 it was 0.31. For tuberculosis the figures are reversed, since for the years 1910 to 1914 there was a mortality of 0.75 per thousand, whereas in the period from 1915 to 1919 it rose to 0.92, reaching the peak in 1917, the so-called turnip year. It is apparent, therefore, that the manifestations of undernutrition are reflected in tuberculosis, whereas the scant diet, poor in protein, exerted a favorable effect on patients with arteriosclerosis. The improvement in food conditions since 1920 has resulted in reducing the mortality from tuberculosis from 144 to 107.

Operative Treatment of Malignant Uterine Tumors

Professor Zweifel, the Leipzig gynecologist, discusses the results of operative treatment of malignant uterine tumors as compared with radiotherapy, taking an interval of five years free from recurrence as the lowest limit for a lasting cure. On this basis the record of deaths and recoveries at Zweifel's clinic has been: Glöckner series, 260 cases primary mortality, 8.46 per cent.; lasting cure, 35.6 per cent. Aulhorn series, 420 cases; primary mortality, 13.1 per cent.; lasting cure, 54.4 per cent. Number of cases in which the body of the uterus was involved, 32; primary mortality, 6.2 per cent.; lasting cure, 77.7 cases. Schweitzer series, 322 cases; primary mortality, 4.96 per cent.; lasting cure, 54.5. With extraperitonealization, Schweitzer-Wertheim series, 80 cases; primary mortality, 12.5 per cent., lasting cure, 42.9 per cent. Number of these cases in which the body of the uterus was involved, 28; primary mortality, 3.5; lasting cure, 88.8 per cent. Number of abdominal carcinoma operations on account of hemorrhage following cohabitation, 24; primary mortality, 4 per cent.; lasting cure, 87.3 per cent. Radiotherapy results, on the average, in 40 per cent. of lasting cures based on a relatively short period of observation. The early diagnosis of carcinoma is of exceedingly great importance. Hemorrhages following cohabitation constitute a symptom for early diagnosis, whereas postclimacteric

hemorrhages are due in only 75 per cent. of the cases to malignant new growths, the remaining 25 per cent. being ascribable to harmless affections, usually polyps of the fundus. An itching sensation is likewise in many cases an early symptom of carcinoma of the uterus. In every case that appears at all suspicious a diagnostic excision or abrasion of tissue is indicated. Carcinomas operated on should receive postoperative irradiation, while exclusive irradiation is reserved for inoperable cases.

Vital Statistics for the First Six Months of 1921

The record of marriages for the first quarter of 1921 does not come up to the record for the first quarter of 1920. Whereas, last year, during the first quarter, there were 23.66 marriages per thousand inhabitants, for the corresponding months this year there were only 20.78. An explanation of this is likely to be found in the fact that, on the one hand, the marriages that were postponed, during the war period, have now been concluded, and, on the other, that the economic conditions have become more and more unfavorable, more especially as regards the increasing lack of housing facilities. However, even the record of 20.78 marriages per thousand population is still considerably higher than the average for 1913, which was only 15.54 per quarter, and than the first quarter of 1913, which was only 12.39 per thousand. It should be noted that the statistics refer to the territory of Prussia in its varying extent. However, the changes in territory exert such a slight influence on the relative proportion, which is all that is given in the report, that comparisons are still justified. Also the record of births, 27.53 per thousand inhabitants, which is below that of the first quarter of 1920 (29.07), appears low when we consider that it should reflect the effect of the higher record of marriages for the second quarter of 1920. It was, however, higher than that of the three preceding quarters of 1920, but was below the average figure for 1913 (29.03) and the record of the first quarter of 1913 (29.58). The mortality rate, 14.56 per thousand inhabitants, was comparatively low. Accordingly, there was for the quarter a greater excess of births over deaths than in the years immediately preceding. To be sure, the excess (12.02) is not quite equal to that of 1913 (13.28).

Marriages

EDWARD A. COATES, Major, M. C., U. S. Army, Fort Andrews, Mass., to Miss Maude M. Nudd of West Newton, Mass., November 17.

MAXWELL GORDON KEELER, Capt., M. C., U. S. Army, Philadelphia, to Miss Julia Baird Schoonmaker, at Stamford, Conn., November 8.

WILLIAM WALTON RIXEY, Richmond, Va., to Miss Helen Bradish, Charlottesville, Va., at New York City, in October.

HOWARD RUSSELL MASTERS, Richmond, Va., to Miss Beal-mere Dare Linthicum of Fredericksburg, October 26.

OLIVER ALLISON RYDER, Alexandria, Va., to Miss Anne Elizabeth Potts of Portsmouth, Va., October 8.

FRANK RAYMOND PETERSON, Iowa City, to Miss Coral A. Johnson of Laurens, Iowa, September 7.

FLOYD ELLSWORTH BEST, Wells, Minn., to Miss Lonetta N. Hinderks of Freeport, Ill., in October.

MADISON REDD DREWRY to Miss Mary Anderson Starling, both of Cascade, Va., October 12.

HAROLD RICHARD KURTH to Miss Bessie Dodge Neily, both of Lawrence, Mass., October 10.

IRA CEPHAS RIGGIN to Miss Ruth Elizabeth Bradshaw, both of Windsor, Va., October 5.

MERLE ROWLAND FRENCH, Iowa City, to Miss Irene Batcher, September 8.

Deaths

John Joseph Flynn, Pittsfield, Mass.; Jefferson Medical College, Philadelphia, 1884; member of the Massachusetts Medical Society; served nearly ten years as associate medical examiner in the Berkshire district; former member of the board of health; for twenty years on the staff of the House of Mercy Hospital, Pittsfield, where he died, November 13, following an operation for appendicitis, aged 60.

Frank Paul ☉ Baltimore; College of Physicians and Surgeons, Baltimore, 1912; resident pathologist, Mercy Hospital, 1912-1913; member of staff of the Yates Hospital, Milwaukee, 1913-1920; assistant in the pathologic department, Johns Hopkins Hospital, Baltimore; member of the Medical and Chirurgical Faculty of Maryland; died, November 11, at the St. Agnes Hospital, aged 34.

Frederick Henry Rapoport, New Haven, Conn.; Yale University, School of Medicine, New Haven, 1918; served during the World War as captain, M. C., U. S. Navy, at the Chelsea Naval Hospital, Chelsea, Mass.; died suddenly, November 1, from pneumonia, aged 28.

Allston David Horah, Salisbury, N. C.; University of Virginia, Charlottesville, 1887; College of Physicians and Surgeons (Columbia University), 1890; died, October 19, in the State Hospital for the Insane, Morganton, S. C., from general paresis, aged 57.

Jacob G. Chambers, Sadorus, Ill.; Geneva Medical College, Geneva, N. Y., 1864; practitioner for more than half a century; surgeon in the Civil War; member of the Champaign county board of supervisors; died, November 3, from carcinoma, aged 78.

Thomas Millman, Toronto, Ont.; Trinity Medical College, Toronto, 1873; M.R.C.S., England, 1876; L.R.C.P., Edinburgh, 1876; supreme physician, Independent Order of Foresters, Canada; died, November 15, from senility, aged 72.

Edward Mayo Ashley, Creston, Wash.; University of Minnesota, Minneapolis, 1906; member of the Washington State Medical Association; died, November 11, at the Providence Hospital, Oakland, Calif., aged 42.

Jacob Nehrhas, Brooklyn; College of Physicians and Surgeons, New York City, 1880; member of the Medical Society of the State of New York; died, November 14, from heart disease, aged 66.

William J. Fields, New York City; College of Physicians and Surgeons (Columbia University), New York City, 1880; died, November 3, from valvular heart disease, at Manasquan, N. J., aged 65.

John J. Newpher, Mount Joy, Pa.; Bellevue Hospital Medical College, New York, 1881; former visiting physician to the Misericordia Hospital, New York; died, November 10, aged 65.

Moses Markus Thaler, Brooklyn; Eclectic Medical College of the City of New York, 1905, and the University of Vienna, Austria; died, November 13, from ulcer of the stomach, aged 52.

William P. Penfield, Conrad, Iowa; Rush Medical College, Chicago, 1865; practitioner for over half a century; surgeon in the Civil War; died, September 12, from senility, aged 93.

Clara Anna Moore, Lee, Maine; Eclectic Medical College of Maine, Lewiston, 1883; died, October 31, in a hospital at Portland, Maine, from cerebral hemorrhage, aged 72.

Robert Watson McCafferty ☉ Philadelphia; University of Pennsylvania, Philadelphia, 1901; died suddenly, November 14, from heart disease, in Montpelier, Pa., aged 43.

Albert E. Herzog, Ottawa, Ill.; College of Physicians and Surgeons, Chicago, 1899; died, November 11, at the Watertown State Hospital, East Moline, Ill., aged 45.

George Washington Tooley ☉ Huntington, W. Va.; Wisconsin Eclectic Medical School, Milwaukee, 1896; died, November 4, at a local hospital, aged 62.

William S. Hitch, Pocomoke City, Md.; Jefferson Medical College, Philadelphia, 1861; practitioner for more than half a century; died, November 10, aged 82.

Lillie Anastasia Aberle Bartols, Dorchester, Mass.; Women's Medical College of Baltimore, 1901; died, November 8, after a long illness, aged 40.

William Beebe, Columbus, Kan.; Medical College of Ohio, 1877; died, October 4, from a bullet wound in the head, presumably self-inflicted, aged 69.

Henry F. Beckham, Roosevelt, Okla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1892; died, November 9, from jaundice, aged 53.

Thomas O'Brien, St. Nazianz, Wis.; Rush Medical College, Chicago, 1890; died, November 13, at the home of his brother, in Eden, Wis., aged 52.

George Frederick Colter, Marinette, Wis.; University of Pennsylvania, Philadelphia, 1888; died, November 12, after a long illness, aged 56.

John A. Moore, Folkston, Ga.; University of the South (Sewanee Medical College), Sewanee, Tenn., 1899; died, November 10, aged 44.

Andres M. Tallmadge, Arkport, N. Y.; Bennett Medical College, Chicago, 1894; veteran of the Civil War; died, November 7, aged 74.

Arthur Stevens Kimball ☉ Battle Creek, Mich.; University of Michigan, Ann Arbor, 1903; died, November 6, from appendicitis, aged 42.

Benjamin Harvey Cook, Anderson, Ind.; Medical College of Indiana, Indianapolis, 1885; died, November 11, at Los Angeles, aged 63.

James R. Huffaker, Brookfield, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1878; died suddenly, November 15, aged 74.

James G. Sterrs, Atlanta, Ga.; Leonard Medical School, Raleigh, N. C., 1906; died, October 12, from cerebral hemorrhage, aged 40.

Charles Vernon Fox, Wessington Springs, S. D.; American Medical College, St. Louis, 1893; died in October at Mellette, S. D., aged 55.

William Henry Roberts, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1884; died, November 8, aged 54.

John Henry Rompf, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1892; also a druggist; died, November 10, aged 51.

Jesse Davis Payne, Casper, Wyo.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; died, November 1, aged 55.

Ulysses Grant M. McHugh, Pittsburgh; Baltimore Medical College, 1898; died, November 2, from pleuropneumonia, aged 52.

A. R. Jones, Lavonia, Ga.; Southern Medical College, Atlanta, 1884; died, October 11, from chronic nephritis, aged 58.

William F. Ruff, Philadelphia; University of Pennsylvania, Philadelphia, 1893; died, November 17, after a long illness, aged 50.

Alice A. Benton, Pullman, Wash.; American Electric Medical College, Cincinnati, 1880; died in October from senility, aged 80.

A. F. Upton, Coleman, Texas (license, Texas, 1896); accidentally shot while hunting near Stacy, November 6, aged 61.

LeGrand Allen Walker ☉ Rochester, N. Y.; Columbia University, New York City, 1891; died, November 8, aged 56.

Alexander Donald, St. Paul; Hahnemann Medical College and Hospital, Chicago, 1880; died, November 8, aged 75.

Milton Nathan Armstrong, Atlanta, Ga.; University of the City of New York, 1875; died, November 6, aged 73.

Milton F. Acker, Tylersport, Pa. (years of practice); died suddenly from heart disease in October, aged 73.

John Joseph Keating, San Francisco; Barnes Medical College, St. Louis, 1901; died, October 30, aged 54.

Lee Douglas Meader, Cincinnati; Pulte Medical College, Cincinnati, 1891; died, November 16, aged 53.

Jeff B. Haralson, Fort Payne, Ala.; Memphis Hospital Medical College, 1888; died, October 26, aged 54.

William Stevens, Cairo, N. Y.; Albany Medical College, Albany, N. Y., 1875; died, November 7.

Flavel B. Sloan, Cowan, Tenn.; University of Louisville, Ky., 1871; died, October 28, aged 77.

Jacob Feldman, Newark, N. J. (license, New Jersey, 1889); died suddenly, October 29, aged 74.

☉ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THOMAS WEBSTER EDGAR

The Journal Receives a Letter Denouncing "Medical Clerks" and "Biased Sceptres"

THE JOURNAL recently published in this department some inquiries regarding Thomas Webster Edgar, M.D., of New York City, relative to some alleged serums that Dr. Edgar had developed for diabetes and sex stimulation, respectively, and relative also to the newspaper publicity given Dr. Edgar in connection with the alleged transplantation of glands from "ring-tailed monkeys."

We are in receipt of a letter signed "Thomas Webster Edgar, M.D.," and reading as follows. It is given *verbatim et literatim*:

"American Medical Association, Chicago, Illinois.

"Gentlemen:—I have read with great interest your editorial regarding the publicity given my work in metabolism, and gland implantation.

"Your pseudo, expose, and distinctly libelous insinuations are unjust, and they lead me to believe that you are going to be called to account at a very early date.

"My profession is the practice of medicine, and the policy of my practice is not controlled by the editorial department of the journal. I am progressive, and a firm believer that legitimate medicine and surgery can not be practiced if the physician be governed by a set of medical clerks, who disdainfully boast that they control, and govern the healing art through out the breadth of the land, with a sceptre that is biased and steeped in the unadulterated commercialism of a certain medical clique.

"Aside from the fact that I am an associate editor on a medical publication, it is disgraceful, as well as unjust that you have written such an editorial with out first investigating the therapeutic value of my serum, and implantation operation.

"The psychology of your editorial, only reflects on your editorial department, and will tend to belittle some of the greatest surgeons in the country.

"It may be to your advantage to know, that this very afternoon, I was on the program with the following men.

"Dr. Lewis Gregory Cole—New York

"Dr. Charles H. Mayo—Rochester, Minn.

"Dr. John B. Deaver—Philadelphia

"Dr. Charles Peck—New York.

"My paper was entitled—Senility, its etiology and treatment by gland implantation. I am sure the above mentioned gentlemen are thoroughly ashamed of your actions in the matter, as well as thoroughly disgusted with the baby like attitude you have displayed. You have no sense of fair play, and if it is with in my power to undue the wrong which you have wrought me, I shall endeavor to vindicate myself in the eyes of the clear thinking members of the profession.

"I sincerely trust you will publish this communication, in order that my bretheren shall understand and appreciate that your thrust has not gone unnoticed.

"It is my hope that the various medical societies through out the country, will call upon me to read a paper on my work, so that I may be able to offer substantial evidence to the fact that you have done me an injustice.

"Very truly yours,

[Signed] "THOMAS WEBSTER EDGAR, M.D."

TWE/AEL

Dr. Edgar's statement that he had been on the program with Drs. Cole, Mayo, Deaver and Peck was sufficiently startling to prompt further investigation. It was found that the program in question was that of the annual meeting of the New York and New England Association of Railway Surgeons. It was further found that Edgar's name did appear on some of the printed programs but not on others. It was rather naturally assumed that the name had been put on the program before the officers of this organization had seen the crude publicity to which THE JOURNAL recently called attention. It was found, however, that after several hundred programs had been printed about 150 more were needed and "in the meantime, Dr. Edgar had come into the limelight" in his ring-tailed monkey gland transplantation rôle and "was invited to read a paper on the subject." While he accepted this invitation the secretary of the organization tells us that Edgar did not read his paper but, when the paper

was called, declined, saying it was time for him to be in his office!

As for the rest of Dr. Edgar's communication THE JOURNAL appreciates that courtesy is due "an associate editor on a medical publication"—referring doubtless to the *Western Medical Times*. Dr. Edgar's pronouncement that "legitimate medicine and surgery can not be practiced if the physician be governed by a set of medical clerks" seems reasonable—if cryptic. But it is when he charges that these "clerks" govern the healing art "with a sceptre that is biased and steeped in the unadulterated commercialism of a certain medical clique," that he really shines. Whatever opinion one may hold of Dr. Edgar's ability to compound serums, surely no one can question his skill as a mixer of metaphors. His reference to "sceptres" deserves to be embalmed in every textbook on rhetoric with the classic of the Hibernian statesman who passionately declared: "I smell a rat! I see it floating in the air! But, mark you, Sir, I shall nip it in the bud!"

Correspondence

GROUP PRACTICE; DIAGNOSTIC AND PAY CLINICS

To the Editor:—Recent notes in THE JOURNAL of November 19 and 26 on pay clinics call attention to an important subject worthy of full and free discussion. The need for cheap but good medical service has always existed, but is intensified by reason of the advancing cost of living in proportion to income among large numbers of people, and the increased complexity of medical work. Costly apparatus and time-consuming instrumental methods must be available, as well as a number of expert specialists, in order to do justice to the patient. Such work can be and even now is furnished in a few cities by so-called groups or teams, and the number of these teams is increasing rapidly. I believe that most of them adjust their charges to the income. I know some that even make many roentgenograms for patients who pay no fees at all.

There are also many young and well-trained physicians who are able to give all the service necessary in most cases, and who would willingly give it, as Peppers and Janeways did in earlier and less expensive times. One trouble is that the patient does not know how to get in touch with such men. There seems to be no reason why an individual should not have a "clinic" as well as a group, as was done, in fact, in prewar Germany, and call upon as many other specialists, who would be working on the same basis, as the case requires. In towns where there are medical schools for undergraduates or graduates, there need be no question of charity.

Charity always and sometimes pauperization, it must not be forgotten, is inevitable if the patient gets more than he pays for; but in a teaching clinic the patient pays his way in part or in full by giving his time and clinical phenomena. But the needs of medical schools introduce a new factor. Besides the need of service for the patient, there is need of money for the institution, and this opens the way for various sophistries. In some cities, at least, not only single men and women, but even men with families have no such connection. Under these circumstances, the method of referring the patient by the clinic deserves consideration free from prejudice and cant.

The Cornell plan (Correspondence, THE JOURNAL, November 26, p. 1755) does not seem to be free from the latter. A serious contradiction seems involved in the statement (Current Comment, p. 1740): "To prevent the *appearance of competition* [italics mine], the fee charged by the clinic should

be no less than that charged for a *like service* by the family physician." The supposition has been that the family physician cannot give "like service." If he can, why should the patient go to the clinic? If he prefers to go to some one else, why should not the latter charge for his reputation, or to prevent congestion, or any other reason accepted in trade? The "basic principles" of the Board of Trustees (Association News, p. 1741) can be criticized as to 1 and 2 because provision is not made for patients who have no physician. As to 3, if the general practitioner can furnish the same service, a lower charge by the clinic would certainly seem unfair as well as unwise, according to some rules; but there have always been some physicians whose charges were below those customary in the given locality. The Cornell plan, as set forth by Dean Niles, does not claim the altruistic basis suggested by your editorial comment (p. 1740). The clinic has failed not only in cost of running, but also in service given and as a provider of clinical material. It remains to be seen whether any or all of these things can be overcome by providing service for those able to pay the running expenses and the staff. The fact that the attendance is limited seems to admit an imperfection at the beginning. The reasons given (p. 1755) for establishing the clinic can easily be criticized: 1. Large and rich material can be found among patients unable to pay from one to ten dollars. 2. "The major group" would be proper material for a more thorough survey by experts in economics; 3, 4 and 5 can be met with organizations already existing. As to 6, will the "young graduates" "receive sufficient compensation" and be enabled to pursue "clinical and laboratory studies"? These questions cannot be solved by argument. Like the plan for treating well-to-do people at the Hospital of the University of Michigan, and as urged at the University of Virginia, it seems a case of "needs must."

Questions of ethics raised by your correspondent of November 19 must be settled practically. The whole matter of competition has entered a new phase. Will such competition interfere with the prospects of the men and women for whom medical schools are conducted? Will it be "fairer" than former competition, as claimed by Dean Cabot? These are questions to be settled by the rising generation. Let us therefore have all the facts in all such experiments as quickly as possible; and until we have more light, let us hope our passion for imitation, euphemistically called standardization, will not prevent older methods from continuing.

GEORGE DOCK, M.D., St. Louis.

To the Editor:—I have read with interest the report of the Board of Trustees on pay clinics, as well as the discussion which the establishment of these clinics has elicited.

It is evident that the trend of development in medicine is toward some plan of work which will offer to the man of small means the benefits of those more elaborate and costly methods of diagnosis which are now beyond his reach. This, as I understand it, is the function of the pay clinic.

Much could be written on the possible abuse of such a plan by the well-to-do, and of the effects—good or bad—of these clinics on the morale of the medical profession. But this is not the question.

The progress of today's civilization is unmistakably toward the establishment of some such provision for its relatively less fortunate members, and we could not successfully stand in the way if we would. Why not recognize this and resolve to influence and direct this development as best we can? If we take a sympathetic interest and endeavor intelligently to guide rather than oppose the current of events, we need have no fear for the fate of the medical profession.

JAMES S. McLESTER, M.D., Birmingham, Ala.

"MELLON ISSUES BEER REGULATIONS"

To the Editor:—In THE JOURNAL, Nov. 12, 1921, Dr. Herz seems to argue that the unprogressiveness of the Turk is to be charged to sobriety. Alcohol, though prohibited by the Koran, is nevertheless indulged in by those superlegals of Islam, who, like Omar Khayyam, conceive that "Mustapha's rules were plainly meant, not for the wise, but for fools to obey." Turkish annals record three Sultanic drunkards, Soliman I, Selim II and Amurath IV. The late Sultan Mohammed V was addicted to the abuse of alcoholics, and owed his safety during the reign of his brother, Abdul Hamid, to the fact that the latter regarded him as a harmless drunkard, and saw to it that he should be copiously supplied with his favorite wines. The "Arabian Nights Entertainments," known well to us all, recounts in many of its tales incidents of wine drinking—not confined to the so-called "upper classes." The Mohammedan kings of Persia, also styled the Sophis, had a generous quota of inebriates. Where such an example is shown in high places it is only natural that it should be copied, not only among courtiers, but also among the people at large, and it is doubtful whether the Turk, or even, more generally speaking, the Islamic reputation for sobriety is fully deserved. Travelers have mentioned to me social gatherings in Cairo and Constantinople, in which they were participants or spectators, where alcoholics circulated as freely among the native "swells" as ever in Paris or New York among Dr. Herz's progressives.

The decadence of the Turk is due to the same economic causes that have led to the downfall of all governments since history has been recorded. That Syrians, to name only one of many causes, cut down trees, to avoid the tax imposed thereon, which the yield of such trees meets with difficulty, gives a good idea how the ruling class of the Ottoman Empire has strangled the progress of the ruled masses. As one of that régime frankly stated to a traveling journalist of this city: "We, of the ruling class, numbering about two hundred thousand, levy taxes as we will for our support and preservation. We build no roads and rarely make any improvements." Such a selfishly unprincipled officialdom spells the doom of the welfare of the realm that they should cherish, regardless of the sobriety or nonsobriety of classes or masses.

H. P. ASHE, M.D., Pittsburgh.

ANESTHESIA IN NOSE AND THROAT WORK

To the Editor:—Permit me to reply to a communication by Lester Richard Cahn and Joseph Levy, New York (THE JOURNAL, Nov. 26, 1921, p. 1753), who feel it their duty to say something in defense of the use of procain. They claim an experience of many many thousands of injections with only the slightest toxic symptoms, and state that they are at a loss to account for the deaths from procain that are listed in the report made by our committee. Reading their statement, one would be led to believe that fatalities do not occur after procain is injected, and there is no doubt that many, having used that drug freely without untoward symptoms, fully agree with them. The establishment of our committee to investigate this subject was occasioned by this feeling of security, together with the absence of reports as to fatalities, as entirely opposed to the findings on animal experimentation. This led to the attempt on the part of the Committee on Therapeutic Research of the American Medical Association, to ascertain the true facts. Without going into detail, the Section on Laryngology and Otology appointed its committee, which has made two reports. In the 1920 report, printed in full in the Transactions of the Section on Laryngology and Otology for 1920, and also in the *Laryngoscope*, July, 1920, reference is made to the work

of Sollmann and that of Hatcher and Eggleston as showing the relative toxicity based on animal experimentation, of the various synthetic preparations, and both of our reports state that there is a remarkable similarity between the symptoms occurring in fatal cases to those arising in animal experimentation. We have shown that many more deaths occur than are recorded in the medical journals, and that we have reason to believe that still other deaths may be found to have occurred following the use of local anesthetics in other fields of medicine, and hence our request that the investigation be made general.

Our recommendations have received the unanimous endorsement of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association, and on the approval of the Board of Trustees a commission will be formed which will not only ascertain what deaths have occurred in other fields of medicine, but also attempt to solve all questions that may arise. One of the important questions will be as to the greater sensitiveness of one part of the body to another. Our committee was formed to ascertain certain facts. This we have done. We realized that there was much more to do, but felt that any recommendations toward the prevention of fatalities, particularly the avoidable deaths, should have the authority of the entire American Medical Association and not that of a committee of one of the sections. Any explanation of the causes of deaths mentioned by us would therefore at the present moment be futile. None of the conjectures of Drs. Cahn and Levy hold.

Our findings were not only our own, but were also those of the manufacturers of synthetic products, who have cooperated most willingly and have endorsed our statements. We are in no sense antagonistic to local anesthetics. We believe, however, that some of the fatalities are preventable, and that a commission composed of members of the Association in the various special fields who use these drugs will result in a much better understanding of this most important subject. Our report has already accomplished something. One of our recommendations has been adopted. An enterprising manufacturer has prepared a sterile solution of procain in ampules, thus obviating any possibility of substitution.

EMIL MAYER, M.D., New York.

Chairman, Committee on Advantages and Disadvantages
of Local Anesthetics in Nose and Throat Work.

"THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS"

To the Editor:—A paper by Dr. W. E. Carter of San Francisco appeared in THE JOURNAL, Nov. 12, 1921, describing the Pirquet system of nutrition and recommending it to the American public. There are now many Americans who have visited Pirquet's clinic and have returned to this country advocating his methods. It therefore seems to me an appropriate time to place before your readers certain reasons why I believe physicians should at least reserve judgment and withhold for the present their approval of one of the Pirquet methods, namely, the so-called pelidisi index of nutrition in children. This is particularly important because the Wood tables are now in quite general use in this country, especially in our schools, and the introduction of a new system, unless proved greatly superior, would have a disastrous effect on much of the nutritional work now at last beginning to make headway against popular prejudice and apathy.

Since reviewing Pirquet's system a year and a half ago (*American Journal of Diseases of Children* 19:478 [June]

1920), I have been attempting to evaluate the Pirquet index of nutrition known at first as gelidusi, later as pelidisi. At my suggestion, Dr. Philip King Brown, chairman of the San Francisco Tuberculosis Association, included the sitting height in the measurements to be taken of 50,000 school-children during a survey carried out by him for the California and San Francisco tuberculosis associations nearly a year ago. The tabulations, not yet completed, will include studies of the relation of sitting height and stature to weight based on perhaps the largest mass of material so far studied. Through the courtesy of Dr. Brown, I have had access to the data and have tabulated those of two of the schools (the Madison and the Michelangelo) examined several months later by Dr. Carter, calculating both the pelidisi and the percentages of underweight and overweight by the Wood tables, thus obtaining a direct comparison of the two scales in a fairly large series of children, 984 in all. From this series certain fairly definite conclusions can already be drawn.

The average of the whole group was 0.9 per cent. overweight by the Wood tables and 95.3 (pelidisi) by the Pirquet scale. By the former standard, 20.7 per cent. of the children were 7 per cent. or more underweight, and about 11 per cent. of them, 10 per cent. or more underweight. According to the Pirquet dictum that pelidisi of 94 or less indicates a more or less serious degree of malnutrition, we found that 51 per cent. of the children were below 95, as contrasted with 60 per cent. in Dr. Carter's figures for the same schools less than six months later. It is therefore clear that the Pirquet scale would lead us to regard more than half of our children as malnourished more or less seriously, while the Wood scale shows only one fifth of them in this state if we accept Emerson's criterion of 7 per cent. underweight, or only one ninth of them if we accept Holt's criterion of 10 per cent. underweight.

It may be argued that this is merely a corroboration of Emerson's statement that the Wood tables are too low. Let us analyze the figures further, remembering that Emerson asserts that the Wood tables were *regularly* lower than his own and that by advancing the former six months the two correspond very closely.

Our findings by the Wood and by the Pirquet scales were arranged in two frequency graphs so that the number of cases occurring at 20-15 per cent. underweight, 15-10 per cent., 10-5 per cent. and so on, and similarly the number measuring 85-27 pelidisi, 87-89, 89-91 and so on could be seen at a glance. The cases were found to range from 25 per cent. underweight to 50 per cent. overweight and from pelidisi 85 to pelidisi 115, with the greatest number of cases (255) between 5 per cent. underweight to normal and between 93 and 95 pelidisi (220 cases). The form of the two distributions was quite, though not exactly, similar, and it appeared that in general a difference of 5 per cent. underweight or overweight corresponded with two points in the pelidisi scale. When, however, we came to plot the individual cases on ordinate paper with the Wood percentage on the abscissas and the pelidisi on the ordinates, enormous discrepancies were found. For instance, it might reasonably be expected from the general distribution that the great majority of children showing a percentage of from 0 to 5 per cent. underweight by Wood would also show pelidisi between 93 and 95. This was not the case. Out of the 255 cases in the Wood group, only seventy-five, or 29 per cent., showed the corresponding pelidisi (93-95); and, vice versa, out of the 220 cases in the corresponding Pirquet group, only seventy-five, or 33 per cent., showed the corresponding Wood percentage. Out of the entire series of 984 cases, only 238, or 24.2 per cent., showed comparable indices of nutrition by the two methods, and in many cases the divergences were so great as to be absurd.

The facts presented, even though from a relatively small series of cases, are enough to convince me that one or other (possibly both) of the scales is extremely inaccurate and certainly dangerously misleading if put into practice. From a statistical study of this sort it is impossible to decide which method is at fault. Nevertheless, I do not feel that the matter should be dropped at this point.

The Pirquet system, in spite of the enthusiasm of the Vienna workers, has received severe criticism from several quarters. Hamburger and Jellenig, in Graz, found the index to have an error of not less than 40 per cent. Bachauer has expressed a similar opinion. Pfaundler, in a recent number of the *Zeitschrift für Kinderheilkunde*, made a very exhaustive study of the whole group of stereometric indices to which the Pirquet index belongs and states that, unless age is taken into consideration, they are all by their very nature bound to be incorrect. A similar index, with corrections for age (the Rohrer), based on height and weight was found to be so unsatisfactory in Germany that it had to be abandoned as a standard for the selection of children for free feeding by the Friends' Relief, and a scale similar to the Wood tables substituted.

The fact is that the Pirquet index was devised from certain assumptions, largely theoretical, and put into practice without an adequate experience test. Its theory has been shown to be faulty, and later experience has in several instances cast a very grave suspicion on its practical utility. In the case of the Wood tables we are dealing with the averages of 250,000 direct observations on American children, a mass of basic statistics such as is rarely approached in size in the determination of medical standards. They are, however, soon to be revised on the basis of several million measurements of selected cases, and should then be the final word in the nutritional standards of childhood.

The great argument in favor of the Pirquet index is that in Vienna and a few other places it has led to the selection of children for supplementary feeding with the result that malnutrition has been successfully prevented or relieved among large masses of children. This we may readily grant; yet it seems possible that malnutrition already existing could have been relieved more economically with a more accurate standard. Suppose in the two schools considered above that we had fed the 50 per cent. of children whose Pirquet index was less than 95. We should then have reached 95 per cent.—nearly all but not quite—of the children who were 7 per cent. or more underweight. Assuming the Wood tables to be only approximately correct, we should have accomplished this result by feeding a very large number of children who, to judge by their actual state of nutrition did not need it at all, for of the children with pelidisi below 95, 324, or 33 per cent., were not more than 5 per cent. underweight, and 168, or 17 per cent., were normal or overweight by the Wood tables.

What has been said must not be taken as derogatory to the relief work in Vienna. There the problem was as much to prevent the malnutrition anticipated from economic conditions as to treat malnutrition already present. In this country the problem is a different one. Here the introduction of a less accurate method where a more accurate one is already well established presents too many hazards and might easily prove disastrous.

HAROLD K. FABER, M.D., San Francisco.

Associate Professor of Medicine (Pediatrics), Leland
Stanford Junior University School of Medicine.

Laboratory and Therapy.—Recourse to laboratory methods saves us from making a saltus empiricus and so precipitating ourselves into fallacies. When laboratory methods are at disposal we, instead of trusting to the remote effects which make themselves sensible to the unaided senses, adjudicate by direct effects.—A. Wright, *Lancet* 2:645, 1921.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ALBERT'S DIPHTHERIA BACILLUS STAIN—ANILIN METHYL VIOLET

To the Editor:—Will you publish the formula (1) for Albert's diphtheria bacillus stain and (2) for anilin methyl violet?

C. CRESTON COLLINS, M.D., Crisfield, Md.

ANSWER.—1. Albert's method for staining the diphtheria bacillus was published in full in *THE JOURNAL*, Jan. 22, 1921, p. 240. The formulas of the solutions used are as follows:

SOLUTION 1

Toluidin blue	0.15 gm.
Methyl green	0.20 gm.
Acetic acid (glacial).....	1.00 c.c.
Alcohol (95 per cent.).....	2.00 c.c.
Water (distilled)	100.00 c.c.

After standing for one day, the solution is filtered and is ready for use.

SOLUTION 2

Iodin	2 gm.
Potassium iodid	3 gm.
Water (distilled)	300 c.c.

The solution is ready for use as soon as the iodine is dissolved entirely. Smears are made on slides or cover glasses; fixed by heat; stained with Solution 1 for one minute; washed with water; dried with good absorbent filter paper; stained with Solution 2 for one minute; washed and dried with filter paper. The granules of the diphtheria bacillus are stained black; the bars, dark green and the intermediate portions a light green. Virtually all other bacteria also take a light green stain.

2. Anilin methyl violet is prepared as follows: Fourteen cubic centimeters of saturated alcoholic solution of methyl violet are added to 126 c.c. of freshly prepared anilin water. The saturated alcoholic solution is made by adding 4.8 gm. of the dye to each 100 c.c. of 95 per cent. alcohol and dissolving. The anilin water is made by adding 5 c.c. of anilin to 125 c.c. of distilled water; the mixture is shaken, and filtered through a double layer of filter paper well moistened with distilled water.

PREPARATION OF GLUCOSE SOLUTIONS

To the Editor:—Please inform me in regard to the best way of preparing, in emergency cases, glucose serum when none is locally available. Kindly omit my name.

H. H., Colombia.

ANSWER.—Our correspondent probably refers to glucose solutions which may be administered by hypodermic or intravenous injections. To prepare these, from 100 to 150 gm. of anhydrous *D*-glucose are dissolved in 1,000 c.c. of distilled water or physiologic solution of sodium chlorid, the solution filtered and sterilized by boiling or heating in an autoclave. The glucose may be added to from 1 to 3 per cent. acacia solutions for treatment of hemorrhage and shock. As enemas, from 5 to 12 per cent. glucose solutions are used.

DELANO'S RHEUMATISM CURE

To the Editor:—Can you furnish me with the composition of "Delano's for Rheumatism" made by the Delanos Company, Inc., Syracuse, N. Y.? I have looked over my files for the past two years and can find no reference to it.

F. L. MAGUNE, M.D., Worcester, Mass.

ANSWER.—We have never had a sufficient number of inquiries to warrant us incurring the expense of analyzing "Delano's Rheumatic Conqueror." The state chemists of North Dakota analyzed the stuff a few years ago and reported: "This preparation is essentially starch, with a small amount of talc, containing a little quinin, coated with calcium carbonate."

Medical Education, Registration and
Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, New Hibernia Bank Bldg. New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonesteel.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

South Carolina June Examination

Dr. A. Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the oral, written and practical examination held at Columbia, June 28-30, 1921. The examination covered 17 subjects and included 85 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined, 22 passed and 2, including 1 chiropractor, failed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Grad. Year	Cent. Per
Howard University	(1920)	92.2
University of Georgia	(1921)	81.7
Columbia University	(1910)	91.6
Leonard Medical College	(1911)	78.1
Western Reserve University	(1921)	86.7
Jefferson Medical College	(1921)	89.5, 93.4
University of Pennsylvania	(1921)	85.1
Medical College of the State of South Carolina	(1921)	79.6,
82, 82.7, 84.7, 88.6, 91.4, 91.9, 92.5, 96.1			
Memphis Hospital Medical College	(1901)	81.1
Vanderbilt University	(1921)	87.1
University of Cambridge	(1900)	93.6
Osteopath		80.7
FAILED			
Mcharry Medical College	(1907)	67
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia	(1914), (1918)	Georgia
Maryland Medical College	(1912)	Maryland
Tufts College Medical School	(1916)	Georgia
Woman's Medical College of the New York Infirmary for Women and Children	(1890)	New Hamp.
North Carolina Medical College	(1911), (1912)	N. Carolina
Jefferson Medical College	(1912)	N. Carolina

Utah July Examination

Mr. J. T. Hammond, director, Department of Registration of Utah, reports the written examination held at Salt Lake City, July 12, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. Two candidates received physicians' and sur-

geons' licenses by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1921)	79.8
Columbia University	(1920)	79.4
Western Reserve University	(1921)	84.6
Jefferson Medical College	(1921)	85.2, 85.2
University of Pennsylvania	(1920) 84.9, (1921)	84.4
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Osteopaths		Arizona (2)

Book Notices

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. For the Use of Students and Practitioners. By Oliver S. Ormsby, M.D., Professor and Head of the Department of Skin and Venereal Diseases, Rush Medical College. Second edition. Cloth. Price, \$10. Pp. 1166, with 449 illustrations. Philadelphia: Lea & Febiger, 1921.

In preparing a new edition of his textbook on dermatology, Ormsby has rewritten some 400 pages. In order to make easy the use of periodical literature, his references have been selected so as to cite chiefly articles which themselves review the complete literature of the subjects they discuss. Dr. Ormsby precedes the consideration of individual diseases by general discussions of anatomy, physiology, etiology, pathology, diagnosis and treatment. As is well known, the language of dermatology is technical and specific for that specialty. The ordinary terms of pathology apply only in part, so that the student must first of all acquaint himself with this new terminology before he is able to understand thoroughly the discussions which follow. One of the most valuable features of this general consideration is an outline for the methodical examination of a patient affected with skin disease. The materia medica of dermatology is also a special matter. To an average physician a salve means petrolatum and another ingredient, but to the dermatologist, the composition of a satisfactory ointment for a particular condition is a form of weird and remarkable alchemy. The discussions of radiotherapy, phototherapy and radium are brief, but as complete as they probably should be for a textbook much used by general readers. Following this general introduction, the diseases of the skin are taken up according to a classification which closely follows that suggested by Hebra. One of the most satisfactory features of the book is the inclusion of both apothecary and metric measurements in all prescriptions, the quantities being in easily measurable units. The literature of modern dermatology has been thoroughly reviewed, and the book is in every sense up to date. The illustrations, many of them new, are satisfactory, the entire volume being printed on a coated paper which yields good results. The index is extraordinarily comprehensive. Dr. Ormsby's book is well suited both for textbook and for reference purposes.

NUTRITION AND CLINICAL DIETETICS. By Herbert S. Carter, M.A., M.D., Assistant Professor of Medicine, Columbia University; Paul E. Howe, M.A., Ph.D., Associate in Animal Pathology, Rockefeller Institute for Medical Research, and Howard H. Mason, A.B., M.D., Instructor in Diseases of Children, Columbia University, New York. Second edition. Cloth. Price, \$7.50. Pp. 703. Philadelphia: Lea and Febiger, 1921.

In preparing a new edition of this standard textbook, the authors have carefully revised the chapters on energy, metabolism and digestion, have entirely rewritten the chapter on vitamins, and have added a new chapter on metabolism in pregnancy and lactation with the feeding of children over 2 years old. Throughout the text there has been careful elimination of obsolete material, and an addition of new matter brought out by periodical literature. The book thus continues to merit commendation for its completeness. For example, under the subject of "diet in peptic ulcer" there are detailed accounts of the von Leube, Lenhartz, Sippy and other methods. Under the heading of "obesity," ten dietary regimens are outlined. One chapter is devoted to such unusual subjects as artificial methods of feeding, diet in pregnancy, and diet for speakers and singers, for brain workers and for athletes. The last chapter consists entirely of tabulations of food values, weights and measures, including the well known Atwater and Bryant and Fisher tables.

MIKROMETHODIK. Quantitative Bestimmung der Harn- und Blutbestandteile in kleinen Mengen für klinische und experimentelle Zwecke. Von Dr. med. et phil. Ludwig Pincussen, wissenschaftlichem Assistenten der II Medizinischen Universitätsklinik zu Berlin. Paper. Price, 28 marks. Pp. 116, with 19 illustrations. Leipzig: Georg Thieme, 1921.

The field of "micro-analysis" has assumed, in recent years, considerable importance, especially in chemical analysis of the blood constituents, so that the laboratory worker who would keep abreast of the times must know the technic and pitfalls of these methods. This little monograph makes no claim as to completeness. It contains only those methods which have been thoroughly tried out in the author's laboratory and are employed in his courses of instruction. The selection of methods by Pincussen is not, perhaps, always the best, as he largely ignores most of the excellent methods devised by Folin and his associates, and by Benedict, Myers, Bloor and other American workers. The descriptions are clear and concise, the methods outlined are, if not the best, at least acceptable, and the scope of the work is sufficient for the daily routine of the general or hospital laboratory. The book may be recommended to those who desire a brief discussion of such micromethods as are employed, especially in foreign laboratories, as a guide for their own laboratory requirements.

EINFÜHRUNG IN DIE ALLGEMEINE KONSTITUTIONS- UND VERERBUNGSPATHOLOGIE. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hermann Werner Siemens. Paper. Price, 64 marks. Pp. 229, with 80 illustrations. Berlin: Julius Springer, 1921.

This is a praiseworthy attempt to present modern ideas of the principles of genetics to the medical profession, with particular reference to medical problems. It does not attempt to discuss the specific diseases in which heredity may assume a greater or smaller rôle, or to present the accumulated evidence bearing on inheritable characteristics of definite diseases. It is cast on broader lines in order to present the influence of heredity on human development, although, of course, many illustrations are drawn from special cases, as, for example, hemophilia. It can be recommended to those who wish to secure an understanding of the way in which heredity determines human characteristics, both physical and mental. A summary is given of all diseases in which hereditary influences seem to play a part, with a statement as to the relation of this influence to mendelian principles.

Medicolegal

Sufficient Indictment of Illegal Practitioner

(*State v. Kirkpatrick (W. Va., 106 S. E. R. 887)*)

The Supreme Court of Appeals of West Virginia holds that it was error to quash an indictment which averred that the defendant, without first having complied with Sections 9, 10 and 11 of Chapter 150 of the Code of West Virginia governing applicants and the issuing of certificates of license to practice medicine and surgery in the state of West Virginia, and without first having obtained a license so to do, as required by the laws of the state, did unlawfully practice medicine and surgery, as defined in Chapter 150, Section 8 a XII Supplement 1918 of the Code. The indictment sufficiently charged the offense prescribed by the statute, and sufficiently negatived the fact of the defendant's being of the first class of practitioners described in Section 9, which provides that the following persons shall be permitted to practice medicine in the state: "(1) All such persons as shall be legally entitled to practice medicine in this state at the time of the passage of this act. (2) All such persons as shall be graduates of a reputable medical college," etc. As Sections 10 and 11 referred to in the indictment relate to the obtaining and recordation of certificates or licenses issued, and to the proof required of applicants of their educational qualifications to practice, etc., they were not particularly important in the disposition of the case presented. While practitioners of medicine and surgery since the amendment of Section 9 by Chapter 22 of the Acts of 1889 have not been required to submit themselves to examination and obtain new

certificates of license, nevertheless prior to that amendment and since the amendment and reenactment of Chapter 150 in 1882, they have been required to have such certificates of license as a condition of the right to practice medicine and surgery. Always since 1882 a practitioner has been required to have a license or certificate; since then, if he had a license issued prior to that time he was not required to submit to an examination or procure a new or additional license; but at no time since 1882 has any one been entitled to practice medicine in West Virginia without a license or certificate from the proper authority. In an indictment for a statutory offense like the one described, the pleader need negative only exceptions, not provisos, of the statute.

Inquiry Required of Institutions Receiving Bodies— Cremation After Dissection

(*Burke et al. v. New York University (N. Y.), 188 N. Y. Supp. 123*)

The Supreme Court of New York, Appellate Division, First Department, reverses a judgment which sustained a demurrer to a complaint for the alleged unlawful dissection and subsequent destruction of the body of the father of the plaintiffs, which had been received from the city morgue, the reversal being with leave to the defendant to withdraw the demurrer and to answer, on payment of costs. The court says that the defendant claimed its rights to dissect under Section 316 of the public health law, which requires any hospital or morgue having any uninterred corpse in its lawful possession for keeping or burial, which has not been placed therein in the usual manner by relatives for that purpose, to deliver such corpse under specified conditions to any university of the state having a medical preparatory or medical postgraduate course. It is provided, however, that:

No corpse shall be so delivered or received if desired for interment by relatives or friends within forty-eight hours after death, or, if known to have relatives or friends, without the assent of such relatives or friends; or of a person who shall have expressed a desire . . . that his body be interred, but the same shall be buried in the usual manner.

The lower court held that the primary duty of endeavoring to ascertain whether there were relatives or friends rested with the authorities at the morgue, and did not rest with the defendant before receiving this corpse for dissection. The appellate division, thinks, however, that there is also an obligation on the medical school or university to make reasonable inquiry. There was no allegation in the complaint that the defendant failed to make reasonable inquiry. The contention of the plaintiffs was that all that was necessary to do was to allege a dissection without their consent, and that it was for the defendant to plead the facts which justified such a dissection. This contention was well made. The dissection of a human body without the consent of the relatives or friends is under the common law a wrongful act. If the defendant would justify that act under any special statute, the facts that would bring the defendant within the statute and authorize the act are properly pleaded as an affirmative defense. Those facts need not be negatived in the complaint, which is sufficient if a wrong under the common law has been alleged.

Irrespective, however, of the statement of the cause of action for the dissection, the complaint stated a cause of action for the cremation of the body. Under Section 2215 of the penal code, it is provided that after dissection the body shall be buried. The cremation of the body was therefore clearly a wrongful act, and was just as actionable as the dissection itself.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Minnesota Medical Association, Mankato, Dec. 5-6.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

November, 1921, 6, No. 5

- Case of Sleep Lasting Five Years, with Loss of Sense of Reality. P. Janet, Paris, France.—p. 467.
- Successful Removal of Brain Tumors. Report of Eight Cases. W. G. Spiller and C. H. Frazier, Philadelphia.—p. 476.
- Acute Ascending Myelitis of Infectious Type. Its Possible Relationship to Poliomyelitis in Certain Group of Cases. L. M. Morris, San Francisco and V. C. Jacobson, Boston.—p. 509.
- Ossification of Meninges. C. A. McKendree and H. M. Imboden, New York.—p. 529.
- Character of Onset of Spinal Paralysis with Reference to Significance of Apoplectiform Type of Onset in Contrast to Slow Progressive Development of Paralysis. W. B. Cadwalader, Philadelphia.—p. 541.
- Case of Family Periodic Paralysis. M. Neustadter, New York.—p. 560.

Delusion of Sleep.—Janet's case was one of psychasthenic depression with doubt and fear of life, producing a delusion of sleep and the appearance of sleep for five years.

Classification of Brain Tumors.—Besides reporting eight cases Spiller and Frazier present a classification of brain tumors. The following cases have been selected as representing tumor types and various locations: (1) an endothelioma of the left occipital lobe; (2) a tuberculoma of the parietal lobe near the motor cortex; (3) an encapsulated glioma of the motor area; (4) a calcified endothelioma of the falx; (5) an unusually small endothelioma near the motor cortex; (6) a fibroma of the posterior fossa origin undetermined; (7) a glioma of the cerebellar hemisphere; (8) an acoustic tumor (fibroma).

Ossification of Meninges.—The essential findings in the case cited by McKendree and Imboden were: history of headaches over a period of nine years; vomiting, occurring at any time of night or day at irregular intervals, aggravated by exercise; pathologically increased deep reflexes of the right upper extremity and bilateral Hoffmann's sign; facial weakness of the central type on the left; roentgenogram of the skull revealed extensive ossification of the meninges.

Archives of Surgery, Chicago

November, 1921, 3, No. 3

- *Pathology of Chronic Cystic Mastitis of Female Breast. With Special Consideration of Blue-Domed Cyst. J. C. Bloodgood, Baltimore.—p. 445.
- Achievements and Limitations of Neurologic Surgery. C. H. Frazier, Philadelphia.—p. 543.
- *Review of Year's Series of Intracranial Tumors. C. E. Locke, Jr., Boston.—p. 560.
- *Postoperative Biliary Fistulas. D. C. Balfour and J. W. Ross, Rochester, Minn.—p. 582.
- *Suspension Traction Treatment of Fractures of Long Bones Near Large Joints. J. A. Hartwell, New York.—p. 595.
- *Relation of Surgical Technic to Gastrojejunal Ulcer. C. A. Roeder, Omaha.—p. 622.
- *Method of Determining Early Regeneration of Nerve Fibers at Operation. J. Y. Malone, St. Louis.—p. 634.
- *Intestinal Obstruction. D. K. Bacon, R. E. Anslow and H. H. Eppler, Detroit.—p. 641.

Chronic Cystic Mastitis.—This paper is too lengthy and "meaty" to lend itself to condensation. Bloodgood describes chiefly the pathology of the various types of chronic cystic mastitis as exposed by an exploratory incision. A few points made are: the number of benign tumors in women, more than 25 years of age, in whom it is necessary to remove only the tumor, is too large to justify the removal of the breast, or to perform the complete operation for cancer without first ascertaining the pathology of the palpable lump by exploratory incision. The educational propaganda is influencing many women to seek immediate advice because of pain or the palpation of a lump in the breast. It is, therefore, of the greatest importance for all members of the profession who assume the responsibility of diagnosing breast lesions to improve their sense of palpation.

Intracranial Tumors.—Locke makes an analysis of 255 cases from Cushing's service at the Peter Bent Brigham Hospital in which the presumptive diagnosis of "brain tumor" was made.

Postoperative Biliary Fistulas.—In the series of operations in 166 cases of biliary fistulas reported on by Balfour and Ross there were sixteen deaths, a mortality of 10 per cent. In operations undertaken for various conditions which were responsible for fistulas, the percentage of deaths shows very clearly the relative risks which accompany these operations. For instance, in thirty-five cases of stone in the cystic duct, no operative mortality occurred, while in the groups "division of the common duct" and "stricture of the common or hepatic ducts," six deaths in twenty-one cases were due largely to chronic jaundice and sequels so common in such cases.

Suspension Traction Treatment of Fractures.—It is Hartwell's belief that with proper attention practically every fracture through the middle third of a long bone can be treated successfully by the traction suspension method, and that the results will be more promptly obtained and better functionally than by other methods. However, it is a method that can be applied only after considerable experience, and the attention to details that many surgeons are unwilling to give.

Relation of Surgical Technic to Gastrojejunal Ulcer.—Roeder emphasizes that: (1) the so-called gastrojejunal ulcer is very likely the direct result of operative procedures; (2) every effort should be made to simulate Nature as much as possible by leaving the mucosa superabundant, with a free blood supply; and (3) in the technic of gastro-intestinal surgery, the mucosa should always be sutured separately close to the edge. No sutures should be passed through all three coats at one time since such a procedure strangulates the mucosa, later immobilizing it with scar tissue, which in addition shuts off the blood supply.

Determining Early Regeneration of Nerve Fibers.—When a peripheral nerve is stimulated, by the application of cold to the skin in human beings or by direct stimulation of the trunk in animals, there is a reflex stimulation of the respiration, blood pressure and reflex contraction of muscles innervated by nerves other than the one stimulated. These phenomena are so well established and constant that Malone uses them as an index of regeneration when the nerve trunk is exposed at operation. The method he describes would seem to be particularly useful in early cases as the test was positive after five weeks in dogs.

Water Balance in Intestinal Obstruction.—Bacon and his associates report on experimental work undertaken by them to determine the influence, if any, of the water balance of the body on the progress of intestinal obstruction. From an experimental standpoint water deprivation is the most important, if not the sole, factor in the production of the pseudo-uremia of intestinal obstruction. Viewed in this light, the condition becomes a pseudo-uremia of thirst rather than of intestinal obstruction; an increase in the rate of protein catabolism where insufficient fluid exists, combined with a lack of water as a vehicle for excretion of the toxic split products as they accumulate in the blood.

Boston Medical and Surgical Journal

Nov. 10, 1921, 185, No. 19

- *Surgical Aspects of Intra-Abdominal Tuberculosis in Infancy and Childhood. C. G. Mixer, Boston.—p. 558.
- Intussusception. Symptoms. J. S. Stone, Boston.—p. 562.
- Acute Intussusception. Surgical Treatment; Report of Cases. F. V. Hussey, Providence, R. I.—p. 564.
- Diphtheria of Larynx, Trachea and Bronchi Associated with Papilloma of Larynx. E. A. Meserve, Boston.—p. 568.
- *Squamous Cell Carcinoma of Antrum Treated with Radium. J. H. Blaisdell, Boston.—p. 570.
- Monitor Ventilation. W. A. Griffin, Sharon, Mass.—p. 572.
- Pressary Worm Without Removal for Eleven Years. C. J. Kickham, Boston.—p. 574.

Intra-Abdominal Tuberculosis in Infancy.—One hundred and twenty cases were analyzed by Mixer. The miliary type of tuberculosis is usually seen in infancy. The ascitic and plastic types occur most frequently between the ages of 2 and 8, while mesenteric adenitis is more often found in older children. A family history of tuberculosis or known exposure, was elicited in only twelve of the 120 cases. This point is suggestive evidence to Mixer that tuberculous peritonitis is one of the most frequent varieties dependent on the bovine bacillus, as is also the fact that the relative number of such cases has apparently decreased during the last decade. It

seems probable that the adequate supervision of milk supplies is responsible for this decrease. Tubercular infections in childhood have a predilection for lymph glands, and intra-abdominal infections are no exception to this rule. The glands of the ileocecal angle and terminal ileum almost invariably show the greatest involvement. The process may be limited at this point as a tuberculous mesenteric adenitis or it may become disseminated by breaking through its limiting capsule and develop as a tuberculous peritonitis. There were forty-nine cases of the ascitic type in Mixter's series. Twelve patients were not subjected to operation. Seventeen were treated by simple laparotomy and nineteen had air or nitrogen injections. Laparotomy is indicated in the ascitic type of the disease where an active process elsewhere can be ruled out, and the child is not progressing favorably under medical treatment. The mortality is lowered and the convalescence is hastened. Results thus far suggest that air injection may give more beneficial results than simple laparotomy. The plastic stage of tuberculous peritonitis is represented by fifty-three cases. Surgery has nothing to offer in the treatment of plastic tuberculous peritonitis, save in meeting the complications and emergencies as they arise. The prognosis is bad though occasionally an inexplicable good result will follow an operation undertaken for the purpose of diagnosis or even following relief of an acute obstruction. Hygienic treatment is of paramount importance. Surgery should only aid and never supplant it.

Radium Therapy in Cancer of Antrum.—Blaisdell reports a case treated with radium alone that is free from recurrence twenty-two months after the last application. The clinical diagnosis was confirmed by microscopic examination.

Nov. 17, 1921, 185, No. 20

- Work of Joint Committee on State and National Legislation. J. S. Stone, Boston.—p. 587.
Criteria of Roentgen-Ray Diagnosis. F. W. O'Brien, Boston.—p. 591.
Typhoid Fever. D. O'Hara, Waltham, Mass.—p. 594.
*Gastrogastrostomy for Hour-Glass Stomach. W. H. Rose, Worcester, Mass.—p. 597.
Nasal Hemorrhage. J. Prenn, Boston.—p. 509.
Nonspecific Protein Therapy. J. C. Potter, Framingham, Mass.—p. 601.

Gastrogastrostomy for Hour Glass Stomach.—Rose reports two cases of hour glass stomach in which a gastrogastrostomy was performed with great comfort and relief to the patients.

California State Journal of Medicine, San Francisco

November, 1921, 19, No. 11

- Anatomic Study of Eight Cases of Degeneration of Cornea. C. Maghy, Chicago.—p. 424.
Public Health and Medical Welfare. P. K. Brown, San Francisco.—p. 425.
Neurologic Findings in One Thousand Group Study Cases. T. G. Inman, San Francisco.—p. 428.
*Metabolism Studies in Pulmonary Tuberculosis. R. A. Kocher, San Diego.—p. 430.
Differentiation of Early Meningitis and Mastoiditis. W. J. Mellinger, Santa Barbara.—p. 433.
Rationalé of Radiation in Female Pelvis. A. Soiland, Los Angeles.—p. 434.
Infantile Atrophy. J. Robinson, Anaheim, Calif.—p. 436.
Treatment of Syphilis with Silver-Salvarsan. V. G. Vecki and M. R. Ottinger, San Francisco.—p. 438.
Early Diagnosis and Treatment of Cancer of Cervix. R. E. Skeel, Los Angeles.—p. 438.
*Value of Blood Studies. W. P. Lucas, San Francisco.—p. 441.

Metabolism in Pulmonary Tuberculosis.—In fifteen cases of afebrile pulmonary tuberculosis, eight of which showed active lesions, Kocher found the basal metabolism from a few per cent. above to a few per cent. below the average normal. The effect of giving a meal of 400 gm. lean beef, was determined on two patients. The metabolism was raised 25 to 30 per cent., due to the so-called specific dynamic action of the protein. The effect of a high caloric diet on the rate and depth of respiration was determined. A mixed meal of 1,000 calories increased the ventilation of the lungs, measured as minute volume, 18 to 20 per cent. Creatinin determinations were made on fifteen patients, and show uniformly low coefficients, as compared with the normal. Creatinin determinations over a period of months in convalescents show an increase in the functional efficiency of the body.

Blood Volume.—Studies in blood volume have shown the importance of transfusion when the blood volume is markedly

reduced. In cases of acute diarrhea, vomiting, starvation, athrepsia or malnutrition, as soon as food or fluid is given, the blood volume will be rapidly restored as well as the blood flow increased. The importance of the water quotients has thus been definitely determined by a careful study of these blood fractures, and these studies have undoubtedly had more effect on lowering the mortality of these nutritional conditions in infants than any other studies that have been carried on during the last few years.

Illinois Medical Journal, Oak Park

November, 1921, 40, No. 5

- Federal Aid to States a Real Menace. D. Sutherland, Chicago.—p. 353.
Psychopathic Children. G. B. Smith, Alton.—p. 363.
Visceroptosis. J. A. Day, Springfield.—p. 368.
Safety First in Anesthesia. F. H. McMechan, Avon Lake, Ohio.—p. 376.
Butyn: Anesthetic for Ophthalmic Use. H. S. Gradle, Chicago.—p. 382.
Modification of Submucous Resection Operation. O. J. Nothenberg, Chicago.—p. 385.
Retrobulbar Neuritis of Ethmosphenoidal Origin. W. G. Reeder, Chicago.—p. 390.
Intracranial Complications of Nasal Accessory Sinus Disease. C. F. Yerger, Chicago.—p. 395.
Time as an Element in Testing Visual Acuity. S. Rosenblatt, Chicago.—p. 400.

Journal of Experimental Medicine, Baltimore

Nov. 1, 1921, 34, No. 5

- Cicatrization of Wounds. XII. Factors Initiating Regeneration. A. Carrel, New York.—p. 425.
*Remote Results of Complete Homotransplantation of Cornea. A. H. Ebeling and A. Carrel, New York.—p. 435.
*Remote Results of Operations on Pulmonary Orifice of Heart. A. Carrel, New York.—p. 441.
Growth of Fibroblasts and Hydrogen Ion Concentration of Medium. A. Fischer, New York.—p. 447.
Studies on Bacterial Nutrition. III. Plant Tissue, As Source of Growth Accessory Substances, in Cultivation of Bacillus Influenzae. T. Thjotta and O. T. Avery, New York.—p. 455.
Phenomenon of D'Herelle with Bacillus Dysenteriae. M. Wollstein, New York.—p. 467.
*Biologic and Serologic Reactions of Influenza Bacilli Producing Meningitis. T. M. Rivers and L. A. Kohn, Baltimore.—p. 477.
*Tuberculin Reaction and Specific Hypersensitiveness in Bacterial Infection. H. Zinsser, New York.—p. 495.

Homotransplantation of Cornea.—A flap composed of the entire thickness of the cornea of a cat was transplanted by Ebeling and Carrel to the cornea of another cat, and was found to be perfectly transparent two years after the operation. The curvatures of the cornea appeared to be normal.

Results of Operations on Heart Orifice.—In 1913, an attempt was made by Carrel to develop a technic by which the size of the pulmonary orifice of the heart could be increased or decreased. The immediate results of the experiments showed that plastic operations on the wall of the pulmonary artery and its sigmoid valves caused little danger to the life of the animal, when a proper procedure was employed. The purpose of this paper is merely to describe the remote effects of the operations which were virtually nil.

Reactions of Influenza Bacilli Producing Meningitis.—Evidence has been obtained by Rivers and Kohn in favor of the possibility that a certain group of influenza bacilli may have risen to a level of pathogenicity to produce a disease picture known as influenzal meningitis. Of thirteen meningitic strains of *Bacillus influenzae* isolated by different workers during a period of seven years, eleven are alike culturally and fall into two groups by absorption of agglutinin tests; seven are in Group 1, three in Group 2, with one intermediate strain. Two strains stand alone culturally and serologically.

Specific Hypersensitiveness in Bacterial Infections.—It would appear from Zinsser's studies that certain noncoagulable substances of uncertain chemical constitution are being constantly elaborated in the course of bacterial growth, and passed into the circulation of infected animals. As a result of this, infected animals become sensitized to these heat and acid resistant materials, in tuberculosis in the course of one or two weeks; in the case of more rapidly growing bacteria perhaps sooner. Early in the course of infection, the animal becomes sensitized, and subsequently the further elaboration and distribution of these materials from the bacterial focus plays a fundamental part in the injury of the animal. These

proteose-like substances, like tuberculin, possessing but slight toxicity for the normal animal, become highly toxic to the sensitized one. Thus, these substances, while not being true exotoxins in the ordinary sense, would still represent a highly toxic bacterial product comparable in its injurious effect to toxins when produced in the body of an animal thus sensitized. If there is any value in these deductions Zinsser says the attention of bacteriologists should be turned to the nonprotein constituents of bacterial cells in their further immunologic studies, as well as to the protein materials.

Journal of Industrial Hygiene, Boston

October, 1921, 3, No. 6

- Headache. S. Cobb and D. C. Parmenter, Boston.—p. 173.
Medical Supervision in Industry. C. W. J. Brasher, Bristol, England.—p. 179.
Framingham Health Demonstration and Industrial Medicine. D. B. Armstrong.—p. 183.
Study of Accident Records in Textile Mill. A. Hewes, R. Fear, E. Graves, M. Lawrence, F. Metz and H. F. Smith.—p. 187.

Journal of Laboratory and Clinical Medicine, St. Louis

September, 1921, 6, No. 12

- *Apparatus Used in Estimation of Basal Metabolism. C. V. Bailey, New York.—p. 657.
*Distribution of Uric Acid in Blood. R. C. Theis and S. R. Benedict, New York.—p. 680.
Ventilation, Weather, and Common Cold. G. T. Palmer, Detroit.—p. 684.
*Colorimetric Method for Estimation of Morphin in Colloidal Mixtures and Tissues. H. Gauss, Denver.—p. 699.
Hecht-Gradwohl Test Employing Ice Chest Fixation. Preliminary Report. H. D. McIntyre, E. A. Worth and A. P. McIntyre, Cincinnati.—p. 706.
Precipitin Reaction Used as Evidence for Identification of Human Blood in an American Court. J. B. Ekeley, Boulder, Colo.—p. 709.
Mercury Manometer Float That Will Ride on Surface of Mercury Same at All Times. M. A. Blankenhorn and E. J. Warnick, Cleveland.—p. 710.

Apparatus for Basal Metabolism Determination.—A detailed description is given by Bailey of an apparatus used by him in determining the respiratory exchange in man. The arrangement described is suitable for routine laboratory or institutional use in determining the basal metabolism. The particular features are the use of the full-sized gas mask, the special arrangement of rubber flutter valves, a newly designed gasometer, the use of a new type of gas-sampling bottle in conjunction with the Henderson-Haldane gas-analysis apparatus with several added mechanical features which greatly lessen the labor of gas analyses.

Uric Acid in Blood.—Uric acid was determined by Theis and Benedict in plasma and corpuscles in 104 cases, fifty-one of which showed equal distribution; forty-five showed plasma uric acid greater than corpuscle uric acid and eight showed a greater amount of uric acid in the corpuscles than the plasma. This relationship holds whether the blood is oxalated or defibrinated and does not depend on the pathologic condition. Added uric acid did not penetrate the corpuscles in 70 per cent. of twenty bloods studied. In 30 per cent. of the cases the added uric acid was equally distributed between corpuscles and plasma. The marked difference in permeability of the corpuscles of certain bloods for added uric acid is of interest, and suggests that other cells in the body may show similar differences in permeability. Such findings may tend to throw light on the questions involved in specific uric acid retention in the organism.

Colorimetric Estimation of Morphin.—A quantitative colorimetric method for the estimation of morphin sulphate in tissues and organic colloidal mixture is described by Gauss. There is a preliminary precipitation of the proteins by means of ten volumes of 3 per cent. trichloroacetic acid and subsequent extraction with hot chloroform. The color utilized in this reaction is the purple red reaction with Marquis' reagent which is evanescent. The standard color is prepared by adding a known amount of the alkaloidal salt to a known volume of Marquis' reagent, similarly and simultaneously with the preparation of the unknown. By means of this method Gauss has been able to extract quantitatively morphin sulphate from tissues and colloidal solutions in amounts from 0.10 to 50.0 mg. and to determine it colorimetrically in amounts as low as 0.003 mg.

Medical Record, New York

Nov. 12, 1921, 100, No. 20

- Menstrual Disturbance and Pain in Tubal Pregnancy. L. Broun, New York.—p. 839.
Importance of History in Diagnosis of Surgical Affections of Right Upper Quadrant. C. G. Heyd, New York.—p. 842.
Details in Dermatology. C. M. Williams, New York.—p. 845.
*Chronic Nephritis with Bence-Jones Proteinuria. W. Walters, Rochester, Minn.—p. 847.
*Case of Permanent Homonymous Hemianopsia Following an Attack of Migraine. A. Wiener, New York.—p. 849.
Application of Ozone to Purification of Swimming Pools. W. A. Manchester, New York.—p. 851.
Quino-Formol Solution in Treatment of Infections. J. T. Pilcher, Brooklyn.—p. 852.
Reform or Fanaticism? L. F. Herz, New York.—p. 853.
Sensitization to Fowl Protein Misinterpreted as of Mental and Nervous Origin. J. L. Tracy, Toledo.—p. 855.
Education in Relation to Use of Medical Knowledge. H. S. Bennett, Washington, D. C.—p. 857.

Chronic Nephritis with Bence-Jones Proteinuria.—A case of Bence-Jones proteinuria is reported by Walters in which there was definite evidence of progressive renal insufficiency denoted by extremely low excretions of phenolsulphonephthalein and the retention of large amounts of uric acid, urea, nonprotein nitrogen and creatinin in the blood. The effect was studied of radium exposure over two inguinal masses which may have been the primary causative factor in the production of the Bence-Jones proteinuria. The result was entirely negative in every way. This is the fourth case of Bence-Jones proteinuria discovered in the examination of 31,487 patients.

Hemianopsia Following Migraine.—The case is cited by Wiener of a young woman, who manifested no evidence of heart, kidney or arterial disease; no syphilis; no tuberculosis, and all examinations were negative. With the exception of repeated attacks of migraine, this patient has been free from any serious disease or complaints. During a severe attack of migraine she suffered a left hemianopsia from which she shows not the slightest improvement. Wiener inclines to the belief that a vasoconstriction, sufficient to produce an ischemia, resulted in a destruction of the visual area and a probable softening of the same. Whether the eating of a cake of yeast two hours before the onset of the attack may have been a factor, or some toxemia which resulted in an unusual viscosity of the blood, thus encouraging the formation of a thrombus in such a constricted vessel, is the problem propounded by Wiener.

Military Surgeon, Washington, D. C.

November, 1921, 49, No. 5

- History of Military Medicine. F. H. Garrison.—p. 481.
Etiology of Scurvy. E. B. Vedder.—p. 502.
Differential Diagnosis of Common Intestinal Amebae of Man. C. F. Craig.—p. 513.
Color Blindness; Objections to Few Color Perception Tests Now in Use. E. J. Grow.—p. 528.
Chronic Empyema. E. F. Butler and A. D. Haverstock.—p. 544.
Protection Afforded by Antipneumococcus Vaccination Against Respiratory Infections. P. F. McGuire, W. C. Cox and J. D. Nourse.—p. 559.
Four Centuries in Treatment of Syphilis. L. W. Shaffer.—p. 566.

Missouri State Medical Association Journal, St. Louis

November, 1921, 18, No. 11

- Duodenal Ulcer. H. K. Wallace, St. Joseph.—p. 377.
*Analysis of One Hundred Cases of Splanchnoptosis. E. Schisler and E. E. Brown, St. Louis.—p. 379.
Causes of Disease. M. T. Burrows, St. Louis.—p. 384.
Thermophore Treatment of Ocular Neoplasms. W. E. Shahan, St. Louis.—p. 392.
Ear Complications in Measles. O. J. Dixon, Kansas City.—p. 393.
New Operation for Cure of Nasal Hemorrhage. H. Miller, Kansas City.—p. 396.
Importance of Correcting Small Refractive Errors for Patients with Symptoms of Eye Strain. J. P. McCann, Warrensburg.—p. 398.
*Pathological Fractures. L. Rassieur, St. Louis.—p. 400.

Splanchnoptosis.—In the series of cases studied by Schisler and Brown a visceroptotic condition of greater or less degree was demonstrated in 99 per cent. of the cases. They presented the usual symptoms of epigastric pain, nausea with or without vomiting, eructation of gas, sense of fulness after eating, constipation, flatulency and malaise with loss of appetite. Sixty-one per cent. showed some degree of gastric dilatation. Hypomotility or hypermotility, visible peristalsis

or pyloric spasm were not constantly present. The next most commonly affected organ was the kidney. The right kidney was found displaced usually in the right iliac region (38 per cent.) and freely movable, palpable in 60 per cent. of the cases. The left was only freely movable in 1 per cent. but palpable in 8 per cent. Both kidneys were palpable in 7 per cent. The liver was found palpable in 23 per cent. of the cases; in 25 per cent. there was found a slight tenderness in the gallbladder region. The spleen was found in the pro-lapsed state only in one case. The most common complication is some affection of the reproductive organs. Eighty-five per cent. of these patients were affected in this way. Twenty-three per cent. had been operated on and were not relieved from symptoms. Three per cent. had been relieved. A history of chronic appendicitis was given in 47 per cent., 22 per cent. had been operated on without relief from symptoms. The most effective method of treatment is: correction of abdominal position by a front-lace corset; proper diet; exercise, in several cases, rest cure. When in rare cases the symptoms are so severe and distressing that they do not respond to the combined measures above, then and then only is surgical interference warranted.

Pathologic Fractures.—Of 588 fractures analyzed by Ras-sieur five were unquestionably distributed as follows: femur (subtrochanteric), 3; upper epiphyseal line of the tibia, 1; lower end of the tibia, 1. Three of the five patients died shortly after they entered the infirmary. The causes of these fractures were syphilis and sarcoma.

Nebraska State Medical Journal, Norfolk

November, 1921, 6, No. 11

One Hundred and Fifty Cases of Gallbladder Disease. J. S. Weleh and S. O. Reese, Lincoln.—p. 329.

Five Hundred and Sixty-Three Cases of Gallbladder Disease. B. B. Davis, Omaha.—p. 336.

Gastroduodenostomy Versus Gastrojejunostomy. H. B. Boyden, Grand Island.—p. 342.

Acute Intestinal Obstruction. A. L. Cooper, Morrill.—p. 347.

Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 350.

Case of Enlarged Thymus with Necropsy Report. F. Clark and J. H. Murphy, Omaha.—p. 354.

Case of Hypernephroma with Necropsy Findings. W. Thompson, Omaha.—p. 355.

New Jersey Medical Society Journal, Orange

November, 1921, 18, No. 11

Cancer of Stomach. F. B. Lund, Boston.—p. 345.

Carcinoma of Female Pelvic Organs. E. J. Ill, Newark.—p. 349.

Response of Various Types of Cancer to Radium. D. Quick, New York.—p. 350.

Roentgen Rays in Treatment of Cancer. E. Reissman, Newark.—p. 355.

Ten Commandments of Cancer. F. H. Martin, Chicago.—p. 356.

Philippine Islands Medical Association Journal, Manila

July-August, 1921, 1, No. 4

*Leper Segregation in Philippines. J. Albert.—p. 133.

*Case of Hematopoietic Splenomegaly with Marrow Sclerosis. H. W. Wade.—p. 143.

Contracture of Neck of Bladder. Report of Eleven Cases. M. Baltazar.—p. 149.

*Hydatidiform Mole: Report of Forty Cases. F. I. Velasco.—p. 153.

Radium in Uterine Conditions. R. Fernandez.—p. 157.

Acute Dilatation of Postpartum Uterus: Report of Case. G. Rustia.—p. 160.

Leper Segregation in Philippines.—Albert calls attention to the fact that what has been published elsewhere about the results obtained in the Culion Leper Colony is not in accord with facts, and is far from the reality. Considering as a whole the number of admissions from year to year, they have remained with but slight variations at the same level. There is no evidence of any marked reduction, and therefore the 90 per cent. reduction claimed by some is in reality misinformation and a pure fantasy. Such segregation of all lepers, without any distinction between dangerous and nondangerous cases, has not responded to the hopes and expectations of its authors nor to the sacrifices extorted from the people. The continuation of the present system Albert believes can only be justified by the hysterical fear of medieval ages. The Culion experiment is not based on present knowledge of the degree of the contagiousness of the disease. The fact that an intimate and prolonged association can produce infection in only

5 per cent. of the people, and the eloquent fact that syphilis and tuberculosis, which are much more contagious, are not subjects of isolation, supply sufficient reason to condemn the present system of compulsory segregation of all lepers as being anachronic, unjustified and ultrascientific. Owing to the great difficulties in communication and transportation, the execution of the present system of centralization in one single leprosarium of all lepers of the islands is utopic and impracticable, for it requires the maintenance in the different ports and provinces of leprosaria which really become permanent. The present drastic system favors the concealment of cases, making more difficult the institution of early treatment, on which fact modern therapeutics is based. The inevitable concealment of cases with no visible lesions neutralizes and destroys all the apparent and doubtful efficacy which could be claimed in favor of such harsh measures of absolute isolation. The extraordinarily long period of incubation so peculiar of leprosy, as well as its characteristic chronicity, clearly indicate that there is a certain natural immunity against the virulence of the disease. The recognition of this immunity or organic defensive power indicates also that the first line of defense against the infection is good nourishment and proper personal hygiene. Based primarily on the failure of the Culion experiment and also on present medical knowledge as regards the transmissibility and curability of leprosy, Albert suggests the convenience of studying legislation similar to that of Norway, to take the place of present leprosy laws, which would prescribe the segregation of lepers with open lesions in appropriate hospitals whenever their isolation at home is considered by competent authorities unsatisfactory and unsafe.

Hematopoietic Splenomegaly with Marrow Sclerosis.—Wade reports a case of splenomegaly of at least two years' standing in an individual with no history of previous disease, except for a period of daily chills and fever two years ago, which symptoms it is suggested were very possibly caused by the chronic tuberculosis of the lungs found at the necropsy. Epigastric distress experienced at that time led to the discovery of the enlarged spleen. Since then there has been progressive loss of weight, also perhaps explainable by the tuberculosis, and a persistent though apparently occasionally remittent diarrhea. The patient was ambulant, afebrile, and seems to have presented himself for treatment chiefly on account of abdominal distress referable to the large spleen. The Wassermann reaction was negative. No malarial parasites were found. Blood examinations revealed little of interest except 8 per cent. large mononuclears. The spleen was removed. The patient died on the fourth day after operation. Examination of the spleen revealed very active hemopoiesis, with here and there discrete nodules of marrow-like tissue wholly foreign to splenic structure. There was complete lack of hemopoietic activity on the part of the bone marrow, much of which had undergone marked osteofibrosis. Some hemopoietic activity was found in the liver and the prevertebral lymph nodes.

Hydatidiform Mole.—The forty cases of hydatidiform mole reported by Velasco occurred in 8,187 maternity cases that entered the free obstetrical ward of the Philippine General Hospital during a period of ten years, one case of hydatidiform mole in every 204 maternity cases. The mortality in this series was only 5 per cent.

Public Health Journal, Toronto

October, 1921, 12, No. 10

Malnutrition in School Children. C. S. MacDougall.—p. 451.

Need for Cooperation Between Hospital, Public Health Nurse and Community. J. Forshaw.—p. 455.

Progress of Venereal Disease Control in Canada. J. J. Heagerty.—p. 459.

Aims of Modern Social Work. F. N. Stapleford.—p. 464.

Rhode Island Medical Journal, Providence

November, 1921, 4, No. 11

Endocrine Disorders and Their Relation to Individual. F. J. Farnell, Providence.—p. 141.

Some Radical Changes in Treatment of Diabetes Mellitus. F. T. Fulton, Providence.—p. 143.

Results of Treatment of Syphilis in Mental Cases. H. I. Gosline, Howard.—p. 145.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

September, 1921, 38, No. 143

- Sinus Phlebitis and Thrombosis Complicating Suppurative Middle Ear Disease. J. P. I. Harty.—p. 73.
Treatment of Empyema. J. A. Nixon.—p. 82.
*Case of Multiple Serositis (Pick's Disease) of Unusual Distribution. H. J. Orr-Ewing.—p. 90.

Multiple Serositis.—Ascites and hydrothorax of considerable degree were present in Ewing's case and no other symptoms than those caused by these fluid accumulations were manifested. All laboratory examinations were negative except on one occasion when malignant tertian rings and crescents were present in blood films. The patient admitted having had malaria two years previously. He had otherwise always been well.

British Journal of Experimental Pathology, London

October, 1921, 2, No. 5

- *Capillary Blood Pressure and Glomerular Filtration Theory. L. Hill and J. McQueen.—p. 205.
Theory of Agglutinin Estimation. J. O. W. Barratt.—p. 214.
*Preventive Effect of Influenza Vaccine. S. Yabe.—p. 223.
*Comparative Immunity Tests with Saline Vaccines and Lipovaccines. J. Pratt-Johnson.—p. 232.
*Production of Immunity in Rabbits Against an Organism of High Virulence for Species. J. Pratt-Johnson.—p. 239.
Hydrogen-Ion Range for Staphylococci. I. W. Hall and A. D. Fraser.—p. 242.

Capillary Blood Pressure and Glomerular Filtration Theory.—Hill and McQueen discuss the modern theory of the secretion of urine, and evidence is brought forward to show that pressure in the glomerular capillaries is low, and that physiologic permeation—not filtration—controls the passage of fluid through the glomeruli. Observations on the circulation in the frog's glomeruli support these conclusions, which are also borne out by experiments which demonstrate the selective action of the epithelium covering the glomeruli.

Effect of Influenza Vaccine Treatment.—By the use of the heated influenza vaccine, the morbidity of those inoculated was reduced by one half as compared with the rate of those uninoculated. When the inoculation was begun just at the commencement of the epidemic and was finished by its acme, the morbidity among the inoculated persons, as compared with that among the uninoculated, was reduced to one sixth by the use of the vaccine. The complications from catarrhal pneumonia were lessened in the case of inoculated patients to one half and deaths to one seventh. The length of fever was less among the inoculated persons in proportion to the quantity of vaccine inoculated. The reaction after the inoculation was so slight that cessation from work was unnecessary.

Saline Versus Lipovaccines.—Johnson asserts that lipovaccines stimulate the production of agglutinins to a lesser degree than saline vaccines administered in the same doses. The presence of a high titre of agglutinins does not necessarily indicate the presence of an established immunity even against small doses of a highly virulent organism.

Production of Immunity.—Experiments are described by Johnson which demonstrate the possibility of securing the immunity of rabbits against an organism of high virulence by immunization with a live related organism avirulent for the species. In this respect, Tenbroeck's observations are confirmed, and it is further shown that killed vaccines prepared either from the homologous or from a related organism fail to give solid immunity against the live virulent strain.

British Journal of Tuberculosis, London

October, 1921, 15, No. 4

- Montana as a Health Station for British Tuberculous Subjects. T. N. Kelynack.—p. 147.
*Clinical Value of Arneth's Leukocyte Count and Döhle's Inclusion Bodies in Pulmonary Tuberculosis. T. Tominaga.—p. 159.
Pneumothorax Therapy. Z. P. Fernandez.—p. 165.
Shelters for Tuberculous Patients. J. Ritchie.—p. 174.

Arneth's Leukocyte Count and Döhle's Inclusion Bodies in Tuberculosis.—Tominaga has found that Arneth's leukocyte

count usually goes hand in hand with the clinical course of pulmonary tuberculosis. Döhle's inclusion bodies are also found in some tuberculous cases. They appear or disappear according to the fever. Marked dislocation of Arneth's leukocyte picture and the presence of inclusion bodies in more than 5 per cent. of all neutrophils are a help to the diagnosis and prognosis of pulmonary tuberculosis. Inclusion bodies are found in the proportion of: 64 per cent. in the leukocytes of the first class; 27 per cent. in those of the second class; 8 per cent. in those of the third class.

Glasgow Medical Journal

October, 1921, 96, No. 4

- Present Day Conditions—Social, Medical and Political—in Vienna. L. Findlay.—p. 193.
*Two Unusual Malformations of Hind End of Body. G. H. Edington.—p. 212.
*Case of Acute Pellagra in Childhood. J. B. D. Galbraith.—p. 233.

Malformations of Hind End of Body.—In one of Edington's cases there was a microscopic communication between the blind rectum and the urinary bladder; micro-urethra (stenosis) with distension and diverticulation of the bladder; abdominal ectopia testis; irregular termination of vasa deferentia; esophageotracheal communication; malformed limbs. The second case was one of extroversion of the bladder; right Müllerian duct opening on the posterior wall, as also an epidermis lined canal passing up from perineum; sacral spina bifida.

Acute Pellagra in Childhood.—Galbraith's patient was aged 3 years and 9 months, with the history that for the past month he had been "nervous," easily frightened and upset, and that for fourteen days he had complained of attacks of "drunkenness" when he had to hold on to the table to keep himself from falling. These giddy turns occurred every day, usually three or four, each lasting for about a quarter of an hour. There was no complaint of pain, no vomiting, no eye trouble, no lethargy, and no night restlessness. Previous health had always been good. Mentally he had always been bright and intelligent. The case was thought to be one of cerebellar tumor, but the clinical picture changed completely. The boy became dull and apathetic; ultimately he would not speak even to his parents. Unsteadiness of the gait enveloped; spasticity of the left side; Babinski's sign on both sides; diarrhea; marked stomatitis. The rash, the stomatitis, enteritis, vertigo, and mental symptoms suggested pellagra. The boy emaciated very rapidly, and became semicomatose. The stomatitis and diarrhea quickly progressed. The skin lesions became more brick-red, in color and sunburnt looking, and were traversed by a network of very finely marked fissures. Convulsions appeared on the fifteenth day. Death occurred on the nineteenth day. The brain was markedly edematous. Careful examination failed to reveal any tumor. The choroid plexuses were normal. The spinal cord was congested and very pulpy, especially in the lower dorsal regions, where the gray matter showed degeneration (perhaps postmortem). Examination of sections of the cord revealed swelling and degeneration of many of the pyramidal cells in the anterior cornua, but nothing to suggest an acute myelitis. There was no definite evidence of tract degeneration, and the myelin sheaths appeared to be normal. The case has special interest because of the controversy regarding the etiology of the disease. The commonly accepted view is that protein deficiency in the food is the main factor in the production of pellagra. In this example the child had been given the diet of a working-class family, which presents no gross deficiency of protein.

Japan Medical World, Tokyo

Oct. 15, 1921, 1, No. 6

- *Isolation of Immune Hemagglutinin. T. Furuhashi, Tokyo.—p. 1.
*Prophylactic Inoculation Against Measles. S. Hiraishi and K. Okamoto.—p. 10.
Transplantation of Rat Sarcoma in Adult Birds. Y. Shirai.—p. 15.

Isolation of Immune Hemagglutinin.—The isolation of purified hemagglutinin was affected by Furuhashi from sensitized hen's blood cells by alkali in a nonelectrolyte medium. Two c.c. of hen's blood corpuscles were washed, and sensitized with 5 c.c. of twenty-five times diluted immune serum (titre equals 1:750) for half an hour at 37 C. These sensitized blood

cells were centrifuged, and washed with 10 per cent. saccharose solution. The washed sediments were emulsified in 4.5 c.c. of 10 per cent. saccharose solution and 0.5 c.c. of tenth-normal sodium hydroxid solution and were incubated at 37 C. for one hour. After centrifugation the supernatant fluids were removed as dissociated hemagglutinin, this extract being neutralized with tenth normal hydrochloric acid. The separated hemagglutinin was purified further by dialysis, by shaking with ether and by concentration in a vacuum to the required volume. The nitrogen of hemagglutinin dissociated in sugar medium was from 0.01541 to 0.03923 gm. per hundred c.c. and that separated in salt solution was from 0.1961 to 0.004724 gm., while the probable amount of nitrogen obtained by the indirect method was 0.01401 gm. per hundred c.c.

Prophylactic Inoculation Against Measles.—Hiraishi and Okamoto used blood obtained from measles patients, citrated it with a 2 per cent. solution and diluted to 100, 1,000 and 10,000 times with a 1 per cent. citrated solution. The diluted blood was used for inoculation. The inoculation was made into the intrascapular region in a quantity of from 0.5 to 1.0 c.c. of the ten-thousandth dilution for the initial inoculation. In some, a larger quantity was employed. When the blood was left standing, the corpuscles sank down, so it was well shaken up before inoculation. The blood was used as fresh as possible, but in some cases, it was kept in a dark cool place for forty-seven hours. The blood was taken from the patients between the period of the first manifestation of Koplick's spots and the height of eruption. The second inoculation was made, as a rule, three weeks after the initial one. Forty-four children were inoculated. They were all healthy with no history of measles and were selected from those who had had no contact with the patient at their own home or their vicinity. In some cases, the inoculation was made for purely prophylactic purposes during the height of the epidemic. The minimum morbid dose of the infected blood found to be between 0.001 and 0.002 c.c. A prophylactic inoculation with 0.0001 c.c. of the infected blood is entirely harmless. This prophylactic inoculation gives a certain degree of immunity to the child. It does not confer an absolute immunity against the natural infection, but it gives only a comparative resistance. Those who had the onset of the symptoms four weeks after the prophylactic inoculation had a milder course than otherwise.

Lancet, London

Nov. 5, 1921, 2, No. 5123

- Clinical Units. C. Allbutt.—p. 937.
Tuberculosis: Its Relations to General Bodily Conditions and to Other Diseases. F. P. Weber.—p. 940.
Vitamin Deficiency and Factors in Metabolism. A. Hodgson.—p. 945.
Cardiac Massage. A. G. Levy.—p. 949.
*Gastric Function Before and After Gastrojejunostomy. T. G. D. Bonar.—p. 952.
Case of *Cysticercus Cellulosae* in Man. J. R. Hughes.—p. 956.
Case of General Infection by *Cysticercus Cellulosae*. H. K. Abbott.—p. 956.
Case of Acute Tetanus, Successfully Treated with Large Doses of Antitetanic Serum. C. E. Shattock.—p. 957.

Gastric Function Before and After Gastrojejunostomy.—The result of Bonar's investigations lead him to conclude that ulcers can be grouped under three headings: (1) prepyloric, including cardiac ulcers; (2) pyloric ulcers (simple or with stenosis); (3) duodenal ulcers. Growths form a fourth group, regardless of type of operation. No matter the type of operation (e. g., gastrojejunostomy alone or together with excision of the ulcer), in prepyloric ulcers the curves obtained before and after operation differ in that the free hydrochloric acid is diminished, but the total acidity reaches roughly its previous level; bile enters the stomach during the meal, and the stomach is emptying more rapidly than before. Pyloric ulcers, after gastrojejunostomy, have the same type of curve as before operation. Duodenal ulcers have a highly acid resting juice, with a slightly diminished free hydrochloric acid, and the remaining part of the curve reaches about the same maximum as before, although it may be obtained quicker after operation. Carcinomas have a low free and total acidity both before and after gastrojejunostomy. In all cases of gastrojejunostomy the stomach is emptying quicker than before the operation. In all cases a varying

amount of bile gets into the stomach during some part of the meal. In all cases when the gastrojejunostomy has been successful, pain has been relieved. In most cases of simple ulcer weight has been put on.

Sei-I-Kwai Medical Journal, Tokyo

October, 1921, 40, No. 4

- *Effects of Antipancreatic Ferment Serum on Blood Sugar and Reducing Substances in Urine of Rabbits; Application of Serum for Treatment of Human Diabetes. H. Wago.—p. 7.

Effect of Antipancreatic Ferment Serum on Blood Sugar.—Wago's work on pancreatic ferments and antibodies is well known. He reports further on the use of this antipancreatic ferment serum. The antipancreatic serum showed a favorable effect on the sugar metabolic function. When it was introduced into normal rabbits or into rabbits in which diabetes was produced by epinephrin or phloridzin a decrease of the blood sugar resulted and the reducing substance was recognized in the urine. Its degree seems to be in proportion to the serum given. The antiserum seems to strengthen the activities of the pancreatic amboceptor (or hormone). The essential factor of the diabetes was due to the upsetting of the equilibrium between the external pancreatic secretion and the pancreatic amboceptor. The antipancreatic serum showed a curative value in applying it to human diabetes.

Archives des Maladies de l'Appareil Digestif, Paris

October, 1921, 11, No. 5

- *Gastric Ulcer with Uncontrollable Vomiting. P. Le Noir, C. Richet, Jr., and A. Jacquelin.—p. 297.
*Lesions of Nerves with Gastric Cancer. M. Loeper and J. Forestier.—p. 307.
*Gases in Colon at Splenic Flexure. F. Ramond and H. Borrien.—p. 313.
*Soaps in Feces. R. Goiffon, A. Haristoy and M. Sarmiento.—p. 319.
*Rapid Biloculation of Stomach. A. S. Alivisatos.—p. 330.
*Sorgho Flour Gruel in Stomach Disease. Bardou.—p. 335.

Gastric Ulcer with Uncontrollable Vomiting.—The five cases reported teach that with uncontrollable vomiting, in a case of gastric ulcer, the possibility that the liver or kidneys may be the main factor in the vomiting must always be borne in mind. The treatment should be directed to the liver or kidney or both. Venesection, diuretics, cholagogues, and an ample supply of sugar and alkalines by rectal drip and subcutaneously to ward off acidosis—even when the liver-kidney origin is not quite certain—will aid in preparing for an emergency operation. The sudden onset of the vomiting; the large amounts vomited in comparison to the fluids ingested, suggesting elimination of toxins through the ulcerated stomach mucosa as the point of lesser resistance; the fact that neither belladonna nor injection of atropin influences the vomiting, and that palpation through the vagina excludes a pregnancy—these are the presumptive signs, but the main dependence in differentiation is on tests for liver-kidney functioning. In the first two of the five cases described, the liver-kidney derangement was not recognized, and the usual operative ulcer treatment was applied. Both patients died soon after the gastro-enterostomy or jejunostomy, and the necropsy findings in the liver and kidneys amply explained the fatality. When three more cases of the kind were encountered, no operation was attempted, and the patients all recovered under medical measures alone to combat the acidosis or uremia. In one case there was acidosis and a condition akin to dyspeptic coma, finally conquered by sugar and alkaline infusion by rectum and subcutaneously. One patient was a man of 45 with stomach symptoms for fifteen years, and the acidosis and vomiting were due to acute insufficiency of the liver. Two attacks of this kind in little over a month were cured by the sugar and alkaline infusion, and the man was safely operated on a few weeks later. In the other case, uremia dominated the clinical picture.

Recurring Cardiospasm with Cancer of Stomach.—Loeper and Forestier report a case of cancer of the lesser curvature inducing recurring spasm of the cardia. The cause was evidently the neuritic lesions found in the vagus and the progressive and ascending cancerization of the fibers in the region of the cardia.

Air at Splenic Flexure of Colon.—Ramond and Borrien describe the physical, radiologic and functional signs of the

digestive, circulatory and respiratory phenomena which may develop from accumulation of air or gases of fermentation at the splenic flexure. Palpitations and tachycardia may be constant, with dyspnea on slight exertion, and there may be symptoms suggesting a partial pneumothorax. If means to correct constipation and abnormal fermentation, etc., fail, operative treatment might be considered. In Duval's case, tenacious *aérocolie* complicated with severe disturbance on the part of the heart, was cured by resection of the colon at the splenic flexure. Carnot's patient died in sudden syncope forty-eight hours after an operation of this kind, the change in the pressure on the heart having been too abrupt.

Soaps in the Bowel.—The extensive research on dogs, pigs and man described apparently demonstrated that moderate fermentations in the bowel do not promote the demineralization of the organism. On the contrary, they tend to check the losses of calcium and magnesium in the stools.

Hour-Glass Stomach of Ulcer Origin.—The mediogastric stenosis was notable by its rapid development when the ulcer became installed.

A Tunis Gruel.—Bardou refers to a gruel made with sorgho flour, and extols it for stomach disturbances. Its use is traditional for the purpose among the natives of Tunis.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 14, 1921, 45, No. 28

- *Tuberculosis with Liver Disease. N. Fiessinger and P. Brodin.—p. 1314.
- *Unsuspected Otitis in Infants. M. Renaud.—p. 1326.

Acute Tuberculosis with Alcoholic Liver Disease.—The liver seems to be an important element in the fight against the tubercle bacillus, and when it is suffering from the action of alcohol, tuberculosis is liable to become installed. Five cases are described in detail in women between 30 and 50 with alcoholic hepatitis. The disease in all began with rapid emaciation. Then came signs of mild liver disease, ascites or subjaundice, and in from four months to a year symptoms of severe insufficiency of the liver became manifest, and this rapidly progressed to a fatal termination. Necropsy revealed tuberculous processes in peritoneum, lungs or kidneys. In 20 other women addicted to alcohol 5 presented polyneuritis, or other nervous affection, and only one in this group was tuberculous, while 8 were tuberculous in the 15 with liver disease.

Otitis in Infants.—Renaud found a suppurative process in the petrous bone around the internal ear in each of 70 infants dying in August and September at the Bretonneau Hospital. This osteomyelitis accompanied visceral toxic-infectious symptoms, but he assumes that the otitis was the primary process. In 30 the otitis had been recognized during life; in the others it was a necropsy surprise. Both ears were affected in 20 per cent. The diagnosis of gastro-enteritis was not confirmed at necropsy in any instance, and neither inherited taints nor tuberculosis could be incriminated for the fatal outcome. He was so impressed with the constancy and importance of insidious otitis in infants that he now makes a point of treating for otitis as a routine procedure. In the discussion that followed, Menetrier stated that milk may get into the eustachian tubes as they are relatively shorter and wider in infants. To prevent this he has the infant held sitting up while feeding. Comby cited a number of reports of mastoiditis in infants without signs of otitis, 77 per cent. in Steinsleger's 9 cases and 21 per cent. in Salamo's 150; 90 and 91 per cent. in others' statistics. Barbillion found supuration in both ears in 25 of 27 infants supposed to be typical examples of athrepsia, the otitis utterly unsuspected. The latent otitis may occur with gastro-intestinal, bronchitic, meningitic, septicemic or a mastoid clinical picture. Tixier remarked that an infant entering a general ward of a hospital is practically doomed to parasitism. Martin urged individual isolation of all such children. By warding off infection, the otitis will not develop.

Paris Médical

Oct. 8, 1921, 11, No. 41

- *Abdominal Arteriosclerosis. F. Fernández Martínez.—p. 285.
- *Proposed Orientation of Surgical Science. G. L. Regard.—p. 292.
- Coxa Valga. L. Dieulafé.—p. 295.

Abdominal Arteriosclerosis.—A similar article by Fernández Martínez was summarized May 14, 1921, p. 1375. He remarks that the prognosis of abdominal arteriosclerosis is as unsatisfactory as the treatment is ineffectual. Very few instances of recovery are known. The treatment of abdominal aortitis is that of arteriosclerosis in general: repose, small, easily digested meals, cautious massage of the abdomen, carbonated baths and the high frequency current. The same applies to abdominal arteriosclerosis, with, in addition, iodine and iodids in small doses, salicylate, theobromin, bromid and valerian, laudanum and hot applications to the abdomen; on suspicion of syphilis, specific treatment. The acute attacks require morphin, ice, liquid paraffin—especially if there is much intestinal spasm—plus amyl nitrite and other drugs to reduce blood pressure. The obliteration of the vessel can be treated only surgically, hastening to resect the engorged zone or make an artificial anus. By bearing in mind the possibility of occlusion of mesenteric arteries in the course of arteriosclerosis, we may solve many diagnostic mysteries.

Surgiology and Survival of Bone Grafts.—Regard laments that the question of the survival of bone transplants is still unsolved after all these years because no one has studied the question from the physiologic standpoint. For solving such questions, he declares, a new branch of science should be founded, which he calls surgiology, *chirurgiologie*. The surgilogist should devote himself to research on physiology as connected with surgery and experimental surgery, working in close collaboration with the surgeon, both seeking for useful discoveries, the one pure science, the other the practical application of it. Many surgilogists have worked along this line, but only haphazard, and turning to other lines just when their experience and skill were ready to bear fruit. The surgeon should welcome the surgilogist to his wards, and the hospitals should make a place for the surgilogist, and supply a laboratory, and the university an institute of surgiology and a professorship, like that of the professor of experimental and comparative pathology.

Oct. 15, 1921, 11, No. 42

- *Structure of the Cell. A. Policard.—p. 297.
- *Arsenical Conjunctivitis. Milian.—p. 303.
- Thrombophlebitis of Sinus Cavernosus. Lauret.—p. 305.

The Structure of the Cell.—Policard says there is no need for discouragement because we have had to discard so much of what was supposed fully established in cytology twenty years ago. Very little is left of all the research on the morphology of the cell. From a morphologic science, cytology is becoming a physiologic and chemical science, as he explains.

Arsenical Conjunctivitis.—Milian called attention nearly ten years ago to congestion of the conjunctivae as a premonitory sign of poisoning from atoxyl, warning of impending blindness. He now generalizes this warning, saying that it applies to all arsenicals. The arsenic induces a paralytic vasodilatation. This may be the first and long the only symptom from the arsenic poisoning, but this arsenical conjunctivitis warns of danger and calls for longer postponing of the next injection of the arsenical. A little epinephrin morning and evening may be useful, but the main indication is to ward off microbial infection of the eyes while this paralytic vasodilatation lasts.

Presse Médicale, Paris

Oct. 22, 1921, 29, No. 85

- *Gastrohepatic Syphiloma. A. Florand and A. L. Girault.—p. 841.
- Action of Bourboule Mineral Waters on Nutrition. J. Aloy and P. Bru.—p. 842.
- *Hydatid Cysts in the Lungs. Blanco Acevedo.—p. 843.
- *Intracardiac Injections. L. Cheinisse.—p. 845.

Stomach-Liver Syphiloma.—Florand and Girault diagnosed the syphilitic nature of the stomach disturbances from their persistence for three years, the good appetite, and absence of tenderness, and the fact that the large tumor disclosed by roentgenoscopy would have been more debilitating if malignant. Another instructive feature was the tolerance for potassium iodid; the stomach objects to this drug in all but syphilitic disease. The fear that sclerosis was probably installed led to a laparotomy, but, to the surprise of all, the liver was found involved in the tumor and resection was out

of the question. After gastro-enterostomy, mercurial treatment was continued, and in little more than a month no trace of the tumor could be palpated.

Hydatid Cyst of the Lung.—Accvedo expatiates on the advantages of Lamas' method of inducing adhesions between the parietal and the visceral pleura as the first step in the operation. Ten days later the cyst is safely evacuated. The method was described in detail in these columns 77:408, 1921. He has applied this technic in twelve cases during the past year. With a cyst in the hilus of the lung, if small, it could be compressed by an artificial pneumothorax which might cause it to break into the air passages and be evacuated by a vomica.

Intracardiac Injections.—Cheinisse reviews sixteen communications reporting injection directly into the heart as the last resort for resuscitation. Of the fifteen cases with durable results compiled by Vogt, epinephrin had been used in nine. Camphor, caffeine and digitalis do not act quickly enough. The dose of epinephrin was 1 c.c. of the 1:1,000 solution. Nearly all of these communications were reviewed in THE JOURNAL as published.

Progrès Médical, Paris

Aug. 13, 1921, 36, No. 33

*Sacralization of Lumbar Vertebra. A. Aimes and L. Jagues.—p. 380.

*Torsion of the Pedicle of a Tumor. Delbet.—p. 380.

*Coxalgia. Delbet.—p. 380.

Acute Hyperthymia Without Delirium. R. Benon.—p. 382.

Recent Progress in Respiratory Gymnastics. G. Rosenthal.—p. 383.

Medicine in Brillat-Savarin's Work. M. Genty.—p. 386.

Malformation of Fifth Lumbar Vertebra.—Aimes and Jagues now have a record of thirty-eight cases in which persisting pain in the lumbar-sacral-iliac region might be explained by the "sacralization" of the fifth lumbar vertebra. By this they mean an exaggerated development of the transverse processes of this vertebra until they look more like parts of the sacrum. In only 39 per cent. of the total sixty-three cases of chronic lumbar and sacral pain in young persons, the roentgen findings were negative. They are now investigating whether this sacralization of this vertebra is common in persons free from painful disturbance. In one case in which the pains had been treated on the assumption of appendicitis and then of coxalgia, without relief, injection of procain into a lumbar sacral foramen arrested the pains completely for the time being, which threw light on their origin.

Torsion of Pedicle of Ovarian Cyst.—Delbet insists that the discovery of an ovarian cyst in the pregnant calls for a laparotomy without delay, at least during the first three months, on account of the danger of torsion of the pedicle. Torsion is most liable during the first three months and the last two weeks of the pregnancy. After the third month is past, he advises to wait until term, and then to resect the cyst before or at the onset of labor. Torsion of the pedicle of any tumor calls for immediate intervention.

Sacrocoxalgia.—Delbet has encountered three cases in which lameness was the predominant symptom from chronic appendicitis. The limping was cured at once by appendicectomy which arrested the contracture of the psoas. He adds that in most of the operative cases of hip-joint disease the patients had been treated beforehand for sciatica, sometimes for years, without benefit. Actual sciatica can be easily differentiated, he says, by the tender points along the course of the nerve. For actual sacrocoxitis, operative treatment is indispensable.

Schweizerische medizinische Wochenschrift, Basel

Sept. 29, 1921, 51, No. 39

*Nine Years of Pneumothorax Treatment. Von Niederhäusern.—p. 889.

*Cystic Changes in Lacrimal Gland. J. Strebel.—p. 895.

*Kidney Disease in the Pregnant. P. Hüsey.—p. 899. Conc'n.

Artificial Pneumothorax.—This communication reports the present status of the first 200 patients treated with induced pneumothorax at the Berne sanatorium over ten years ago. Over 21 per cent. have full earning capacity at present. The patients were mostly between 20 and 30, and men seemed decidedly more resistant to the pneumothorax treatment than women. Complete success was realized in 42 per cent. of the

men and only in 22.5 per cent. of the women in the more promising groups of cases. Analysis of the 200 cases shows that the best results can be counted on in the chronic unilateral cases with a tendency to fibrosis. But even in the more acute cases, with tendency to cheesy degeneration, the prospects are good if the general constitution is fairly strong. Women with the pneumothorax should avoid becoming pregnant.

Kidney Disease in the Pregnant.—Hüsey here concludes his long study of this subject. In this instalment he discusses pyelitis and renal tuberculosis. He says of pregnancy hemoglobinuria that it is probably part of the general pregnancy intoxication picture. It accompanied eclampsia in 35 per cent. of the cases, and has been observed with acute yellow atrophy of the liver. In Brauer's case the hemoglobinuria returned at two following pregnancies, and was accompanied with jaundice and swelling of liver and spleen. In Meinhold's case the hemoglobinuria was the only symptom. Hematuria with pyelitis is always suspicious of tuberculosis. Nephrectomy during a pregnancy is usually borne without harm; gestation proceeds unmolested. The pregnancy intoxication may cause vascular disturbance with resulting epithelial degeneration in the kidneys, but the whole subsides when the toxic element ceases to act. This nephropathy is special to pregnancy, and corresponds to the albuminuric kidney. The prognosis depends on the promptness with which it is diagnosed. Hufmeier found eclampsia in 104 of 137 cases of pregnancy albuminuria, with a mortality of 40 per cent. Treatment aims to ward off eclampsia, and as long as there are no premonitory signs of this, temporizing is justified. Hüsey's article is in German. It was read to open the discussion at the recent annual meeting of the gynecologists of Switzerland.

Policlinico, Rome

Oct. 1, 1921, 28, Medical Section No. 10

*Progressive Myasthenia Gravis. L. D'Amato.—p. 413.

*Diabetes Insipidus and the Pituitary. L. Villa.—p. 438.

*Permanganate Test for Albumin in Spinal Fluid. P. Boveri.—p. 450.

Case of Myasthenia Gravis.—D'Amato compares with a case described in a young man what has been written on Erb-Göldflam's disease. The first symptoms in his case followed after a severe chilling, two weeks after recovery from an infectious sore throat. The symptoms improved so much later that the earning capacity has been restored for two years to date. The only treatment had been a course of epinephrin, in the hospital, when a tendency to improvement was already manifest.

Relations Between the Pituitary and Diabetes Insipidus.—In Villa's case, severe diarrhea from chronic enteritis accompanied the diabetes insipidus, and the man of 26 died from debility. The abnormal condition of the pituitary explained the diabetes insipidus. Chronic enteritis with diarrhea is not uncommon with diabetes insipidus. He cites several cases of this association, and is inclined to accept a causal connection.

Permanganate Test of the Cerebrospinal Fluid.—Boveri detects any increase in the albumin content of this fluid by the oxidation of potassium permanganate when there are protein substances present. When this occurs, the tint veers to canary yellow. Among those who have extolled the simplicity and dependability of this test are Rebizzi who found it useful in differentiating true from false tumors in the brain, and Bardisian who was able to exclude meningitis by the negative findings in four cases, corroborated by the course. To 1 c.c. of the cerebrospinal fluid is slowly added, pouring it along the wall of the test tube, 1 c.c. of a 1:10,000 solution of potassium permanganate. The tube is then held vertical, and there is no change in tint if the fluid is normal. If not, the zone of contact turns yellow. By jarring the tube a little the entire fluid turns yellow. The reaction is pronounced when the tint changes in less than two minutes; moderate, in three or four, and weak, if the tint does not veer to yellow until after five to seven minutes. In several hundred applications of this test he has found it a constant index of abnormal protein content, sometimes preceding lymphocytosis although in children the latter usually appears first.

Riforma Medica, Naples

Sept. 24, 1921, 37, No. 39

- *Action of Digestive Ferments on Tuberculin. D. Franceschelli.—p. 914.
- *Extragenital Syphilitic Chancres. O. Cignozzi.—p. 919.
- *Syringomyelia. G. B. Girotti.—p. 922.
- *Physiology of the Tonsils. C. B. Farmachidis.—p. 923.
- Pathologic Constitutions in Relation to Surgery. Aievoli.—p. 925.

Action of Digestive Ferments on Tuberculin.—Franceschelli relates that the different digestive ferments added to tuberculin in the test tube destroyed it so that the tuberculin mixture was entirely inert when injected into animals. Similar research on the tubercle bacillus confirmed that the digestive ferments have no action on the wax of the tubercle bacilli.

Extragenital Syphilitic Primary Chancres.—In the five cases described, the lip, tonsil or cheek was the seat of the chancre, and diagnosis had been puzzling. In four of the cases the suggestion of possible syphilis seemed preposterous.

Syringomyelia.—In Girotti's case the syringomyelia had been developing in a mild form for two years in the man of 34 when a trauma affecting the cervical spine caused extreme and persisting aggravation.

Physiology of the Tonsils.—Farmachidis cites some recent research which apparently confirms his statements in 1914, based on experimental and clinical experiences, to the effect that the tonsils form part of the endocrine system, and especially of the group that preside over the metabolism of sugar.

Revista Clínica, Medellín, Colombia

August, 1921, 2, No. 18

- *Artificial Deformation of the Skull. Montoya y Florez.—p. 247.
- Malaria in Children. J. B. Londoño.—p. 264.
- Physiology of Digestion. M. M. Calle.—p. 267
- *Strangulated Umbilical Hernia. A. Castro.—p. 272.
- Surgical Treatment for Gastric and Duodenal Ulcers. A. Echeverri Marulanda.—p. 283.

Artificial Deformation of the Skull.—Montoya describes the case of an Indian woman who required trephining on account of a suppurating skull wound. She and her five brothers all presented a peculiar artificial steeple-shaped deformation of the skull. He says that this deformation of the children's skulls is known to have been a tribal custom for 400 years among the Indians of western South America, the ancestors of this woman. Artificial deformation of the skull has been found in the relics of the neolithic and bronze age in Europe and Asia as well as in America, and the practice still persists in Oceania. Artificially deformed skulls are such a common finding in Peru that some think the acquired deformity had become the normal shape, as even fetuses had the same deformity of the skull, either forced up tall or flattened out broad. The deformation did not seem to modify the capacity of the skull, but the skull seldom grew symmetrical. Of the 506 Peruvian skulls in the Paris Museum, there are only sixty that are not deformed. The Spanish viceroys and clergy combated the practice. In Colombia the deformation served as a mark of distinction to differentiate the conquering Caribbean tribes of Indians. It was thus the symbol of valor and caste. The large number of child skeletons found suggests that the practice made many victims. The woman in the case reported is of a low mental type, if not actually imbecile. She does not know whether any artificial means had been applied to herself and her brothers. Four illustrations accompany Montoya's long historical sketch of the subject. One portrays a statue representing a man with a band tied tight around his head, in one hand the chisel with which trephining was done. The band may have been for hemostasis. Anesthesia was realized with alcohol plus a narcotic drug.

Strangulated Umbilical Hernia.—Castro warns that a strangulated umbilical hernia does not induce the stormy symptoms of strangulation of other hernias. In a case described, persistent vomiting and slight meteorism were the only signs. There was no pain anywhere, no fever; the pulse was normal, and flatus was passed. The umbilical hernia was not tender, and was easily reduced. The vomiting continued and became fecaloid, but with no other symptoms. It took two hours to release the hernial sac from its adhesions and restore approximately normal conditions. The danger in such cases is from the delay in diagnosing.

Semana Médica, Buenos Aires

Sept. 29, 1921, 28, No. 39

- *Cineplastic Amputations. G. Bosch Arana.—p. 403.
- Hypertrophy of the Pylorus in Infants. J. Bacigalupo.—p. 430.
- Occlusion of Pylorus by Bands. O. L. Bottaro and A. J. Pavlovsky.—p. 432
- *Proteinotherapy for Corneal Ulcer. G. Sirlin.—p. 434.
- Rupture of Tympanic Membrane from Inflation of Tubes with Air. J. Weiss.—p. 435.
- Age for Military Service. C. Trejo.—p. 436.
- *Tender Point in Diagnosis of Malaria. R. Pagnielo.—p. 437.

Cineplastic Amputation.—Bosch Arana has been a pioneer in this line of adapting the stump for volitional control of the prosthesis. He here reviews the various technics in vogue, and his own experience with his special method, giving twenty-one large illustrations in addition to five moving picture films showing the amputated at work with their artificial hands functioning by means of the muscles in the stump. He describes further the ergograph he has devised to test the muscular power available, and discusses the principles for the prostheses. (His technic was summarized Oct. 30, 1920, p. 1235.)

Proteinotherapy for Corneal Ulcer.—Sirlin adds another case to the list of those in which a prompt and permanent cure of a corneal ulcer with hypopyon and iritis, followed after three intragluteal injections of 10 c.c. of milk, boiled for four minutes.

Tender Point in Diagnosis of Malaria.—Pagnielo calls attention to the diagnostic value of a tender point in the ninth left interspace, between the middle and the posterior axillary lines, in detection of malaria. His previous communication on this subject was summarized in THE JOURNAL, Nov. 20, 1920, p. 1458, when published elsewhere.

Siglo Médico, Madrid

July 30, 1921, 68, No. 3529

- *Sequester in Mastoid. J. M. Barajas y de Vilches.—p. 717.
- *Ocular Manifestations of Diabetes Insipidus. M. Marín Amat.—p. 720.
- *History of Medicine in Spain. N. Mariscal.—p. 723. Conc'n.—p. 747.
- The Antimalaria Campaign in Spain. G. Pittaluga.—p. 727.

Sequester in Mastoid.—For twenty days the man of 35 had been having agonizing headache and vertigo so severe he could not stand alone. There had been otitis some years before, and this had flared up anew as these symptoms developed. The mastoid operation revealed that the entire roof of the aditus and of the mastoid was movable, forming a large sequester from the bony layer between the tympanum and the cranial cavity to the bony roof of the antrum. Barajas broke up this sequester and removed the fragments, leaving the meningeal surface exposed. It seemed normal, and he sutured the parts after resecting to make an opening into the auditory canal to drain the mastoid. The outcome was perfect.

Ocular Manifestations in Diabetes Insipidus.—Marín Amat relates that under pituitary treatment in a case of diabetes insipidus described, in a man of 29, the symptoms indicating pressure on the optic chiasm displayed marked improvement. These symptoms had always been mitigated by reclining and aggravated by standing. The urine output dropped from 8 to 4 liters, but the atrophy of the optic nerves persisted unmodified. He enumerates a long list of functional, somatic and organic symptoms liable to be observed with pituitary lesions.

History of Medicine in Spain.—A portrait of the body physician of Philip II, Luis Mercado, is reproduced, and his work reviewed.

Archiv für Gynaekologie, Berlin

1921, 114, No. 3

- *Operative Treatment of Incontinence in Women. II. W. Rübsamen.—p. 441.
- Substitutes for Ergot. F. Jaeger.—p. 467.
- *Ligation of Vein in Puerperal Pyemia. R. Birnbaum.—p. 535
- *Spread of Parametritis. O. Walter.—p. 557.
- Colloid Tumor of the Ovary. V. Kafka.—p. 587.
- Diagnosis of Salpingitis. M. Rosenberger.—p. 601.
- Congenital Diaphragmatic Hernia. C. Hofer.—p. 620.

Operative Treatment of Incontinence of Urine in Women.—Rübsamen has previously reported 3 cases cured by a plastic operation on the levator ani muscles or the pyramidalis. Stoeckel has recently reported 12 cases with cures

in all. Rübsamen here adds 4 more to the list of those cured by a modification of the plastic pyramidalis-fascia technic, and 4 by the levator ani method. One patient, with loss of the entire neck of the bladder, was cured of incontinence by an adaptation of the Wertheim method of interposition of the uterus. Another was cured by Rübsamen's special method of suturing the cervix in the cleft between the levator ani muscles. These last 2 patients had obstetric fistulas. This method seems preferable when there is liable to be a pregnancy later. The variety of methods in his total of 14 cases shows that the technic has to be adapted to the individual conditions. The outcome was excellent in practically all.

Ligation of Veins with Puerperal Pyemia.—Birnbäum reports a case of puerperal pyemia in which the woman of 31 recovered after ligation of the inferior vena cava. The pyemia had followed an abortion at the second month, and by the eleventh week the pyosalpinx and thrombophlebitis of the left pelvic veins were growing graver. There were one or two chills daily at times, but the heart, lungs and kidneys were apparently sound. The inferior vena cava was ligated about 5 cm. (2 inches) above the bifurcation. No cyanosis followed, but the pulse ran up to 170 through this and part of the next day, but it then returned to normal. There were no further chills after the ligation, and except for an abscess in the abdominal wall and slight cystitis, recovery progressed smoothly. He compares with this case similar ones on record, his conclusion being that ligation of the diseased veins, well above the pathologic portion, offers a prospect for saving the patient with pyemia, although he is not very optimistic.

Parametric Exudates.—Walter warns that when the thigh is drawn up on the side of a focus of parametritis, and there are no signs of hip-joint disease, there is reason to assume that the inflammation in the connective tissue has spread to involve the psoas muscle. There is danger that the inflammation may extend downward to the inguinal canal and upward to the kidneys. This flexion of the thigh is an instructive sign of conditions which can usually be easily cured by appropriate measures but, if neglected, the gravest consequences may ensue. The details of five cases reported confirm these views. In one, the psoitis was the first sign of trouble, the parametritis having caused no appreciable symptoms.

Deutsche medizinische Wochenschrift, Berlin

Sept. 15, 1921, 47, No. 37

- Biologic Phenomena of Flocculation Process in the Serologic Demonstration of Syphilis. H. Sachs and H. Sahlmann.—p. 1083.
 *Gallstones and Surgery of Bile Ducts. H. Riese.—p. 1086.
 Gallstones from Practitioner's Standpoint. M. Friedemann.—p. 1088.
 Prethoracic Esophagoplasty on Boy of Three. R. Hinz.—p. 1089.
 Traumatic Pulsating Exophthalmos. H. Riese.—p. 1090.
 Tuberculosis of the Stomach. P. Biernath.—p. 1091.
 Chemical Composition of Flakes in the Sachs-Georgi Test. M. Klostermann and W. Weisbach.—p. 1092.
 Estimating Disability Pension for War Neurotics. Weber.—p. 1094.
 Isolated Trochlear Paralysis in Early Neurosyphilis. Nyáry.—p. 1095.
 Parasyphilis or Plaut-Vincent Angina. R. Spiegelberg.—p. 1096.
 Parasyphilis and Oral Spirochetosis. W. Wolffheim.—p. 1096.
 Amyostatic Syndrome After Epidemic Encephalitis. Freyschlag.—p. 1097.
 Foreign Bodies in the Cecum. P. Rosenstcin.—p. 1099.

Gallstones and Surgery of the Bile Ducts.—Riese reports his experience in several hundred cases of cholecystectomy, and states that the results with simple drainage were better than with tamponing. The healing process was more rapid and the after-treatment was simpler and less painful. While he admits that it may not be possible to dispense with tamponing in certain cases, he recommends that it should be restricted as far as possible.

Jahrbuch für Kinderheilkunde, Berlin

1921, 96, No. 1-2

- *Influence of Lactose on Peristalsis. H. Rasor.—p. 1.
 *Pathogenesis of Tetany. E. Freudenberg and P. György.—p. 5.
 *Active Immunization Against Diphtheria. H. Opitz.—p. 19.
 *Butter-Flour Mixture in Infant Feeding. E. Krasemann.—p. 30.
 Pseudocurvature of Fetal Legs. O. Zschocke.—p. 32.
 *The Muscles in the New-Born. F. Thoenes.—p. 37.
 *Fermentation in the Intestines. E. Freudenberg and O. Heller.—p. 49.
 *Congenital Bromoderma. J. Langer.—p. 59.
 *Parkinsonism in Children After Encephalitis. J. Langer.—p. 62.
 *Gallstones in Young Children. E. Freundlich.—p. 72.
 *Children of Elderly Parents. A. Peiper.—p. 81.
 *Action of Elements of Thrush Fungus. E. Thomas.—p. 95.

Influence of Lactose on Peristalsis.—Rasor examined with the roentgen rays eight infants after they had ingested a suspension of 40 gm. barium sulphate in 100 gm. water to which had been added 100 gm. of glucose or lactose. The lactose displayed a specific stimulating action on the movements of the small intestine.

Calcium in Pathogenesis of Tetany.—Freudenberg and György conclude from the research reported that not only the excitability is determined by the influencing and the binding of the calcium in blood and tissues, but also the water metabolism. This links up calcium with edema and diuresis, and illustrates further the extremely complex nature of the laws regulating the binding of calcium in the organism. They found among other laws that certain substances such as amino-acids, peptids, methyl amin, guanidin, creatin, urea and ammonium salts check calcium binding by the colloids. Not the total calcium content in the blood, tissues or excreta, but the free calcium ions are the decisive elements for the study of tetany, as they explain.

Active Immunization Against Diphtheria.—Opitz describes experiments on nine children between 3½ and 14 and one man of 31 injected with a balanced toxin-antitoxin mixture or with pure diphtheria bouillon. Among the facts thus learned is that fivefold overneutralized toxin-antitoxin mixtures—which, in experiments on animals, display no toxoid or toxon action—induce active immunization in man the same as a pure toxin solution. Hence it is evident that any small excess of toxin is not the immunizing factor, but that the toxin is released in the human body from its combination with the antitoxin. The toxin-antitoxin binding is thus a reversible process.

Butter Flour Mixture in Infant Feeding.—Krasemann found that the alkalinity of the blood regularly declined when infants were given butter with their ordinary food. This did not occur with the Czerny-Kleinschmidt butter-flour mixture, and he succeeded in demonstrating that this is due to the cooking of the butter. Butter browned in the pan, added to the ordinary food, left the alkalinity unmodified.

The Muscles in the New-Born.—Thoenes reports the findings in 16 new-born infants, all syphilitic but 6. The frozen sections showed degeneration of the muscle parenchyma in 3 cases; deposits of fat in the skeletal muscles in 3 and in the diaphragm in 4. In some cases there were trails of connective tissue through the muscle, and young granulation tissue in some. In 5 cases there was small-cell infiltration of the finer ramifications of the nerves while the larger nerves seemed to be intact.

Intestinal Fermentation.—In this third communication on the subject, the influence of different kinds of sugar, of fat and of the concentration of the food on intestinal fermentation is discussed. Estimation of the p_H values in the stool is an instructive means to determine the influence of these and other various factors on the fermentation. The concentration of the food does not seem to influence it.

Congenital Bromoderma.—The new-born infant had nineteen ulcerating spots on scalp and body which were at first ascribed to furunculosis. Their resemblance to a recent case of a bromid eruption corrected the diagnosis to congenital bromoderma. It was then learned that the mother was an epileptic, and had been taking bromid more or less regularly before and during the pregnancy. A month before delivery she had had another course, taking 3 gm. of sodium bromid daily for six days. Langer has been unable to find any other case of congenital bromoderma on record. The eruption in this case subsided in two weeks under local measures, and the child had begun to thrive when an intercurrent pneumonia proved fatal.

Parkinsonian Symptoms After Epidemic Encephalitis.—Three cases in children are described, sequels to epidemic encephalitis. Changes in the vessels, hemorrhages, destruction of nervous tissue and calcification are evidently cooperating factors in the clinical pictures observed. The parkinsonism developed a few weeks after the encephalitis, and rapidly reached its height, and has persisted unmodified by all measures during the more than a year to date.

Gallstones in Children.—Freundlich has found references in the literature to only thirty-one cases of gallstones in children, and extremely few were of the infectious type. He describes a case of the latter type in a young infant. The gallbladder was normal but the common bile duct was severely inflamed and contained a conglomerate of bile salts, blocking it completely and reaching up into the cystic duct. The concretion was crumbly in consistency, but the pressure had torn the duct wall. The prematurely delivered child had been changed to cow's milk when it was only a few weeks old, and the resulting enteritis had spread to involve the common bile duct.

The Children of Elderly Parents.—Peiper reviews what has been written on this subject, citing among other statistics Vaerting's compilation of 75 unusually talented Germans of the last two centuries. The age of the fathers seldom surpassed 43 while the mothers were usually over 24. He urged women not to bear any children until they were over 23. Peiper investigated the conditions in 71 families in which the combined ages of the parents were from 80 to over 100. The children were all patients at the Charité Hospital and hence the findings cannot be compared with similar groups of normal children. The 71 children included 6 with mongolian idiocy, 1 with myxedema, 11 with brain disturbance of different kinds, 2 with spasmophilia, 2 with mongolian slant to the eyes but normally intelligent, 2 with convergent strabismus and 1 with very backward development—a total of 25 with some physical or mental inferiority. Of the 4 children with mothers under 37 and fathers from 58 to 62 years old, one had strabismus and abnormal palate; one torticollis and a hemangioma; one nutritional derangement, and the fourth an infection. The proportion of substandard children increased decidedly with the increasing age of the parents. The central nervous system of the children of elderly parents and of alcoholic parents seems especially vulnerable.

Vaccine Against Thrush.—Thomas reports experiences with attempts to induce immunity to thrush and cure it with extracts of different elements of the thrush fungus.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

1921, 34, No. 1

- *Severe Disturbances Induced by Ascarids. Schloessmann.—p. 1.
- Bacteriology of the Biliary Passages. A. Wagner.—p. 41.
- *Ulcer and Aerophagia. H. Full and L. v. Friedrich.—p. 53.
- *Cerebral Paralysis in Children. K. Wachendorf.—p. 64.
- *Potassium Iodid Test for the Kidneys. A. Narath.—p. 90.
- *Pancreatitis. F. Schoening.—p. 101.
- *Invagination of the Intestine. W. Goldschmidt.—p. 112.
- Change of Shape of Bladder with Open Hernial Passage. M. Sgalitzer.—p. 132.
- The Occult Blood with Ulcer and Cancer. I. Boas.—p. 138.

Severe Disturbances from Ascarids.—Schloessmann was surprised to find in operations on the biliary apparatus that ascarids were responsible for the disturbances in 5 recent cases. A single helminth was found in a bile duct in 3 of the cases, and in the others 3 and 14 were removed from the common bile duct. The patients in this group were women between 40 and 60, with old inflammatory processes and the bile ducts gaping. The invading helminth sets up new inflammation. In 5 children the helminths had invaded the appendix. In another group of cases an agglomeration of helminths had obstructed the bowel and in some had induced torsion; in others, spastic ileus. The bowel contracts under the irritation from the mass of ascarids, and this bowel cramp is a typical and regular symptom of ileus from ascarids. Incomplete ileus is generally traceable to this cause. The contrast suspension usually passes through the agglomeration of helminths without difficulty. His experience demonstrates that vigorous vermifuge treatment, concluding with 0.05 santonin three times a day for six days, did not break up the agglomeration nor kill the ascarids. The only results were abdominal cramps and nausea. Nine days later the helminths were removed by operation and all were alive. In one case 489 ascarids were found, but in the 30 cases of which he gives the details here the number ranged from 1 to 148. He never found any evidence of lesions in the bowel wall for which they could be considered responsible, but toxic action was manifest in 3 cases, and it

proved speedily fatal in 2 of them, one a child of 2 and the other a woman of 38. Fluctuations of the temperature, without other known cause, may be the only manifestation of the helminthiasis, or fever may develop for the first time under treatment with a vermifuge. It is possible that the helminths become more toxic during their breeding period.

Ulcer and Aerophagia.—A case is described in a man of 49 who began to have pain in the back in 1914, below the left scapula, independent of the meals. The pains returned nearly daily, and occasionally pains were felt near the left nipple. He vomited frequently and experienced relief therefrom. He was treated in the hospital for an assumed ulcer but this diagnosis was changed to neurosis, and there was some improvement under atropin. The periods of pains returned again and again through his military service and the man begged for operative relief. The laparotomy after six years of these disturbances explained the case as an old small ulcer with secondary aerophagia. In a second case the pneumatosis and aerophagia were likewise secondary to organic disease. The eructations were so frequent and profuse that a nervous disturbance without organic basis had been surmised. The organic lesion may have induced abnormal conditions in the innervation which entailed passive introduction of air.

Cerebral Paralysis in Children.—Wachendorf discusses the epileptiform and choreiform movements which he has noted in cerebral paralysis in children. He operated in 3 such cases in boys of 10 or 12. One died a week later in status epilepticus, without regaining consciousness after the trephining. The others were very much improved by it. In these the paralysis had been noted from birth; in one, birth trauma was evidently responsible. In 16 of Gowers' 26 cases the children were the first born; in 6 others the head had been born last, and in 3 of the other 4, the previous deliveries had been difficult, the children being stillborn or paralyzed. Wachendorf reviews the literature and discusses the theories advanced. The chances of improvement from operative measures are slight. In the traumatic cases, trephining usually comes too late to prevent irreparable injury. But if epilepsy develops from the traumatic cerebral paralysis, it should be treated on the same principles as traumatic epilepsy in general. Tilmann has compiled cases showing 18 per cent. cured in jacksonian and traumatic epilepsy, and one patient with genuine epilepsy has been cured for a year to date since the focus of softening in the left temporal lobe was drained.

Potassium Iodid Test of Kidney Function.—Narath gave 0.5 gm. potassium iodid by the mouth to 124 healthy persons after drinking 400 or 500 c.c. of water, and he determined the interval before it appeared in the urine. He drew the urine through a catheter every two or three minutes. In 100 healthy men between 18 and 48, 0.1 gm. was injected intravenously. The iodine reaction was generally positive in the urine in three or four minutes, never later than eight, and the whole amount was eliminated between the fourteenth and twenty-second hours. In 24 cases the test was made quantitative. The findings related form a basis for application of this test in pathologic conditions.

Pancreatitis.—Ten cases of pancreatitis are described, including some acute cases with a mild course and others with a chronic course which suddenly turned to malignant, but terminated in recovery. In some of the cases the operative findings and course seemed to be simple inflammation, but in a year or two it proved to be cancer. In the cases described, the digestion of meat or fat seemed to be deranged less than that of carbohydrates.

Intussusception.—In Goldschmidt's 20 operative cases, 5 per cent. terminated fatally. The list includes 7 adults with recovery of only 3. Spasmophilia was evidently a factor in some of the cases. Early diagnosis and rapid intervention are indispensable.

Wiener klinische Wochenschrift, Vienna

Sept. 1, 1921, 34, No. 35

- *Prognosis of Pleuritis in Children. E. Nobel.—p. 423.
- Pathology and Therapy of Peritonitis. W. Latzko.—p. 424.
- Theory of the Meinicke Test. R. Bauer and W. Nyiri.—p. 427.
- Medical Certificate for Marriage. E. Fried.—p. 428.
- Gastein as a Watering Place. O. Marburg.—p. 429.

Prognosis of Pleuritis in Children.—Nobel reports his conclusions from observations in a series of cases in the University Children's Hospital in Vienna: Almost all cases of pleuritis in children, with the exception of those in which a different etiology can be clearly demonstrated, are of tuberculous origin. Of 78 children treated for pleuritis, 13 died, while 26 could not, for various reasons, be reexamined after dismissal from the hospital. Thirty-nine children were reexamined after intervals of varying length, ranging from a few months to nineteen years, and the clinical findings were compared with the roentgenologic evidence and the original findings. Of the 39 children so reexamined, 43.6 per cent. had completely recovered; 36 per cent. gave only slight evidence of having ever suffered from the disease; in 10 per cent. there were moderate changes and in a further 10 per cent. there were grave changes that were plainly traceable to the pleural affection. The prognosis of tuberculous pleuritis in children is accordingly quite favorable. The propagation of tuberculosis is, it seems, scarcely to be feared.

Zeitschrift für Tuberkulose, Leipzig

August, 1921, 35, No. 1

*Immunity with Tuberculosis. A. v. Wassermann.—p. 1.

*Immunity Against Tuberculosis. F. Neufeld.—p. 11.

*Pathology of Tuberculous Pleuritis. T. Landgraf.—p. 29.

*Valvular Defects and Tuberculosis. F. Kellner.—p. 33.

Immunity in Tuberculosis.—Wassermann sums up our present knowledge in the statement that a person may be nonreceptive to tuberculous infection or at least extremely resistant to it. But this protection is found exclusively in those who already have some tubercle bacilli installed in their organism, even if only in minute numbers. They all respond positively to tuberculin tests although clinically healthy. Their condition is thus true immunity so long as the focus is kept in subjection by the defensive forces of the organism. In this condition of unstable immunity we have no means to eradicate the focus; all we can do is to strengthen the defensive forces and influence the tissues by preparations of tubercle bacilli. In this latter line is a field for research. Some believe that the effectual substance is formed in the tissues themselves under the influence of tuberculin, especially in the skin. Petruschky ascribes to the skin the main action in his tuberculin inunction treatment, and Ponndorf in his intradermal tuberculin injections. The latter has recently reported fine results from this.

Immunity to Tuberculosis.—Neufeld was assistant to Koch, and he reviews the long array of disappointments in efforts the world around to induce immunity to tuberculosis since Koch's day. None of the tuberculin preparations have ever displayed a direct immunizing action. The most they can do, he thinks, is to induce a focal reaction, this specific inflammation mobilizing the defensive forces and attracting them to the disease focus. There is no method of vaccination applicable to man. The only immunity attainable is that from mild infection, and efforts to realize it otherwise are inherently doomed to failure. Why the dietetic measures are so potent in tuberculosis is a mystery, as they display no such efficacy in other chronic diseases, such as syphilis, malaria and leprosy. A longer review of his article is given in the Berlin Letter, p. 1669.

Tuberculous Pleuritis.—Landgraf found at necropsy of a man of 30 who died after six months of pleuritis that the pleura was studded with cheesy foci while the lungs were intact, and the only glands involved were the cheesy sub-sternal glands. In a man of 43 the bilateral pulmonary process and empyema were accompanied by foci of ossification in the pleura.

Valvular Defects and Pulmonary Tuberculosis.—Kellner comments on the rarity of valvular defects with pulmonary tuberculosis, citing clinical statistics of an average of not more than 0.5 per cent. of all the tuberculous. In his own 31 cases among 13,000 tuberculous, he could not detect any influence on the course of the disease. The tuberculosis itself may simulate valvular disease, which necropsy will disprove. On the other hand, a valvular lesion may induce symptoms suggesting pulmonary tuberculosis.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 10, 1921, 2, No. 11

*Skin Changes in Electric Accidents. J. P. L. Hulst.—p. 1286.

*Volume of Blood. K. J. Feringa and S. van Creveld.—p. 1297.

*Contact with Pleura Prevents Coagulation. M. A. van Herwerden.—p. 1303.

Toxic Series of Neo-Arsphenamin. J. W. van der Valk.—p. 1305.

Electric Accidents.—Hulst compares the changes in the skin in three fatal electric accidents without charring with those in the skin in four fatal burns. The heat seemed to be responsible for the changes observed in all. Artificial respiration failed to resuscitate after the electric accidents. Jellinek and Borutteau ascribe the fatalities to fibrillation of the heart, and advise measures to combat this.

Color Test to Determine Volume of Blood.—Feringa and Creveld report experimental research which has confirmed the ease and reliability of the injection of a stain to estimate the volume of blood. They cite recent American articles on the subject. Their experiments were made on rabbits with trypan red and diamine blue.

To Prevent Coagulation of Blood.—Van Herwerden announces the accidental discovery and the confirmation by extensive research of the fact that contact of blood with the pleura renders it incoagulable. Even a moment's contact is enough for the purpose. Addition of 10 c.c. of blood from the thoracic cavity of a guinea-pig to 100 c.c. of beef blood delayed coagulation for three hours. In his research he now makes a practice of slitting the heart and drawing the blood from the thoracic cavity, as this yields blood which keeps fluid. He is amazed that no one else seems to have ever noticed this.

Acta Chirurgica Scandinavica, Stockholm

1921, 54, No. 1

*Death After Acacia Infusion. H. Olivecrona.—p. 1.

*Tendovaginitis and Tendinitis Stenosans. A. Troell.—p. 7.

Pathogenesis of Dupuytren's Contracture. A. Krogius.—p. 33.

*Aseptic Renal Pyuria. B. Runeberg.—p. 51.

Epiploitis in Relation to Ileus. S. Lindqvist.—p. 91.

Fatality After Infusion of Acacia.—In the case reported by Olivecrona, the woman of 63 developed fatal pulmonary edema almost at once after slow infusion by the vein of 500 c.c. of a 7 per cent. solution of gum acacia in normal saline. There had been an interval of forty-five minutes, before the infusion, after the gastro-enterostomy for duodenal ulcer, the third day after resection of the pylorus with an ineffectual gastro-enterostomy. Necropsy showed also evidence of fat embolism. This and the following article are in English, the others in German.

Tendovaginitis.—Troell has recently encountered a fifth case of tendovaginitis crepitans sine crepitatione. He has also had during the last three years six more cases of tendovaginitis stenans of which he describes four in detail. The discovery of snapping finger in two of these cases is more than a casual coincidence. His operation in two cases confirmed the assumption that the ligament was too small. This stretched it so taut that the tension interfered with its functioning and induced irritation and pain. The disturbance was found in all at the same point, above the tendons of the abductor pollicis longus and brevis.

The So-Called Aseptic Renal Pyuria.—Runeberg operated in 29 of 55 cases of this kind. Tuberculosis seemed positive in a total of 18 cases, although no tubercle bacilli could be detected. Tuberculosis was manifest in 50 cases of abacterial pyuria with sound kidneys, while it could be excluded in 55. With tuberculosis of the kidney, an acute onset is rare, while fully 60 per cent. of the abacterial pyurias of other origin begin with an acute or very stormy onset. Even when the onset was mild, the course was rapid. Severe symptoms and almost symptomless periods alternate in the course of a few weeks. The benefit from medical measures is striking, and equally characteristic is the abrupt aggravation when treatment is stopped too soon. He orders staying in bed for a short time, courses of drinking, urine antiseptics, and dieting. The source of the blood-borne infection can sometimes be found in some skin or joint lesion. If medical measures fail, nephrectomy should not be postponed too long when the process is confined to one kidney and is making the patient a chronic invalid.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 24

CHICAGO, ILLINOIS

DECEMBER 10, 1921

THE TREATMENT OF BRAIN TUMORS*

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The purpose of this paper is to present a new and hopeful outlook in the treatment of brain tumors. It deals, not with a new form of treatment, for there can be, at least for the present, only one treatment, namely, surgical; but it deals rather with an intensive development of this field, largely by the innovation of new diagnostic methods and also by an entire reconsideration of old time-worn and unpractical operative procedures, and the institution, in their stead, of surgical efforts, which are directed solely to the eradication of the cause.

It is useless to deny that surgery has signally failed in its task of curing brain tumors. An occasional brilliant tumor extirpation is no answer for the great mass of failures; it scarcely more than vindicates the unsatisfactory treatment in its present form but it does indicate the possibilities of this branch of surgery with the correlation of accurate diagnosis and proper treatment. The reason for the failure of brain surgery is not far to seek; the superstructure—the art of cranial surgery—is built on a foundation of guesswork; it is too largely the product of empiricism, of trial and error. The advances of the past have been in most part individual and technical, rather than fundamental and scientific. New methods, such as those which have transformed the diagnosis of lesions of the kidneys, bladder, ureter and gastro-intestinal tract from doubt to certainty, have not been developed for the diagnosis of brain tumors. And, as a result, brain surgery has not kept pace with the rapid advances in other lines of surgery; it is still a crude and bungling effort. And how can it be otherwise when far more than half of all brain tumors have not been localizable (but operative procedures are carried out, notwithstanding)? Under such circumstances, satisfactory results must be fortunate occurrences attained in spite of the necessary indecisions, mistakes and inefficient methods which prevail. The picture of patients who have undergone a series—and usually it is a series—of fruitless cranial operations, and have then been sent home to await the inevitable outcome, is only too familiar to the physician, and the experiences too harrowing to the patient, after realizing that he has undergone them in vain. It is not to be wondered that the mention of brain surgery carries a feeling of

hopelessness and an impression that, on the whole, it is hardly worth while. Indeed, even the operator of experience must often stop to ponder in like manner. As scientific methods supplant guesswork, brain surgery will enter the progressive stage.

There are, indeed, tremendous obstacles in the path of brain surgery. The technical difficulties are always great. The extensive silent areas of the brain make the localization of tumors by objective signs, both late and difficult. Exploration of the depths of the brain is hazardous and unjustifiable because of its destructive effects, unless one is certain of striking the lesion precisely and of not doing thereby more harm than good. A large percentage of brain tumors are infiltrating, and their removal requires the additional extirpation of a zone of healthy brain tissue. Many areas of the brain cannot be injured without sequelae which may permanently incapacitate the patient and render him a burden to himself and society.

Many of these handicaps seem insuperable, but others can be mastered. We must strive to determine precisely where the tumor is located; we must know exactly what effects, both direct and indirect, each tumor produces by its growth, and we must, therefore, have a clear knowledge of the anatomy of the cerebrospinal spaces and of the circulation of the cerebrospinal fluid. We must also know, by its gross appearance, the character of each tumor and the manner and rate of its growth. In the usual stereotyped treatment of more than half of all brain tumors, none of these essentials are known and no attempt is made to determine them. To command respect and confidence, brain surgery must face these defects and overcome them.

If we retrace the early stages in the treatment of appendicitis, of gallstones, of cancer of the breast, and of many other diseases, we find difficulties which at that time made the cure of these diseases appear almost equally hopeless. The transformation in mortality and the elimination of terrible after-effects are due to the development of a very early diagnosis, after which a simple and thorough treatment is instituted without delay. Appendicitis is now diagnosed in the first hours of the attack; cancer of the breast is diagnosed in the stage when only a lump can be detected and before any of the classical signs (all due to advanced processes of the growth) can be observed. And the operative results have kept pace. Let any one prevail on a patient with a breast tumor or appendicitis to delay, and he is held accountable for the results and justly so. These statements seem trite and superfluous; but in the treatment of patients afflicted with brain tumors, what a difference. Though cerebral functions

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are being daily destroyed by the presence of brain tumors, palliation and delay comprise the routine treatment in the vast majority of cases and by the foremost neurologic surgeons. And most of their treatment had far better never have been done. Neurologic surgeons have been treating symptoms and avoiding causes. They have, in simile, been awaiting an appendix abscess to develop and then incising it, or performing a local, instead of the complete, operation for cancer of the breast. And until the surgeon ceases the bungling indirect operative treatment and strikes for the cause, directly and effectively, the black eye of this field will remain justly merited. An early diagnosis, an accurate localization and an early and thorough treatment of the causative lesion will transform, and have already transformed, this barren field, as these factors have revolutionized the other fields of surgery. It is now possible to offer every patient suffering with a brain tumor all of these opportunities. Every tumor can and should be localized at once, and a large percentage of these tumors can be completely removed in the early stages.

The only rational treatment of brain tumors is dictated by the inexorable law of their growth. They are always progressive and practically always end in the death of the patient. Drugs, including the widely used iodids, are without the slightest benefit; and rays, both of radium and roentgen ray, are utterly ineffectual. There is only one possible way of curing a patient with a brain tumor, and that is by complete removal of the tumor. The natural and only sensible deduction from this fact is that the earlier the tumor is removed the better the patient's chances of life and of complete recovery. All other forms of therapy can only deceive and reduce the ultimate chances of a cure.

Before considering what can be the only rational form of surgical treatment for brain tumors, an analysis of the present operative procedures will demonstrate the reasons for their almost uniform failure. Let us see what happens to the patient both immediately and ultimately; let us look into the reasons which are given for each method of treatment and the reasons for their failure, and, therefore, why these methods must be superseded.

USES, FALLACIES AND DANGERS OF DECOMPRESSIONS

A decompression is an opening of varying size deliberately produced in the skull and dura in order to allow the brain to protrude through the defect and thereby reduce the intracranial pressure. A decompression is, therefore, merely a palliative form of treatment and is never performed with the hope of curing the patient with a brain tumor. Two types of decompression are usually made, either under the temporal muscle—a subtemporal decompression; or under the occipital muscles—a suboccipital or subtentorial decompression. In either variety, the submuscular location is chosen without particular regard to the actual location of the tumor because the muscles serve to hold in check a too great growth of the cerebral hernia, and also because the muscle is supposed to protect the underlying brain. But a protrusion of brain does not necessarily mean a relief of intracranial pressure; the pressure may or may not be altered, depending, as I shall demonstrate, on the location of the tumor which is causing the pressure.

To say that a decompression of either variety is a harmless procedure is a remark either of inexperience or of ignorance. If surgeons saw at operation the brain under a decompression several months after the operation, they would hesitate about performing this operation so casually. No matter how skilfully a decompression may be performed, the underlying brain will be irreparably damaged. Always the brain becomes adherent to the overlying temporal muscle, and collections of fluid of varying size form between the adhesions—an effort of Nature to protect the brain as much as possible from the surgeon's damage. The adhesions, of course, are greater in proportion to the size of the hernia of the brain. At times an actual cyst will form, to all appearances and for all practical purposes a protecting bursa on the brain. When we consider the fact that the temporal muscle or the occipital muscles in functioning must continually contract on the exposed protruding brain, the explanation of these insults to the living brain will at once be apparent. The poorly protected vessels are injured, and the brain consequently becomes softened. The apology that these adhesions, this destruction of brain tissue and the compensatory pockets of fluid produce no symptoms, does not suffice. It is true that important symptoms rarely follow; the operations are over silent areas of the brain which stand extensive insults before symptoms develop; but the damage to the brain tissue is certainly too great to be inflicted on any patient unless there is a very definite and urgent reason. Occasionally, these reasons are cogent; but in a vast percentage of cases, they are not, and the operation then becomes inexcusable.

Suboccipital (or Cerebellar, or Subtentorial) Decompressions.—As a procedure the primary object of which is to relieve general intracranial pressure, there is little if anything to be said in favor of a suboccipital decompression. So far as I am aware, it has never been seriously proposed for this purpose alone, though it has frequently been performed when tumors were located in the cerebrum instead of the cerebellum, usually, however, because of a mistaken diagnosis—but a mistake which is very frequently made, in fact, is difficult to avoid except by employing the newer methods of diagnosis.

When the intracranial pressure resulting from the tumor is high, a suboccipital decompression is always fraught with the greatest danger. A very high immediate mortality will result regardless of the situation of the tumor. Doubtless, the dislocation of the brain toward and through the occipital bony defect injures the medullary centers, for in fatal cases the course of events in terms of pulse, respiration and temperature is precisely like that which follows injury to the medulla from the removal of tumors in this region.

The amount of brain which can herniate through a suboccipital defect is fortunately regulated by anatomic factors and varies with the position of the tumor. Nature has protected the medullary centers by enclosing the brain-stem and cerebellum in an individual chamber—the posterior cranial fossa, which communicates with the rest of the cranial cavity by an opening—the incisura tentorii—but little larger than the brain-stem which it transmits. Inferiorly, the posterior cranial fossa communicates with the spinal canal by another opening of about the same size—the foramen magnum. The tentorium cerebelli, being a fairly inelastic and only partially yielding membrane, permits only a slight

transmission of the supratentorial pressure to the infratentorial region. Pressure disturbances of other parts of the brain do not, therefore, greatly affect this region at once and directly. Doubtless, this provision of Nature saves many lives after cerebellar explorations, for were the unrestricted transfer of pressure to the posterior cranial fossa possible, the medulla would be unprotected and incapable of withstanding the sudden insult which follows the surgeon's removal of the occipital bone and dura.

The immediate and remote results of cerebellar decompressions are most variable; at times there is a definite benefit, very often injury results, and not infrequently death quickly ensues. But the results are not capricious; they can be explained by the character of the tumor, its size and the position which it occupies in the brain. The effects which the dislocation of the tumor (if the tumor's position can be affected) will produce on structures contiguous to its altered position, or the effects which the transfer of the intracranial pressure to the posterior cranial fossa will cause can almost be predicted. Whether any material benefit is to be attained will depend entirely on the situation of the tumor. If the tumor is located anterior to the tentorium, no appreciable relief of pressure symptoms can be expected from a cerebellar decompression, for the incisura tentorii is not large enough to permit much herniation of brain into the infratentorial cavity. The injurious effects are doubtless produced by jamming the brain-stem backward and downward and possibly by the injury to the brain-stem from the pressure of the small amount of brain which herniates through the opening in the tentorium. No one would, of course, perform a cerebellar operation if he knew beforehand that the tumor was located in the cerebral hemispheres (anterior to the tentorium); but, as mentioned heretofore, such a mistaken operation is one of the most frequent in intracranial surgery, and the mistake carries with it a tremendous mortality. Aside from the immediate dangers to the life of the patient, the after-results of a cerebellar decompression on the patient may be various, partial or complete paralyses of the extra-ocular muscles or even injuries to the seventh and eighth and other cranial nerves on one or both sides—in other words, injuries to any of the cranial nerves issuing from the brain-stem in the posterior cranial fossa. In addition, there are usually serious disturbances of equilibrium and gait, owing to injury of the cerebellum and the pyramidal tracts in the brain-stem. These injuries may be temporary or permanent. A large unsightly hernia always follows a fruitless cerebellar decompression, regardless of the position of the tumor. When the tumor is situated in the brain-stem or in the supratentorial region, this swelling is mainly made up of fluid because the cisterna becomes partially or totally obstructed and stasis of fluid naturally follows up to the obstruction. The formation of a layer of fluid to cover the cerebellum has previously been mentioned and is a compensatory mechanism to prevent injury to this region from trauma. If the tumor is located in the cerebellum, the operative hernia is made up to a great extent of tumor tissue and less of fluid. But the external appearance of a postoperative cerebellar hernia gives no indication of the location of the tumor in the brain.

The effects of a suboccipital decompression are essentially the same whether the tumor is located in

the midbrain or in the cerebral hemispheres, for the disturbed mechanical factors are similar. An internal hydrocephalus invariably follows tumors of the mesencephalon, owing to the closure of the aqueduct of Sylvius. A tumor in this region cannot be dislocated sufficiently to release the occlusion of the aqueduct; and the hydrocephalus persisting, no possible relief can follow the cerebellar decompression.

Only when a cerebellar tumor is present can a suboccipital decompression be in the slightest degree beneficial. A certain amount of relief will usually but not invariably be obtained, the effect depending on the exact location of the growth. The relief, when obtained, is due to two factors, both mechanical: (1) The tumor, being confined to the cerebellar fossa, receives added room for its expansion, and (2) the removal of bone in many instances allows the tumor to lift from the fourth ventricle and at times even from the posterior end of the aqueduct of Sylvius, so that these channels, together with the foramina of Luschka and Magendie, can again discharge the pent-up cerebrospinal fluid. For the time being, therefore, the development of the internal hydrocephalus may be held in check. It need hardly be added that the symptoms of intracranial pressure in cerebellar tumors are always due to the internal hydrocephalus which results from the closure either of the aqueduct of Sylvius or of the fourth ventricle (including the three foramina of exit—the foramina of Luschka and Magendie) the exact channels occluded depending on the situation of the tumor, but the result in any case is exactly the same. While cerebellar operations are always dangerous in any type of tumor they are less so when the tumor is in the cerebellum, because it is possible to favorably alter the local pressure as well as to relieve the secondary pressure due to the hydrocephalus. The duration of these benefits will naturally depend on the rate of growth of the tumor, and also on its character, i. e., whether the tumor is circumscribed or infiltrating. The symptoms due to tumors within the cerebellar lobes will be much more benefited than those due to tumors without, as for example cerebellopontile tumors. In the former the tumor's position will change with the relief of pressure, but in the latter, the growth is so firmly embedded as to be practically immobile, and to be deprived of any benefit, either direct or indirect, from the decompression. Cerebellar decompressions, therefore, are beneficial only in a restricted group of cases of brain tumors (cerebellar tumors) and the benefit is, of course, transitory. In all other cases of brain tumor, a cerebellar decompression carries an appalling danger to life and serious injurious effects when life is spared.

Subtemporal Decompressions.—These have attained the greatest popularity in the treatment of brain tumors. Unfortunately, a subtemporal decompression has come to be regarded as a simple and harmless procedure which should be performed more or less as a routine in all cases of intracranial pressure. There is no greater mistake in the treatment of brain tumors. The operation itself is indeed simple enough and can doubtless be executed with equal facility by any number of surgeons; but it is far from a safe performance, and as a routine treatment it is anything but a sane procedure. As a more or less routine operation in the treatment of brain tumors, there is little that can be said in its favor. Certainly, it is

productive of infinitely greater harm than good.¹ There was a period when decompression was the utmost which could be offered the patient; but that time has passed, and, having passed, the operation must cease to be used as a primary palliative procedure.

About half the total number of brain tumors are located in the brain-stem or cerebellum and, therefore, give rise to hydrocephalus because, as stated above, the aqueduct of Sylvius and the foramina of Magendie and Luschka become occluded. There is no conceivable way by which even the slightest benefit can be derived from a subtemporal decompression in any case of hydrocephalus, for the cause of the hydrocephalus—the obstruction—has in no way been affected; but in all such cases, the brain is irreparably damaged by the decompression. In hydrocephalus, the cerebral ventricles dilate as rapidly as the protective coverings of the brain, i. e., the dura and skull, will permit. Remove these, as in a decompression, and the brain protrudes as far as the new coverings of muscle and skin will permit; but there is in nowise any reduction of intracranial pressure. On the contrary, the extra space which results (the cerebral hernia) is at once replaced by a new increase of intraventricular fluid, made possible by a local enlargement of the lateral ventricle. While usually the operative procedure is not formidable, in advanced grades of intracranial pressure, the patient is very ill, indeed, may be unconscious, so that he is unable to withstand a useless procedure, and death ensues, whereas if the cause, frequently a cerebellar cyst, is attacked directly, life will often be saved.

The foregoing criticism applies equally strongly to all cases of cerebral tumor in which a unilateral or a localized hydrocephalus—by no means infrequent accompaniments of tumors in the cerebral hemispheres—has resulted. In no form of hydrocephalus can the patient be benefited; the general manifestations of intracranial pressure remain unchanged; the headaches continue; the loss of eyesight progresses; the brain contained in the bulging hernia is permanently injured; a large unsightly deformity results and adds an increased burden to the patient, in that he can no longer lie on the operated side, and in compensation for the damage—nothing.

But the greatest harm of a subtemporal decompression has not yet been mentioned. It lies in those very cases in which the greatest good has been claimed for the operation, in those cases in which the tumor is in the cerebral hemispheres and is not causing hydrocephalus; in those cases in which there are no signs by which the tumor can be localized; in those cases in which the decompression relieves all the symptoms of intracranial pressure. What is the result in these cases—not the immediate and transient, but the ultimate, result? For a brief time, they have been helped; the headaches disappear; the choked disk diminishes; the eyesight may improve. But view the future; these patients must always return. The invariable law of

growth of brain tumors makes the respite brief at best. The decompression, growing gradually tighter and tighter as the tumor increases in size, soon loses its value, and the old signs and symptoms of intracranial pressure return. During the time which has lapsed since the decompression, the tumor may have grown sufficiently to encroach on the precentral or postcentral fibers, the visual tracts, the centers of speech or some other part of the brain whose affection is pathognomonic. In other words, localizing signs of the tumor's position may have developed from its growth. To the exponents of a decompression operation, this is the result to be most highly desired. If, however, no localizing signs appear during this time, the patient's condition at best returns to that which obtained before the decompression.

But what a sad commentary on our intracranial localization and treatment. When an autolocalization has developed in these cases, the size of the tumor has greatly increased. Its removal is far more difficult. Its removal, if now possible, will probably leave the patient with a residual paralysis or some other more or less complete and permanent sequela—and the sequela which has made the localization possible. In other words, by performing a decompression we have given the patient a brief period of relief—an accomplishment as previously mentioned, not so unlike that of giving morphin for abdominal pain or of performing an incomplete operation for cancer of the breast. The symptoms have been masked for a time; but in doing so, we have removed the one big opportunity, i. e., of locating and removing a tumor in its early period of growth and at a stage when the patient could often be left a useful member of society.

FUNCTIONS AND DANGERS OF EXPLORATORY CRANIOTOMIES

As its nomenclature indicates, this type of operation is a crude method by which an occasional tumor may be found when no signs have betrayed its location. Exploratory craniotomies have been of distinct, though limited, service in cranial surgery. A craniotomy properly performed should locate or exclude any superficial growth in about a third of the brain's surface; the entire outer surface of one hemisphere, and the inferior surface of the frontal, temporal and occipital lobes can usually be inspected, but, at best, the other two thirds of the brain's surface and all of the interior of the brain must escape observation. A distinct advantage lies in the fact that a decompression, should it be indicated, can be performed simultaneously and with no extra hazard to the patient. While a combined craniotomy and decompression is more dangerous than a decompression alone, the possibilities are greater. The information gained is often definite in contrast to the continued uncertainty of intracranial conditions after a decompression alone. Should a tumor be found and should it prove to be a large infiltrating glioma, a more efficient palliation can often be obtained by removal of the bone flap, with or without the added subtemporal bony defect, thus giving the maximum amount of relief which can be offered the patient with an inoperable tumor.

But the same dangers which have been mentioned in connection with decompressions obtain, to an even greater degree, in craniotomies. An exploratory craniotomy should never be performed if a hydrocephalus is present. There would, of course, be no object in performing a craniotomy if a hydrocephalus

1. This statement refers only to decompressions in the treatment of intracranial pressure due to neoplasms of the brain. In cases of acute intracranial pressure resulting from injuries, decompressions have a distinct and admirable function; here, this procedure saves many lives; but even so, it has been far too indiscriminately and incautiously used. It should be employed even in fractures of the skull only when backed by a mature judgment. These patients are usually in serious condition and can ill afford any additional operative insults, which are misplaced. There can be little doubt that, on the whole, patients would stand a better chance of recovery with a fractured skull if all were left alone, than if all were operated on. In the hands of the expert, the chances of recovery are greater when operations are performed, for he uses them only in cases selected because of definite indications. This statement also applies only to a decompression as a primary operation. A decompression must often be made as a secondary feature of craniotomies in which a tumor has or has not been removed.

is present (except in unilateral or localized hydrocephalus), for, except in rare instances, the tumor would be located in the region of the brain-stem. In symmetrical hydrocephalus, the growth must obstruct a channel between the aqueduct of Sylvius and the foramen of Magendie. Many craniotomies are performed when the operator does not know whether or not a hydrocephalus is present. The simple determination of the existence of hydrocephalus would, therefore, eliminate a tremendous number of useless, harmful and dangerous craniotomies and decompressions.

Should a mistake be made and a craniotomy be performed in the presence of hydrocephalus, the dura should be carefully closed to avoid cerebral injury. Under these conditions, a decompression should, of course, never be performed. In very ill patients, a craniotomy, with or without a decompression, is too big and too serious to be performed without very good reasons to suspect the location of the tumor. Exploratory craniotomies, being of routine position, rarely adequately expose a tumor which is found accidentally. It is usually necessary to remove much more bone directly over the tumor after it has been disclosed and before its removal can be safely attempted.

With the advent of the newer methods of diagnosis, an exploratory craniotomy is never necessary; a correct diagnosis likewise leaves no excuse for performing a craniotomy when hydrocephalus is present. When a craniotomy is performed, it should be made with a clear idea of the tumor's location, so that the operative exposure of the tumor will be both ample and direct.

Puncture of the Corpus Callosum—Balkenstich.—This procedure has been proposed, as a palliative treatment, even as a cure for hydrocephalus. It has not the slightest value in either function. It is based on an entirely fallacious concept. In the first place, fluid released from the roof of the third ventricle passes into the subdural space where it cannot absorb, except in small amounts, because this space is lined on both sides by an avascular membrane. To be absorbed, fluid must reach the subarachnoid space, and cerebrospinal fluid can enter this space only through the cisternae, which act as central distributing stations for the subarachnoid spaces. Fluid so released becomes encysted. Even should adequate absorption be possible in the subdural space (which cannot be), the opening in the corpus callosum must inevitably close, since the neuroglia proliferates in obedience to Nature's method of healing wounds. Hydrocephalus due to a tumor can at present be cured only by removing the cause, i. e., the tumor.

Lumbar Puncture.—This is another procedure which should be used with great caution. In patients with brain tumor, it has no useful purpose, but is accompanied by danger. I have seen at least four deaths following lumbar puncture, and many other patients have had distressing symptoms for many days. The danger lies in the sudden entrance of portions of the cerebellar lobes into the foramen magnum when the spinal fluid is released; the herniated cerebellum, being caught in the bony ring, compresses the medulla and upper spinal cord.

Were there any benefits to be gained commensurate with the risk which is always present, lumbar punctures might be sanctioned; but there is no information which cannot be obtained in better and safer ways. To know the increased pressure of the spinal fluid is occasionally helpful; but usually this can be told without a puncture. The cell count and other examinations of the cere-

brospinal fluid are rarely needed for a differential diagnosis; but in the few cases in which this information is deemed necessary, and intracranial pressure is known to exist, it had far better be obtained by performing a ventricular puncture, which can be done with less risk to the patient. I rigidly follow the rule, not to perform a lumbar puncture when a brain tumor is strongly suspected or known to be present. In this connection, I might add that intraspinal injections of air are used only after the intracranial pressure has been relieved by a ventricular puncture.

Ventricular Puncture.—This is a most useful procedure—not as a therapeutic measure but as a diagnostic aid. In adults, it can easily be performed under local anesthesia; in growing children, puncture can often be made with a sharp needle through a patent anterior fontanel. There is, of course, no conceivable way that more than a very transient therapeutic benefit can be derived from a ventricular puncture, for all the cerebrospinal fluid which is removed reforms again within a few hours. The dangers of a ventricular puncture are distinctly less than in any other operative procedure. The principal danger is the occasional puncture of an intraventricular tumor, causing intraventricular hemorrhage which can quickly result in death. At times, the results of a ventricular puncture will make a diagnosis of hydrocephalus; but one must be very sure of the findings, which are easily misleading and easily misinterpreted. It is much more important to determine the thickness of the cerebral cortex, than the amount of fluid which can be obtained by ventricular puncture. The former determination is absolute; the latter is relative and purely an index of pressure and not of the size of the ventricle. At times the dislocated position of the ventricle will strongly indicate the approximate position of the tumor and not infrequently a cyst or abscess will be accidentally punctured, making the diagnosis. But the real value of a ventricular puncture is in the portal of entry it offers for the intracranial diagnostic study, which will be discussed in the following pages.

THE RATIONAL TREATMENT OF BRAIN TUMORS

What, then, is the treatment for brain tumors? The answer is simple and permits of no equivocation: (1) an early diagnosis of brain tumor; (2) a precise localization; (3) an accurate and adequate operative approach to the tumor with the object of (4) removal of the tumor in toto if possible, and (5) when the tumor cannot be removed, to produce the maximum palliation at the same operation. To sum up, the rational treatment consists of an early and accurate diagnosis and early and thorough operation on the tumor directly. This is not a theoretical formula; it is the actual treatment which every patient should obtain, and which he now has a right to demand.

The results which surgeons will obtain will be dependent on the early stage at which the diagnosis and localization of the tumors are made. We are now receiving patients afflicted with brain tumors far too late; too many are blind from long continued intracranial pressure; too many arrive in coma, or are paralyzed or are the victims of aphasia. We must learn to detect the early symptoms and signs of intracranial pressure, as well as the focal manifestations. It is due the patient that headaches or pains in the head, unexplainable vomiting, unusual malaise, visual disturbances—dimness of vision, hemianopsia, diplopia,

transient amblyopia—any focal, motor or sensory disturbances and all unusual epileptic attacks, any disturbances in gait, etc., should be thoroughly investigated by one of adequate experience to pass on the intracranial possibilities in a decisive manner.

There is an erroneous conception that brain tumors are rare. This is in large part due to mistaken and uncorrected diagnoses, and to the varied manifestations which make the diagnoses confusing and difficult. In the Johns Hopkins Hospital, brain tumors rank third in frequency, being exceeded only by tumors of the breast and uterus. The diagnosis of a brain tumor may be very simple or extremely difficult, depending on the size of the growth, its situation and the rapidity of the growth. At times, progressively increasing focal disturbances will make the localizing of a growth possible before its existence has been suspected by symptoms of intracranial pressure. But in the vast majority of cases, even in the comparatively late stages of the disease, all the resources at our command will be exhausted before a diagnosis, and particularly a localization, can be determined with certainty. In every case in which a careful anamnesis and neurologic and roentgenologic examinations are of no avail (and this group comprises half the cases of brain tumors), the tumor can be diagnosed and located or its existence eliminated by cerebral pneumography.² These statements are not intended to convey the impression that air is to be injected into the brain of every patient who has symptoms which may be regarded with suspicion. A neurologist or neurologic surgeon of large experience can differentiate the vast majority of cases of tumors from other lesions. The procedures are used only when imperative and when all other means fail to reach a diagnosis and localization. The physician and the patient will no longer be content with the diagnosis of an unlocalizable brain tumor and with the train of indirect and useless operations which are the sequel of this diagnosis. Nor will they be willing patiently to await paralyses, blindness and aphasia to make the localization. When confronted with the facts, there are few patients or few parents who would prefer the partial or transient results of palliative (all too frequently pseudopalliative) treatment to the permanent results of a tumor extirpation, after giving due consideration to the relative risks assumed. Just as the urologist accurately localized lesions of the kidney and ureter by filling the urinary channels with thorium or colargol, so the neurologic surgeon now fills the spaces of the brain—the ventricles on the interior and the subarachnoid spaces on the exterior—and localizes the intracranial lesion by the effect, either direct or indirect, of the tumor on these fluid-containing spaces.³ And all brain tumors must produce pathognomonic changes on some part of these spaces. Certain tumors obliterate a part or all of one ventricle; some protrude into a ventricle; others dislocate one or more ventricles; again

they may cause a part or all of the ventricular system to enlarge; others close portions of the subarachnoid spaces. By a series of roentgenograms, the entire system of spaces can be demonstrated, and any abnormality in these spaces will at once be apparent. I have now had opportunity in more than 200 injections to locate tumors in every part of the brain, and I have yet to fail to make an accurate localization, nor have I failed to find this tumor at operation. Some of these tumors have been far below the surface of the brain; in fact, so far, that there has not been the slightest change in the surface of the cerebral or cerebellar convolutions or sulci to suggest that a tumor was beneath. In other words, the evidence from cerebral pneumography has been so absolute that we were sufficiently certain of the tumor's location as to make a transcortical incision of varying depth until the tumor was exposed at the position it was expected to be found. At times, it has been possible completely to remove such growths, when, except for the pneumographic record, there would have been absolutely no other way of knowing the situation of the growth. In many comatose patients the localization has been made and the tumor successfully removed.⁴

If it is the duty of the surgeon to localize a tumor, it is equally his duty to find it at operation. With an accurate localization, this should always be possible now, though in certain locations, particularly in the region of the speech-centers, this may be inadvisable. In any event, one can know the exact situation of the tumor, and should its removal be impossible or inadvisable, a decompression can then be made. Furthermore, by precisely localizing the tumor, the operator can regulate his operative wound accordingly and make the exposure directly over the tumor instead of in the usual stereotyped position. With accurate diagnosis, it is surprising how many apparently inoperable tumors can be directly approached and completely removed. I have removed tumors from the lateral ventricles, from the aqueduct of Sylvius, the fourth ventricle, large tumors of the pituitary body, the cerebellopontile angle and recently of the pineal body. In other instances, I have removed entire lobes of the brain, with the corresponding part of the ventricles. There is a very mistaken view concerning the operative mortality of brain tumors. I am confident that there is far less mortality after removal of tumors in the cerebral hemispheres or cerebellum than after fruitless operations in which the tumor has been sought, but not found, or in which the tumor has been found and could not be removed. The big cause of death in these cases of cranial surgery is an acute exacerbation of the intracranial pressure, which results from direct or indirect injury to the brain by the operative procedure and which is added to the original pressure existing before the operation. All brain tumors should be removed with painstaking care and with a minimum of trauma. Successful results can be obtained only through a very large exposure and one which is directly over the tumor. There is usually little excuse for rapidly scooping out a tumor and then furiously packing to control the hemorrhage. Certainly, with such crude methods, the mortality will be high and the tumors will almost always be incompletely removed, making a recurrence practically certain. Tumors in deep and inaccessible locations and tumors of the endothelial type, which are usually exceedingly

2. This term has been suggested by Professor Halsted, who has been so largely responsible for the inception and development of these procedures and for their application. Roentgenography of the brain after either intraventricular or intraspinal injections of air, or after both injections, is included in this nomenclature.

3. A very urgent warning should accompany this statement. The introduction of air into either the cerebral ventricles or the spinal canal is not a harmless procedure. It is fraught with great danger to the patient. It should be used only by one skilled in intracranial surgery and with experience in the use of the method. It is safe only in safe hands. Its widespread use will certainly lead to a very high mortality. The details of these procedures are given in the following articles by the author: (1) *Ventriculography Following the Injection of Air into the Cerebral Ventricles*, *Ann. Surg.* **68**:5 (July) 1918; (2) *Roentgenography of the Brain After the Intraspinal Injection of Air*, *Ann. Surg.* **70**:397 (Oct.) 1919; (3) *Localization or Elimination of Cerebral Tumors by Ventriculography*, *Surg., Gynec. & Obst.* **30**:329 (April) 1920.

4. The detailed findings from the use of cerebral pneumography will not be considered here. They will appear shortly in another communication.

vascular, still offer tremendous difficulties in extirpation; but with careful, painstaking efforts and with proper judgment, most of these can be removed with safety if the patient's vitality has not been too greatly reduced by the ravages of the disease.

If it is demonstrable beyond all question that a complete extirpation of the tumor is impossible, either because of its infiltrating character or because of its inaccessible location, or because of probably permanent injury to the speech centers or motor areas by reason of its removal, then and only then should a decompression be made for palliation, provided of course the tumor is in such a location that a decompression will perform a useful function. When hydrocephalus is a sequel of the tumor, and the removal of the tumor is impossible, a decompression or other surgical attempt at palliation is absolutely contraindicated because, as I have previously demonstrated, it can do no possible good. A decompression, when indicated, is therefore a procedure of last resort, one to be used when direct removal of the growth is impossible or contraindicated, and it is by all means not a procedure to be used early in the disease, when the tumor cannot be localized, for thereby the patient's greatest opportunities will be sacrificed.

SUMMARY AND CONCLUSIONS

1. Brain tumors are among the most frequent neoplastic lesions; their growth is always progressive and almost always leads to a train of terrible sequelae and eventually to death.

2. There is only one form of treatment for tumors of the brain—operative removal, and this must be complete.

3. To obtain the best operative results, brain tumors must be diagnosed and localized in the earliest stages.

4. It is now possible to diagnose and localize practically every tumor, and in the early stages. When all other signs and symptoms fail in the localization, cerebral pneumography will make the diagnosis and localization with precision and without equivocation. And when a tumor is not present, it can be excluded by the same method.

5. The operative approach will be dictated by the precise localization. The approach should afford adequate room, and it should be directly over the tumor.

6. After correct localization, all brain tumors should be disclosed at operation.

7. Every effort should be made to cure the patient by complete extirpation of the growth. There is less mortality from carefully performed tumor extirpations than from unsuccessful explorations for tumors. When, for any reason, it is impossible or unjustifiable to remove the tumor, the maximum palliative relief should be given at the same operation.

8. Decompressions, routinely performed, are among the most harmful and indefensible operations in surgery. They should never be performed for unlocalizable tumors. They are the exact equivalent of giving morphin for abdominal pain; the symptoms are masked until it is too late.

9. Decompressions should be performed only as a last resort—when the tumor cannot be removed; and then only after the location of the tumor is known, for in half the cases of brain tumor, no good can possibly be derived from a decompression.

10. Exploratory craniotomies for brain tumors are now scarcely ever indicated. The tumor should be pre-

cisely localized before any operative procedure is attempted.

11. Scientific accuracy must supplant guesswork in diagnosis and in directing the treatment. Early and accurate localization and thorough operative treatment will eliminate all unnecessary and harmful operations. The treatment of brain tumors can only be a direct eradication of the cause—prompt and efficient.

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A METHOD FOR THE ADMINISTRATION OF SODIUM CHLORIDE FOR HEADACHES*

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Increased intracranial pressure has long been recognized as a cause of headache; to this type the term "tension headache" has been applied. It is a question whether this apparent relationship between increased intracranial tension and headaches can be carried further. We do not know the cause of headache in the febrile diseases, in the various toxemias resulting from intestinal stasis, or in the periodic "idiopathic" variety. Certainly the most reasonable explanation is that any one of these primary conditions raises the intracranial pressure to a certain extent and thus gives rise to headache.

Following the work of Weed and McKibben,¹ which demonstrated that the pressure of the cerebrospinal fluid could be markedly reduced by intravenous injections of concentrated solutions of the common sodium salts, Cushing and Foley² found that similar reductions of the fluid pressure could be accomplished by the simple alimentary ingestion of strongly hypertonic solutions. In another paper (Foley and Putnam³), Cushing drew attention to the fact that headaches, following intestinal stasis, were relieved by the administration of saline purgatives long before the cathartic action of the drug itself had taken place.

The use of strong solutions of the common salts, therefore, in the treatment of headaches was an obvious application of these established experimental findings. Because of the relatively high osmotic pressures of its solutions and because of its comparative harmlessness, sodium chlorid was selected as the salt for human administration. That both the sodium and the chlorid radicals are absorbed in the intestine was also considered an advantage, as no drastic purgation would follow its use.

The ingestion of crystalline sodium chlorid or of concentrated solutions of the salt in quantities sufficient to have the desired physiologic effect was a problem which at first presented some difficulties. Persons suffering from severe headaches were found to have considerable trouble in retaining the salt for a length of time sufficient for it to pass into the intestine, where its absorption into the blood stream could take place. The

* From the Anatomical Laboratory, Johns Hopkins University.

1. Weed, L. H., and McKibben, P. S.: Pressure Changes in the Cerebrospinal Fluids Following Intravenous Injection of Solutions of Various Concentrations, *Am. J. Physiol.* **48**: 512 (May) 1919; Experimental Alteration of Brain Bulk, *Am. J. Physiol.* **48**: 531 (May) 1919.

2. Cushing, Harvey, and Foley, F. E. B.: Alterations of Intracranial Tension by Salt Solutions in the Alimentary Canal, *Proc. Soc. Exper. Biol. & Med.* **17**: 217, 1920.

3. Foley, F. E. B., and Putnam, T. J.: The Effect of Salt Ingestion on Cerebrospinal Fluid Pressure and Brain Volume, *Am. J. Physiol.* **53**: 464 (Oct.) 1920.

nausea following the ingestion was often considered more distressing than the headache itself. This irritating action of the salt in the stomach, however, has now been obviated by the preparation of compressed tablets salol-coated, each containing 1 gm. ($15\frac{1}{2}$ grains) of sodium chlorid.⁴ Such tablets pass unchanged through the stomach, yet liberate the salt when the alkaline secretions of the small intestine are met.

The clinical use of these tablets has been somewhat limited thus far, but at the same time sufficient observations have been made to show that they have a beneficial effect in practically all of the milder forms of headache. They are of a size easily swallowed, are nonirritating in the intestinal tract, and usually relieve the headache in from thirty to forty-five minutes. From two to three tablets should be taken every five minutes with as small an amount of water as possible, up to a total of eight or ten. In severe headaches from twelve to fifteen or even more may be necessary. The administration of as much as 30 gm. (nearly 1 ounce) of sodium chlorid is in a healthy adult wholly safe and is far beneath the toxic limit. Contraindication to the use of salt is found only in certain cases of nephritis, hypertension and in persons past middle age whose salt tolerance is known to be low.

In a study of the effect of relatively large intravenous injections of concentrated solutions of sodium chlorid on the systemic circulation, Weed and Hughson⁵ have shown that marked changes in the arterial and venous pressures occur only during the period of injection. They have also found that the intravenous injection of 1 gm. ($15\frac{1}{2}$ grains) of sodium chlorid per kilogram ($2\frac{1}{5}$ pounds) of body weight reduced the cerebrospinal fluid pressure in young experimental animals 234 mm. of Ringer's solution, while in older animals the average reduction was 80 mm., negative pressure in both groups of animals usually resulting. So great a reduction of the pressure of the cerebrospinal fluid for the relief of a tension headache would seem quite unnecessary. So far as these figures can be applied to man, we may assume that the cerebrospinal fluid pressure can be reduced approximately 50 mm. by the ingestion of $\frac{1}{6}$ gm. ($2\frac{1}{2}$ grains) of sodium chlorid per kilogram of body weight. Greater reductions could be obtained by a proportional increase in the dosage.

With the experimental evidence establishing a physiologic basis for the clinical use of such a benign therapeutic agent, the treatment of headaches with these tablets possesses advantages over the employment of the various coal tar products. It is for this reason that the publication of this note seemed warranted; extended clinical observations which are being made at the present time must, however, be carried out before an opinion of real value can be given regarding their action. There is no reason for believing that all forms of headaches will yield to this method of therapy, for only that variety due to increased intracranial tension offers hope of responding to the increase in salt content of the blood. Foley⁶ has already reported favorable results in the tension headaches due to tumors and hydrocephalus, using simply the plain sodium chlorid.

But the administration of sodium chlorid in the manner suggested should prove of diagnostic value in differentiating the headaches due solely to the heightening of the intracranial tension from those of other origin.

SOME PRINCIPLES OF ARTHROPLASTIC OPERATIONS *

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SAN FRANCISCO

I offer an outline of some principles of arthroplastic operations not only in the hope of bringing out profitable discussion, but also with the hope of emphasizing a few points in the after-treatment which, from experience in the reconstruction surgery of war, seem important, though not generally accepted.

In a short paper it is not possible or even necessary to discuss the various difficulties encountered in the different joints. At the outset it should be stated that these principles may or may not apply to arthroplasties of the knee. I believe they do, but I have had no experience, not having ever attempted to mobilize a bony ankylosis between the tibia and the femur.

INDICATIONS AND CONTRAINDICATIONS FOR ARTHROPLASTY

The choice and selection of cases for operation will always be of paramount importance, because poor judgment here will vitiate the final result, no matter how clever the operative technic.

1. It should not be attempted in a tuberculous joint healed or unhealed. There seems to be almost no limit to the time when tuberculous foci can remain dormant and be lighted up in the presence of an operation.

2. In infectious cases, operations should not be performed within from six months to a year after all inflammatory signs have subsided. Hot applications or baking with deep massage for a few weeks may give good indication of remaining infection, as shown by tenderness or pain. In after-war infections or in any case in which the history was that of a fulminating infection, a delay of even two to three years is wise—the longer the better.

3. Firm ankylosis of the knee in good position with strong, painless use of the leg should not be disturbed on arthroplasty except at the hands of a real master. There remains yet a lot of work to be done on these knee arthroplasties in the way of joint stabilization.

4. Firm ankylosis of the wrist joint in the functioning position of dorsiflexion and having good rotation should not be changed for arthroplasty. These operations are not very satisfactory because they nearly all result in deficient dorsiflexion of the wrist, and lateral deviations of the wrist occur. Whatever mobility results is not in the most useful arc, but usually is seen in flexion rather than dorsiflexion, thus resulting in diminished power in the grasp of the hand.

5. The social position of a patient must be considered in deciding on arthroplasty. The standards are quite different for an office worker as against a man

4. Salol coated pills would serve the same purpose and can be prepared by a qualified pharmacist, while the tablets probably would have to be obtained from some pharmaceutical manufacturing house.

5. Weed and Hughson: Systemic Effects of the Intravenous Injection of Solutions of Various Concentration, with Especial Reference to the Cerebrospinal Fluid, *Am. J. Physiol.* 54: 53, 1921.

6. Foley, F. E. B.: Clinical Uses of Salt Solution in Conditions of Increased Intracranial Tension, *Surg., Gynec. & Obst.* 33: 126 (Aug.) 1921.

* From the Department of Orthopedic Surgery, University of California Medical School.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

performing hard, physical labor. Patients should realize that restoration of joint mobility is always accompanied by some loss of joint power.

6. Arthroplasty should never be attempted unless the patient has time to devote to the proper postoperative care. Neglect of this will cause many failures and should be considered carefully in advance instead of regretting it afterward.

7. The very young, the very old and people of such deficient mentality or courage as to make cooperation impossible are not proper subjects for such operations.

8. Arthroplasty is indicated when, in the absence of any contraindications, the mobilization of an ankylosed joint will decrease the disability and daily annoyance due to it and when the loss of slight power is not important.

9. By whom should arthroplasty be done? Since arthroplasty is not an emergency operation, I feel that it should be done only by that special surgeon who has not only the best hospital conditions and asepsis at his command, but also the training and the knowledge of joint function and the sound principles underlying its restoration. It should be the surgeon who has the patience and enthusiasm to carry the case through to the close, and not the man who operates and then merely shows an occasional polite interest in the work of a masseuse.

PRINCIPLES OF OPERATIVE TECHNIC

1. Extremely gentle handling of soft parts is important, taking care to follow intramuscular routes in order to minimize trauma and hence postoperative swelling.

2. One should take care to preserve the capsule if at all possible to aid future stability of the joint. In certain cases this cannot be done.

3. Gentle handling of the periosteum is important in order to avoid leaving periosteal shreds which may later cause trouble by regenerating bone. The practice of "cutting back" periosteum away from the raw bone end is a useful procedure to safeguard against reforming callus. This has been amply proved in war amputations.

4. Maintaining the general outline of the normal bone ends is important. For instance, a small V shaped notch in the lower end of the humerus prevents impingement of the lower end of the ulna. It gives far greater mobility and stability of the joint.

6. There are special means for preventing outgrowth of callus which we have found of distinct value. Microscopic examination of a fractured bone end show periosteal, cortical and medullary or better endosteal callus thrown out. For the former, "cutting back" of the periosteum seems sufficient. For the cortical and medullary portion of the bone ends we have used hammering with a diminutive hammer. This method was suggested long ago by Sir Robert Jones, but seems to have been overlooked. By this means, bleeding can almost be stopped altogether. Later roentgenograms disclose the end of the bone capped by an area of increased density, indicating the formation of bone scar. In our late cases we have seen no callus or exostoses thrown out. In our experience this method seems vastly preferable to the use of a bone file or rasp.

7. As you know, much has been written on the subject of interposing materials, and there is a wide

variance of opinion regarding the advantages of the various artificially prepared membranes, such as Baer's chromicized pig bladder, and Cargile membrane; but perhaps fresh grafts of fat and fascia are used by the greatest number of surgeons. They have been used for the purpose of preventing the two bony surfaces from coming together and reankylosing. From my own experience I am convinced that there is very little difference as to what interposing material is used or even if none be employed, provided the bony surfaces are kept well apart in the postoperative period by steady fixed traction. This I will discuss later. Certain joints, however, like the temporomaxillary, do not lend themselves to traction, so that the use of Baer's membrane or fascia may be advisable. Certainly the excellent results of Dr. Baer's arthroplasties on the jaw joint are more than worthy of imitation. It is noteworthy that, in his series, when the membrane was extruded the result was quite as good as when it remained in position. This lends support to my contention that it is the length of the interposing fibrous "hinge" between the bone ends that determines the subsequent joint mobility. It seems to me that the reaction excited by the membrane in the wound stimulates the production of fibrous tissue or scar in the interval between the bones. Microscopic studies of this tissue give ample proof that osteoblastic cells cannot push their way into this dense tissue which prevents impingement. This fibrous hinge is seen to be microscopically identical with the picture of non-union of long bones. Later, bursae may develop with a lining membrane similar to joint synovia. The same microscopic picture is also seen in a properly done joint excision in which mobility of the joint is the object even without interposing membranes or fascias, provided the bone ends are not allowed to come into contact and the fibrous tissue invasion is allowed to occur from without. It has been said that the best arthroplasty is a good excision; and this, in my experience, has been found true.

8. It is generally conceded that a certain amount of bone aside from exostoses should be removed in all arthroplastic operations. This is necessary because with stiff joints there is always shortening of the soft parts (muscles, tendons and capsule) about the joint. Failure to remove bone to shorten the skeleton of the part will result in limited painful movement. The amount to be removed in all joints is variable according to the situation and local conditions. In great toe joint operations, for instance, the removal of one-half inch of bone should be sufficient. It is better removed from the proximal end of the phalanx than from the weight-bearing surface of the metatarsal head. And yet when one roentgenographs disappointed patients who have had a poor interpretation of the Mayo operation done, it will be found that an inch and a half of the lower end of the metatarsal, including the head, may have been removed. This has been done in the hope of avoiding the bugbear of a rigid toe. The usual result is a flail great toe, which is almost worthless for giving proper thrust to the foot in walking. The removal of too small an amount of bone may result in a substitution of hallux rigidus. Also in elbow joint operations the olecranon and the coronoid process are the most frequent offenders and should be freely cut away. The removal of bone may

be quite sufficient in amount at the time of operation, yet a return of stiffness follows. This is usually due to a failure of after-treatment.

PRINCIPLES OF AFTER-TREATMENT

In cases referred to above in which there is a gradual loss of mobility in both flexion and extension, the roentgen ray will disclose that there has been a loss of the joint spacing or interval obtained at the operation. Muscular contraction of the flexor and extensor tendons has brought the bone ends nearer and nearer together.

To avoid this I find that steady fixed traction is most effective. It should be applied at the time of operation or immediately thereafter. In the large joints of the arm or leg, the Thomas arm or leg splint is very effective. The joint spacing can be easily maintained on the Thomas splint but with, of course, more difficulty in the hip. It can be made efficient, however, provided secondary pull be taken off the end of the splint while the foot of the bed is raised to use the body weight as a counterpoise.

In the small joints of the foot or hand, combination splints of plaster of Paris and wire are more easily adapted. Too much emphasis can hardly be put on the statement that the traction must be fixed and constant. I feel that ordinary Buck's extension can never be trusted to maintain separation of bone surfaces in a hip, for instance. In this connection it may be well to suggest a subcutaneous section of the hip adductors high up, so as to prevent the troublesome adduction deformity so often seen. The application of traction as the most important single postoperative measure has something else to recommend it in that it prevents muscle spasm and so reduces postoperative pain to the absolute minimum.

When truly efficient action has been employed, it is not necessary to commence movement of the joint before ten days when the wound is soundly healed. It will be found unnecessary to provoke great pain and swelling in the joint by movements to and fro. The single movement of the joint into as much flexion as possible and the reapplication of traction in extension is sufficient. It will be found to be easier on the following day, and so on. Physiotherapy in the form of gentle massage I employ with the removal of the skin sutures. After the removal of the traction, gentle movement of the joint should be carried out under warm water.

It should be stated frankly that to use traction efficiently requires constant supervision from the surgeon or trained assistant, but I am fully convinced that the results will more than justify the effort expended.

ABSTRACT OF DISCUSSION

DR. W. RUSSELL MACAUSLAND, Boston: I do not believe that an old, long-healed tuberculosis is an absolute contraindication for the operation of arthroplasty. Naturally, one avoids operating in any but selected cases. The lesion must be long-healed and have shown no signs of an active process for many years. The danger of lighting up the process is, of course, lessened by increasing the care with which the operation is done. Perfect hemostasis, slight injury to tissues and good preservation of capsule and lateral ligaments is essential. In my experience, passive motion should be limited by pain, and it will be found that motion may be "coaxed" better than forced. I do not agree with Dr. Baldwin

in the relation between excision and arthroplasty. I believe he stated that a good excision was as satisfactory as a good arthroplasty. The best excision means a wobbly joint, and in any joint except the shoulder this means poor function unless supported externally by a brace. A good arthroplasty means a joint approaching normal in its motion and stability. In the elbow joint the approach to normal is surprisingly good; in the knee it is far less good—about 80 and 20 per cent., respectively.

DR. WILLIS C. CAMPBELL, Memphis: Experimental work in this field is absolutely worthless, as the conditions we find in these patients are so different from those seen in the normal joints of animals. There are certain limitations, as Dr. Baldwin brought out, but one in particular struck me from a pathologic standpoint, and that is the type of infection encountered, especially tuberculosis. I do not believe a tuberculous joint should be subjected to arthroplasty or any form of mobilization operation. Second is the type that follows extensive osteomyelitis in which there has been increased thickening in the bone. That type of bone bears the same relation to normal bone as low grade scar tissue does to soft tissues, and is not suitable for the formation of new joints. I have done arthroplasties on this type, all of which were failures. We were able to restore a better position of the limb but no movement. The only type suitable for this operation is the one in which there has been acute infection, such as staphylococcus, pneumococcus or gonococcus, and the bone is affected only a short distance from the joint surface. I have employed various measures, as free fascia, pedunculated fascia and Baer's membrane in various joints—none of which are successful in a large proportion of cases. Elbow, jaws and hips probably are the most satisfactory results on the whole. Satisfactory motion has been obtained in five knees—one, normal motion, one about 80 degrees. In no case have I seen instability.

DR. EDWIN W. RYERSON, Chicago: Dr. Baldwin has stated very well the various indications for arthroplasty, and with most of his conclusions I agree. There is one point, however, in which I disagree very much. He advocates little dissection, and nonremoval of capsular and periarticular fibrous tissue. This is contrary to most of the authorities. In most cases there is periarticular infiltration, and the surrounding tissue is found to be a very dense membrane which should be removed during the operation, as also should the fibrous remains of the capsule and synovia. The other point in which I differ is in the use of interposing membrane. I believe this is not only desirable but should always be used, and for this reason: In one case in a series of thirty elbow joints, we were nearly through the operation when it was discovered that no membrane was present in the hospital. We had been using Baer's chromicized pig's bladder. We closed the wound, and the after-treatment was the same as in the other cases. This patient made free use of the elbow, but the elbow became ankylosed by bony union. Six months afterward we reoperated, and he now has satisfactory range of motion because we put in a piece of Baer's membrane.

DR. WALTER G. STERN, Cleveland: Concerning the subject of mobilizing the ankylosed maxillary joint, it has been held that wide excision alone without the interposition of foreign membranes or fascia and early use can be relied on to give excellent results, and it is not necessary to do a typical arthroplasty between the resected maxilla and its former joint.

DR. HENRY KELLER, New York: This subject of arthroplastic operation is of such great importance that I believe every one with experience which may differ from that of the reader of the paper should consider it worth while to bring it up. One thing I did not hear emphasized was that one has to be careful in deciding on arthroplasty in cases of osteoarthritis with marked osteophytic outgrowths. Those who have had the unpleasant experience with those cases know that when there is excessive tendency to exostosis there will be the same trouble repeated with considerable tenderness shortly after operation. As far as tuberculosis is concerned I believe it is a good policy to wait a number of years after the subsidence of the disease before arthroplasty should be undertaken. There is, however, this difference

between the joints of the upper and lower extremities that, whereas, in the lower extremity proper stability is a great asset, interference with stability through arthroplasty in joints such as the knee or hip, ankylosis, following tuberculous infection, is to be discouraged, as one can never be sure of the complete disappearance of the foci of infection; hence there is always the fear of rekindling the dormant disease. On the other hand, in ankylosis of the joints of the upper extremity, i. e., the elbow, when left in a malposition which tends to interfere with the necessary daily functions of the forearm, I would not hesitate to enter the joint after the lapse of four or five years and do an arthroplasty; for even if the operation does not meet with entire success we shall at least, as a last resort, be in a position to place the forearm in a corrected attitude and restore some of the lost function.

DR. WALTER I. BALDWIN, San Francisco: As to doing arthroplasties on tuberculous joints, it seems to me that the consequences are so serious that one should be most wary. The fact that a case has been done without untoward result is hardly convincing. Dr. Ryerson mentioned the excision of all infectious material, and with that one must agree, but the very fact that his case resulted in ankylosis where he did not use interposing membrane is quite outside the point, because he does not speak of having used the one measure which makes this possible, i. e., steady, fixed traction of the joint.

THE SEROTHERAPY OF BACILLARY DYSENTERY IN CHILDREN *

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AND

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Because of the enthusiastic reports in favor of specific serum therapy in both Flexner ¹ and Shiga ² varieties of bacillary dysentery in adults, we have during the last two years administered antidysenteric serum to twenty children in age from 6 months to 4½ years suffering from dysentery.

Polyvalent (Shiga and Flexner) antidysenteric serum ³ in doses of from 20 to 50 c.c. was injected intramuscularly or subcutaneously in all of these patients. As is shown in Table 1, in some instances as many as six doses at intervals of from twenty-four to forty-eight hours were employed. In addition, in two cases of Shiga infection, we injected the Rockefeller Institute Shiga dysentery antitoxin in doses of 20 c.c. The polyvalent serum agglutinated all of the strains of

dysentery bacilli we isolated. Its Shiga antitoxin content was not titrated.

During 1919 and 1920 in Baltimore, Birmingham, Ala., ⁴ and Boston, ⁵ we studied seventy-three cases of bacillary dysentery in children from 3 months to 11 years of age, in which the clinical diagnosis was confirmed by the recovery of dysentery bacilli from the stools or by necropsy. The clinical and bacteriologic data of our series in 1919 have been previously reported. ⁶ The findings in the 1920 cases were similar except that the infections were much more severe and that there was a higher incidence of terminal bron-

TABLE 1.—NUMBER OF DOSES OF SERUM ADMINISTERED

Number of Doses of Serum	Number of Patients	Number Died	Mortality, %
1	8	2	25
2	2	2	100
3	5	3	60
4	3	1	33
6	2	2	100
Total	20	10	50

chopneumonia. All of our cases were from homes scattered throughout these cities and were apparently not due to any particular epidemic.

We have excluded from this series fifty-two additional cases of bacillary dysentery in children. In forty-seven of these, the clinical diagnosis was not confirmed by bacteriologic or pathologic methods. In some of these, stool cultures were negative, while in others the press of work prevented the collection and study of satisfactory specimens. In the remaining five instances, all of which were fatal, although the presence of bacillary dysentery was confirmed bacteriologically, yet other coincident conditions, such as pneumonia, marasmus, osteomyelitis, tuberculosis and pertussis, were the predominating features and were primarily responsible for death. It may be stated that the presence of bacillary dysentery as a complication of other diseases greatly adds to the gravity of prognosis.

To judge the usefulness of any therapeutic measure there are at least three cardinal criteria, i. e., the untoward results or dangers, the effect on mortality, and the effect on the length and course of the disease.

The subcutaneous or intramuscular injection of antidysenteric serum in daily doses of from 20 to 50 c.c. is apparently harmless. (As the intravenous administration of antimeningococcus serum has been shown to be attended by severe reaction in children, ⁷ we have not used this route.) There were no symptoms of anaphylaxis. Occasionally a slight increase in fever followed the injection of serum. Its intensity and duration bore no relation to the amount of serum administered. It did not occur regularly after each injection in any individual case. In no instance did a chill accompany the rise in temperature. This occasional febrile response had no apparent effect on the course of the disease. Two patients refused the next

* From the Department of Pediatrics, Johns Hopkins University, and the Harriet Lane Home, Johns Hopkins Hospital.

1. Ruffer, M. A., and Willmore, J. G.: The Serum Treatment of Dysentery, with Notes on the Bacteriological Diagnosis of Dysentery, Brit. M. J. **2**: 1519, 1910. Archibald, Hadfield, Logan and Campbell: Laboratory Report (Gallipoli), J. R. A. M. C. **26**: 695, 1916. Klein, B. G.: Serum Treatment of Bacillary Dysentery; Dysentery; Dysentery Arthritis, Lancet **2**: 775 (Nov. 1) 1919; J. R. A. M. C. **33**: 343, 1919. Cowan, J. N., and Miller, H.: Dysentery; "A Clinical Study," J. R. A. M. C. **31**: 277 (Oct.) 1918. Lunn, W. E. C.: Toxemic Arthritis as a Complication of Acute Dysentery, ibid. **22**: 310, 1914. Görner: Die Therapie der Bazillenruhr, München. med. Wehnschr. **66**: 427, 1919. Thomson, D., and Mackie, T. J.: J. R. A. M. C. **28**: 403, 1917. Jacob, L.: Ueber die Behandlung der Ruhr mit polyvalentem Serum, München. med. Wehnschr. **65**: 640-642, 1918. Fisher, J. B.: Treatment of Acute Bacillary Dysentery, Brit. M. J. **1**: 43 (Jan. 13) 1917. Finlayson, G. A.: Treatment of Acute Bacillary Dysentery, ibid., p. 47. Lantin, T.: Various Methods of Serum Application in Bacillary Dysentery, Philippine J. Sc. (Sec. B) **13**: 261 (Sept.) 1918. Dudgeon, L. S. et al.: Studies of Bacillary Dysentery Occurring in the British Forces in Macedonia, Med. Res. Com., Special Rep. Ser., No. 40, London, 1919. Flexner, Simon: Serum Treatment of Bacillary Dysentery (Biologic Therapy Series), J. A. M. A. **76**: 108 (Jan. 8) 1921.

2. Shiga, K.: Bacillary Dysentery, in Osler and McCrae: Modern Medicine, Ed. 2, Philadelphia **1**: 766-782, 1913. Rosenthal, L.: Zentralbl. f. Bakteriöl., I Ref. **34**: 503, 1904; Zur Aetiologie der Dysenterie (Moscow), Deutsch. Med. Wehnschr. **29**: 97, 1903; ibid. **30**: 235, 1904. Nelli, Luigi: Serum Therapy in Dysentery, Gaz. d. Osp. **40**: 220 (March 30) 1919.

3. In 1919, this serum was very kindly sent to us from the Rockefeller Institute by Dr. Simon Flexner and Dr. Peter Olitsky, and in 1920 we were indebted to the Mulford Biological Laboratories and to Drs. Huntoon and Devereux for our supply.

4. The work in Birmingham, Ala., was performed by Dr. Harold L. Higgins and one of us at the request of Dr. John Howland, and with a grant of money from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

5. Through the kindness of Dr. Henry I. Bowditch, one of us was able to study several cases of bacillary dysentery in children on the Boston Floating Hospital during the summer of 1920. We wish to express our thanks to Drs. Bowditch, Carson, Jones, Peek and Smith for their assistance in this work.

6. Davison, W. C.: Bacillary Dysentery in Children, Bull. Johns Hopkins Hosp. **21**: 225-234 (July) 1920; Divisions of the So-Called Flexner Group of Dysentery Bacilli, J. Exper. Med. **32**: 651-663 (Dec.) 1920.

7. Blackfan, K. D.: The Use of Antimeningococcus Serum in the Treatment of Epidemic Meningitis (Biologic Therapy Series), J. A. M. A. **76**: 36 (Jan. 1) 1921.

feeding after an injection of serum, but in none of the others was there any decrease or increase of appetite as a result of serum. In no instance was vomiting lessened or incited. As might be expected after such comparatively large doses, some of the patients, especially young infants, suffered considerable pain at the site of injection. Serum sickness, consisting of a rise in temperature and urticaria, was noted in several patients but bore no relation to the ultimate outcome of the case or to the severity of any of the other symptoms.

In Table 2, we have divided as accurately as possible the serum treated and untreated patients into severe, moderate and mild groups on the basis of their clinical appearance, degree of fever and number and character of stools. The mortality in the treated and in the untreated severe cases in which the gravest prognosis was made at the start was practically identical. Among the cases we have classified as moderate, the mortality was not favorably affected by serotherapy, for a higher percentage of the treated patients died. We do not

TABLE 2.—MORTALITY OF SERUM TREATED AND UNTREATED PATIENTS

Degree of Severity	Treated			Untreated		
	Number of Treated Patients	Number of Treated Patients Died	Mortality, Per Cent.	Number of Untreated Patients	Number of Untreated Patients Died	Mortality, Per Cent.
Severe.....	9	7	78	13	10	77
Moderate.....	8	3	37	16	5	31
Total of severe and moderate cases.....	17	10	59	29	15	52
Mild.....	3	0	0	24	0	0
Total, including mild cases.....	20	10	50	53	15	28

believe, however, that serum actually increased the mortality, for it is probable that the treated group contained more severe infections. If both the severe and moderate cases are considered together, the higher mortality of the treated series indicates that serum was not beneficial. As there were no deaths in the mild treated and the untreated cases, no conclusions may be drawn from this group or from the total mortality.

In Table 1 we have compared the relation of the number of doses administered to the mortality. At first glance it would appear that, as the mortality among the patients receiving but one treatment was 25 per cent., while in the patients receiving six doses it was 100 per cent., continued serotherapy is harmful.

TABLE 3.—DAY OF DISEASE ON WHICH FIRST SERUM INJECTION WAS GIVEN

Day After Onset on Which First Serum Injection Was Made	Number of Patients	Number Died	Mortality, Per Cent.
From 2d to 3d, inclusive.....	6	3	50
From 4th to 6th, inclusive.....	5	3	60
From 7th to 10th, inclusive.....	4	3	75
From 12th to 18th, inclusive.....	5	1	20
Total.....	20	10	50

This conclusion is not valid, however, because many of the patients receiving but one treatment had moderate or mild infections, while those receiving six doses had severe infections. This table does illustrate, however, that the failure of serum was not due to lack of intensity of treatment and that, in spite of several doses, the mortality was not reduced.

It may perhaps be said, as is indicated in Table 3, that serum administered during the first few days of the disease is somewhat more beneficial than that

injected during the second week. Fifty per cent. of the patients treated before the third day died, while 75 per cent. of those treated between the eighth and tenth days succumbed. The low mortality among the patients treated after the twelfth day of the disease may be explained by Table 4, in which it may be seen that

TABLE 4.—DURATION OF DISEASE IN FATAL TREATED AND UNTREATED CASES

Number of Days After Onset on Which Death Occurred	Number of Fatal Treated Cases	Number of Fatal Untreated Cases
From 3d to 7th, inclusive.....	3	3
From 8th to 12th, inclusive.....	3	5
From 15th to 38th, inclusive.....	4	4
Percentage of total deaths occurring within the first 12 days.....	60%	66%
Mean duration excluding extremes.....	10.5 days	10 days
Average duration	12.1 days	13.2 days

about two thirds of the deaths in bacillary dysentery, whether the patients have received serum or not, occur within the first twelve days, and that patients surviving that period have a much better chance of recovery.

It is clear from Table 4 that serum has no effect in prolonging life in fatal cases, for the mean duration (excluding extremes) for both treated and untreated cases was ten days. The average duration of the disease in fatal treated cases was 12.1 days, and in fatal untreated cases was 13.2 days.

Serotherapy had apparently no effect on the number and character of the stools. The duration of anorexia, prostration and diarrhea did not appear to be shortened by serum treatment. The effect of serum on the rapidity of disappearance of dysentery bacilli from the stools was not studied.

We did not have a sufficient number of instances of Shiga infection from which to draw any definite conclusions in regard to the comparison of the value of serotherapy in Flexner and Shiga infections. In Table 5 we have recorded the mortality in the two types.

TABLE 5.—RELATION OF MORTALITY TO TYPE OF INFECTING DYSENTERY BACILLUS

Type of Infecting Dysentery Bacillus	Number of Treated Patients	Mortality Among Treated Patients, Per Cent.	Number of Untreated Patients	Mortality Among Untreated Patients, Per Cent.
B. dysenteriae (Flexner)....	17	47	48	27
B. dysenteriae (Shiga).....	3	66	4	25

One of the two patients with Shiga infection who received the Rockefeller Institute Shiga antitoxin, as well as polyvalent serum, died. This child received two doses of 20 c.c. of polyvalent antidysenteric serum and four injections of 25 c.c. of Shiga antitoxin at twenty-four hour intervals. In the other patient, serotherapy was apparently beneficial from a clinical standpoint. She received three doses of 20 c.c. of polyvalent antidysenteric serum at twenty-four hour intervals, and one dose of 25 c.c. of Shiga antitoxin on the fourth day. Both of these Shiga infections treated with Shiga antitoxin were severe.

CONCLUSIONS

As far as can be judged from this limited series of cases of bacillary dysentery in children in whom subcutaneous and intramuscular injections of from 20 to 50 c.c. of antidysenteric serum were used, serotherapy did not influence the mortality or the course of the disease. In the very ill, especially in young infants, the pain at the site of injection is a contraindication to the use of intramuscular injections.

CLINICAL STUDIES OF DRUGS OF
THE "DIGITALIS SERIES"

III. APOCYNUM AND CONVALLARIA *

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The treatment of heart disease by drugs other than digitalis is apparently a fairly widespread custom. The drugs commonly employed are those grouped by textbooks¹ as members of "the digitalis series." They include strophanthus, squill, apocynum, convallaria, adonis, oleander, hellebore and euonymus.² It has been our attempt, in the investigation here reported, to determine what foundation, if any, there may be for the use of apocynum and convallaria in the treatment of heart disease, either alone or in conjunction with one of the preparations of digitalis. The study is a continuation of that carried out on the tincture of squill, reported last year.³

APOCYNUM

Apocynum cannabinum, or Canadian hemp, is a plant which has been used medicinally in this country for about a century, having been introduced to the profession by Knapp⁴ in 1826. He reported nineteen cases in which the extract of the plant had been given to provoke vomiting, diarrhea or sweating, with apparently a high degree of success. Knapp first recorded its action on the pulse; having taken a dose of 30 grains of the extract, he noted that his pulse fell from 70 to 50 in one hour, and to 45 in two hours. From 1830 to 1900, one may find a considerable number of references in medical literature to the use of this drug, most of them being favorable reports of its diuretic or emetic action.⁵ Acceptable scientific work on the subject of its action, however, is strikingly absent, although Murray,⁶ in 1889, reported observations showing that its diuretic action was limited to cases of edema due to heart disease, being absent in cases of nephritic

edema. In 1904, Wood⁷ reported a study conducted on animals which showed the drug to be possessed of a stimulating action on the cardio-inhibitory center and a constrictor action on the blood vessels. In 1910, Dale and Laidlaw⁸ isolated a crystalline active principle, cymarin, with which they conducted careful experiments on warm-blooded animals. They concluded that "cymarin has an action which is like that of digitalis in all respects, but is not cumulative." Beco and Dossin⁹ have recently reported further studies of cymarin, in which dogs were used. Other reports which we have been able to find seem to possess chiefly historical interest.¹⁰

METHOD OF STUDY

As one purpose of our investigation was to compare the action of the selected drugs with that of digitalis in the same cases, we chose only the cases in which digitalis acts best, namely, cases of heart disease complicated by auricular fibrillation. We have thus avoided the possibility of controversy regarding the action of digitalis-like drugs in hearts with normal rhythm. Among cases of auricular fibrillation, however, no selection was made; cases were taken as they came to the hospital, without reference to preceding history or underlying cause. In other words, in any case in which digitalis would ordinarily have been administered, either apocynum or convallaria was given first. Patients were allowed to remain in bed without medication for several days, or as long as there was definite clinical improvement or slowing of the heart rate. They then received apocynum or convallaria for a sufficiently long period to demonstrate the action or lack of action of the drug. It was then discontinued. After allowing a lapse of time sufficient for the excretion of the tested drug, each patient was given digitalis. Results which admit of fair comparison were thus obtained. During the time of administration of the drug, and until discharge, daily observations were made by the same observer at the same hour, regarding the rate of the heart (apex), pulse deficit, edema (subcutaneous, hydrothorax, ascites, etc.), diuresis, cyanosis, cough, hemoptysis, precordial pain, palpitation, dyspnea, orthopnea, anorexia, headache, and any particular sign or symptom which individual patients might display. Electrocardiograms were taken daily during the administration of the tested drug, less frequently during the "waiting period," between the administration of that drug and digitalis, and always before, during and after digitalis administration. All patients had also daily determinations of the vital capacity of the lungs. (Exceptions are mentioned below.) As digitalis has a characteristic effect on the electrocardiogram, in which it causes inversion of the T deflection in Lead II, and definite slowing of the ventricular rate in cases of auricular fibrillation, it was thought that we might obtain graphic evidence of the cardiac action of these drugs, if they were possessed of any.

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¹ Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

² Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

³ The previous papers of these studies are: White, P. D., and Satler, R. R.: The Effect of Digitalis on the Normal Human Electrocardiogram, with Especial Reference to A-V Conduction, J. Exper. M. **23**: 613 (May) 1916. White, P. D.; Balboni, G. M., and Viko, L. E.: Clinical Observations on the Digitalis-Like Action of Squill, J. A. M. A. **75**: 971 (Oct. 9) 1920.

⁴ Cushman, A. R.: Pharmacology and Therapeutics, Ed. 3, Philadelphia, Lea & Febiger, p. 375. Sollmann, Torald: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1917, p. 382.

⁵ Cactus grandiflorus is not included in any texts consulted by us, but it appears to be in fairly general use in the treatment of heart failure. That cactus is devoid of all demonstrable action on the heart rate, blood pressure and respiration has been conclusively demonstrated by many observers, and it did not seem worth while to use this substance for clinical studies (Cactus Grandiflorus, Report of the Council on Pharmacy and Chemistry, J. A. M. A. **54**: 888 [March 12] 1910, containing summary of work to date, with references. Lyon, E. P., and Qualls, G. L.: Experiments with "Cactina" and "Cactin," ibid. **55**: 455 [Aug. 6] 1910; Hatcher, R. A., and Bailey, H. C.: Cactus Grandiflorus, ibid. **56**: 26 [Jan. 7] 1911).

⁶ White, P. D.; Balboni, G. M., and Viko, L. E.: Clinical Observations on the Digitalis-Like Action of Squill, J. A. M. A. **75**: 971 (Oct. 9) 1920.

⁷ Knapp, M. L.: Dissertation on the Properties of Apocynum Cannabinum, Am. M. Rev. & Jour. **3**: 194, 1826.

⁸ Dabney, T. S.: Apocynum, the Vegetable Trocar, Therap. Gaz. **14**: 730, 1898. Lowrey, J. H.: Apocynum Cannabinum, New York M. J. **60**: 472, 1894. Glinski, J., quoted in New York M. J. **60**: 320, 1894.

⁹ Murray, G. R.: The Physiological Action and Therapeutic Value of Apocynum Cannabinum **5**: 585, 1889.

¹⁰ Wood, H. C., Jr.: A Study of Apocynum Cannabinum, J. A. M. A. **43**: 1953 (Dec. 24) 1904.

⁸ Dale, H. H., and Laidlaw, P. P.: The Action of an Active Principle from Apocynum, Heart **1**: 138, 1909-1910.

⁹ Beco, L., and Dossin, F.: Experimental Research on the Physiologic Cardiovascular Action of the Active Principle of Apocynum, Arch. d. mal du cœur **13**: 376, 1920.

¹⁰ Hurd, E. P.: New York M. J. **22**: 281, 1882. Griscom, J. H.: Observations on Apocynum Cannabinum, Am. J. M. Sc. **12**: 55, 1833. Schmiedeberg, O.: Arch. f. exper. Path. u. Pharmacol. **16**: 149; abstr. Therap. Gaz. **4**: 147, 1883. Sokoloff, D. A.: On the Action of the Root of Apocynum Cannabinum on the Heart and Vascular System in Warm-Blooded Animals, Ejenedelnaia Klinicheskaia Gazeta, Nos. 25-26, p. 507, 1888; abstr. Med. Chron. **8**: 466, 1888. Gray, R. B.: Apocynum Cannabinum: Its Use by American Indians, New York M. J. **60**: 759, 1894. Kimball, J. P.: Apocynum Cannabinum: Its Use in Snake Bites, ibid. **61**: 21, 1895. Woodhull, A. A.: Apocynum Cannabinum, a Diuretic Plant, Brit. M. J. **2**: 1714, 1897.

The preparation of the drug used in this study was the fluidextract. Three different specimens were obtained from three pharmaceutic houses, and all of

times as powerful as that of the official tincture of digitalis.

DOSAGE

The dose recommended for the fluidextract is 1 c.c. In our first few cases, we began with this dose, but found that it caused intense nausea and prolonged vomiting in every case; with a single exception, vomiting occurred within thirty minutes of such a dose. A routine dose of 0.5 c.c. gave almost the same effects, so it became our practice to administer the drug in doses of 0.1 c.c. for each 30 pounds (13.6 kg.) of body weight, such dose being given in gelatin capsules three times a day. In cases in which quick action seemed desirable, we began with one dose, slightly larger than

TABLE 1.—FROG-UNIT STRENGTH OF APOCYNUM *

Parke-Davis	.....fluidextract, 0.000225	c.c. per gram of body weight
Eli Lilly	.....fluidextract, 0.0002	c.c. per gram of body weight
Sharpe & Dohme	.....fluidextract, 0.0002	c.c. per gram of body weight

* Figures refer to the amount of drug required to cause systolic arrest of the heart in one hour.

them were tested on frogs.¹¹ This was done under the direction of Dr. Worth Hale, of the department of pharmacology of the Harvard University School of

TABLE 2.—EFFEC

Case	Diagnosis*	Total Dose, C.e.	Number of Days	Apex Rate		Pulse Deficit		Cyanosis		Edema		Weight, Lbs.		Dyspnea		Palpitation		General Subjective Sensation	
				Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
1	Rheumatic heart	6	5	95	62	10	2	0	0	Slt.	0	110	107	Mod.	0	Mod.	0	Poor	Well
2	Rheumatic heart	15.3	13	102	64	19	4	0	0	0	0	135	139	Mod.	Mod.	Mod.	Mod.	Poor	Better
3	Rheumatic heart	11.7	13	95	58	20	8	Slt.	0	Mkd.	Mod.	...	...	Mod.	Slt.	Mkd.	Slt.	Poor	Better
4	Rheumatic heart	9	19	140	76	70	12	Mkd.	Mod.	Mkd.	Mkd.	91	92	Mkd.	Mod.	Mkd.	Mkd.	Poor	Poor
5	Rheumatic heart	4	3	118	66	28	4	0	0	Slt.	0	104	102	Mod.	Mod.	Mod.	Mod.	Poor	Poor
6	Rheumatic heart	4.5	3	140	78	70	0	0	0	Slt.	Slt.	...	...	Mod.	Mod.	Oee.	0	Poor	Poor
7	Cardiosclerosis..	11.5	10	110	62	60	2	0	0	Slt.	0	140	140	Slt.	Slt.	Oee.	0	Poor	Better
8	Cardiosclerosis..	8.2	7	140	66	48	2	0	0	Mkd.	0	128	117	Mkd.	0	0	0	Poor	Better
9	Cardiosclerosis..	11.5	5	120	60	12	2	0	0	0	0	141	142	0	0	0	0	Fair	Better
10	Thyroid heart...	15.5	14	125	120	5	5	0	0	0	0	...	...	0	0	Slt.	Slt.	Well	Well
11	Thyroid heart...	4.8	4	190	150	100	44	0	0	0	0	94	92	0	0	Slt.	Slt.	Poor	Poor
12†	Thyroid heart...	4.7	4	140	100	14	..	0	0	0	0	97	89	0	0	Slt.	0	Poor	Poor

* All were cases of auricular fibrillation.
† Numerators represent systolic pressure; denominators, diastolic.
‡ Case 12 demands a word of explanation. In this patient there was a resumption of normal rhythm on the fourth day after starting apocynum, and it is possible that apocynum may have been instrumental in causing the change. The auricles later fibrillated, but there was no opportunity for repeating the experiment. The loss of 8 pounds weight in four days is probably explained by the severe diarrhea which developed (twelve watery movements a day) and the metabolism of +44 per cent.

TABLE 4.—EFFEC

Case	Diagnosis*	Total Dose, C.e.	Number of Days	Apex Rate		Pulse Deficit		Cyanosis		Edema		Weight, Lbs.		Dyspnea		Palpitation		General Subjective Sensation	
				Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
1	Rheumatic heart	109	19	142	80	24	0	0	0	0	0	110	109	Slt.	0	Slt.	0	Poor	Well
2	Rheumatic heart	14	6	118	80	28	0	Slt.	Slt.	..	..	112	110	Mkd.	Slt.	Mkd.	Slt.	Poor	Sl. imp.
3	Rheumatic heart	106	6	88	84	4	10	0	0	0	0	121	119	0	0	0	0	Well	Well
4	Rheumatic heart	40	3	80	80	20	22	0	0	0	0	190	190	0	0	0	0	Well	Well
5	Rheumatic heart	50	2	80	82	10	12	0	0	0	0	98	98	Slt.	Slt.	Slt.	Slt.	Fair	Poor
6	Cardiosclerosis..	45	2	128	75	56	4	Mod.	Mod.	0	0	176	175	Mkd.	Slt.	Slt.	Slt.	Poor	Poor
7	Cardiosclerosis..	35	3	90	58	30	16	Mkd.	Mkd.	0	0	165	164	0	0	Slt.	Slt.	Fair	Fair
8	Cardiosclerosis..	75	4	132	78	52	6	Mod.	Mod.	Slt.	0	127	117	Mod.	Slt.	Slt.	Slt.	Fair	Well
9	Cardiosclerosis..	105	7	100	64	14	0	Slt.	Slt.	Mkd.	0	175	161	Mkd.	0	Slt.	0	Poor	Well
10	Thyroid heart...	10	5	110	135	18	15	0	0	0	0	...	...	Slt.	Slt.	Slt.	Slt.	Fair	Poor
11	Thyroid heart...	60	9	140	110	10	6	0	0	0	0	...	...	0	0	Slt.	Slt.	Fair	Fair
12	Thyroid heart...	55	4	96	92	10	10	0	0	0	0	117	112	Slt.	Slt.	Slt.	Slt.	Fair	Fair

* Auricular fibrillation in all cases.
† Numerators represent systolic pressure; denominators, diastolic.
Summary: Total dose, from 9.5 to 109 c.e. Number of days, from 2 to 19. Apex rate, above 100 in 7, above 80 in all; decreased more than 30 beats in 7, no decrease in 5. Pulse deficit, from 4 to 56 beats before decreased six or more beats in 6. Dyspnea, present in 8; decreased in 10. Cyanosis, present in 6; changed in none. Palpitation, present in 10; diminished in 4. Edema, present in 2; decreased in 2. Weight

Medicine. Tested in this manner, the drug was found to have the frog-unit strength indicated in Table 1.

It is to be noted that the figures in Table 1 are in terms of the fluidextract; the strength of the tincture will be represented by figures ten times as large. It is therefore obvious that the action of tincture of apocynum on the frog's heart is almost precisely three

would be indicated on the basis of body weight, and then continued with the calculated amount three times a day.

RESULTS

We have studied the action of apocynum in the manner indicated in twelve cases of heart disease with auricular fibrillation, and one case of heart disease with auricular flutter. Three of these patients were in the House of the Good Samaritan, and they did not have daily electrocardiograms or vital capacity determinations. The twelve cases with fibrillation included three cases with exophthalmic goiter, in two of which the fibrillation seemed to be associated with the thyroid condition; in the third, there was a definite history of repeated rheumatic attacks preceding the development of the hyperthyroidism. These three cases form a special group as regards the response to treatment with apocynum.

11. While this article was in course of publication, Dr. R. A. Hatcher kindly determined the cat unit strength of the specimens of apocynum and convallaria which were used in our studies. The following quotation from Dr. Hatcher's report is of considerable interest: "The apocynum is about thirty times as active as an average good specimen of digitalis tincture; that is, 0.035 c.c. of the fluidextract is equal to a cat unit. This agrees very closely with the test on frogs (the fluidextract being ten times the strength of the tincture). The fluidextract of convallaria is about forty times as active as a good specimen of tincture of digitalis, according to my test, 0.25 c.c. being equal to one cat unit. This would indicate that it is about 30 per cent. more active by the cat test than by the frog test. Each of two cats received oral doses of 0.7 c.c. of the fluidextract of apocynum per kilogram of weight through a stomach tube (20 cat units per kilogram). They vomited after twenty-seven and thirty-four minutes, respectively; one of them vomited many times. Both showed either diarrhea or intestinal evacuation."

Production of Heart Block; Clinical Improvement.—In the nine cases of fibrillation not of thyroid type, the action of apocynum was marked by a quick reduction in the apex rate of the heart, a diminution in the pulse deficit, diuresis in all cases in which there was edema, and simultaneous improvement in the general clinical condition. Of the three cases associated with hyperthyroidism, two responded by a slight drop in the heart rate; the third resumed normal rhythm several days after the drug was started, although auricular fibrillation again made its appearance about ten days later. In none of these three cases was there any clinical improvement whatever. In the one case of heart disease complicated by auricular flutter

of apocynum are more severe than the same symptoms following overdosage with digitalis.
Duration of Action.—The action of apocynum on the heart was manifested only so long as it was given three times a day. In all cases, signs and symptoms which had disappeared under its use began to reappear

APOCYNUM

Nausea		Vomiting		Diarrhea		Vital Capacity, C.c.		Blood Pressure,† Mm. Hg			Electrocardiographic Changes	Response to Digitalis
Before	During	Before	During	Before	During	Before	After	Before	During	After		
0	0	0	0	0	0	1,614	1,922	112/ 70	112/ 70	110/ 75	Block; inversion of T.....	Not given
0	Mkd.	0	Mkd.	0	0	1,390	2,088	124/ 82	120/ 90	120/ 85	Block; T slightly diphasic before treatment; more so after.....	Excellent
0	Mkd.	0	Mkd.	0	0	1,082	1,082	160/100	158/100	160/100	Block; inversion of T.....	Excellent
0	Mkd.	0	Mkd.	0	0	.....	.....	120/ 72	118/ 72	110/ 76	.....	Excellent
0	Mkd.	0	Mkd.	0	0	1,390	1,810	120/ 76	112/ 74	120/ 74	Block; no change in T wave.....	Excellent
0	Mkd.	0	Mkd.	0	0	1,054	1,082	Not done			Block; no change in T wave.....	Excellent
0	Mkd.	0	Mkd.	0	0	.....	.....	145/100	140/100	135/ 95	.....	Excellent
0	Mkd.	0	Mkd.	0	Slt.	1,194	1,950	160/110	162/115	156/110	Block; inversion of T.....	Excellent
0	Slt.	0	Slt.	0	0	2,500	2,948	Not done			Block; decrease in height of T.....	Excellent
0	Slt.	0	Slt.	0	0	.....	.....	140/ 85	142/ 80	140/ 85	.....	Fair
0	Mkd.	0	Mkd.	0	0	1,194	1,598	132/ 80	140/ 60	130/ 60	Block (slight); no change in T wave.....	Excellent
0	Mkd.	0	Mkd.	0	Severe	.....	.....	122/ 58	128/ 60	120/ 58	Block; prolonged P-R interval; normal rhythm resumed.....	Fair

Summary: Total dose, from 4 to 15.5 c.c. Number of days, 3 to 19. Heart rate, above 100 in 10 cases, above 90 in all; reduced (30 or more beats) in 11. Pulse deficit, from 5 to 100 beats before; reduced (8 or more beats) in 11. Dyspnea, present in 8; reduced in 6. Cyanosis, present in 2, decreased in 2. Palpitation, present in 10; diminished in 7. Edema, present in 7 cases; reduced in 5. Subjective improvement in 6 cases. Nausea occurred in 11 cases; Vomiting occurred in 11 cases. Vital capacity, done in 8 cases; increased (more than 100 c.c.) in 6. Changes in electrocardiogram, heart block in all of the 9 cases studied; inversion of a previously flat or upright T in 3 cases; decrease in height of T in 1 case. Response to digitalis given to 11 cases; response excellent in 9, fair in 2.

CONVALLARIA

Nausea		Vomiting		Diarrhea		Vital Capacity, C.c.		Blood Pressure,† Mm. Hg			Electrocardiographic Changes	Response to Digitalis
Before	During	Before	During	Before	During	Before	After	Before	During	After		
0	Slt.	0	Mod.	0	Slt.	.....	1,054	170/100	.....	170/100	.....	Excellent
0	Slt.	0	Mod.	0	0	970	1,054	170/100	170/108	170/100	Heart block; inversion of T became less.....	Excellent
0	0	0	0	0	0	1,866	1,754	112/ 75	110/ 70	110/ 70	Block; no change in T wave.....	Excellent
0	0	0	0	0	0	1,894	2,220	136/ 72	135/ 82	135/ 80	No block or change in T wave.....	Not given
0	Slt.	0	Mod.	0	Severe	1,446	1,754	.....	.....	.....	Slight block; inversion of T wave.....	Excellent
0	Slt.	0	Mod.	0	0	3,200	4,068	140/ 90	.....	138/ 88	Block; inversion of T wave.....	Excellent
0	0	0	0	0	0	1,838	1,474	122/ 90	124/ 90	128/ 86	Block; no changes in T wave.....	Not given
0	Slt.	0	Mod.	0	Slt.	2,332	2,864	120/ 92	120/ 90	122/ 90	Block; inversion of T wave (slightly diphasic in beginning).....	Excellent
0	Slt.	0	0	0	Slt.	1,390	2,724	.....	.....	.....	Block; no change in T wave.....	Excellent
0	Slt.	0	0	0	Slt.	.....	.....	.....	.....	.....	.....	Excellent
0	Slt.	0	Mod.	0	0	.....	.....	.....	.....	.....	.....	Excellent
0	Slt.	0	0	0	Slt.	1,194	1,390	160/ 70	170/ 72	162/ 70	No block or change in T wave.....	Excellent

Increased more than 5 pounds in 3 (one of these was a case of hyperthyroidism with a basal metabolism of +44 per cent.). Subjective improvement occurred in 4 cases. Nausea occurred in 9 cases. Vomiting occurred in 6 cases. Diarrhea, in 6 cases. Vital capacity, done in 9 cases; increased (100 c.c. or more) in 6. Blood pressure studied in 7 cases; no changes. Changes in electrocardiogram, heart block in 6 cases; inversion of T wave in 3 cases. Response to digitalis given in 10 cases; excellent response in all.

apocynum acted in the manner which is typical of digitalis: fibrillation appeared within several hours of the first dose of the drug, which was then discontinued, and normal rhythm was resumed on the second day thereafter.¹²
Nausea and Vomiting.—In eleven of the twelve cases cited, there was intense nausea and vomiting. It was the appearance of these symptoms which necessitated the withdrawal of the drug in almost every instance. The nausea was of a particularly severe character, often not relieved at all by the vomiting, which was a constant accompaniment. It was so marked as to overshadow and obliterate the memory of the drug's good effects in every patient. It has been the impression of all of us who have watched these cases that the nausea and vomiting following the administration

within forty-eight hours of its discontinuance, and in most cases there was a distinct rise in the rate of the heart within twenty-four hours after the drug was stopped.
Diuresis.—Seven of the twelve patients had edema at the time treatment was begun. Of the seven, five showed a definite decrease in the amount of edema which was demonstrable, and four of them showed a corresponding loss of weight. (The fifth patient was not weighed before treatment was started.)
Diarrhea.—This occurred in only two cases; in one it was of moderate severity, in the other it was very severe, and continued for several days after the drug was stopped.
Blood Pressure.—Determinations were made in ten cases, usually every other day before, during and after the course of treatment. The most forceful pulsations were recorded. In no case was there a change in either

12. This patient has been seen once since her discharge from the hospital, at which time she showed auricular fibrillation.

systolic or diastolic pressure greater than 10 mm. of mercury, and in only two was the change as great as that.

Vital Capacity.—Eight patients of this series had daily vital capacity determinations. Six of them showed an increase during the period of administration of apocynum; these six patients all showed definite clinical improvement, the greatest improvement being shown in those patients whose vital capacity increased most. These results are in accord with those of Peabody and Wentworth,¹³ but in none of our cases was the increase in vital capacity sufficient to be of importance in estimating the degree of clinical improvement.

Changes in Electrocardiogram.—Of the nine patients studied by means of daily electrocardiograms, three showed definite inversion of the T deflection in Lead II during treatment with apocynum; the same patients showed an upright or flat T before and after treatment. One patient showed a decrease in the height of the T deflection (from 0.25 to 0.15 millivolt) without inversion; one resumed normal rhythm; one showed at entrance a T already inverted, probably from digitalis, which became slightly less so during the administration of apocynum. The two remaining patients showed no changes except definite slowing of the ventricular rate.

Comparison with Digitalis.—All of the twelve patients received digitalis after the effect of apocynum had been recorded. (In one case, the digitalis was taken after the patient left the hospital, but the results were carefully watched.) In every case, the favorable effect due to apocynum was exceeded by that due to digitalis; the lowering of the apex rate, the diminution in the pulse deficit, the diuresis, the clinical improvement, all took place to a greater degree, in a shorter time, without discomfort to the patient, and were more prolonged.

SUMMARY

The action of fluidextract of apocynum has been studied in a series of twelve cases of heart disease with auricular fibrillation and one case of heart disease with auricular flutter. The drug was given by mouth; clinical and electrocardiographic observations were recorded daily. If we exclude three cases of hyperthyroidism, the action of the drug on the heart in all cases, measured by clinical observations, was similar to that of digitalis. Its emetic action was pronounced in all cases except one, and occurred with the smallest doses that had any demonstrable effect on the heart. Its action on the heart, as judged by slowing of the rate, lessening of the pulse deficit, and improvement in symptoms, was extremely transient, disappearing in most cases within forty-eight hours, and in many within twenty-four hours, after it had been stopped. Blood pressure determinations showed no changes worthy of mention. Vital capacity determination showed in the majority of cases a slight increase following the administration of the drugs, the increase being coincident with, and roughly parallel to, clinical improvement. Electrocardiograms showed inversion of the T deflection in Lead II in three cases, and slowing of the ventricular rate in all. Digitalis administered subsequently in the same cases had a more pronounced beneficial effect, which lasted for many days and was not accompanied by the extreme discomfort which followed the use of apocynum.

Table 2 indicates the effect of apocynum on some of the more important signs and symptoms of heart disease.

CONVALLARIA

Convallaria majalis, or lily of the valley, has been known in medicine for several hundred years. Laigre,¹⁴ in 1903, refers to its use as early as 1580 by a French physician, who wrote concerning it: "The Germans use it much to fortify the heart, the brain, and other noble organs. They employ it also against palpitation." As far as one may judge from references to literature not now available, its use during the sixteenth and seventeenth centuries and a part of the eighteenth century was confined largely to cases requiring emesis or catharsis; but in 1770, according to Laigre, "the stimulating, diuretic and calming virtues of the plant in asthma due to cardiac trouble" were recognized by Ferrein. Since 1880, a large majority of all articles concerning its therapeutic use have emphasized its "truly remarkable diuretic properties," and at least one writer has pleaded for its universal adoption under the attractive caption: "Convallaria, the Vegetable Trocar." It is difficult to escape the conclusion that convallaria has been effective in causing diuresis in certain cases reported, but the literature is confusing because of the number of different preparations of the plant which have been employed. Thus, Moriquard¹⁵ and Dellenbaugh¹⁶ have recommended the infusion of the leaves, Germain See¹⁷ preferred the aqueous extract of the whole plant; Hurd¹⁰ used the fluidextract of the root, while Laigre¹² recognizes differences in the action of the two glucosids contained in the plant, convallarin and convallamarin, and urges the use of these glucosids.

The official (N. F.) preparation in this country is the fluidextract of the root, and it is this preparation which was used in the present study.

The method of study has been given in detail in an earlier section of the paper, and need not be discussed again. The cases studied were selected in the same manner as those for the apocynum investigation, and were twelve in number, all of them being cases of heart disease complicated by auricular fibrillation. Of these twelve, three were cases of hyperthyroidism, but they did not form so distinct a group in this study as they did in the other. The remaining nine cases comprised five with rheumatic heart disease and four with cardiosclerosis.

It is readily seen from Table 3 that convallaria, tested on the frog's heart, possesses the same strength as apocynum and is approximately three times as powerful as digitalis.¹¹

The dose of the fluidextract recommended is 0.5 c.c.; the dose employed by us in almost all cases was as large as 5 c.c., three times a day, and in many cases as high as 10 c.c.; one patient actually receiving 15 c.c., three times a day. In the first few cases, we began treatment with the dose recommended, but finding it without demonstrable action, we increased it rapidly. In later cases, we began routinely with doses of 5 c.c., three times a day.

14. Laigre, J.: Muget et suc de muguet, *Revue de thérap. méd.-chir.* 51: 757, 1903.

15. Moriquard, G., and Jujol, G.: On the Diuretic Action of the Infusion of Lily of the Valley in Children, *Progrès Méd.* 28: 499, 1912.

16. Dellenbaugh, Z. P., quoted in *New York Medical Record* 28: 196, 1882.

17. See, Germain: On Cardiac Hypertrophy, etc., *Semaine méd.*, 1885, p. 3.

13. Peabody, F. W., and Wentworth, J. A.: Clinical Studies of the Respiration, *Arch. Int. Med.* 20: 443 (Sept.) 1917.

RESULTS

Production of Heart Block; Clinical Improvement.—

In regard to the action of the drug, the twelve cases may readily be divided into two groups: those which responded with improvement, and those which showed no change whatever or actually grew worse. The first group is composed of two cases; the remaining ten fall into the second. The criteria used for estimating clinical

In both of these, the edema was decreased, and in one it disappeared entirely. The latter case is the one which showed the greatest clinical improvement of the entire twelve.

Vital Capacity.—This was determined daily in nine cases, the other three being patients at the House of the Good Samaritan. In only six was there an increase of as much as 100 c.c. In the two patients who showed clinical improvement, the percentage of increase in vital capacity was greatest. No comparison between vital capacity increase and clinical improvement is possible in the remaining cases, because there was no clinical improvement.

Blood Pressure.—Blood pressure determinations (maximal beats) were made in seven cases in this series, readings being made at intervals of two days. Comparison of the figures before, during and after the period of convallaria administration shows that the greatest change was 10 mm. of mercury, which occurred in one case (a rise during the time the patient was receiving convallaria). This had returned to its previous level within two days. No other case showed a change

in systolic or diastolic pressure greater than 4 mm., at any time.

Diarrhea.—This occurred in six of the cases, being slight in two cases, moderately severe in three, and very severe in one. As there had been no change whatever in the regimen of these patients, except the administration of convallaria, and as the diarrhea stopped promptly when the drug was withdrawn, it seems fair to conclude that there may have been a causal relation between the two.

cal improvement were those already mentioned: lowering of apex rate, diminution in pulse deficit, diuresis, and a decrease in such symptoms as dyspnea, cough, palpitation, insomnia, anorexia and headache, as well as the patient's sense of well-being, or the reverse. The two patients who showed clinical improvement were cases of cardiosclerosis without evidence of valve damage; in both, the action of the drug was similar to that of digitalis (given subsequently) except that one of them did not show inversion of the T deflection of the electrocardiogram. Heart block was produced in six cases. Further details are given in Table 4.

It is interesting to note the reasons for stopping the drug in the ten cases which did not show improvement. They are: slowing of the heart rate (without any improvement in symptoms), one; excessive diarrhea and abdominal pains, one; increase in signs and symptoms of heart failure, one; simple failure to improve, even with massive doses, one; failure to improve plus nausea or vomiting, six.

Nausea and Vomiting.—As noted above, this occurred in a majority of the cases—nausea in nine, and vomiting in six. In no case was the nausea or vomiting so intense and distressing as that seen following the administration of apocynum.

Duration of Action.—The transient nature of the action of this drug is definite, but not so marked as in the case of apocynum. In several cases, there was an increase in the rate of the heart and recurrence of symptoms within twenty-four hours after the drug was withdrawn. The time elapsing between the stopping of convallaria and the administration of digitalis, however, averaged about three days for the whole series, the extremes being three hours, and seven days.

Diuresis.—It is unfortunate that only two of our cases showed edema at the time of giving convallaria.

Changes in Electrocardiogram.—Eight cases had daily electrocardiograms, and of these, three showed a definite inversion of the T deflection in Lead II. Of the remaining five, two showed reduction in the ventricular rate, and three showed no changes whatever.

Comparison with Digitalis.—Of the twelve patients, ten received digitalis subsequently. (Two patients left the hospital against advice before receiving it.) In all

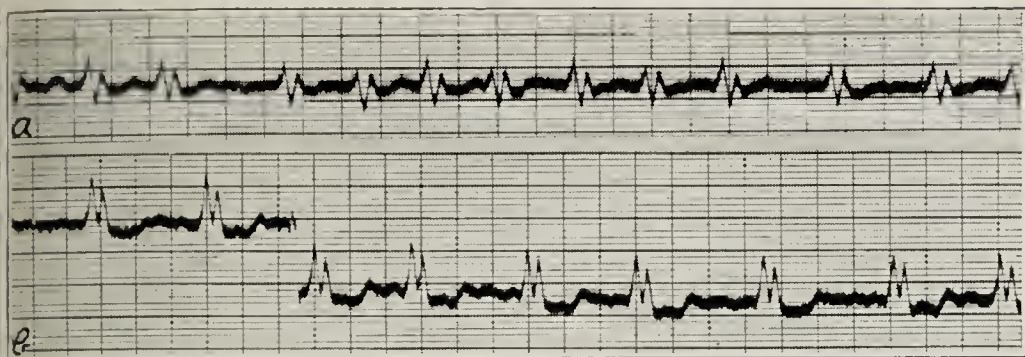


Fig. 1 (Case 8, apocynum).—Cardiosclerosis, right bundle branch block: a, Lead II, just before apocynum was started; ventricular rate, 140; T wave positive and averages 0.1 millivolt in height. b, Lead II, three days later; rate, 90; T wave diphasic, averaging minus 0.2 millivolt and plus 0.1 millivolt. QRS complex shows marked increase in amplitude. Total amount of apocynum, 4 c.c. (In this and the succeeding electrocardiograms, distances between ordinates represent 0.2 second; between abscissas, 10^{-4} volt.) The change in level of the string indicates a change in potential of 1 millivolt of current, and is inserted to show standardization of string tension.



Fig. 2 (Case 3, apocynum).—Rheumatic heart disease, mitral stenosis. a, Lead II, taken at 9 a. m., before apocynum. (Inversion of T due to digitalis taken the previous week.) Rate, 110; T wave inverted (minus 0.1 millivolt). b, Lead II, taken at 6 p. m., after two doses of apocynum, 1 c.c. each. Rate, 84; T wave more deeply inverted (minus 0.25 millivolt). c, Lead II, taken five days later, after digitalis 1.2 gm. Rate, 84; T wave inverted (minus 0.25 millivolt).

ten cases, the administration of digitalis was followed by definite, prompt improvement, subjective and objective, showing that the failure of convallaria to act was not due to any peculiarity of the patients.

SUMMARY

The action of fluidextract of convallaria has been studied in twelve cases of heart disease complicated by

2. In one case of auricular flutter, the administration of apocynum was followed within several hours by a change to auricular fibrillation. The drug was withdrawn, and normal rhythm was resumed two days later. So far as we are aware, this is the first case reported illustrating the action of apocynum in auricular flutter.

3. Similar clinical studies on the fluidextract of Convallaria majalis indicate that only in occasional cases does it have any favorable action on the heart in auricular fibrillation; even in these occasional cases, its action does not resemble that of digitalis in all details.

4. It would seem from our results that neither apocynum nor convallaria can be used as substitutes for digitalis. In our experience, digitalis has been characterized by quicker action, more pronounced effects, less discomfort, and more prolonged improvement, than are seen following either of the other drugs. We are convinced that both of these members of the digitalis series have no place in the rational treatment of heart failure.

ABSTRACT OF DISCUSSION

DR. ROBERT A. HATCHER, New York: A single study such as this increases our knowledge of apocynum and convallaria more than all of the work of the century preceding. I should like to call attention to the similarity of results to those obtained in our laboratory in one case, and the dissimilarity in the other. We found that massive doses of convallaria might be given orally without perceptible effects in some

cases. This corresponds quite well with the observations just reported. Fifteen cubic centimeters of fluidextract of convallaria is equivalent in cardiac activity to 45 c.c. of tincture of digitalis. That dose of convallaria was given several times in the course of a day. If this study will result in the dismissal of convallaria from the materia medica, the authors will have performed a great service. It is, of course,

auricular fibrillation. The drug was given by mouth in doses varying from 0.5 to 15 c.c., three times a day. It was followed by clinical improvement in two cases; in the remaining ten, it had no favorable action on the heart and circulation, and in several it caused unfavorable symptoms which demanded its discontinuance. Nausea or vomiting occurred in nine cases; diuresis in the two patients who showed edema at the beginning of treatment. Diarrhea was noted in six cases, and was of moderate or marked severity in four. Blood pressure determinations showed no changes. Vital capacity was increased in six instances; in only three was the increase marked. In only two cases was there any evidence of a sedative action, and in one of these it was so slight as to be questionable. Electrocardiograms showed in three instances a typical digitalis-like inversion of the T deflection in Lead II. The action of the drug was very transient. Digitalis given subsequently in the same cases had a uniformly prompt and favorable action.

CONCLUSIONS

1. The results of clinical studies on the fluidextract of Apocynum cannabinum indicate that the drug has, in some degree, a digitalis-like action in cases of heart disease with auricular fibrillation. Its possible usefulness in the treatment of heart failure, however, is markedly limited by the discomfort, nausea and vomiting which invariably follow its administration in doses sufficiently large to affect the heart.

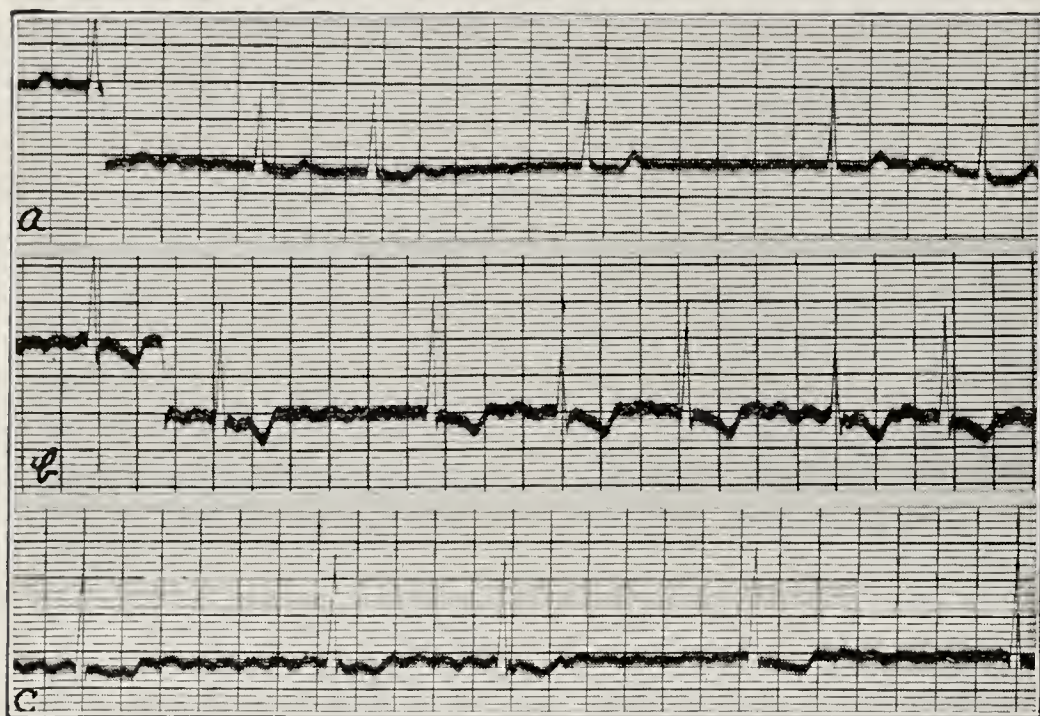


Fig. 3 (Case 5, convallaria).—Rheumatic heart disease, mitral stenosis: *b*, Lead II, taken three days after starting convallaria; shows deep inversion of the T wave (minus 0.3 millivolt); total amount of drug, 30 c.c. *a*, Lead II, taken six days after *b* (six days after stopping convallaria), showing that the normal wave in this patient is positive (plus 0.1 to 0.2 millivolt). *c*, Lead II, taken six days after *a*, showing inversion from 1.3 gm. of digitalis (minus 0.15 millivolt).

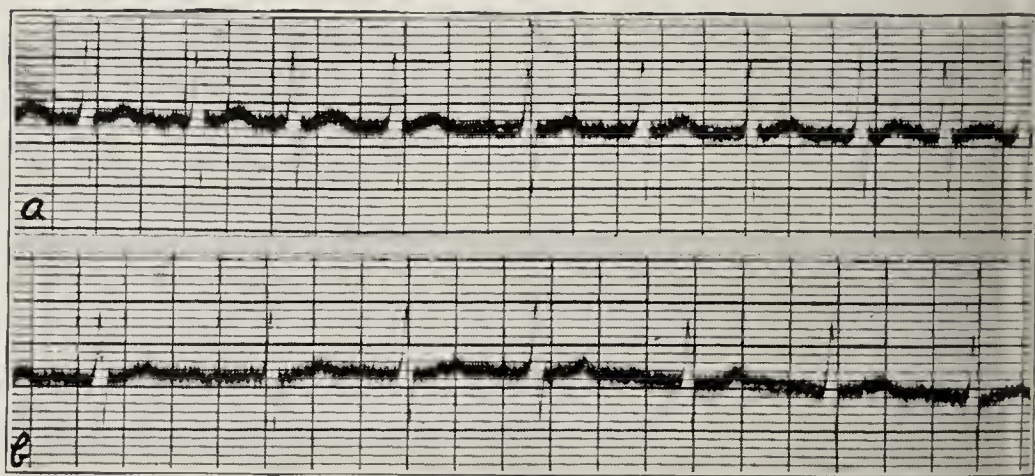


Fig. 4 (Case 12, convallaria).—Cardiosclerosis: *a*, Lead II, taken before starting convallaria; rate, 120; T wave positive (plus 0.15 millivolt). *b*, Lead II, after seven days of convallaria, total dose of 105 c.c.; rate, 84; T wave still positive (plus 0.1 millivolt).

beyond question that many clinicians are not prepared to make such careful observations, and that they will often confuse the results of the drug with cardiac disease; and, failing to observe an improvement with ordinary doses, they will push the administration of a drug of this type until the patient dies of digitalis poisoning. In other cases in which they rely on the drug, the patient goes on to death through the want of any relief at all. In the case of convallaria the results here reported clinically are in harmony with those in the laboratory of pharmacology. As to apocynum, the

difference is more apparent than real. In some cases the nausea occurs in a few minutes after the administration of a moderate dose of apocynum, and there was no greater effect in many cases from ten times as much because rapid emesis or purgation prevented further absorption. When emesis fails to occur, rapid absorption of the toxic dose may take place. While it is safe to use such drugs when they are observed as carefully as in this case, they are dangerous in the hands of the clinician not prepared to make these observations. I hope we will dismiss from the *materia medica* the members of this group, which have no advantage over digitalis.

DR. PAUL D. WHITE, Boston: It is very often of interest to compare the action of different drugs on the same subject. One can form conclusions of great value, when the individual variations may be dispensed with in this way. One of the subjects now reported by Dr. Marvin was also a subject of our squill investigation last year. She was a woman, aged 36, who had rheumatic heart disease and auricular fibrillation. She received 1 gm. of digitalis by mouth at one dose. The result showed marked objective and symptomatic improvement. The pulse became much slower than before the large dose with less deficit. Toxic effects were negligible. The apical pulse rate dropped from 130 to 55 within twenty-four hours. This showed very strikingly the digitalis effect. Several weeks later, tincture of squill was administered, 2 c.c., three times daily. During the next five days she received 32 c.c. of tincture of squill with absolutely no effect until, finally, nausea occurred. There was no increase in urine output; marked pulse deficit persisted; the apex rate was 138; there was no drop in pulse rate from squill. The patient was symptomatically worse. Later on in other patients, we found it necessary to increase the dose of tincture of squill to 2 or 4 drams in order to get digitalis action. This patient received fluidextract of apocynum. A single dose of 1 c.c. was promptly vomited. Another dose of 1 c.c. was given in three hours, and a second dose of 0.36 c.c. three hours later. At the time of the first dose, the apex rate was between 160 and 170; the radial rate was 70. The patient was suffering from precordial pain, extreme palpitation of the heart, marked dyspnea, and a sense of fulness in the abdomen. There was slight cyanosis of the hands, lips and face. Four and a half hours after the last dose of apocynum, the pulse rate was 60 at the apex and wrist, and all of the symptoms mentioned had disappeared. However, the drug caused intense nausea and persistent vomiting followed. On another occasion 13.6 c.c. of the fluidextract of convallaria was given in six days. Considerable subjective improvement resulted, but nausea and vomiting necessitated stopping the drug. The apex pulse rate had dropped from 118 to 80, and the pulse deficit from 28 to zero. The effect was transient, the recurrence of tachycardia requiring digitalis within three days.

DR. CARY EGGLESTON, New York: A remarkable feature in the observations on apocynum is the question of the apparent dissociation between its emetic action and its cardiac action. All of the digitalis bodies are capable of producing emesis and virtually solely after absorption by central stimulation. In the case of digitalis, while emesis is a frequent occurrence, it almost never occurs so early as to interfere with the development of therapeutic effects. In the case of apocynum it was striking that in almost all instances emesis developed very early and with much smaller doses than were required to produce therapeutic effects. Drs. Marvin and White show that even though apocynum was apparently rapidly absorbed from a single dose, the amounts required to produce therapeutic effects were very much larger, in terms of activity, than those required in the case of digitalis. They found that an average of 9 c.c. of fluidextract of apocynum was required to produce therapeutic effects. This, when reduced to terms of activity, corresponds to 270 c.c. of tincture of digitalis as the average dose required, which is approximately ten times the average dose; so that even when the drug is given in doses which do not promptly produce vomiting, and even though, as indicated by the vomiting, its absorption is rapid the development of its action on the heart is very slow.

DR. HAROLD M. MARVIN, Boston: In trying to investigate the extent to which these drugs are now employed clinically,

one of our methods was to request a report of yearly sales from some of the leading pharmaceutical houses. Three of them were kind enough to send us their figures. One reported that sales had fallen off materially; two reported that there had been but little reduction in the annual sales, which amounted to about 15,000 pints of the fluidextract.

VALUE OF BONE PIN ARTHRODESIS IN THE TREATMENT OF FLAT FOOT*

ROBERT E. SOULE, M.D.
NEWARK, N. J.

In spite of the various methods employed for the relief of flat foot there still remains a large percentage which do not respond to the generally recognized methods of treatment, many of which are pronounced



Fig. 1 (G. P., girl, aged 14).—Above, before operation: double painful relaxed, pronated feet; position of feet in weight bearing. Below, after operation by author's bone pin arthrodesis: correction obtained in position of the feet in weight bearing; patient walks, dances and skates with ease and no discomfort or pain.

incurable. This percentage I wish to consider in this paper, viz., those cases which have resisted all reasonable attempts at correction, or those who from age, occupation, duration and severity of deformity and disability have caused me to resort to operative cure rather than lose more time in attempts at relief by further palliative methods.

The relaxed pronated foot comprises from 70 to 80 per cent. of all cases of flat foot and has proved the most difficult of all to cure permanently, over half of them being of congenital origin. The acutely rigid painful pronated flat foot, however, is more easily

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

rectified. From my standpoint, surgery offers the most rational solution in these refractory cases of relaxed pronated foot, and I have found the results so satisfactory that I am resorting to it more and more.

When this disability is congenital in origin, what certainty of cure can we expect to establish by muscle

was subjected to certain endurance training and he was obliged to give up his appointment. Later on he enlisted and was sent to the Mexican border, where his feet again gave out and he became hospitalized. He spent a large portion of his enlistment period in the hospital, and when he came under my observation he could hardly walk at all, part of the time being confined to bed because of the pain and weakness of his feet. This is but one of the many cases I encountered during my military service which have demonstrated to me most emphatically the necessity for some more effectual method of relief.

ANATOMY AND PATHOLOGY OF A RELAXED, PRONATED, PAINFUL FOOT

The weakest part of the foot is at the midtarsal joint, the astragaloscaphoid and calcaneocuboid articulations. The strain of muscle pull and leverage relaxes these joints; the muscle balance is broken; adductors and dorsiflexors of the foot do not function equally with the abductors and extensors. The forefoot everts



Fig. 2 (G. P.).—Four years after operation: dorsoplantar and lateral views of the feet, showing the amalgamation obtained between the astragalus and scaphoid, with a faint shadow of the pin (indicated by arrow) still showing.

training, particularly if the patient is an adult? We cannot hope in any reasonably short time to develop sufficient change in the musculature of the leg and foot to produce a permanent correction, and unless the patient keeps up the special muscle training everlastingly he is liable to a relapse. I might quote as a fair example a young man who came under my observation while in the military service. He tried to enter West Point but was rejected on account of the condition of

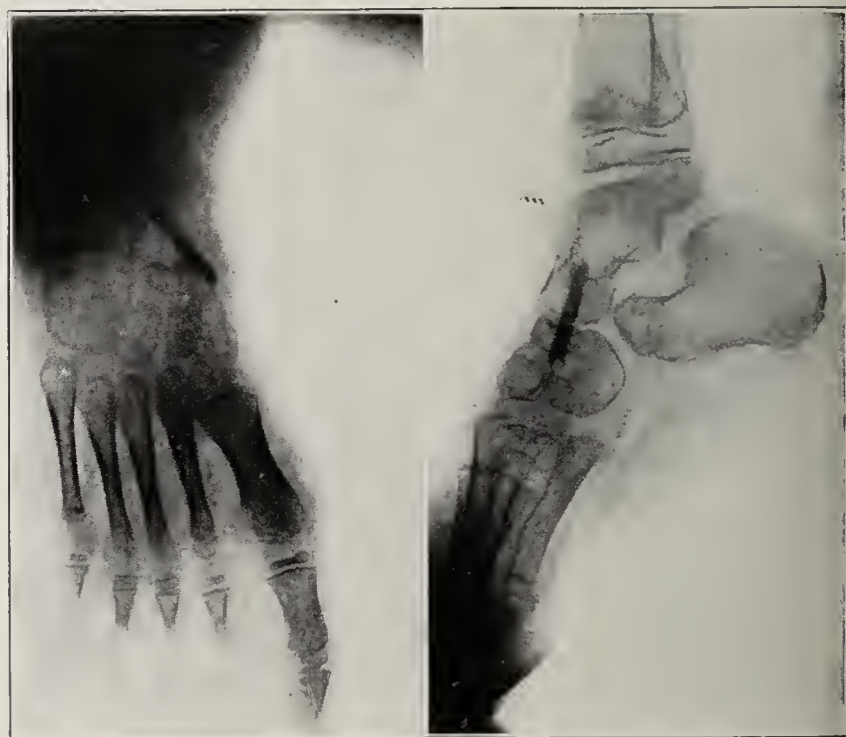


Fig. 4 (case of valgus from infantile paralysis).—Dorsoplantar and lateral views four months after operation, showing the pin in position in the astragalus and scaphoid.



Fig. 3 (S. M., boy, aged 7).—At left, before operation: marked valgus deformity of left foot as a result of infantile paralysis. At right, after operation by author's bone pin arthrodesis: corrected position of foot in weight bearing.

his feet, which were relaxed and pronated and undoubtedly painful. He consulted a well known authority and was assured that this difficulty could be corrected. It was corrected and he passed his physical test for West Point. Shortly thereafter he

and pronates, causing the scaphoid to rotate about the head of the astragalus somewhat, and, as the forefoot abducts and rotates, a leverage force is applied to the os calcis which tends to pry that bone farther away from the perpendicular plane of body weight bearing; and, as the mesial border of the forefoot pronates and everts, the head of the astragalus dips down toward the plantar surface. Owing to the security of the position of the astragalus between the malleoli, fortified by the short, strong ligaments and no muscle attachments, it moves only within the limits of its function with the tibia fibula astragalus joint, in flexion and extension. Therefore, having a secure point of anchorage in the astragalus, if the forefoot is rotated back about the head of the astragalus and adducted to restore the proper alinement of the mesial border of the tarsus, the long arch is raised, the contour of the foot restored, and the perpendicular plane of weight bearing of the foot corrected. If now this position of the foot and leg can be maintained, which can be done by ankylosing the astragaloscaphoid joint, the

deformity and disability can be permanently overcome, and not in an indeterminate time, but in the definite time required to produce a solid, bony, unyielding union of astragalus and scaphoid.

This I have done repeatedly with the result above referred to, restored contour of the foot and its proper relation with the leg, with the permanent relief of the painful disability.

TECHNIC

The foot and leg having been prepared and a tourniquet applied above the knee to insure a bloodless field, the astragaloscaphoid joint is exposed through a skin incision from $1\frac{1}{2}$ to 2 inches long on the dorsum of the foot, along the course of the anterior tibial tendon. The astragaloscaphoid joint ligaments are dissected away, and the forefoot plantar flexed, exposing the joint surfaces.

With the author's double curved osteotome, five-eighths inch wide, and curved to conform to the ovoid of the head of the astragalus, the contacting joint cartilages are removed from the astragalus and scaphoid, preserving the normal curved surface contact when the forefoot is restored to the desired relation to the leg. At the distal end of the skin incision the mesial projection of the scaphoid is exposed. With the foot held by an assistant in its corrected position, a drill is driven through the mesial projection of the scaphoid into the head of the astragalus, extending in all from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches, depending on the size of the bones drilled. The drill is disengaged from the motor and left in situ while the bone pin is removed from the antero-internal surface of the tibia and shaped to fit the hole drilled. The foot is again securely held in position while the drill is removed and the bone pin substituted. The skin wound is closed by continuous catgut suture without drainage and flat dressings are applied, followed by a flannel bandage from toes to knee and a plaster-of-Paris case applied with the foot at a right angle to the leg. This case is left on for four weeks, when active and passive movements are begun. Light weight bearing begins the sixth week for a couple of weeks, and from then on full weight bearing is allowed, with caution to the patient to refrain from overtire of foot and leg. Massage, active and passive exercise are continued to hasten the restoration of muscle tone.

The cases I am reporting include all in which I have operated by my pin graft method and followed



Fig. 5 (J. M., man, aged 35).—Fracture of astragalus and displacement of scaphoid before operation.

thereafter so far as I was able. They include: ten patients in 1915, ranging in ages from 7 to 36 years, each with one foot operated on; nine patients in 1916, ranging in ages from $6\frac{1}{2}$ to 56 years, of whom three had a single foot operated on and six had both feet operated on; two patients in 1917, one of whom, aged

9 years, had a single foot operated on and one, aged 35 years, had both feet operated on; one patient in 1919, aged 28 years, who had one foot operated on; three patients in 1920, of whom, two, aged 12 and 35 years, had one foot operated on, and one, aged 45 years, had both feet operated on; four patients in 1921, three of



Fig. 6 (J. M.).—Condition after operation by author's bone pin graft arthrodesis, showing correction of the displaced scaphoid pinned to the astragalus. A year later the patient was entirely relieved of his painful disability. He told me at this time that he went to work six weeks after the operation.

whom, from 12 to 45 years of age, had one foot operated on, and one, aged 25, both feet. These make a total of twenty patients with one foot operated on and nine with both feet operated on, or twenty-nine altogether with a total of thirty-eight feet operated on. In one case of double operation, when the patient was last seen, about three months after operation, there seemed to be a slight exaggeration in correction. This patient was operated on in 1916 and could not be traced further. In one case of double operation, Jan. 21, 1921, of rheumatic arthritis with poor bone production and formation of callus, the pin broke in one foot about ten weeks after the operation, owing to nonunion of the astragalus and scaphoid. The plaster of Paris was replaced, and the patient is still under treatment. The other foot is secure. This is the only case which has thus far failed in bony union. Cases reported in which operation was performed below the age of 8 years were either instances of pronation and valgus deformity following infantile paralysis or deformity in conjunction with some mental defect. In cases in which the patients were under 8 years of age, a simple arthrodesis would be inadvisable except by this pin graft method providing a bone nucleus connecting ossifying centers.

This bone pin arthrodesis was done to relieve: (1) congenital pronated painful foot disability; (2) relapsing rigid flat foot; (3) osteoarthritis of the feet with pronation; (4) rheumatic arthritis of the feet, with pronation; (5) valgus foot deformity from infantile paralysis or other acquired permanent paralytic valgus deformity; (6) pronated feet in mentally defective patients, and (7) fracture of the midtarsal bones with painful disability.

671 Broad Street.

ABSTRACT OF DISCUSSION

DR. H. WINNETT ORR, Lincoln, Neb.: Dr. Soule has given us a technical procedure of benefit in certain cases, but I believe this operation should be done with the greatest care and not at as early an age as Dr. Soule suggested. It should not be done before the age of 15. With regard to the after-care of these cases, I have had two patients complain of ankle strain. One must be on the lookout to avoid this for it is as bad as flat foot.

DR. EDWIN W. RYERSON, Chicago: It seems to me that the value of this operation would be increased if Dr. Soule would include an arthrodesis of the subastragaloid and calcaneo-cuboid joints because so much undesirable motion and deformity occur in these joints. This operation may be called a triple arthrodesis, and it gives excellent results. I think that this would be an improvement on Dr. Soule's admirable technic.

DR. ROBERT E. SOULE, Newark, N. J.: As to Dr. Ryerson's suggestion, I have done that in two cases, ankylosing the astragalo-os calcis by a similar method. But I said nothing about that case because the operation was done only about two months ago and it is too early to report results. The patient whose case I did report is now up and around and perfectly comfortable.

SPIROCHETAL PULMONARY GANGRENE*

B. S. KLINE, M.D.

NEW YORK

Evidence is accumulating that pulmonary gangrene may be caused by spirochetes and fusiform bacilli aspirated from an unclean mouth, and that it may be prevented by proper oral hygienic measures.

The first definite clinical and anatomic description of pulmonary gangrene was made by Laënnec about 1808.

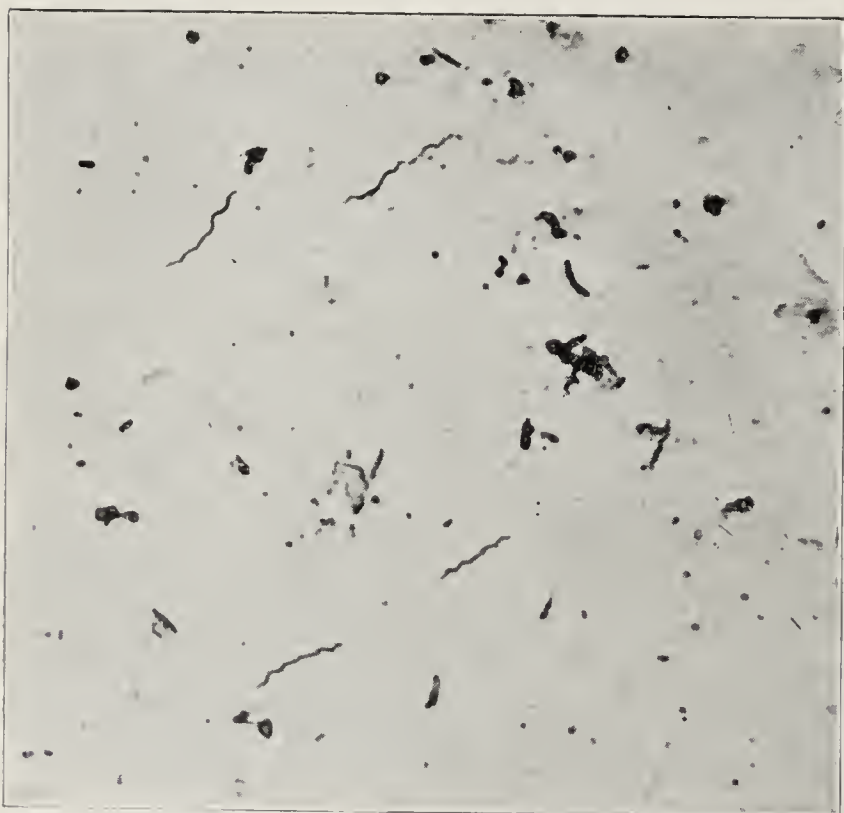


Fig. 1.—Exudate from dental caries and pyorrhea alveolaris showing spirochetes and fusiform bacilli.

Although the condition was readily recognized and studied thereafter, it is probable that Leyden and Jaffe¹ in 1866 were the first to observe spirochetes

in the sputum and gangrenous tissue of these cases. Little attention was paid to the possible etiologic relationship of spirochetes to bronchopulmonary lesions, however, until Castellani² in 1906 reported two cases of hemorrhagic bronchitis, simulating pulmonary tuberculosis, apparently caused by spirochetes. The



Fig. 2.—Extensive peribronchial pneumonia and bronchopneumonia with beginning gangrenous ulceration.

spirochetes observed in these two cases varied greatly in morphology: Castellani, who considered them varieties of one species, believed that they inhabited only the deeper air passages. To the condition he gave the name "bronchial spirochetosis." Since this communication, many cases have been reported from the tropics and Europe, but in the United States, including the three observed at the Montefiore Hospital, only seventeen cases have thus far been reported,³ in which such spirochetes have been found associated with bronchopulmonary lesions.

Considerable discussion has been raised concerning the specificity of the spirochetes found in the sputum in these cases. Supporting Castellani, many subsequent observers consider them as different varieties of one species inhabiting only the deeper air passages. Since Chamberlain⁴ in 1911 suggested the possibility of spirochetes migrating downward from the mouth, other observers⁵ have felt that the bronchopulmonary changes may be brought about by fusiform bacilli and various spirochetes aspirated from the mouth in material from the buccal cavity, and from dental and gingival lesions.

Clinically, some of the seventeen cases in the United States were at first confused with tuberculosis. The sputum in some was jelly-like and blood tinged, in some hemorrhagic and in others purulent and foul smelling. In none of these cases did the sputum show

2. Castellani, A.: *Lancet* **1**: 1384, 1906.

* From the Laboratory of the Montefiore Hospital.

* Read before the Section on Pathology and Physiology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Leyden, E., and Jaffe, M.: *Deutsch. Arch. f. klin. Med.* **2**: 488, 1866-1867.

3. Johnson, W. B.: *Memphis M. Month.* **29**: 183, 1909. Rothwell, J. H.: *Bronchial Vincent's Angina*, *J. A. M. A.* **54**: 1867 (June 4) 1910. Peters, W. H.: *J. Infect. Dis.* **8**: 455, 1911. Lewis, G. W.: *U. S. Naval M. Bull.* **14**: 149 (Jan.) 1920. Fishberg, Maurice, and Kline, B. S.: *Spirochetal Pulmonary Gangrene*, *Arch. Int. Med.* **27**: 61 (Jan.) 1921. Levy, M. D.: *New York M. J.* **113**: 186 (Jan. 29) 1921. Bloedorn, W. A., and Houghton, J. E.: *Bronchial Spirochetosis*, *J. A. M. A.* **76**: 1559 (June 4) 1921.

4. Chamberlain, W. P.: *Philippine J. Sc.* **6**: 489, 1911.

5. Macfie, J. W. S.: *J. Trop. Med. & Hyg.* **18**: 63, 1915. Rothwell, W. B. (Footnote 3). Fishberg, Maurice, and Kline, B. S. (Footnote 3).

tubercle bacilli. It contained, however, numerous spirochetes, varying considerably in morphology and sometimes associated with fusiform bacilli. Recovery was reported in the majority. Four cases were studied postmortem. The disease occurred in about equal frequency in males and females, the patients ranging in age from 4 to 76 years. The patients observed at the Montefiore Hospital were foreign born but had lived in the United States for the past six, forty-six and fifty-six years, respectively.

In all probability there have been and are a great many unrecognized cases of bronchopulmonary spirochetosis in the United States. The fact that the organisms are poorly stained by the usual laboratory methods and do not grow in the usual laboratory mediums may account for the failure in the past to observe them. Since the organisms are readily demonstrated in smears stained by the Fontana method and in tissues stained by the Levaditi method, as well as being cultivable, these procedures are indicated for diagnosis.

My attention was called to this lesion in October, 1918, in the course of a necropsy on a soldier dying some time after mustard gas inhalation. In addition to the usual lesions there were marked dental caries and pyorrhea alveolaris, gangrenous tracheitis and bronchitis, and gangrenous ulceration of the lung with cavity formation. Smears from the teeth and gums and bronchopulmonary lesions stained by a modified Fontana method showed large numbers of spirochetes and fusiform bacilli.

THREE CASES OF PULMONARY GANGRENE

In the series of 130 necropsies at the Montefiore Hospital from May, 1919, gangrenous ulceration of the bronchial branches and the lung were noted in three. All three had dental caries and gingivitis, the exudate from which was yellow or green, of foul odor, and microscopically showed large numbers of fusi-



Fig. 3.—Extensive peribronchial pneumonia and bronchopneumonia with gangrenous ulceration and cavity formation, left lower lobe.

form bacilli and spirochetes varying considerably in morphology. These spirochetes resemble *Spirochaeta* (or *Treponema*) *buccalis*, *vincenti*, *microdentium*, *muco-sum* and *macrodentium*. In addition, the smears show the usual mouth bacteria. Organisms morphologically indistinguishable from all these are present in the acute and subacute pulmonary lesions, the fusiform bacilli

and spirochetes being especially numerous in areas of early gangrenous ulceration.

ORAL LESIONS

In the three cases the majority of teeth are absent; those remaining are in poor condition, a number show-



Fig. 4.—Healed and healing gangrenous cavities, right upper lobe.

ing erosions and cavities filled with foul-smelling, slimy, yellowish-green material. The gums in each case are spongy, red and ulcerated, and covered by a considerable amount of foul-smelling, slimy, yellowish-green exudate.

GROSS PULMONARY LESIONS

In the three cases, both lower lobes are consolidated. In addition, the right middle is involved in one case and the right upper in another case. All three cases show a bronchitis, peribronchial pneumonia and bronchopneumonia of both lower lobes varying in extent, sometimes involving practically an entire lobe, and somewhat similar in appearance to numerous small areas of gelatinous and early caseous tuberculous pneumonia. Older lesions consist of beginning gangrenous ulceration of smaller bronchial branches and consolidated lung, usually in the apical portion of a lower lobe, but also elsewhere. This gangrenous tissue is greenish yellow to dark green, and has a penetratingly foul odor. Apparently older lesions are definite gangrenous cavities with green, foul-smelling, necrotic inner walls. Still older lesions are present in one case, and consist of cavities in the right upper lobe encapsulated by firm, gray-white tissue and firmly consolidated lung. Adjacent thereto are groups of alveoli having a greasy, yellow appearance, not unlike those seen in the neighborhood of an old tuberculous cavity.

A few of the cavities toward the apex, apparently the older ones, are lined by a smooth, delicate membrane.

HISTOLOGY OF THE PULMONARY LESIONS

Microscopically, the early lesions show a swelling of the bronchial mucosa with engorged blood vessels and

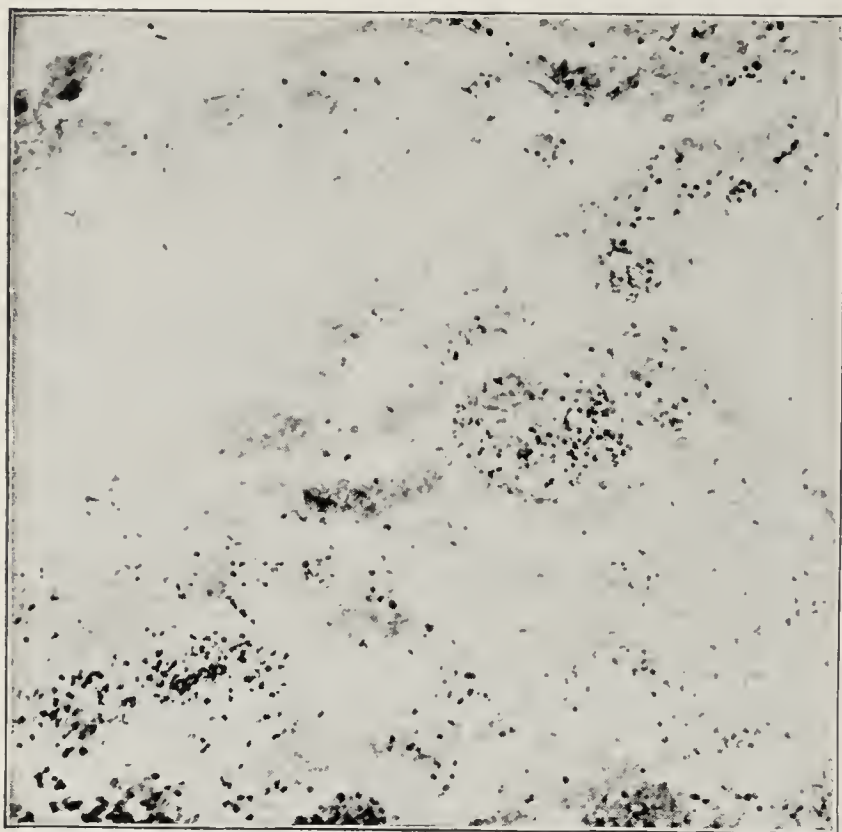


Fig. 5.—Pulmonary gangrene.

round cell infiltration. The pneumonia at first is desquamative, desquamative to purulent, and purulent in character. In places there is considerable infiltration of alveolar walls. In sections stained by the Levaditi and Goodpasture methods, numerous mouth organisms, including a number of fusiform bacilli and scattered spirochetes, are observed in these areas. More advanced lesions show necrosis of consolidated lung with beginning cavity formation. Smears and sections of these areas stained by the Fontana and Levaditi methods, respectively, show fusiform bacilli and various spirochetes as the predominating organisms. Other mouth organisms are present in only moderate number. Older lesions microscopically show portions of well defined cavities, with necrotic inner wall and a varying amount of encapsulating granulation tissue. There are also areas of organization of exudate in and between alveoli. Some sections show necrosis of organized areas. Sections of these older areas show organisms of the types described above, much fewer in number, however. The oldest lesions observed microscopically show portions of cavity walls composed of granulation tissue lined by pavement epithelium, considerable neighboring scar formation and groups of alveoli lined by cuboidal to columnar epithelium containing in the lumen collections of greatly vacuolated large mononuclear cells. In these areas also, many of the good sized arterial branches show a greatly thickened intima and an almost completely obliterated lumen. These older lesions are very much like old tuberculous ones. Sections of the pulmonary lesions in the various stages, stained by the Ziehl-Neelsen method, show no acid-fast bacilli. In none of the cases was active pulmonary tuberculosis observed in the gross or microscopically.

COMPLICATIONS

One case is complicated by an abscess of the brain, smears and sections of which show cocci, numerous fusiform bacilli and spirochetes of the types described above. The abscess wall is faintly green colored. Another case is associated with a carcinoma of the esophagus which likewise showed gangrenous ulceration of portions of the tumor. In the necrotic portions, numerous fusiform bacilli and spirochetes are present.

COMMENT

In these three cases, as well as in a number of those reported previously by others in which spirochetes and fusiform bacilli were found in the pulmonary lesions, a striking thing is the fact that apparently similar organisms were constantly present in lesions of the mouth.

That the presence of these organisms in lesions of the mouth may have been of great importance in the pathogenesis of the subsequent pulmonary lesions is apparent from the knowledge that the lung may be infected by bacteria aspirated from the mouth during surgical anesthetics, unconsciousness following exhaustion and even during normal sleep.

This explanation, opposed to that which claims for the organisms a primary habitat in the bronchi, suggests the possibility that spirochetel pulmonary gangrene may be prevented by proper oral hygienic measures.

CONCLUSIONS

1. In three cases, the presence in large numbers of fusiform bacilli and spirochetes in early gangrenous ulceration of the lung suggests their etiologic relationship thereto. These spirochetes morphologically

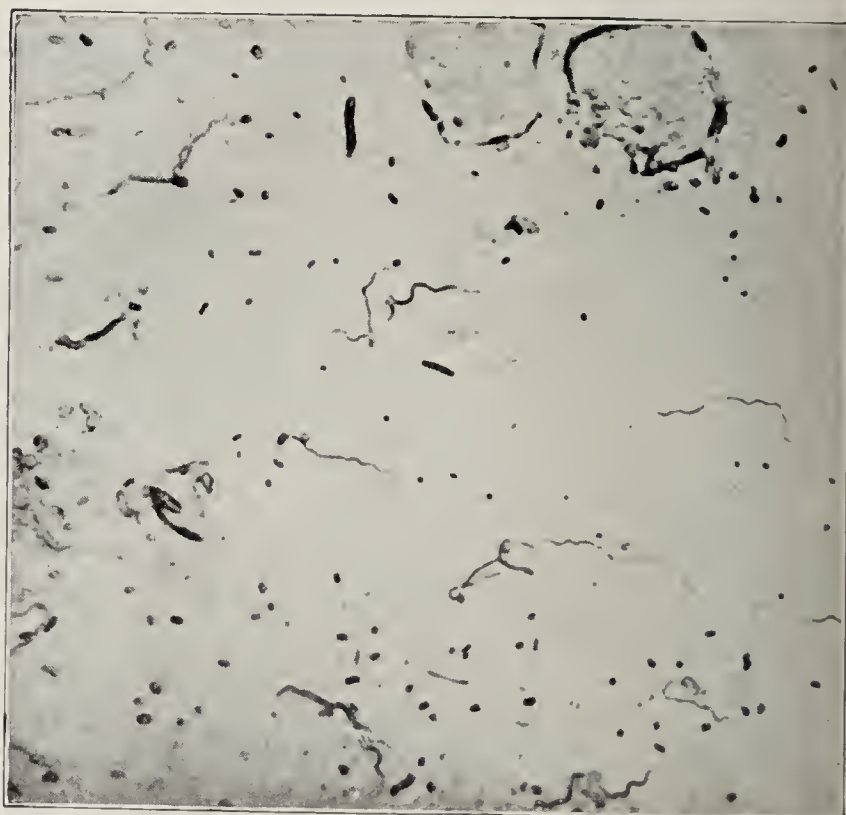


Fig. 6.—Smear from early pulmonary gangrene (Fontana stain) showing spirochetes and fusiform bacilli.

resemble *Spirochaeta* (or *Treponema*) *buccalis*, *vincenti*, *microdentium*, *mucosum* and *macrodentium*.

2. In all three cases, marked dental caries and pyorrhea alveolaris were present. Smears from these lesions showed organisms morphologically indistinguishable from those mentioned above.

3. These organisms, which are poorly colored by the usual laboratory stains, are readily demonstrated by the Fontana method in smears and by the Levaditi method in tissues.

4. From a study of the pulmonary lesions in these three cases, the impression is gained that they are

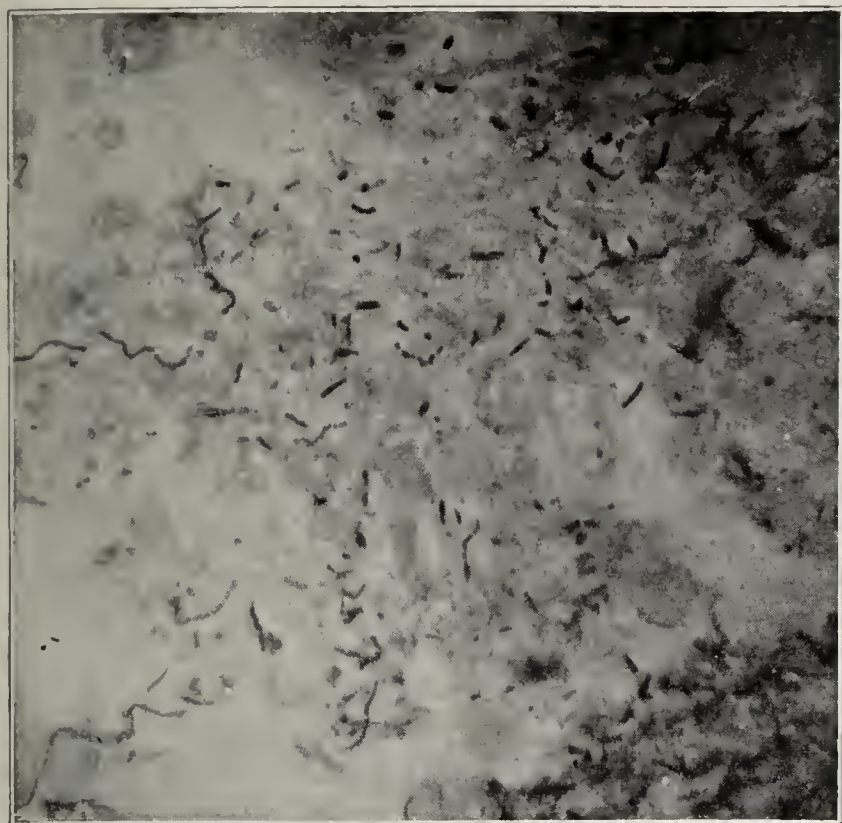


Fig. 7.—Gangrenous lung (Levaditi stain) showing spirochetes and fusiform bacilli.

extensive pneumonias, caused by organisms from the unclean mouth, in which gangrenous ulceration occurs because of activity of the aspirated fusiform bacilli and spirochetes.

5. If the foregoing explanation is correct, this type of spirochetel pulmonary gangrene may be prevented by proper oral hygienic measures.

ABSTRACT OF DISCUSSION

DR. O. H. PERRY PEPPER, Philadelphia: At Camp Meade a patient died during the influenza epidemic. None of us understood the case. The patient had complete involvement of the lower lobe of one or the other side with what seemed to be chronic ulcerative purulent infection. His temperature curve was an exact replica of that seen in relapsing fever. He ran through, during our period of observation, three or four febrile periods. Prior to the development of the febrile period, he would develop a most intense swelling of the gums and an intense pyorrhea. In the discharge from the gums, a large number of Vincent's spirilla and fusiform bacilli were found; and the thought was in our minds at that time that there was some relationship between the development of this marked pyorrhea and the pulmonary symptoms. The roentgen ray did not help us; it merely showed a diffuse shadow. It seemed to us there was a definite relationship between the oral infection and pyrexial period with increased expectoration from the lung. At that time we were not familiar with the work of Violle and others, in fact, most of that work came out later. We went no further than to make a tentative diagnosis of involvement of the lung with Vincent's spirilla and fusiform bacilli. The man was not seriously ill; he did not die and had this relapsing fever. Have any of these cases approached that picture?

DR. JANE F. KENNEDY, Minneapolis: I have one idea in relation to this dental decay. I feel I have solved it. Since it is dental decay, it is necessary to clean up some of these mouths. We should keep the mouths of children clean.

DR. B. S. KLINE, New York: In regard to Dr. Pepper's case, I think there are quite a number of clinical types. We have seen, in addition to the cases reported, three others, one at necropsy. In one of the clinical cases, the history was somewhat like that of Dr. Pepper's case. The case I have reference to was one of eighteen years' duration preceding which there had been dental caries and extensive pyorrhea. For a number of years the patient had periodic hemorrhages from the lungs, as a prophylaxis against which he insists on being bled several hundred cubic centimeters every few weeks, and really thinks the venesections ward off pulmonary hemorrhage. In this case preceding the pulmonary hemorrhage there is expectoration of sputum, usually blood tinged, with jelly-like masses in it and also very small balls of foul smelling material that look not unlike the granules one finds in actinomycotic sputum, a little more irregular and friable, however. Smears made from these little granules showed spirochetes and fusiform bacilli. The remainder of the sputum did not show these organisms. Apparently one would expect to find his lungs in somewhat the condition of the advanced case described before. In regard to oral sepsis, how controlled and prevented, I think that condition can be left quite safely to the dentists, but certainly it is possible, I believe, to control pyorrhea and dental caries, at least to a considerable extent.

FOLLICULAR OR DENTIGEROUS CYST*

RAYMOND J. WENKER, B.S., D.D.S., M.D.

MILWAUKEE

This type of cyst belongs to the group of neoplasms known as odontomas. They are the result of a perverted growth of some of the cells in a tooth follicle. The histologic characteristics of the tumor will depend on the particular cells of the follicle which become abnormal in growth. Odontomas have been variously classified by different authors. Scudder¹ gives the following classification, which is a modification of Bland-Sutton's list: (1) the dental root cyst; (2) the follicular or dentigerous cyst; (3) the compound or composite follicular cyst; (4) the adamantine epithelioma, and (5) the hard odontoma. A brief review of the

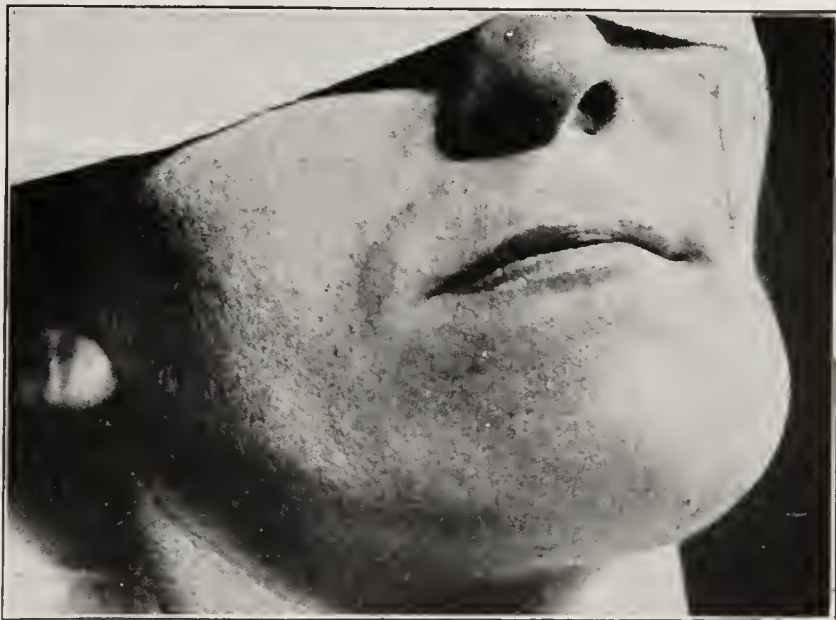


Fig. 1 (Case 1).—External appearance of unilocular dentigerous cyst before operation.

embryology of a tooth follicle may result in a better understanding of the pathogenesis of these tumors.

In the development of a tooth, the deeper or malpighian layer of the oral epithelium grows into the

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.
1. Scudder: Tumors of the Jaws, 1912.

mesodermic zone of the rudimentary jaw. The extended portion of this deep layer is called the epithelial cord. As the latter grows deeper into the jaw, it becomes the primitive organ which forms the enamel.

The papilla, formed by the surrounding connective tissue, develops simultaneously with the enamel cap. The latter completely envelops the papilla like a double-



Fig. 2 (Case 1).—Outline of cyst with permanent cuspid in lower part of cavity standing in perpendicular position. Note the buccolingual diameter. The entire bony wall surrounding the cyst was a thin layer of cortical bone.

walled hood. The dentin, cementum and tooth pulp are developed from the papilla. The enamel organ and papilla are completely encircled by a tooth sac. These three form the tooth follicle.

The point of special interest in this connection is that some of the epithelial cells in the enamel organ cease to function. It is from these arrested cells that one source of the paradental epithelial debris of Malassez may originate.

Malassez thought that these epithelial cell rests may originate from: (1) the source just mentioned; (2) some other portion of the epithelial cord; (3) the mucus membrane of the fetal jaw. Malassez was the first investigator to call attention to these epithelial rests and to suggest the manner in which cysts and other pathologic growths of the jaw may originate from them.

The Arthur Hopewell-Smith² theory is that "an excessive secretion of fluid takes place between the enamel, or Nasmyth's membrane, and the follicle, which, accumulating, distends the space and produces a cyst."

Other theories of the pathogenesis of these cysts are the Magitot periostic-inflammation theory, the Sarren foreign-body-encystic theory and the Albarran and Dequidt theories. The two latter are but modifications of the Malassez, Magitot or Sarren theories.

Referring again to the classification of odontomas, it will be seen that there are virtually but two types of jaw cysts in this list, (1) the root or periosteal and (2) the follicular or dentigerous cyst. The other kinds of cysts in this classification are modifications and complications of these two primary types.

The periosteal or root cyst usually follows disease or injury of the tooth or teeth involved. The dentigerous cyst is apparently not primarily associated with disease or injury. In the latter the tooth follicle becomes filled with fluid, expands and fails to erupt. This progresses slowly, causing both absorption and expansion with new growth of the surrounding tissues. The spongiosa and contiguous tooth-roots yield by absorption and displacement, while the cortex is modified mainly by expansion and new growth. Thus, the cortex is usually sufficiently thick in a mandibular cyst to prevent pathologic fracture, although the expansion may be very considerable.

In the majority of cysts reported, the patients have been operated on between the ages of 20 and 30. Cases have been reported, however, connected with deciduous teeth, as early as 9, and others connected with third molar teeth, as late in life as 65.

Primarily, the cystic fluid is probably sterile, but it may become infected by injury or surrounding disease. Destruction of the pulp of a contiguous tooth as result of radicular absorption from pressure of the growing cyst, or from caries, injury or other causes, may be the source of surrounding infection to invade and complicate the cyst.

In the primary uncomplicated condition, the cyst is usually of slow growth, noninflammatory and not painful. The mucosa and integument remain intact and retain normal color. The cyst may, however, become inflamed, painful or malignant. The latter is an exceptional complication to develop, and may take the form of an adamantive epithelioma, a carcinoma or a sarcoma; most commonly the first mentioned, and the next in frequency the carcinoma.

The position of the teeth in the cyst is variable. When one tooth is involved, it is commonly well developed and perpendicular, or nearly so, with the crown presenting more or less in the direction of the contiguous teeth. Impacted teeth, especially upper cuspids

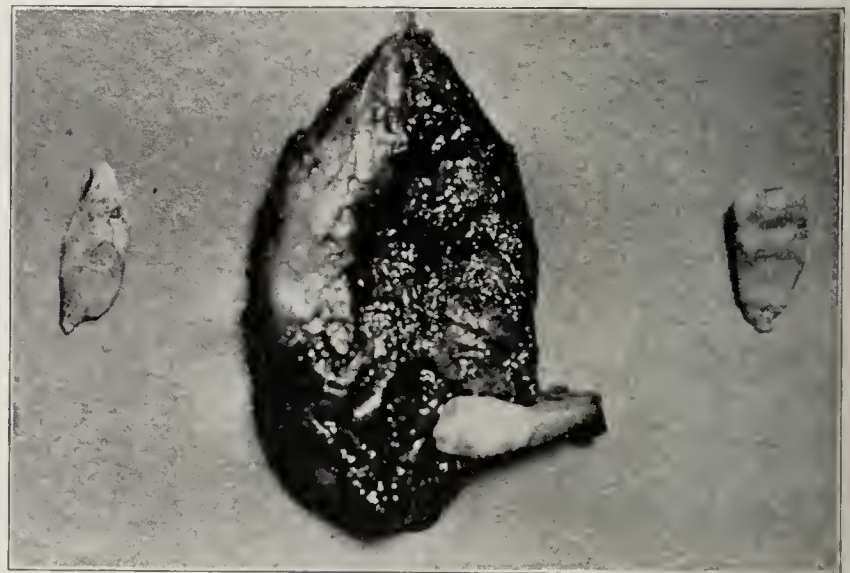


Fig. 3 (Case 1).—Cyst with lower cuspid pulled out of the sac but adhering to its wall. Cystic membrane is attached near the apex of the cuspid. The teeth on either side of the cyst show marked apical absorption.

and lower third molars, may, however, lie in any position in which they may be found under other conditions. When several teeth are involved in the growth they are more frequently irregular in position and in development. In some cases, only irregularly formed pieces of tooth material appear. Moreover, some cases have been reported in which no evidence of a tooth-like object could be found. Scudder contends that a

2. Hopewell-Smith, Arthur: *Histology and Pathohistology of the Teeth and Associated Parts*, Philadelphia, P. Blakiston's Son & Co., 1903.

true follicular cyst may not necessarily contain a tooth, especially if the growth of the cyst begins very early in relation to the development of the tooth involved.

PERIOD OF GROWTH AND SIZE

It would appear that the growth may continue indefinitely were it not terminated by operative interference or death of the host. Some cysts have been reported the size of a filbert, while others were the size of a grapefruit. The rapidity and the length of the period of growth, before operative interference, appear to determine its size.

PATHOLOGY

The cyst may be single or multiple; most frequently it is single. The sac is composed of a thick wall of connective tissue, irregular in outline, which may or may not be calcified. In examining the lining of these cysts, it is natural to expect to find it composed of epithelial cells because of their protective function. However, in practical experience some cysts are found to be lined with connective tissue cells. This may be partly accounted for in the destruction or loss of the delicate epithelial lining in making and staining the microscopic specimens. Uninfected cysts may contain a more or less clear or gelatinous fluid with or without evidence of a fatty degenerative process. In infected cysts the fluid is a turbid sanguinolent or purulent material, with numerous bacteria and inflammatory products.

DIAGNOSIS

A good history, followed by thorough clinical and roentgen-ray examination, will usually clear up the diagnosis. A more or less slow growing and hard tumor with little or no pain, associated with an unerupted tooth, and especially when located in the mandible, is suggestive of a follicular cyst. Rarely, evidence of a tooth or teeth may not be discovered in the roentgen-ray examination. A toothless cyst should be differentiated from a root-cyst. The history, or a careful test for pulp vitality, may clear this question. However, the history of prior extraction of particular teeth, and especially of the previous pathology of these teeth, is very unreliable. It is quite probable, therefore, that some of the so-called toothless cysts which have been reported were in reality root-cysts from which the diseased teeth were previously extracted. A dentigerous cyst in the antrum may be difficult to differentiate from a root-cyst or from a chronic antrum infection. However, surgical experience indicates that a cyst in the antrum is most frequently a root-cyst. Moreover, operative procedure would be quite similar in either case, and prior diagnosis, although desirable, would not be a necessity. In case of a painful and inflammatory cyst, a critical examination of the surroundings for diseased teeth, as well as an analysis of the history of recent accident, should be made to determine the cause. Rapid growth, pain and inflammation which cannot be explained by injury or localized infection is strongly suggestive of malignancy. An exploratory operation is indicated in all cases of suspected malignancy for macroscopic and microscopic examination and final diagnosis. In case no malignancy or localized cause is found to explain the existence of the pain, a search for a remote cause should be made to aid in clearing the diagnosis prior to removal of the cyst.

TREATMENT

Preoperative.—The usual physical examination to determine the operative risk is a wise expedient.

Removal of all diseased teeth, a general improvement in mouth hygiene, and in some cases the removal of the tonsils, are indicated.

Operative.—In the majority of cases the Partsch method of enucleation, with slight modifications, is the operation of choice. I have adopted the plan, whenever practical, of approaching the cyst through an opening made within the mouth. A window is cut through the soft and hard tissues at a point and of a sufficient size to give the necessary access to all recesses of the cystic cavity. The sac is carefully shelled out or separated from all of the surrounding structures and removed. After the hemorrhage has been arrested, the housing place of the cyst is carefully dried and examined. A small electric lamp is inserted into the cavity to facilitate in making this examination. The relative thickness of the remaining bridge of bone may thus be observed, and the probability of pathologic fracture estimated. The interior is also examined to locate important nerves and blood vessels, that they may be safeguarded against unnecessary injury. Moreover,



Fig. 4 (Case 1).—Appearance of bone, two and one-half years after removal of cyst. Observe the amount of new growth and solidity of bone filling former cystic cavity. The deformity had disappeared almost completely, and this was effected spontaneously.

examination is made to locate loose fragments of bone, pieces of cystic membrane and projecting roots of contiguous teeth, all of which are removed. The cavity is again thoroughly dried and cauterized, 95 per cent. phenol (carbolic acid) or 50 per cent. silver nitrate being used. After applying the antidote for caustic used and again drying, the cavity is packed with gauze saturated with petrolatum, or equal parts of guaiacol, balsam of Peru and petrolatum.

The deformity, resulting from the expansion of the bony cortex during the growth of the cyst, usually disappears spontaneously, in from a few months to a few years.

In large cysts where no bridge of healthy bone remains, when the cyst is large and multilocular with considerable new growth of osseous tissue, and in malignancy, resection may be justifiable.

Postoperative.—Some cysts will require repeated recauterization and repacking, while others will require very little attention, except to keep them clean. Roentgen ray or radium is not a necessary postoperative treatment, except in malignancy.

REPORT OF CASES

CASE 1.—Mrs. R. K., aged 27, whose family and personal history were negative, complained, May 11, 1917, of a large swelling in the region of the lower left cuspid. The growth was first observed six years previously. I found that the lower left cuspid and first bicuspid were missing. This space was spanned with a bridge, the abutments of which were loose. The patient stated that the first bicuspid had been extracted, but that the permanent cuspid had not. The tumor was about the size of an English walnut. It was very hard and had never caused any pain. It extended well into the floor of the mouth, interfering with speech and buccally enough to attract attention at a considerable distance.

I made a clinical examination and tentative diagnosis of a follicular cyst. Roentgen-ray examination confirmed this diagnosis and demonstrated a fully developed cuspid in the lower anterior portion of the cyst.

I operated and removed it, June 26, under ether anesthesia. A large window was cut through the bucco-occlusal aspect of the cystic wall, and the sac punctured to facilitate its removal. The fluid was clear, amber colored and did not yield a culture. The cystic sac was about one-eighth inch (3 mm.) thick in the lower portion around the cuspid apex where it was attached to the tooth. The upper part of the wall was much thinner, but tough. Following the removal of the cyst, an examination was made which elicited the apexes of the lateral incisor and second bicuspid projecting into the cavity. These were partly absorbed and therefore were extracted. The cystic housing was generally rounding, but with numerous small superficial surface depressions and irregularities. Nothing but the cortical layer of the bone appeared to span the tumor.

The specimens were three teeth and a cystic membrane. The cyst was demonstrated to be attached to the root of the cuspid near the apex and enveloping the remainder of the tooth. The cyst was of the unilocular type.



Fig. 5 (Case 2).—Appearance of multilocular dentigerous cyst before operation. Two bicuspid in cystic cavity; lobular extension of growth to a point posterior to the second molar.

Microscopic examination revealed an epithelial lining.

The slight reaction in temperature following the operation was remarkable, although the lingual glands and the face were swollen considerably. The highest temperature reached was 98.8.

In two and one-half years the deformity had completely disappeared and the cavity was refilled with new osseous material.

CASE 2.—Mr. E. S., aged 22, whose family and personal history were negative, complained of a painful swelling in the right mandible in the region of the bicuspid. These premolars were unerupted. The first molar had no cavity, but was loose and tender on percussion. The periosteum was elevated and the soft tissues were slightly swollen on the buccal aspect, while the lingual side was normal.

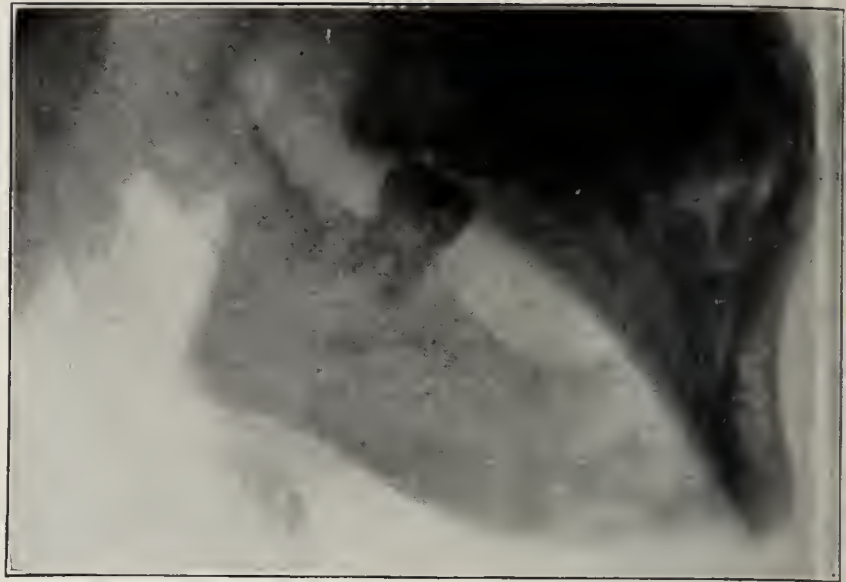


Fig. 6 (Case 2).—Appearance two and one-half months after operation. The deformity in this case was slight and had completely disappeared spontaneously in three months.

A clinical diagnosis of an infected dentigerous cyst was made. Roentgen-ray examination confirmed this diagnosis and brought to light the further fact that it was of the multilocular type. The cyst extended from the cuspid to the second molar and had expanded slightly in a buccal direction.

I operated and removed it under ether anesthesia, Sept. 13, 1919. On the morning of the operation the gum and periosteum on the buccal surface as well as the cheek were moderately swollen and reddened. A large window was cut through the soft and hard tissues on the buccal side of the cyst extending from the cuspid to the second molar and apicogingivally; it was made sufficiently large to give a complete exposure of the unerupted teeth and diseased material. The abscessed first molar was extracted. The two bicuspid, which were of normal size and shape, were dislodged and, together with the cystic membrane and a large amount of necrotic material in the molar region, removed.

The tissue specimens were the first molar, the roots of which were absorbed, a large amount of soft, necrotic bone, and a multilocular cystic membrane. Microscopic examination of the membrane demonstrated a lining of connective tissue cells. No evidence of malignancy was found.

The reaction from this operation was quite pronounced, but of short duration. Very little postoperative treatment was necessary, and very little fluid oozed into the cystic cavity to cause annoyance. Recovery with complete healing of the cavity took place in two months.

First Wisconsin National Bank Building.

Future of the Race Affected by Woman in Industry.—

Now that women are claiming to compete with men in industry on equal terms, surplus womanhood is creating fresh problems. If it is through increased production that the empire is to be saved and its industrial supremacy maintained, these can only be secured by the country possessing a race of strong and healthy workers of both sexes, and by plenty of them. A large percentage of women will never marry. The future of the unmarried women of the working classes is a matter for serious consideration. Occupation will have to be found for the increased number of single women. The field of labor for women will have to be generally extended. Possibly some alleviation would follow the allocation of the particular trades to the sex better fitted for them, but this could only be arranged by experience and by physical examination, also by the study of fatigue, and the general effect of work from the health point of view.—T. Oliver, *J. State M.* 29:324 (Nov.) 1921.

MANDIBULAR TUMORS *

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PORTLAND, ORE.

If we consider various kinds of dental cysts under the classification of mandibular tumors, there will be noted a relative infrequency of malignancy; and it is probable that the majority of the malignant tumors are not so in their early growth. More than in any other place in the body, the study of the etiology of tumors in the mouth has confirmed the chronic irritation theory—traumatic or bacterial. The normal tissue cells of the oral cavity possess an unusual degree of physiologic reproduction, as evinced by the regenerative power of the gum tissue, and by the healing of the other tissues with a minimum amount of cicatricial formation. Most of the tumors of the oral region can be traced to some continued bacterial or traumatic irritation. Cancer of the cheek is usually directly traceable to rough or irregular teeth. The epulis develops at the site of an extraction. The lesions, once developed, are usually subjected to a continued chronic irritation; and this may give some reason for the malignant changes which occur in the early benign types.

It is to be noted that, when the malignancy occurs, it is frequently of the rapidly growing type, excepting in the epulides and some of the giant cell sarcomas. Various reasons are advanced for this rapidity of growth; but there must yet remain some doubt as to the true reason. It is not improbable to assume that neoplastic reactions in normal tissue are not dissimilar, from a pathologic standpoint, to an inflammatory reaction, so far as the normal reaction of the fibrous tissue cells endeavors to arrest the abnormal cell proliferation, on the one hand, as it does the bacterial proliferation, on the other hand. The result may vary somewhat in accordance with the relative powers of the two processes. It is not unreasonable to assume that the



Fig. 1.—Suppuration at root of molar: drainage by removal of portion of external alveolar plate with resultant preservation of tooth.

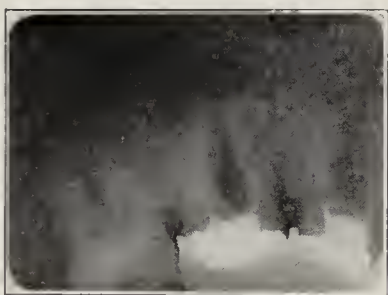


Fig. 2.—Same condition as in Figure 1: patient treated in similar manner with equally good result.

benign tumor is thoroughly encapsulated, not alone because of its own special type of cell, but also because of the relatively greater ability of the normal physiologic process to throw out a successful capsulation. The slow growing scirrhus carcinoma is recognized as such because of the large amount of fibrous tissue, rather than because of a special type of carcinoma cell. The giant cell sarcoma probably represents a fibrous inhibition of rapid karyokinesis over the small, round cell sarcoma. The theory would perhaps be more applicable to the primary neoplastic lesions than to the metastatic lesions, as it is probable that, when a

so-called "strain" in the malignancy cell is developed, it carries its proclivities to other parts, with the body in a state of lessened "resistance."

We have all learned to respect the virulence of the small, round cell sarcoma and the carcinoma when once established in the mandible. The ultimate mortality of such cases has been appalling. These tumors, frequently benign at first, are not often subjected to an early consideration by a competent oral surgeon, and it is probable that the early malignant life may be of short duration. Early radical treatment is at times delayed by a desire to avoid disfigurement.

The type of tumor called epulis, while essentially malignant, is governed by restrictions which make it amenable to surgical treatment. It is unfortunate that not all malignancies are subject to the restrictions, during their early growth, which govern the epulis tumor. Pathologically, it is not infrequently confused with the giant cell sarcoma. The growth is exceedingly slow, and it spreads only by continuity of tissue. It should, when diagnosed early and when properly treated, always yield a cure. It is noted by clinical observation that with each recurrence its virulence increases, and a successful eradication is rendered more difficult. Its location of origin always points to a cause of chronic irritation. Early treatment of epulis growths occurs as a rule in the dental chair, and the oral surgeon usually sees them after a second or third ineffectual removal. It is here as well as in the other malignancies that the heat treatment has a potential influence—either alone or in connection with a surgical excision.

The epulides can distinctly be classified as oral lesions, and their early characteristics should be more thoroughly taught to dental students. The appearance of an epulis is generally antedated by the removal of the diseased tooth. The growth at first has all the appearance of an innocent excrescence protruding through the aperture in the gum formerly occupied by a tooth.

The base may spring from the fibrous tissue, or it may spring from the myeloid tissue inside the alveolar process. The possessor of an epulis usually returns to the dentist who extracted the tooth, and he in turn with ease and facility clips off the growth. This may be done a second or third time within the succeeding months. During this period the virulence of the neoplasm apparently increases, and the oral surgeon, when consulted, finds it necessary to pursue a rather radical procedure.

The proclivity of the epulis for extension by continuity of tissue only is well demonstrated by one case which ultimately came to the clinic of the North Pacific College. During the preceding six months, this man had had successive dental procedures without a microscopic diagnosis. The teeth on one side were gradually removed, the antrum was being irrigated, and the entire submucous space of the hard palate was being cleansed of pus and successively loosened pieces of necrosed bone. A radical removal of the superior maxillary on this side gave an apparent cure for several

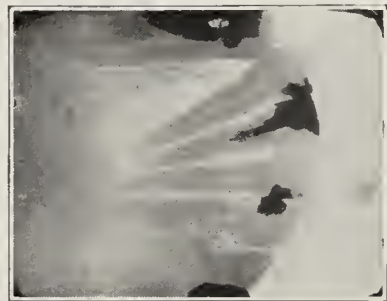


Fig. 3.—Bone cyst at root of incisors: incision made and part of external alveolar plate removed with preservation of teeth.

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

months. Excision and heat were used jointly. Local recurrence necessitated the removal of the nasal bones, the lateral walls of the orbital cavity and the eyeball, resulting in a temporary cure. Some months later, a local recurrence necessitated the removal of the malar bone and contiguous tissues. The virulence was so well established, however, that death ensued about four months later from extensive local recurrence. No metastasis at any time occurred, and never was there any glandular involvement of the cervical lymphatics.

It is noted that few dentists send to a pathologic laboratory excrescences which they remove from the oral cavity. Every excrescence represents an abnormal cell proliferation, which places it in the classification of the neoplasms. In the teaching of dental students, the importance of this point should be thoroughly impressed on the mind of each graduate.

It has been interesting to note the various diagnoses which come back from different pathologists whose opinion is sought on an epulis section. Those who have examined a number of specimens, however, and have had the advantage of knowing the clinical course of these cases, will not send back a report of a benign fibrous tumor of no definite characteristics, or the diagnosis of giant cell sarcoma. The giant cells are frequently in the sections, but the picture is characteristic to the experienced eye.

Despite the confusing pathologic picture, the epulis must be considered as essentially malignant, belonging to the mesoblastic type of neoplasms, just as much so as the so-called rodent ulcer is a similar type of malignancy of epiblastic structure.

The general tumors, both benign and malignant, which affect the mandible are so thoroughly understood (pursuing a similar course in other parts of the body) that it is not logical to impose on this meeting a summary of this part of our subject. The treatment of these tumors is so well standardized, and the principles so thoroughly understood, that it is hardly logical to give any consideration to these principles, excepting so

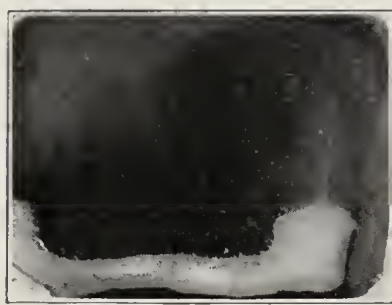


Fig. 4.—Large cyst at base of bridge support: cyst and lining shelled out with preservation of support.

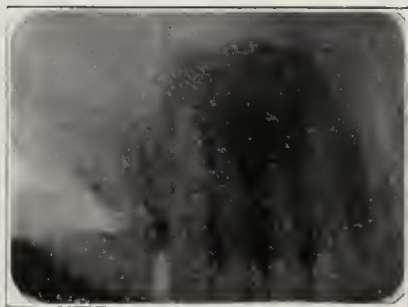


Fig. 5.—Cyst at root of incisors: similar operation as in Figure 4, with preservation of all four teeth.

far as especially to emphasize the importance of early radical treatment of malignant types when they are in the mandible. We must recognize the well known virulence when here situated, and the early metastasis which takes place in a region well supplied with lymphatics.

The malignancy of the fundus of the uterus remains a local lesion for a greater length of time than when it occurs in the cervix. It is a general rule that metastasis occurs earlier from any malignancy at the outlet of the urinary bladder or the gallbladder than from the fundus. Apparently, in the oral cavity there is no fundus nor outlet to consider; and early metastasis finds a limitation only when the type of malignancy

is of the slow growing type. Tumors of the mandible can usually be noted early in their existence on account of the superficial location of the bone, whereas in the abdominal cavity, or in some deeply situated bone as the femur, a tumor must attain some proportion before attention is directed to it, and in case the tumor is of a malignant nature, the possibility of an early eradication is lost. It is probable that the high percentage of cures of cancer of the lip depends



Fig. 6.—Osteoma: conservative operation without sacrifice of teeth.

more on this fact than on the fact that malignancy is less virulent in the lip than elsewhere. The use of heat and radium has apparently increased the percentage of cures of malignancies of the mandible, as evidenced by the experience of Ochsner, New and others; and our own observations have been in accord with this fact. Probably when the technic is more standardized by a longer experience, we shall note that the results are even better.

DENTAL CYSTS

Of especial interest in connection with mandibular tumors are dental cysts. These are of two general types: (1) those which arise from some embryonal rests, and (2) those which have an origin from a preceding infection. The first type reproduces a type of tissue analogous to some true dental tissue. The second type develops a type of cyst containing fluid or tissue usually encapsulated and not resembling any type of dental tissue. A growth of the second class of cysts is usually more progressive, and gradually involves and destroys a larger amount of mandibular structure. Study of the inflammatory cysts is rather illuminating on the pathogenesis of tumors in general. The primary infection at the root of the tooth soon becomes historical. The proliferation of the granulomatous tissue is kept pace with by the epithelial proliferation, which at once surrounds and penetrates the granuloma. If apical tooth infection can produce a neoplastic process, is it not logical to assume that the stomach ulcer, the ulceration of an old cervical laceration, or the bacterial or traumatic irritation of any tissue will stimulate a cellular proliferation that will go beyond the limits of normal physiologic repair and become neoplastic?

It is especially desired to discuss the inflammatory dental cysts from a standpoint of treatment in reference to the conservation of teeth. There are many cases in which this type of dental cyst, while originating from a tooth infection, does not in any wise

involve the tooth after the primary infection becomes historical, and the proliferating cyst has formed.

On account of the relative density of the bone, these cysts usually impinge on the outer surface of the mandible, and are more readily accessible to surgical drainage. Many of these cysts can be opened up and their contents removed, as well as the capsule and the area packed and healed, without sacrificing any of the teeth. In this type of case, we are dealing with a neoplastic disease which stands out by itself, having been stimulated to growth by the original apical infection. This apical infection in such cases is healed and cured; if not, the tooth would have presented the characteristics of the so-called ulcerated tooth.

The application of this principle is analogous to general surgical treatment of bone cysts and bone infections elsewhere. This idea is advanced with a full realization that strenuous criticism will be provoked. Nevertheless, clinical application of this principle during the last few years has yielded results that have been equally as satisfactory as any other line of treatment, and at the same time has resulted in the conservation of many teeth.

The general surgical principles of bone infection have not been fully applied to the treatment of mandibular cysts and mandibular infections, especially those originating in dental lesions. It is desired to advance the idea that the first thought in such situations should not be a necessity to resort to promiscuous extractions.

The area from which a dental cyst or a granuloma has been removed is filled up by normal cicatricial tissue, either fibrous or osseous. When bone cysts are removed from any of the long bones, we find this basic principle very dependable. When either of these processes occurs in the mandible, there may be exposed, on removal of the diseased area, some part of a tooth, otherwise solid and painless. The fact of this temporary exposure should not always condemn a tooth and warrant its extraction. The tooth is at this time not a part of the process but simply a contiguous neighbor, so to speak. The new tissue which forms, fibrous or osseous, will frequently form an adequate protection. The infection which once existed there and originally started neoplastic process is historical. An uninfected, solid, devitalized tooth can serve a useful purpose, and is not necessarily a menace. In several cases of this particular condition there was temporary exposure. The healing in the area furnished an adequate protection for these particular teeth; and since then they have been firm, solid and useful. In two cases of cysts which produced a sinus instead of continuing to increase in size, the treatment was satisfactory and the teeth were conserved.

Postgraduate Study.—When one has a fragmentary knowledge of new things it is easy for the conscientious man to hand over his problem to another and accept the decision even when it runs counter to his mossy grounded convictions. From this point, the descent is easy to the habit of transferring all his problems to other agencies. The only corrective for this is a wider adoption of postgraduate study as a custom of our profession. This may be through the activities of county societies properly organized, through subcommittees of the local profession, or through travel and attendance at a suitable graduate school or a general hospital where facilities are granted. No one of these agencies alone will suffice, for the need is great and extensive.—A Stengel, *Virginia M. Monthly* 48:439 (Nov.) 1921.

ETIOLOGY, PATHOLOGY AND TREATMENT OF CYSTS OF THE JAWS*

GEORGE M. DORRANCE, M.D.

PHILADELPHIA

The particular reasons for this paper are, first, that cysts of the jaws are not widely known among general surgeons, and, second, that there are certain interesting etiologic factors which I desire to mention.

There are many classifications of cysts and many names given to them; but the simple classification into radicular cysts, follicular cysts and multilocular cysts, which fulfils the pathologic anatomic requirements, is the one I shall use.

It is difficult to estimate the frequency of these cysts. From the medical literature, one would think they are comparatively rare. This is not true, however. They are rather common, if one is on the lookout for them, particularly if one has the teeth roentgenographed, as this is the usual method of detecting them. After a rather careful survey of the literature and from my own records. I find that they occur in about the proportion of: radicular, 80 per cent.; follicular, 20 per cent., and multilocular, 1 in 2 to 3,000.

ETIOLOGY

Radicular cysts occur most commonly between the ages of 20 and 30. They are occasionally seen in milk or first teeth; but this occurrence is so exceptional that I shall disregard it. It is essential for the development of a radicular cyst that one has death of the pulp with subsequent development of a granuloma, this granuloma developing into the cyst. There have been a great many theories and academic discussions as to the origin of the cyst, but the consensus of opinion is that the cyst develops from the epithelial sheath of Hertwig (*débris épithéliaux de Malassez*). It is essential to understand that this is always a chronic process. The pathologic sequence for the development of the condition is: (1) death of the pulp; (2) development of a granuloma, and (3) bacterial or other toxins. Irritation of these so-called epithelial rest cells in this sheath of Hertwig stimulates them to an overgrowth, which goes on until the lining becomes epitheliated.

These rest cells take on a bell shaped formation, and from them a mucoid degeneration occurs and produces the gelatinous fluid found in these cysts. This process is very gradual. If this process, after the death of the pulp takes place, is very rapid and the tissues do not overcome the infection, we have developed an acute abscess which I want to insist is an entirely separate and distinct condition. The position of the development of these cysts is interesting and led me to study these conditions to see if their location had any particular significance as to their etiology. These cysts develop more commonly in the maxilla than in the mandible. It is the upper lateral incisors that are most commonly affected, next the canines, third, the lower central incisors, and finally the upper molars. The point I wish to draw, and which is entirely new as far as I can find in the literature, is that the lateral incisor and the canine are situated where the intermaxillary process fuses with the maxillary process. I do not know whether this had anything to do with the cysts' being more frequent in this position;

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

also, in the mandible they occur most frequently where the two processes join, that is, the central incisors. I was unable to prove this point. It does not seem to fit in with the cysts which develop in the other teeth. However, it may have some bearing on the frequency of the location of the cyst. If, for any reason in the occlusion of the teeth, one tooth strikes its opponent before the remainder, it seems to be a factor tending to produce a cyst. Regulating the teeth (orthodontia) is not sufficiently practiced for one to be sure whether or not this has any bearing on the subject. I have not been able to assure myself that this has any significance.

The development of this radicular cyst, then, is death of the pulp, and gradual development of a granuloma due to irritation, with development of a cyst which, in turn, causes absorption and distortion of the surrounding bone structure.

Follicular cysts develop from the enamel sac which surrounds an unerupted, supernumerary or abnormal tooth which takes on a hypertrophy and proliferation at the time at which the tooth should be erupted. For instance, the canine cyst starts emptying in the ninth year, the cyst of the third molar at approximately the eighteenth or twentieth year. It is more common in the maxillary canine, because this is the one most frequently displaced. It displaces the bones in which it is situated the same as any other cyst.

Multilocular cysts are seldom seen except in the ramus of the mandible. A multiplicity of names has been given to them, from the name of epithelial odontomas (Sutton) to the term proliferating follicular cystomas. They are developed from the posterior extremity of the enamel ridge. The pathology is very much confused. My opinion is that these are nonmalignant cysts having many cavities, some communicating and some not. To explain the malignancy that occasionally occurs in these cysts, I think it is only the usual amount of malignancy that occurs in any abnormal slow growing tissue that develops from misplaced epithelium. They develop between the ages of 20 and 30 years, as 20 is the time that the portion of the enamel ridge immediately preceding this portion forms the lower third molar.

DIFFERENTIAL DIAGNOSIS

Cysts in general must be diagnosed from very few other conditions. In their early stage they are practically all at first recognized by the roentgen ray. First, it must be differentiated from suppuration of the antrum and a condition called hydrops of the antrum or a cystic degeneration of the antrum, which I have never seen, and from various tumors, such as osteoma

and sarcoma. On account of the early age at which cysts are noted, carcinoma is usually not present.

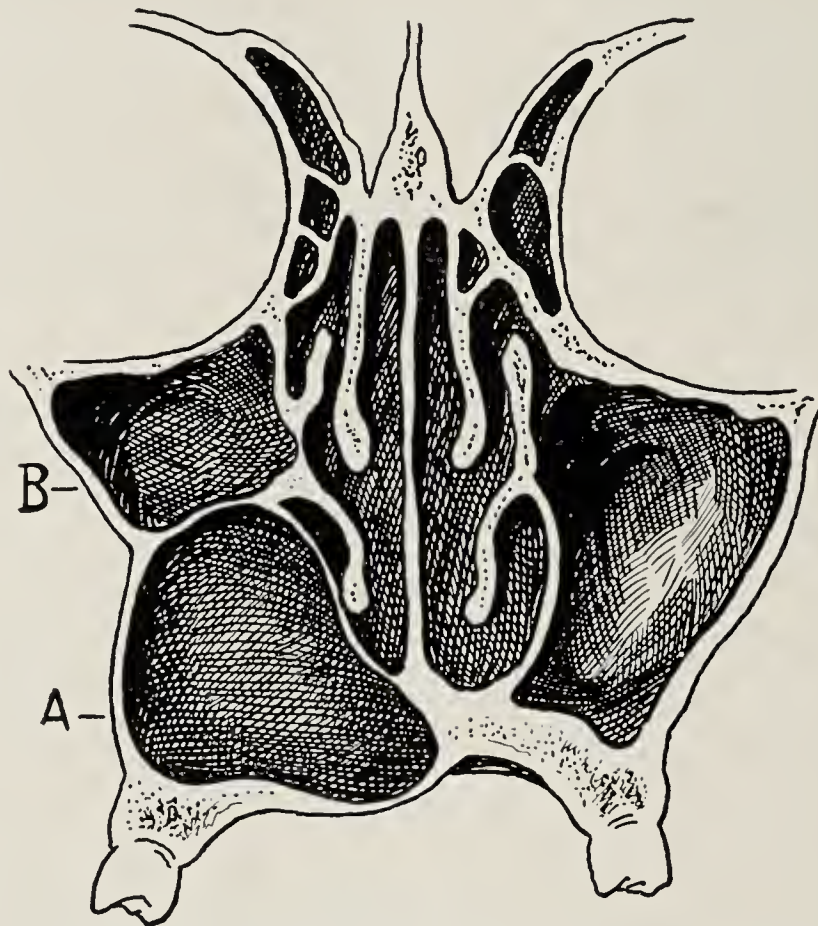
The difference from disease of the antrum is first a difference in the history, a discoloration or absence of a tooth point to a cyst. The roentgen ray materially assists in the diagnosis. Second, the cyst is usually more anterior on the alveolar margin than a distended antrum would be. Third, the almost pathognomonic sign of cyst disease is the crackling feel of a ping pong ball—former writers called it parchment-like.

Transillumination has been of very little value. A needle puncture, under local anesthesia, will almost always clear up the diagnosis. The symptoms of a cyst are: If small, they are usually first discovered accidentally by a roentgenogram. The patient first notices a slight swelling, which grows very gradually without pain in all but the multilocular variety. It is observed most commonly above the lateral incisor and canine in the alveolar margin, but again may first show itself by a swelling or enlargement in the hard palate. The physical signs early consist in a bony enlargement, later followed by the ping pong crackling on palpation, with the elevation of the floor of the nose of the side affected, if the cyst is in that area.

TREATMENT OF RADICULAR CYSTS

If the cysts are small and are seen early, a small incision is made through the alveolar mucous membrane, and the outer table of bone is trephined or chiseled away. The root of the tooth is amputated, and the cyst lining is separated from the surrounding bony margin by a twisting motion. The entire sac of the

cyst is removed. A small amount of iodoform is dusted in. The cavity is allowed to fill in with a blood clot; the mucous membrane is sutured in place. It is taken for granted that the root has been filled. At times, it may be necessary to extract the tooth which is the cause of the cyst. At times, these cysts remain after a tooth has been extracted, but this is rare. If the cyst is larger than an agate, depending a good deal on the size and the distention that have been produced, other methods may be indicated, such as the method popularized by Partsch, which consists in removing the alveolar margin overlying the cyst and without attempting to remove the membrane, pack, etc., with iodoform gauze so as to make the cyst cavity an accessory cavity to the mouth. The essential part here is to make the opening large enough and, of course, either extract the tooth or have the root amputated and the canal filled. There are cases in which it is possible to make the cyst cavity an accessory cavity to the nose by removing the nasal wall of the cyst, which in reality is the outer wall of the inferior meatus, the same as one would do in a Caldwell-Luc



A, cyst cavity; B, displaced antrum. Note depression of palate and elevation and lateral compression of lateral wall and floor of the nose.

operation. As suggested by Richter and Waldron, independent of each other, you would first do a Partsch operation and then, at the same sitting, remove the portion of bone between the cyst and the inferior meatus and have the packing come out through the nose. I have found it much more satisfactory to perform an operation patterned after the Denker operation, which consists in removing the anterior wall of the cyst and the portion of the wall between it and the nose—a Denker operation in reality.

DIFFERENTIAL DIAGNOSIS OF THE VARIOUS CYSTS

Radicular	Follicular	Multilocular
Ages: 20 to 30	Ages: 12 to 20	Ages: 25 to 35
Condition of teeth: Usually a dead tooth	Absent tooth	Normal
Most common: Upper jaw at apex of later- al incisor	Upper jaw at apex of lateral incisor	Mandible
Röntgen ray: Rare- fication at apex of tooth	Unrupted tooth	
No pain	No pain	Pain
No elevation of tem- perature	No elvation of tem- perature	No elevation of tem- perature

The disadvantage of the nasal method is that one frequently sees a large amount of crustations collect in the cavity. I would especially warn against opening these cysts through the roof of the mouth, as it necessitates wearing a plate, etc. It is interesting to note that after opening a cyst the portion of the palate bone which has been involved and thinned by the distention of the cyst returns to its normal contour, and bone is again deposited.

An almost complete bibliography of the foreign literature can be obtained from the reprint of Dr. Erich Becker.

2025 Walnut Street.

REPORT OF A CASE OF CEPHALIC CHANCROID

AND A CASE OF ENCEPHALITIS FOLLOWING
EXTRACTION OF A TOOTH THAT HAD
INFECTION AT APEX *

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Extragenital chancroids are by no means rare, but are far less frequent than extragenital chancres.¹ Those on the fingers and hands are occasionally observed, but few cases of cephalic chancroids have been described.² This is not surprising, for conditions about the face and head are not advantageous for the successful inoculation with the Ducrey streptobacillus.

Chancroids, other than those of the penis, have been reported on many different portions of the body, upper and lower extremities, abdomen, lips, eyes and buccal cavity, but in all reports of series, digital chancroids are by far the most frequent.³ It is necessary that there be an atrium through the skin for the entrance of the bacillus, and this requisite is most often present extragenitally on the fingers, as the hands most often come in contact with the initial ulcer.

Not all extragenital chancroids are the result of autoinoculation. The handling of another's infected

parts is often the cause of digital chancroids, especially in physicians, and the use of a soiled handkerchief⁴ was proved in at least one case to have been the etiologic factor.

CHANCROID OF CHIN

The following is the report of a recent case of an extragenital chancroid occurring on the chin, with a definite submental adenitis or bubo:

J. S., a negro, aged 23, entered Cook County Hospital, Oct. 12, 1920, because of a painful swelling beneath the chin. He did not seem to be acutely ill, and was of good nutrition and stature. Regional examination revealed that his scalp, ears, eyes and nose were negative. His mouth was in poor condition. The lower left bicusps and first molar were carious to such an extent that the viability of their pulps was lost. The mucosa of his mouth was normal, as were his tongue and throat. Examination of his face revealed a small pustular lesion less than 0.5 cm. in diameter on his chin just to the left of the median line. When questioned as to this lesion, he said that he had noticed for the last two or three days a small pimple in this region but had paid no attention to it, but admitted that he thought it was increasing in size. Beneath the chin there was a round, movable tumor, rather deeply situated below the symphysis, about the size of a crabapple. This mass was very sensitive to touch, was firm, and did not fluctuate. The chest, abdomen and reflexes were normal. A search for adenopathy revealed some small, hard bilateral inguinal glands. An examination of the genitalia revealed an ulcerated lesion with ragged edges, somewhat elevated, but not indurated, on the right dorsal surface of the coronal sulcus. This ulcer was nearly round, about 1.5 cm. in diameter, and was of about two weeks' duration.

Laboratory examination revealed 5,280,000 red and 11,000 white blood cells with a hemoglobin content of 95 per cent. The urine was negative. A smear from the genital lesion, under the dark field illuminator, revealed no spirochetes. Stained with carbolfuchsin, the coccal forms were so profuse that no bacterial differentiation could be made. The blood Wassermann test was negative.

As a result of the examination a diagnosis of genital chancroidal infection together with a submental adenitis, either from a facial or an intra-oral infection, was made, although it was recognized that normally the affected teeth did not drain into the submental region. Appropriate chancroidal treatment was instituted, and hot dressings were applied beneath the chin.

Five days after entrance, fluctuation was thought to be demonstrable below the chin, and an attempt was made to aspirate the gland, but was unsuccessful.

During this time the lesion on the chin became larger and encrusted. When the crust was removed, a ragged ulcer about 1 cm. in diameter resulted, looking not unlike the chancroidal infection on the penis.

Ten days after entrance, the gland beneath the chin was opened and curetted, the result being an abundance of thick caseous material. On account of the rapid liquefaction of the gland, and its painful character and the similarity between the lesions, a tentative diagnosis of chancroid of the chin was made.

A culture of this material was made by Dr. D. J. Davis⁵ of the University of Illinois Medical School, who reported:

"The content of the abscess was examined bacteriologically. It contained many pus cells, necrotic tissue, and much blood. In stained smear preparations no bacteria were found even on careful search.

"Suspecting the presence of *B. ducreyi*, the material was cultivated in blood. For this purpose six small tubes containing about 2 c.c. of fresh human, defibrinated blood were prepared and each inoculated with diminishing amounts of the material. Heavy blood agar tubes were examined, and in three of the six growths *B. ducreyi* appeared. A few *Staphylococci albi* grew in two or three of the tubes, but not in all. It was impossible to state whether or not they were contaminants or secondary invaders; probably the former, since they were not found in all the tubes.

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. White and Martin: Venereal Diseases.

2. Martin, in Morrow's System.

3. Shelmire: Texas State J. Med., 1913-1914, p. 318.

4. Klausner: J. Cutan. Dis., 1915.

5. Davis: Jour. M. Res. 9: 401, 1893.

"The bacilli after twenty-four to forty-eight hours' growth appeared in typical tangled clusters of streptobacilli. Many also appeared in short and long chains. On superficial examination, morphologically they resemble growths of *Streptococcus viridans*. They are short, oval bacilli, stain with difficulty with methylene blue, and are gram negative. On solid mediums they form small, gray, opaque colonies from 1 to 2 mm. across, which appear in twenty-four hours and grow to maturity in two days. On plain mediums they gave no growth."

Argyrol crystals⁶ applied to the lesion, and cleanliness, led to a speedy recovery.⁷

That the Ducrey bacillus is the specific cause of chancroid there can be no doubt. Ducrey in 1889 made fifteen successive human inoculations with material from the lesion, finally obtaining a lesion in which practically only the streptobacilli were seen. He did not then know how to grow it. This was done by Lenglet in 1898, who cultivated it in human skin agar covered with blood. Heavy blood mediums or pure blood, defibrinated or not, have now come into general use in growing it. At least three workers, Fisher, Lipschütz and Tomaszewski, have inoculated themselves with pure cultures and caused typical chancroids. Monkeys are susceptible; also the cornea of the rabbit.

Extragenital chancroids are not uncommon on the lower part of the body, but are rare about the head and face. In Kolle Wassermann's *Handbuch*, Stein quotes Petersen as having observed twenty-seven extragenital lesions in a series of 9,000 chancroids. Ullman collected from the literature and his own experience sixty-four extragenital chancroids. Of these, forty-nine had both genital and extragenital lesions (as in the case here reported); twenty-two were on the fingers. Of chancroids in other localities, one is reported on the gum of the upper jaw, two on the conjunctiva, one on the tonsil, one on the tongue, one on the soft palate and wall of the pharynx, and one in the external auditory canal. None was found reported on the chin.

CONCLUSIONS

This patient had primarily a genital chancroid, and carried the infected material from his genital lesion, implanting it upon his chin, where it produced a typical lesion with the characteristic painful regional bubo with early liquefaction.

ENCEPHALITIS FOLLOWING EXTRACTION OF TOOTH

My object in reporting this case is to call attention to some of the dangers that may attend the extraction of a tooth, and to deprecate the too frequently adopted method of multiple extraction of teeth at one sitting.

The extraction of a tooth is just as important and should entail just as much care in preparation, skill in technic and thoughtful after-care as other surgical operations. In fact, the possibilities for complications are greater here than in any other region of the body. There is no other region of the body which harbors such multitudes of bacteria, both putrefactive and pathogenic nor any part which so effectively resists them. So far as the usual practice goes, we have utterly disregarded the advance of science, and for all the benefit derived, it were just as well if Virchow, who proclaimed the cellular pathology, and Pasteur, who made surgery possible, had never lived.

Practically no attention is paid before extraction to the condition of the oral cavity. The condemned tooth, covered with septic debris and calculus, is untouched until it is grasped by the forceps, the blades of which are forced into the soft tissues and bone, carrying infection into the newly made wounds.

The general surgeon of today would be justly sued for malpractice, and his license would be speedily revoked, if he operated in like manner, and after

having operated dismissed his patient, not expecting to hear from him or see him again.

The laity, because of such barbarous treatment in times past and because of little advancement in practice up to the present time, does not know any different; it does know that instruments should be boiled, but of what value are sterile forceps if they are to be literally smeared with dangerous bacteria just before being pressed into a wound made by these same forceps? Furthermore, not only is no fear evidenced in creating one infected wound, but half a dozen or even two dozen teeth are treated in the same manner at the same sitting, leaving lacerated gums separated from the bony process; and the patient, still bleeding, is dismissed.

It is unfortunate that the individual who extracts teeth is not compelled to take care of the patient until he be restored to his former state of health. If that were the case the extractor would very soon learn that not a few deaths and many complications and untoward sequelae follow what is thought to be an inconsequential incident. The fact is that when the patient falls ill as the direct result of the extraction, it is his physician who finds a cellulitis, Ludwig's angina, necrosis, lymphadenitis, phlegmon of the neck, meningitis, brain abscess, or some other septic process in distant parts, which may be directly traceable to the extraction. These are all possibilities and are not so infrequent as they may seem. Now, how can we lessen their occurrence? In the first place, we must make application of our knowledge of pathology and bacteriology, realizing possible developments following operation within an infected field on an infected organ.

Secondly, we should apply the principles and practice of surgery to each operation, and exercise judgment as to the number of teeth to be extracted at one sitting. We know that at various times we do have showers of bacteria appearing in the blood stream. We also know that, in order to produce a lesion of infection, we must have a sufficient number of bacteria. The relationship between virility of bacteria, number of bacteria, and resistance of the body or tissues, on which in varying degree the establishment of infection depends, is beyond our calculation or comprehension; consequently we must avoid carrying bacteria into the tissues, we must avoid as much as possible the dissemination of bacteria already present, and we must endeavor to have the patient in the best possible health. Usually, however, we must choose the lesser evil. Undoubtedly the bacteria present within the granulomas at root apices may, by the manipulation consequent to extraction, be forced into the lymphatics and thin walled venous capillaries, passing readily into the general circulation. Thrombophlebitis in any part of the body with septic liquefaction of the thrombus liberates bacteria directly into the general circulation; consequently we should seek to avoid such possibilities. The following report seems clear cut, and I am allowed to report it by the courtesy of Dr. W. B. McClure of Evanston, Ill.:

A woman, aged 42, consulted Dr. J. A. Lichty of Pittsburgh, Nov. 12, 1920, complaining of nervousness, becoming more marked during the last three years; there was some palpitation, dyspnea and slight tremor on exertion; also constipation with occasional diarrhea. There had been some loss of weight. Physical examination and laboratory tests revealed little abnormal except a white cell count of 4,200, with 50 per cent. polymorphonuclears, 27 per cent. large mononuclears, 21 per cent. small mononuclears, and 2 per

6. Ravary: J. d'urol. méd. et chir., 1913.

7. I am indebted to Dr. Richard Bower, my intern, for the review of the literature, and detailed report of this case.

cent. transitionals. Gastric analysis revealed the absence of free hydrochloric acid; combined hydrochloric acid, 20 per cent.

A roentgenogram of the teeth disclosed several apical infections, and because of them it was decided to extract these teeth. November 26, at about 3 p. m., the upper right second bicuspid, which had been free from tenderness and swelling of the soft tissues, was extracted by a careful, competent dentist, a local anesthetic being employed.

The granuloma came away with the tooth.

The next morning, November 27, the patient awoke with a headache and, as she expressed it, "felt miserable." The temperature at 11 a. m. was 99.8. November 28, the headache was less severe, but the face and ears were red and burning, the highest temperature, 100.6.

The following morning, November 29, as the temperature was nearly 101, the patient stayed in bed. At noon a fine rash was noticed on the face, neck, chest, shoulders and thighs, which by November 30 had spread over most of the body and which almost disappeared during the next twenty-four hours.

November 30, there was a chill, the highest temperature being 101.4, which on December 1 rose to 102.4. During these days the morning temperature was about 99.8 and the family physician, Dr. A. M. Lichty, decided that it was not a case of scarlet fever.

December 2, the temperature was around 102, but on December 3 it rose to 103, and it was noticed that the patient had difficulty in finding the right words to use, and later answered "yes" and "no" only.

December 4, the temperature was normal but the patient seemed weak and languid, and objected to being bathed, complaining of soreness in her muscles, especially those of the back of her neck.

In the early afternoon she made no effort at speech, but followed her attendant with wide open eyes as she moved about the room. The evening temperature was normal, but the patient paid no attention on being questioned and later had a convulsion, lasting ten minutes, with opisthotonos, after which she became comatose.

Following the convulsion her temperature rose, reaching 106 by axilla the next evening, when it was noticed that there was rigidity of the neck and arms, more marked on the left side, with very little rigidity of the legs.

Lumbar puncture, December 5, yielded a clear fluid under little or no increase of pressure. Culture of the fluid was negative.

The urinary findings were normal throughout.

The blood examination revealed: red blood count, 4,390,000; hemoglobin, 72 per cent.; white blood count, 8,600. Differential count: polymorphonuclears, 62 per cent.; small mononuclears, 28 per cent.; large mononuclears, 5 per cent.; transitionals, 3 per cent.

Examination of the heart, lungs and abdomen, December 5 and 6, was negative. Within three days the temperature had dropped to normal. The patient remained in coma until the afternoon of December 6, when she opened her eyes for a short time, but at 11 p. m. she again awoke, became delirious, and was restrained with difficulty; December 8, she fell into a quiet, restful sleep, and on awakening her mind was quite clear.

Within the next few days she continued to improve, both mentally and physically, and at the present time weighs more than she has for several years.

COMMENT

It may be questioned whether the encephalitis which is believed to have occurred was due to a bacteremia precipitated by the disturbance of the focus of infection, on the ground that it might have been a coincidence; but it seems logical to assume that such was not the case. We have examples of rupture of tuberculous glands into the thoracic duct, producing a hematogenic tuberculosis; we have brain abscesses in the course of bronchiectasis, and we see multiple abscesses in the skin from a thrombophlebitis.

We must have reports of more cases of sepsis following extraction of teeth, and a further study of them in order that we may know what to fear when we extract a tooth.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. WENKER, PETTIT, DORRANCE AND POTTS

DR. ROBERT H. IVY, Philadelphia: Carcinomatous and sarcomatous odontomas need further investigation before they can be established as definite pathologic entities. In the cyst cases reported as having a lining of connective tissue cells, it is likely that these are either epithelial cells flattened out by the pressure of the fluid, or the epithelium which originally lined the cavity has been lost by atrophy. It is not the situation of the developmental points of fusion of the jaw bones which determines the location of dental root cysts but where the periapical infection leading to the cyst happens to be, and sufficient space for development. Root cysts are not so often found in the region of the symphysis of the lower jaw as in the premolar and molar regions. They are frequent in the anterior portion of the upper jaw because the teeth in this location are often pulpless and there is plenty of room for expansion. Root cysts are often found in parts of the jaws from which the teeth have been lost. Partsch's operation is not an extirpation but a marsupialization. This method is preferable to shelling out the entire cyst wall in the case of the larger cysts of the upper jaw because of the danger in the shelling out process of creating an opening into the nose or the maxillary sinus, which may be very difficult to close. The complete extirpation is reserved for small cysts or for those in which there is difficulty in creating a wide opening. In all cases in which any epithelial lining is to be left behind, the communication of the cyst cavity should be with the mouth rather than with the nose, because the subsequent course of the case can be inspected directly. The solid central tumors of the mandible are more common than the adamantine growths. The differential diagnosis of central tumors, that is, fibroma, fibrosarcoma, giant cell myeloma, and various types of cysts, can generally be made by radiographic and clinical examinations. In the root cyst there is nearly always present a tooth with a devitalized pulp or the history of the extraction of such a tooth. In the dentigerous cyst the tooth will be absent from the arch and will be shown radiographically to be unerupted. In the tumors containing solid tissue the full complement of teeth may be present and the radiographic picture will show evidence of the presence of solid tissue in the bone cavity. The rare case of chancreoid infection of the chin reported by Dr. Potts warns us to be on the lookout for such infection.

DR. THEODORE BLUM, New York City: Cysts show no predilection, but attain larger proportion in more cancellous bone. I have seen two cysts caused by devitalized temporary teeth. In the majority of cases without fistula, I have found the contents sterile. When the fluid was straw colored, the cholesterol crystals were golden yellow; when the fluid was dark brown, the crystals had a silvery appearance. Microscopically, the cyst membrane showed an epithelial lining. Grawitz claims that it is derived from the oral mucosa. I have found only one case in which a maxillary cyst had broken into the antrum. The diagnosis of cysts in the maxillary molar region from the roentgenogram alone is quite difficult in the absence of characteristic clinical symptoms, as in cases originating from buccal roots, in which the cyst is mostly formed outside the maxilla. I wish to correct the statements made by Drs. Dorrance and Ivy that the Partsch operation is the most conservative. Partsch describes a conservative and a radical operation. The conservative is used in cases of large cysts especially in the maxilla, to avoid opening into the antrum or nasal fossa. Many operators have felt that for fear of recurrence here, conservatism was not in accordance with surgical principles. This has been disproved by Partsch who, in 1898, reported 200 cases in which microscopic examination of the membrane showed that it had changed into one practically identical with the oral mucosa.

DR. THOMAS L. GILMER, Chicago: I have been accustomed to classify cyst and odontomas of the jaw separately, since,

strictly speaking, an odontome is not a cyst. In my collection of odontomes none had cyst walls, so far as I was able to find. I favor a less complicated classification of cysts of the jaw: (1) follicular cysts; (2) dentigerous cysts; (3) cysts associated with the peridental membrane of teeth having septic roots, and (4) cysts found in any part of the jaws seemingly having no connection or relationship with the teeth. The origin of these cysts, with the exception of the follicular cysts, has not, to my knowledge, been determined. Class 1 may be associated rather definitely with the tooth follicle and contains only one tooth. Class 2 has been attributed to epithelial rests. Class 3 may be associated with the epithelium of the peridental membrane of teeth having septic root canals. Class 4 does not appear to have any connection with the teeth in their origin. The most satisfactory explanation of the origin of this type is given by Eve. He supposed them to be an inclusion of a part of the epiblast layer by the mesoblast in fetal life. Later the epithelial cells are stimulated by some influence to growth and multiplication, forming a cyst. I have seen cysts of this kind develop on both sides of the mandible simultaneously. No part of the jaws seem to be exempt. I have never seen a jaw cyst become malignant or a cyst wall become calcified. Formerly, in the removal of jaw cysts, I packed the cavity with gauze. For the last year, instead of packing, I have, after removal of the smaller cysts, induced the flow of blood into the cyst cavity, completely filling it, then suturing over it the flap of gum and periosteum, which had been carefully elevated before the operation, so as to completely close the opening. As yet in no case thus treated has infection occurred. I prefer to depend on complete mechanical removal of cyst walls rather than on the use of escharotics. I have never seen a case of secondary chancroid develop on the face. The ignorance of some tooth extractors is appalling, and it is doubtful if they realize the serious results which often follow in their wake. I have seen many fractured, dislocated and infected jaws following removal of teeth by extraction specialists. Since the fad for "surgical removal of teeth," we may expect more serious infections resulting.

DR. M. I. SCHAMBERG, New York City: If a surgeon were to use a cautery knife in the removal of malignant growths much dissemination of tumor cells might be prevented, but I cannot agree with Dr. Bloodgood as to cauterizing cystic conditions about the jaw or epulis. I have never seen an epulis that did not spring from the peridental membrane or periosteum, with the base of the growth directly in the cancellous structure of the bone. Any attempt to remove these tumors in a nonsurgical manner is very likely to be followed by recurrence. It is bad policy to try to destroy the center of a growth by cautery without trying to close the wound or to leave any part of the membrane. If the Partsch operation is done that likelihood is not great, but any piece of epithelial tissue left in the enclosed wound is very likely to encourage recurrence. That is the reason why multilocular cysts so frequently recur after operation. We are going to see a lot of damage done by unwise judgment in the surgical removal of teeth, yet I do not want altogether to agree with those who believe that the surgical removal of foci of infection is contraindicated.

DR. HERBERT A. POTTS, Chicago: Dr. Bloodgood said that within a few years every dentist should have a cautery. Many surgeons and physicians do not realize the distinction between dentistry and surgery of the mouth. It would be a mistake to recommend the universal use of the cautery; in fact, I know that there are dentists who might keep a cautery in their offices with the object of cauterizing anything that might turn up. Almost every week I see a patient whose dentist, seeing a swelling, stuck a scalpel into it and as a consequence, a simple cyst has become infected and a lot of trouble has followed. I was interested in Dr. Moorehead's idea of splitting the soft palate. Gilles advocated leaving the soft palate attached to the posterior border of the hard palate and not attempting to close the hard palate. He does this for the perfection of speech. The cleft of the hard palate will need to be closed by a plate. The social position of the patient might tip the balance in choice of procedure. If the soft palate is not dropped down, increasing the distance between the soft palate and the vault of the pharynx, it seems that we might expect a more perfect speech.

In regard to the etiology of multilocular cysts, I did a complete resection, going beyond the diseased bone, and I found areas of hemorrhage, or at least reddened areas. I removed another half inch of bone. In this bone were coils of blood vessels, like the glomerulae of the kidney. It was seemingly the development of other little cysts, which may account for the recurrence of a multilocular cyst in the remaining bone after resection through apparently normal bone. Granulomas never suppurate unless contaminated by pus-producing organisms. Simple granulomas always contain streptococci, either *S. viridans* or *S. hemolyticus*, or both. Granuloma with sinus means secondary infection. It has been my habit to enucleate these cysts, let them fill with blood, and suture the wound. I have been partial to the Partsch operation for a long time. The tendency which the bones of the face have to assume their normal contour in a few months is remarkable.

DR. V. P. BLAIR, St. Louis: I have seen twelve or more young people die from extraction of the teeth, and in every instance but one the extraction was done during an exacerbation of the infection. I do not believe the trouble is ever caused by the organisms floating around in the mouth. It comes from the organism which has its habitat at the root of the tooth and sometimes deep in the pockets. For that reason, as a surgical practice, if I have to operate quickly, within two weeks of the time I see a lesion in the mouth, I do not have the teeth cleaned because I have seen so much trouble started up by energetic cleansing of the teeth after the patient was injured.

DR. L. T. LE WALD, New York City: It is the general opinion that a tumor developing in the bone in a case of Paget's disease is unquestionably sarcomatous. Such is not the case in my experience. There may be areas of degeneration that go on to cyst formation, but if one studies these areas one would never mistake Paget's disease for sarcoma. I once performed a necropsy on a man who died as a result of meningitis following extraction of an impacted third lower molar. It was very difficult to say whether infection was there prior to the extraction, but the probabilities are that the condition troubled him for some time and he finally decided to have the tooth extracted. The necropsy revealed a basilar meningitis, which was the cause of death.

DR. G. V. I. BROWN, Milwaukee, Wis: We are in a rather uncertain stage with regard to the differential diagnosis between a malignancy of serious character and a nonmalignancy in these cysts and growths of the jaw. I do not close up any opening in the jaw, when I am not sure of its contents. I am not nearly as much afraid of the secretion of the wound as I am of what might be inside the cyst. With regard to multilocular cysts, whether they are malignant or not, there is no question that they tend to expand. I would not disarticulate a jaw and deform the patient unless I knew I had to do it. We might just as well recognize the fact that unless we are going to deform jaws unnecessarily, we must use radium and the roentgen ray.

DR. F. B. MOORHEAD, Chicago: Certain well defined pathologic conditions are seen in the mouth that are not seen elsewhere in the body. The special physiology of the mouth requires special attention. The mesothelial group of tumors seen in the mouth is well defined and easily classified. First, the small hard, nonvascular, slow growing fibroma, which may exist for years. Second, the vascular fibroma which grows rather rapidly and in cases becomes quite large. Third, the giant cell tumor which differs from the vascular fibroma in that it contains large numbers of giant cells; probably nothing more than a coalescence of fixed tissue cells through the active stimulation of blood supply and consequent rapid growth. None of these three types is malignant. The so-called giant cell tumor is a benign affair, never invades bone, never metastasizes and never destroys life. It is a mistake to classify this as a sarcoma. Fourth, the sarcoma, which is malignant in terms of the size of its elements. The giant cell sarcoma of the jaw is the least dangerous of the various types, and offers the best prognosis when removed intelligently. On the other hand, the small round cell sarcoma is always fatal, as is very largely true of the mixed cell or spindle cell type.

DR. GEORGE M. DORRANCE, Philadelphia: In the differential diagnosis between these tumors we have not had much difficulty except in those situated in the posterior half of the

lower jaw. In these cases a frozen section is of great assistance. I do not like the operation that opens these cysts through the roof of the mouth. Patients will have difficulty in swallowing and in talking. The Partsch operation is perfectly well known. The Dencha operation, a modification of which I use, is particularly indicated when the cyst fills up a large surface of the nasal cavity. Putting radium into these mouths is not a simple matter. In a number of cases I have injected alcohol into the fifth nerve or its branches on account of the terrific pain produced by the use of radium. Almost every patient who has had radium treatment for tumor of the lower jaw develops severe pain.

Clinical Notes, Suggestions, and New Instruments

PRIMARY SYPHILITIC NOSE INFECTION: REPORT OF A CASE

KURT JAENICKE, M.D., CLINTON, IOWA

While extragenital syphilitic chancres are by no means uncommon, the localization of a primary sore at the entrance of the nares is undoubtedly rare. Thompson¹ illustrates and reports such a case. Since Thompson characterizes chancres in this locality as "medical curiosities," one may be warranted in reporting another instance of primary syphilitic nose infection.

T. R., a man, aged 35, married, whose family history was negative, who denied all previous venereal disease and who appeared healthy and robust, in August, 1921, while at work, was accidentally struck on the nose by a fellow laborer's shoulder. Slight tumefaction followed. About one month later he noticed a fissure at the entrance of the left naris extending from the ala inward toward the septum. A rhinologist cauterized the wound several times with chemicals in an effort to stay its progress, but the fissure steadily enlarged until a distinct ulcer was formed.

When the patient came under observation, there was an erosive sore on the floor of the left anterior naris about 1 cm. ($\frac{3}{8}$ inch) long, 0.5 cm. ($\frac{3}{16}$ inch) wide and 4 mm. ($\frac{5}{32}$ inch) deep, with a clean base and sharply elevated edges. The ulcer encroached on the skin of the upper lip to the extent of 2 mm. ($\frac{8}{100}$ inch). The neighboring tissues were indurated, and the submaxillary glands of the left side were moderately swollen. There was also a beginning papular syphiloderm sparsely scattered over the trunk and the legs. The patient's blood gave a + + + + Wassermann reaction.

The manner of infection was probably from an intermediate source, the injury to the nose furnishing a fertile soil.

402 South Second Street.

A NEW METHOD FOR DEMONSTRATING SPIROCHETES BY LYMPH GLAND PUNCTURE

IRWIN C. SUTTON, M.D., LOS ANGELES

So inclined is the lay public to douse every superficial or deep skin lesion with antiseptics that it is not unusual to find the primary lesion of syphilis covered with mercurial ointments, painted with liquid preparations or even cauterized. To avoid the delay in diagnosis occasioned by the removal of these medicaments, several methods of finding the spirochete have been devised, usually by aspiration of the rim of the chancre or of a regional lymph gland. In both these methods it is practically impossible to procure specimens of serum without, at the same time, getting a large amount of red blood cells in the mixture. Schultz has described a method whereby a small amount of physiologic sodium chlorid solution is injected into the gland and then aspirated; this, however, is not free from the objection mentioned above. Since the warning of Eberson that "spirochetes" may be

derived from red blood corpuscles, it would seem especially desirable to obtain serum as clear as possible. I have been partly successful by the following technic:

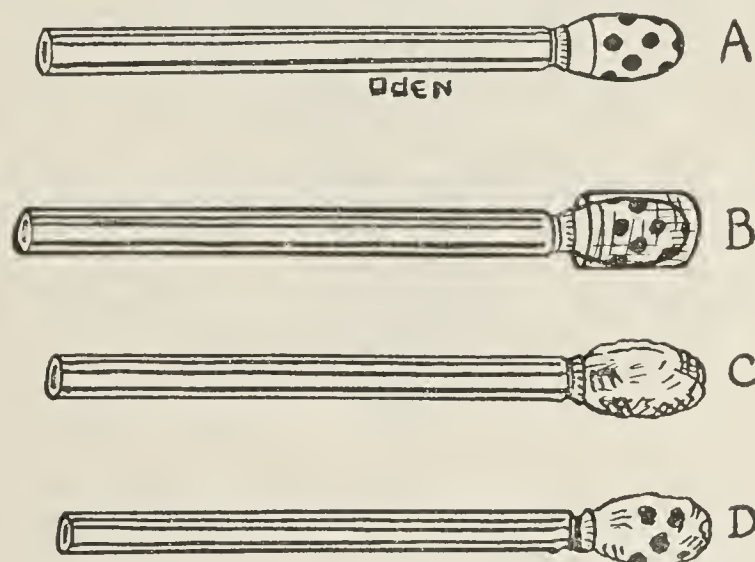
Three minims of distilled water are drawn up into a Luer tuberculin syringe; a 24 gage needle is then attached, the area over the satellite gland then painted with iodine, frozen with ethyl chlorid, and the needle inserted until the gland moves with the needle. The needle is rotated several times and the plunger slowly withdrawn until 3 minims of serum are obtained. The mixture is then rapidly ejected into a small receptacle and redrawn into the syringe; this is done several times. A drop is taken and examined under the dark stage for the spirochete in the usual manner. I have on eight occasions demonstrated the spirochete in glands draining lesions that were apparently saturated with mercury. This method avoids delay in diagnosis, and assures us that the organisms are specific and are not saprophytic; also the painlessness of the operation, especially in those tender lesions with mixed infection from the bacillus of Ducrey, is much appreciated by the patient.

412 West Sixth Street.

A METHOD FOR SEALING THE DISTAL END OF THE EINHORN INTESTINAL TUBE

CONSTANTINE L. A. ODÉN, M.S., M.D., NEW YORK

During the course of an investigation of the bacterial flora of the intestine at different levels,¹ Dr. Aronovitch found that the intestinal tube rapidly became contaminated after its introduction into the alimentary tract. Under these circum-



A, olive at end of tube (actual size of olive); B, gelatin capsule covering the olive; C, parresine covering; D, olive when parresine coating has been perforated.

stances it was impossible to determine with any degree of certainty the characters of the flora at the levels reached by the tube. Various procedures for sealing the distal end of the tube, such as coating the olive with a layer of rubber or paraffin, were tried but were found unsatisfactory. To fulfil the conditions of the investigation it was necessary not only to seal the end of the tube but also to have the seal under perfect control, that is, so that it may be broken at any desired level.

The following procedure was finally adopted and found satisfactory: The tube is sterilized thoroughly before the sealing; this is best done in a steam sterilizer. After sterilization the water is drained, and the olive (A in the accompanying illustration) is heated over a Bunsen flame to make sure that no organisms remain on the outer side, also to dry it. The large end of a gelatin capsule is placed over the olive and must fit snugly, as its purpose is to act as a base for the parresine which is to be sprayed over it by using a spraying apparatus such as is used in the treatment of burns (B and C).

Care must be taken that not too thick a layer of parresine is sprayed over the capsule, as it will be difficult to perforate.

1. Thompson, Loyd: Syphilis, Ed. 2, Philadelphia, Lea & Febiger, 1920, pp. 72, 73.

1. This investigation is being carried out under the direction of Drs. Warren Coleman and Max Einhorn.

We have found that about 1 mm. thickness of parresine is sufficient to protect the olive from the intestinal contents. Paraffin may be used as well as parresine, but the latter is preferable as it is softer and easier to perforate at the body temperature. The capsule is sterile, being kept in 85 per cent. alcohol at least twenty-four hours before using. This has been proved by the taking of repeated cultures. The parresine and the spraying apparatus are sterilized.

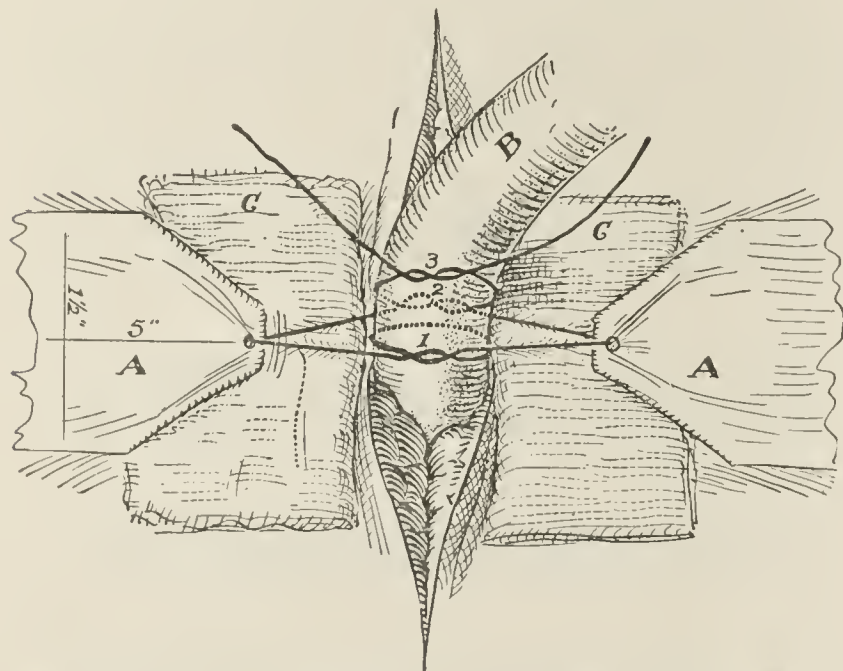
Although the tube is drained of the water which remains after sterilization, there remains enough moisture within it to dissolve the gelatin capsule, and this leaves only the parresine coating, which will stay on indefinitely until perforated (D). To perforate, all that is necessary is to force air into the tube by a previously sterilized syringe, the same syringe being used for the withdrawal of the contents. The patient does not complain of any discomfort during this operation.

Bellevue Hospital, Twenty-Sixth Street and First Avenue.

A SIMPLE METHOD OF DRAINAGE TUBE FIXATION

MEREDITH F. CAMPBELL, M.D., NEW YORK

Having had difficulty with the proper fixation of drainage tubes and catheters in various parts of the body, especially the bladder and loin for urinary drainage, we devised the method here described, which has proved successful.



Method of tube fixation: A, adhesive skin traction strips; B, drainage tube or catheter tied in place by ligature; 1, 2, 3, knots tied in order indicated about tube; C, small gauze dressing beneath traction ligatures.

As shown in the diagram, two strips of adhesive plaster, about 5 inches (12.7 cm.) long and 1½ inches (3.8 cm.) wide are folded at one end to make a blunt point. A small hole is made near the point going through the double folded layer of tape, thus preventing tearing out when traction is applied. These strips are placed on the skin on each side of the wound so that the holes are about three-fourths inch (2 cm.) from the wound margins. The tube or catheter is inserted to the desired depth. At the skin level a ligature (1) of a stout tie material is placed about the tube and tied. The ends are then introduced through the holes and brought back to the side of the tube opposite the first knot. The knot here (2) is made after exerting traction on the ligature to the desired degree, thus approximating the skin edges. The ligature is now passed around the tube once or twice and a final tie (3) made.

The advantage of this method over other methods in use is that the entire wound is left open, and there is no damming back of pus, as is the case when the tubes are fixed by the use of adhesive strips applied directly. A small, dry dressing is applied to the wound.

We have found that by placing a small piece of gauze immediately beneath the ligature as shown by the diagram, a somewhat better skin approximation is obtained and the tie is lifted away from the skin edges.

Bellevue Hospital.

A NEW METHOD OF TREATMENT FOR VARICOSE ULCERS OF THE LEG

H. A. MCKNIGHT, M.D., PHILADELPHIA

Assistant Professor of Surgery, Graduate School of Medicine of the University of Pennsylvania

The methods of treatment of chronic varicose ulcers of the leg are legion. No one procedure has proved successful in all types of cases, nor has any method become standardized. Local treatment of the ulcer is useless, and only pressure applied to the leg from the toes to the knee and maintained will give relief and hasten a cure. This pressure is usually kept up by bandaging, but it is rare that a bandage can be held in place for more than a few hours. Many kinds of elastic stockings are used; but to the average dispensary patient, seen in our large hospitals, the price of such a bandage is prohibitive and its life too short to be practicable.

We have devised a dressing that has given us excellent results. It is quickly applied, is cheap, gives immediate relief of pain and discomfort, and promotes rapid healing of the ulcer.

The leg, including the ulcer, is washed with alcohol followed by ether. Strips of adhesive plaster 1½ inches (38 mm.) wide are started at the web of the toes and carried about the foot. The next strip is parallel to the first, and overlaps it about one third of its width. These strips are then carried up the leg, applied with sufficient pressure to empty and support the superficial veins. No dressing covers the ulcer bed, it being covered with the adhesive plaster as it ascends toward the knee. Over this dressing is a snug figure of eight muslin bandage. This dressing is kept on for five days, when it is removed by slitting it up the side and taking it off in one piece. The serum secreted by the ulcer has by this time loosened the dressing, and it is easy to remove. The leg is again cleaned and a new dressing applied.

After the ulcer has closed, we order a fiber elastic bandage of the Randolph type and give specific directions to the patient that at no time shall she stand erect without this support. This bandage is put on in bed in the morning and removed in bed at night.

241 South Thirteenth Street.

BILIARY COLIC FOLLOWING ATTEMPTED GALLBLADDER DRAINAGE

C. W. DOWDEN, M.D., AND C. D. ENFIELD, M.D., LOUISVILLE, KY.

This case is reported because it appears to be unique, at least, so far as occurrence of colic prior to the injection of magnesium sulphate into the duodenum is concerned.

Mrs. B., aged 67, a widow, was referred to us for diagnostic investigation on account of chronic osteoarthritis. Her family history was negative, and her present history not noteworthy until the present illness, which appeared insidiously and was marked by gradual enlargement of the joints of the hands and feet with tenderness and limitation of motion. Her general health had been good. The physical examination revealed some yellow coloration of the skin and the sclera, large cryptic tonsils and slight general diffuse tenderness throughout the lower abdomen. It was otherwise entirely negative. Roentgen-ray examination of the sinuses was negative, but revealed some osteoarthritic changes of moderate extent in the hands, feet and spine. Roentgen-ray study of the gallbladder region, performed prior to the attempted drainage, disclosed a single large stone apparently about the size of a marble and of rather unusual density. It should be noted that the results of this examination were not available, owing to the time consumed in developing and drying the films, until after the gallbladder drainage was attempted. The routine laboratory examinations of the blood and urine were normal, considering the age and sedentary habits of the patient. In a further effort to locate the possible focus of infection it was decided to perform a gallbladder drainage according to the Meltzer-Lyon method. The fasting stomach residuum obtained on passing the duodenal tube contained no bile, but a considerable amount of thick mucus, no free hydrochloric acid, no blood, a total acidity of 12, no lactic acid

and only some squamous epithelial débris on microscopic examination. The patient was intolerant of the tube from the first, but there was no complaint of pain or unbearable distress until the additional length of tubing had been swallowed up to the duodenal marking and the return flow began to be alkaline in reaction to litmus. Promptly after this the patient began to complain bitterly of sharp cramplike pain in the epigastrium, most marked on the right side, and of difficulty in breathing, together with numbness of the hands, arms and legs. The pulse became rapid and weak, though regular. The tube was promptly withdrawn, but this did not relieve the pain, which continued for more than an hour in spite of the hypodermic injection of morphin, one-fourth grain (16.2 mg.), with atropin, $\frac{1}{150}$ grain (0.43 mg.), and the use of hot packs over the upper abdomen. No further attempts were made to drain the gallbladder.

On finding in the roentgenograms the stone previously referred to, we concluded that the presence of the duodenal tip opposite Oddi's sphincter had probably set up the associated reflex of sphincter relaxation and gallbladder contraction, which is believed ordinarily to follow injections of magnesium sulphate solution into the duodenum, and that this action had forced a small stone into the cystic duct with the resulting typical biliary colic. Unfortunately, owing to the fact that the roentgen-ray findings were not immediately available, no attempt was made to recover the gallstone from the stool.

1100 Francis Building.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BUTYN

Preliminary Report of the Council on Pharmacy and Chemistry

Butyn is the name applied by The Abbott Laboratories, Chicago, to a new local anesthetic, proposed for use in place of cocaine in surface anesthesia in the eye and for anesthesia of other mucous membranes. The Abbott Laboratories have presented butyn for inclusion in New and Nonofficial Remedies.

Butyn is a definite chemical of nonsecret composition. Pharmacologic studies indicate that the drug is of therapeutic value. So far this value has, however, not been confirmed by adequate clinical trials; and for this reason, the Council has postponed the acceptance of the drug for New and Nonofficial Remedies. For the information of those who may wish to put butyn to clinical trial and with the desire to make such trials of value, the Council has authorized publication of the following statement.

W. A. PUCKNER, Secretary.

Butyn is para-aminobenzoyl-gammadinormalbutylaminopropanol sulphate. It is a white, hygroscopic solid, very soluble in water.

In the accompanying table the efficiency and toxicity of butyn with that of procaine and cocaine are compared.

On the normal human eye, a 0.5 per cent. solution of butyn is less efficient than a 1 per cent. solution of phenacaine (holocaine), but more efficient than a 1 per cent. solution of cocaine or a 1 per cent. solution of eucaine. Butyn solutions are nonirritant.

When injected hypodermically into albino rats, the toxicity of butyn is two and one-half times that of cocaine; but the fatal dose of butyn (injected intravenously into cats) is about equal to that of cocaine. Sublethal doses are more dangerous than those of cocaine.

The pharmacologic investigation indicated that butyn may take the place of cocaine, in whole or in part, for surface

anesthesia of mucous membranes; that it may be superior for this purpose, and especially for use in the eye, to other synthetic anesthetics, for the reason that it can be used in materially lower concentrations (presumably because of more prompt absorption). On the other hand, it does not appear promising for injection or spinal anesthesia, since its toxicity is materially greater than that of procaine. Reports from a small number of physicians, favorable to the use of butyn in eye work, have been submitted to the Council. However, these do not contain adequate details on which independent judgment may be based, nor do they state whether or not suitable control experiments were made.

COMPARATIVE EFFICIENCY AND TOXICITY OF BUTYN, PROCAINE AND COCAINE

	Efficiency on Motor Nerves	Efficiency on Sensory Nerve Trunks	Efficiency on Rabbit's Cornea	Efficiency on Frog's Skin	Intra-dermal Wheal Test	Toxicity for Perfused Turtle Heart
Cocaine.....	1	1	1	1	1	1
Procaine.....	1	$\frac{1}{2}$	$\frac{1}{5}$	$\frac{1}{8}$	2	$\frac{1}{2}$
Butyn.....	8	2	1	2	2	1

To those who wish to put this drug to experimental clinical trial, the Council suggests that these trials take the form of comparing butyn, cocaine and phenacaine (holocaine), by alternating the use of these drugs in successive cases in certain groups. The following scheme is suggested for these experiments:

Foreign body in the cornea.
Corneal anesthesia for tonometry.
Operative anesthesia of cornea and conjunctiva.
Anesthesia of cornea and conjunctiva for removal of sutures.
Anesthesia of lids for opening a hordeolum and curetting a chalazion.
Anesthesia of lachrymal points and tear passages for dilatation, etc.
Anesthesia of cornea against pain of erosions.

In these experiments, the following observations should be recorded:

Anesthesia:

Onset
Depth
Penetration
Duration

Side Actions:

Irritation—Immediate
Late
Pupil diameter
Vascularity
Drying
Other side actions
Effects on intra-ocular pressure, normal and in glaucoma, when practical.

Toxic Systemic Effects, if any.

If the anesthetic is to be used in fields other than the eye, corresponding schemes for clinical observations could easily be devised.

AMYLZYME.—An extract containing all of the digestive enzymes of the fresh pancreas of the hog.

Actions and Uses.—Amylzyme has the power to digest starch and protein and to split fats. It is claimed that it is useful in digestive disturbances resulting from a deficiency of pancreatic secretion and that it hastens the digestion of starch.

Dosage.—From 0.13 to 0.26 Gm. (2 to 4 grains), three times daily.

Amylzyme is sold only in capsules.

Manufactured by G. W. Carnrick Co., New York. U. S. patent applied for. No U. S. trademark.

Amylzyme Capsules, 2 grains.

Amylzyme is a pale yellowish white powder, having the characteristic odor of pancreatin and a faintly saline taste. It is hygroscopic and incompletely soluble in water, forming a turbid solution which is neutral or faintly acid to litmus. In starch digesting power, it is from three to four times more active than pancreatin U. S. P. IX, if tested by the U. S. P. method. According to the method adopted by the Council on Pharmacy and Chemistry (THE JOURNAL, July 11, 1908, p. 140) amylzyme converts from 110 to 130 times its weight of dry starch to a colorless end-point in ten minutes.

THEOBROMINE (See New and Nonofficial Remedies, 1921, p. 362).

Theobromine-P. W. R.—A brand of Theobromine-N. N. R. Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, DECEMBER 10, 1921

THE BLOOD AND ANTIPYRETIC DRUG ACTION

Antipyretic drugs are so commonly used in the practice of medicine today that their mode of action ought to be well established in every detail. It must be admitted, however, that the pharmacology of this group of potent substances is by no means completely unraveled. The most probable types of deportment of the antipyretics can be sketched in general outline. Two regulative factors, heat production and heat dissipation, in the body need to be taken into consideration. As both of these are under nervous control, the functions of the nervous tissues and centers in relation to body temperature must also be included in any scheme of interpretation. The demonstration of the presumable existence of heat-regulating centers in the body soon directed attention to the possibility that antipyretics are effective in lowering temperature by their action on these thermogenic centers. Before long it further became apparent, however, that the pharmacodynamics of the temperature-depressing compounds is not confined to these centers. Certain substances can act directly so as to influence heat dissipation or formation independently of any central function of the brain stem. As heat loss is a factor of heat dissipation from the surface of the body, the rate of loss of heat and its regulation will depend chiefly on variations in the circulation through the skin and the activity of the sweat glands. Some of the drugs in the so-called antipyrin group of antipyretics can depress the vasomotor tone, thus leading to marked vasodilatation, particularly in the skin.

More specific details of the possible antipyretic action of drugs have been furnished in recent years by Barbour and his pupils at the Yale University School of Medicine. They rest on the demonstration of the antipyretic action of glucose, the normal sugar of the blood.¹ For example, in the fever produced by injection of colon bacillus vaccine, intravenous injections of glucose are effective in reducing the body temperature of experimental animals, and the antipyretic action is paralleled by a decrease in the blood solids. In other

words, the reduction of body temperature is exhibited at a time when the blood becomes diluted with water drawn from the tissues.² Normal subjects do not respond in this way. The fact that the antipyretic phase of glucose action is exhibited especially in the febrile and not in the normal state, which is readily explained by the presence of more available water in the tissues in the former condition, led to the hypothesis that the action of antipyretic drugs can be explained along similar lines.

The latest investigations of Barbour and Herrmann³ at Yale confirm the assumption. Sodium salicylate, acetylsalicylic acid, antipyrin and quinin all increase the blood sugar concentration in both normal and febrile animals. Thus, after the administration of salicylates the glucose concentration in the whole blood may increase from 25 to 50 per cent. Antipyrin apparently gives a less marked effect than do salicylates, whereas quinin exhibits a greater one. At the same time there occurs, in human as well as experimental animal febrile cases, a notable dilution of the abnormally concentrated blood. This dilution accounts for the decrease in the body temperature.

The newly discovered mobilization of glucose in the blood after administration of antipyretic drugs thus suffices to support the theory of their action. They do not act primarily by decreasing heat production.⁴ As Barbour and Herrmann³ interpret the situation, antipyretics increase the blood sugar concentration. This in fever causes a plethora, extra water being available in the tissues. Plethora promotes the dissipation of the heat by radiation and surface evaporation, for the peripheral blood flow becomes augmented. In health, no plethora occurs—consequently there is no antipyretic effect. The possibility that methods of blood dilution other than that just discussed may be potent in promoting heat dissipation from the body needs to be kept in mind in further considerations of how fever in general may be modified in its course.

DO THE DIFFERENT IMMUNOLOGIC REACTIONS DEPEND ON ONE OR SEVERAL ANTIBODIES?

References to precipitins, agglutinins, opsonins, complement-fixation antibodies, and even anaphylactins, as they are found in medical literature, including even the writings of immunologists, generally carry the assumption that each of these is a distinct and separate entity. Despite this assumption, there has always been some doubt as to their individuality. The view that agglutinins and precipitins are the same thing, causing agglutination of visible cellular antigens and precipitation of

2. Barbour, H. G., and Howard, J. A.: Dextrose Plethora and Its Antipyretic Effect in Celi Fever, *Proc. Soc. Exper. Biol. & Med.* **17**: 150, 1920.

3. Barbour, H. G., and Herrmann, J. B.: The Relation of the Dextrose and Water Content of the Blood to Antipyretic Drug Action, *J. Pharmacol. & Exper. Therap.* **18**: 165 (Oct.) 1921.

4. Barbour, H. G.: Antipyretics, III, Acetylsalicylic Acid and Heat Regulation in Fever Cases, *Arch. Int. Med.* **24**: 624 (Dec.) 1919.

1. Barbour, H. G.: The Antipyretic Action of Dextrose, *Proc. Soc. Exper. Biol. & Med.* **16**: 136, 1919.

antigens in solution, has been rather generally accepted. There is also much evidence that the precipitin and the antibody which causes the anaphylactic reaction are identical, for it is known that the capacity of a serum to produce passive sensitization of an animal varies directly with its precipitin content. Richard Weil even found that the precipitate produced in the precipitin reaction, when washed free of serum and injected into guinea-pigs, makes them hypersensitive to the sort of protein with which the precipitin reacts. Not a little evidence is also available to prove that the complement-fixation antibody may be identical with the precipitin, and, furthermore, that the opsonin may be identical with the complement-fixation antibody. Thus, Wells¹ points out that opsonization and phagocytosis apparently constitute but one of a series of similar processes by which foreign proteins are removed from the blood and tissues; i. e., by lysis by extracellular enzymes when this is possible, as it is with simple protein aggregates (albuminolysis) and with some of the more labile cells (hemolysis, bacteriolysis); but in the case of more resistant structures, notably gram-positive cocci and acid-fast bacilli, extracellular lysis being unsuccessful, these protein structures are taken within the cells, where a greater concentration of enzymes may destroy them. Fundamentally, serum bacteriolysis and phagocytosis seem to be the same—in each case specific antibody sensitization prepares the bacterium for lysis by enzymes, either inside or outside the cells that furnish the lytic enzyme.

An attractive hypothesis is that there are two fundamental types of immunity reactions: One, having to do with substances which are essentially active poisons, neutralizes or inhibits their toxicity by direct chemical action.² In this group come the antitoxins and the antibodies for enzymes, venoms, poisonous vegetable proteins (ricin, abrin, etc.) and various bacterial hematoxins. It is to be noted that these active substances are all similar to one another in being classed as large colloidal aggregates, resembling proteins, but not yet identified as proteins. The other group of immunity reactions is concerned with defense against foreign proteins, whether toxic or nontoxic and whether in solution or aggregated into cells (bacteria, corpuscles, tissue cells). The reactions of this group are all processes that tend to alter the colloidal state of the foreign proteins, by making them larger aggregates (precipitation, agglutination) or smaller aggregates (proteolysis, hemolysis, bacteriolysis, cytolysis), and in each case the reaction consists of two separate steps, sensitization and reaction. It is tempting to accept the view, championed especially by Friedberger, that in this second group of reactions only one and the same antibody is concerned, and that all the reactions are

essentially the same, differing merely in the method by which the reaction is demonstrated.

Zinsser³ has recently reviewed the evidence on this topic, and believes that the "unitarian" view is probably correct, asserting that the denial of such a view necessitates the assumption that the injection of a pure antigen calls forth five or six fundamentally different reactions on the part of the tissue cells, a theory that would be justified only on the basis of incontrovertible proof. Such proof is far from being satisfactorily provided, most of the evidence as to the existence of the separate antibodies being entirely quantitative. But the fact that a given serum gives much stronger reactions for one antibody than for another is really not convincing, in view of the lack of exactness of our methods, and the many interfering factors that may interfere more with one reaction than with another. Until it is definitely established to the satisfaction of the immunologists that all these types of antibodies exist, acceptance of the unitarian view as the probable truth has this important reason for its recommendation: It will make life much simpler for the student of medicine, whether undergraduate or practitioner.

THE ADMINISTRATION OF FLUIDS BY INTRAPERITONEAL INFUSION

The simple fact that more than two thirds of the body of an infant consists of water makes it evident that the regulation of the water content of the organism in early life is a matter of preeminent importance. Recent studies by pediatricians in various parts of the world have demonstrated that in various types of marasmus, athrepsia or nutritive collapse, under whatever designation they may receive from different writers, there is frequently a tendency to desiccation, which exhibits itself in a concentration of the blood as well as by more objective symptoms, such as fever, lassitude, inadequate secretion and functional inertia. The conditions depicted are always serious for the patient, and, what is equally deserving of emphasis, they demand very prompt treatment in infancy if a fatal outcome is to be averted. Thus, thirst alone may precipitate a series of toxic conditions within a short time. The factor of safety in the organism of the nursling is very small so far as its water reserve is concerned.

In the emergencies here presented, the replacement of fluid in the dehydrated body is frequently so urgent that unusual measures must be instituted. Oral administration of water is sometimes impossible because of vomiting, diarrhea or other alimentary conditions; and the quantity that can be furnished in this way may be small, whatever the rate of absorption from the gastrointestinal tract. Rectal introduction of fluid has, of course, long been recognized as a mode of meeting the

1. Wells, H. Gideon: *Chemical Pathology*, Ed. 4, Philadelphia, W. B. Saunders Company, 1920, p. 189.

2. Zinsser, Hans: *The More Recent Developments in the Study of Anaphylactic Phenomena*, *Arch. Int. Med.* **16**: 223 (Aug.) 1915.

3. Zinsser, Hans: *On the Essential Identity of the Antibodies*, *J. Immunol.* **6**: 289, 1921.

situations; but this, too, may become virtually impracticable if not impossible because of some condition of the bowel, and the quantities that can be managed by administration of enemas is not large. Subcutaneous injections of fluid demand skilful technic, and hypodermoclysis likewise has its quantitative limitations aside from the prospect of producing painful areas. Intravenous infusion is at best an emergency procedure calling for special ability and experience.

In view of these limitations in the field of rapid therapy by increasing the water available to the blood and tissues, the possibilities of intraperitoneal infusions have been seriously debated. They have already found adherents in this country who have recommended the procedure for the emergencies of infancy. Intraperitoneal injection in infants is said to have been used first in St. Bartholomew's Hospital, and to have been introduced in the United States in Howland's clinic at the Johns Hopkins Hospital.¹ Introduction of fluid into the peritoneal cavity can be accomplished with speed and technical success. This method, claiming for its advantages the ease and rapidity of administration, the large volume of fluid that can be given at one time, and the certainty that no fluid will be lost, has recently been studied with approval by Weinberg² in Stoeltzner's clinic for children at the German university in Halle. This pediatrician lays emphasis on the use of great care in securing asepsis. Repeated infusions of physiologic sodium chlorid, Ringer's or glucose solution can be carried out without detriment, he says, up to twice daily. Damage to the peritoneum, stimulation of the bowel or shock of any sort was not observed. However, Backes,³ who applied the method to sixty-one children, all in a particularly poor condition when reaching the clinic, found that the method was not wholly without danger. Three of the children showed signs of collapse in from ten to twenty minutes after the infusion, and one, a premature infant, died in a half hour. In one case diffuse peritonitis was secondary to furunculosis, and in this instance Backes believes it would have been better if the infusion had not been attempted. There were also four cases of purulent peritonitis for which he holds the infusion responsible. There were no instances of peritonitis in older children, so that Backes finds the method very favorable for older children but has abandoned it for severe nutritional disturbances.

Absorption is demonstrably rapid, so that the improvement in pulse, respiration, weight and "toxic" condition is notable in a surprisingly short time in the critical cases characterized by dehydration. It is doubtless a conservative statement, therefore, to designate intra-

peritoneal infusion as a procedure for enabling the organism to withstand a threatening situation until the usual slower therapeutic procedures demanded can initiate their beneficial effects.

Current Comment

THE MEANS OF DETERMINING CURE OF GONORRHEA IN THE MALE

The necessity for a strict standard as to what constitutes cure in gonorrhea is self-evident. The recent discussion by Clarkston¹ of the problems involved raises the question as to the exact status of the quiescent case of gonorrhea when there is no longer active evidence of specific infection and yet the gonococci are present somewhere in the genito-urinary tract. Is the condition one in which the focus is walled from the urinary tract in somewhat the same way as we think is the case in tuberculous latency? Or is the condition that of a carrier with such balance between host and parasite that the latter may multiply without any evidence of local infection, as in the typhoid or diphtheria carrier? Since the gonococcus lives but a short time outside the body under the most favorable conditions, it would seem logical to think that there must be a continued multiplication of the organism in order to survive in the host. If it is the latter condition that obtains, cultural methods would seem to offer the most certain means of determining whether the gonococcus has disappeared entirely in a given case. The methods to determine the absence of the gonococcus on microscopic examination after an attack of gonorrhea in the male have long included provocative measures, such as the passage of sounds, the oral ingestion of alcohol or other stimulants, and local urethral irritants, notably silver nitrate. More recently, focal reactions resulting from subcutaneous injection of gonococcus vaccine or some non-specific protein, complement fixation and precipitin tests, as well as the cultural examination of expressed prostatic and seminal fluids and the urinary sediments, are being used also. Clarkston advocates clinical, microscopic and cultural examinations, but considers the serologic tests of limited value. As emphasized by Fraser,² caution is necessary in the use of provocative measures, since the development of a prolonged condition of infectivity may be favored from overzealous attempts at provocative reactions and local treatments. It may be recalled here that Herrold³ concluded, after a study of 100 selected cases, that cultures of prostatic and seminal fluids and the first urine sediment are the most reliable single means of determining whether a complete cure has taken place, and that the complement fixation and precipitin tests may give results of value in conjunction with the cultural results. In any event, the absence of gonococci in carefully prepared, repeated cultures, coupled with negative serum reactions, should be the ideal standard of cure that henceforth must be enforced whenever possible.

1. Aikmann, John: Methods of Administering Saline and Other Solutions to Infants and Children, J. A. M. A. **74**: 244 (Jan. 24) 1920.
McLean, Stafford, and Lang, C. A.: Fluid Injections in Dehydrated Infants, Am. J. Dis. Child. **19**: 359 (May) 1920.

2. Weinberg, M.: Die Anwendung der intraperitonealen Infusion beim wasserverarmten Säugling, Ztschr. f. Kinderh. **29**: 15 (April 25) 1921.

3. Backes: Intraperitoneal Infusion, München. med. Wchnschr. **68**: 26 (Jan. 26) 1921.

1. Clarkston, E. R. F.: The Standard of Cure in Gonorrhea, Brit. M. J. **2**: 483 (Sept. 24) 1921.

2. Fraser, A. R.: The Standard of Cure in Gonorrhea, J. Urol. **5**: 439 (May) 1921.

3. Herrold, R. D.: Determination of Cure in Gonorrheal Infection of the Male, J. A. M. A. **76**: 225 (Jan. 22) 1921.

THE GENESIS OF MUSCULAR ATROPHY

The atrophy of a muscle following the section or degeneration of the nerve which supplies its innervation is a well known phenomenon. None of the various forms of treatment proposed have proved to be of avail in arresting the process. Electrical stimulation of such muscles has been instituted in the hope that the contractions brought about thereby would simulate the normal activity of the contractile tissue and thus prevent the effects of disuse. Several investigators¹ have found, however, that such stimulation fails to postpone the onset of the characteristic atrophy of denervated muscles; hence Langley offered the suggestion that it is attributable to overactivity rather than disuse of the contractile tissue, as more or less continuous fibrillation is often observed in these cases. It must be admitted that fibrillation may be an accompaniment rather than the cause of the muscular atrophy. Lipschütz and Audova² of Dorpat in Esthonia have recently demonstrated that section of the tendon attached to a muscle may be followed by an atrophy of the muscle nearly as great as that which attends section of the muscle's nerve supply. The result is not due to degenerative changes brought about by mere traumatism, for incision into the tendon without severance of the muscle from its attachments fails to induce any reaction leading to atrophy. The conclusion therefore seems tenable that the inactivity or the greatly decreased activity that follows when a muscle is detached from the "load" which it usually carries plays a decisive part in determining the atrophy; and presumably the analogous condition of decreased work when lack of innervation removes the motor impulses to a skeletal muscle suffices to explain the atrophy that ensues.

SURGICAL ELEPHANTIASIS

In the etiology of the acquired forms of elephantiasis, a localized stasis of the lymph is regarded as the most important predisposing factor. As is well known, the removal or destruction of regional lymphatic glands may be followed by elephantiasis of the part tributary thereto. Thus, after excision of the axillary glands a chronic edema and elephantiasis of the arm may follow. This phenomenon has been the occasion of much distress to patients and concern to surgeons after operations for eradication of cancer of the breast. Sometimes the swelling and the attendant disturbances do not appear until many months or even some years after the operation; and there may be frequent recurrences. Halsted³ of the Johns Hopkins Hospital has come to the conclusion, after years of careful consideration of the problem and after some experimental study of the effects of various types of operative procedure, that blocking of the lymphatics is of itself not enough to explain the swelling of the arm, at least in its most pronounced forms seen so often after operations for cancer of the breast. He believes that some other factor is superimposed on the

mere clearing out of the axilla and interferences with lymph and blood flow produced by the surgical technic. The records, Halsted believes, support his view that infection is very frequently, if not indeed usually, the overlying cause of the swelling of arms whose main lymphatic channels have been more or less blocked by operation. The infection, he adds, may quite conceivably be so mild in degree as to escape the observation even of those intently on the lookout for it. In a similar vein, Sir Patrick Manson has written: "Lymphatic stasis, by itself, does not cause elephantiasis. The obstruction may cause lymph edema, but not a true hypertrophy of the edematous tissues. If an inflammation (infection) is acquired in a closed area of lymphatic congestion, an event which may result as a consequence of the slightest traumatism, elephantiasis will then develop." Hence Halsted argues that, if such views prove to be correct, the term surgical elephantiasis (*elephantiasis chirurgica*) might be an appropriate one for the conditions which he has discussed.

EXPERIMENTAL MEASLES

Despite the prominence of measles among diseases that still furnish serious problems to the student of public health and preventive medicine, progress in the elucidation of its etiology has been exceptionally slow. This has not been due to lack of serious attention to the subject, but rather has followed from difficulties inherent in the nature of the malady. The first significant step in the unraveling of the mysteries of infectious and contagious diseases has usually consisted either in isolating an infective micro-organism directly from patients or in successfully transmitting the same disease to experimental animals so that it can be investigated under controlled conditions chosen by the experimenter. A stumbling block in the path of inquiry has occasionally been found in the resistance or natural immunity of many of the laboratory animals to the diseases of man. There appears now to be little doubt, however, that measles can be transmitted from man to animals. In their early work, Anderson and Goldberger¹ assumed that animals other than the monkey are insusceptible to inoculation with the virus of measles. The striking investigations of Blake and Trask² indicate that monkeys inoculated intratracheally with nasopharyngeal washings from patients with measles develop the characteristic symptoms of the disease. More recently still, Nevin and Bittman³ inoculated rabbits intravenously with the blood of patients having measles, the virus being passed through five successive animals in one series, each animal apparently giving evidence of characteristic infection, while blood from cases other than measles failed on inoculation to give similar evidence. The typical disease was, they assert, also passed from rabbit to monkey with characteristic resultant symptoms. The blood from the human patients was drawn on the third or fourth day after the onset of the disease. Perhaps it will not be long before the textbooks may cease to classify measles among the diseases that constitute "a group, the actual

1. Hartmann and Blatz: *J. Physiol.* **53**: 290, 1920; **54**: 392, 1921.
2. Lipschütz, A., and Audova, A.: *The Comparative Atrophy of the Skeletal Muscle After Cutting the Nerve and After Cutting the Tendon*, *J. Physiol.* **55**: 300 (Aug. 3) 1921.
3. Halsted, W. S.: *The Swelling of the Arm After Operations for Cancer of the Breast—Elephantiasis Chirurgica—Its Cause and Prevention*, *Bull. Johns Hopkins Hosp.* **32**: 309 (Oct.) 1921.

1. Anderson and Goldberger: *Pub. Health Rep.* **26**: 847, 1911.
2. Blake, F. G., and Trask, J. D., Jr.: *J. Exper. Med.* **33**: 385 (March) 1921.
3. Nevin, Mary, and Bittman, Florence R.: *Experimental Measles in Rabbits and Monkeys*, *J. Infect. Dis.* **29**: 429 (Oct.) 1921.

biological causes of which are unknown, yet which show analogies to diseases the causes of which are known, so close as to make tenable the hypothesis that they are due to similar causes." ⁴

THE ETIOLOGY OF EPIDEMIC ENCEPHALITIS

Certain resemblances of epidemic (lethargic) encephalitis to poliomyelitis have stimulated two similar investigations, which resulted in opposite conclusions. Amoss ⁵ found that the serum of patients convalescing from encephalitis does not protect monkeys against the inoculation of poliomyelitis virus, whereas Neustaedter, Larkin and Banzhaf ⁶ found that it does result in protection. We may assume, *a priori*, that the difference in results is due to the method: Neustaedter and his co-workers incubated the virus with the serum, while Amoss followed the technic he used previously with Flexner and Eberson. He administered the serum intraspinally and then injected large quantities of virus intravenously. The negative results of Amoss seem convincing, but the slight protection proved by the experiments of Neustaedter demands explanation. Several years ago it was found that the serum of patients suffering from herpes zoster was able to neutralize the poliomyelitis virus. It is therefore possible that the encephalitis virus is, like that of zoster, kindred, but not identical with the virus of poliomyelitis.

QUESTIONNAIRE ON ALCOHOL AS A THERAPEUTIC AGENT

The interest aroused among physicians by THE JOURNAL questionnaire on alcohol has exceeded all expectations. Fifty-four thousand two hundred questionnaires were mailed last week, 44,200 to subscribers of THE JOURNAL and 10,000 to nonsubscribers. At the time of going to press, approximately 12,500 replies have been received, about 23 per cent. These returns are almost entirely from the central states, from which replies ranging from 20 to 35 per cent. of the total number of questionnaires sent out have already been received. Checking, tabulating, and analyzing the replies involves a large amount of work. The results will be given to the readers of THE JOURNAL and to the public as soon as possible. In the meantime, all physicians to whom a copy of the questionnaire was sent are urged to send in their replies immediately. The copy of the questionnaire published in last week's JOURNAL was intended for the information of our readers, not to be used as a blank or to be filled out and returned. The names to which the questionnaires were sent were selected from THE JOURNAL mailing list and the directory, in the manner described last week. Only replies received from those to whom the special copies of the questionnaire were sent can be considered in tabulating the results. Many physicians have sent in letters with their replies making inquiries and suggestions regarding

the questions involved. As these replies are coming at the rate of many thousand every day, it is obviously impossible to send a personal reply to every letter. The information already received regarding the attitude of the medical profession on this question has more than justified the labor and the expense of sending out this questionnaire.

Association News

CONFERENCE OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

(Continued from page 1826)

Second Meeting—Friday Afternoon, November 11

SYMPOSIUM ON COOPERATION BETWEEN THE CONSTITUENT AND COMPONENT BRANCHES AND THE AMERICAN MEDICAL ASSOCIATION (CONTINUED)

DISCUSSION

DR. HOLMAN TAYLOR, Fort Worth, Texas: I want to lay the predicate for this discussion on three problems. We shall never secure the coordination that we require for the best performance of the function that should be ours until the American Medical Association has reorganized, until the several kinds of membership have been abolished. There should be one membership only, and when a man joins his county society he should belong to all of them and pay his dues there for the whole thing. In so doing he has bought an interest in the Association. He owes it something, and it owes him something. I doubt whether the time is ripe for advancing such an idea, but certainly we might be thinking about it, and so far as we are concerned in Texas, we shall make a start of it. We have not more than 1,000 Fellows in my state, and I would like some means suggested to put the rest of them in full Fellowship in the American Medical Association. Fellowship as differentiated from membership does not strike me as a good thing. A great impediment has been that Fellowship required \$6 for dues. A large number of physicians in the different states take THE JOURNAL and read it. It has been urged that where there are partners or two or more physicians in the same office they do not need to subscribe individually for so many journals. The American Medical Association has several publications, and it can and does substitute another periodical for THE JOURNAL under such conditions. At present the Fellowship dues are \$6. The average state medical association per capita assessment probably is not over \$5. A physician could pay into his county society from \$10 to \$15 and thus enjoy all the benefits of the organization and do away with any qualified membership. Even that is a small amount for the advantages he can get from the American Medical Association, and from his county and state organizations. Before that is done, however, we must draw our members closer to the American Medical Association and convince them that they owe something to the American Medical Association and the American Medical Association owes something to them, and that these debts are to be paid in full. When the country practitioner sees that this is an organization for sure and in fact he will take an interest in it. If we can so improve living conditions that he has a breathing spell between calls, writing prescriptions and discharging the duties of his profession, some of the problems which now confront us will disappear.

My idea of getting cooperation as a first step is to enlarge the office of secretary of the American Medical Association and the functions of his office personnel, also enlarging the facilities of his office so that he can do the things necessary to bring to the attention of the several state organizations those points on which they need to unite. There is no reason why there should not be reasonable uniformity of constitution and by-laws of every state association. There should be unifor-

4. Marshall, C. E.: Microbiology, Philadelphia, P. Blakiston's Son & Co., 1921, p. 854.

5. Amoss, H. L.: Immunological Distinctions of Encephalitis and Poliomyelitis, J. Exper. Med. **33**: 187 (Feb.) 1921.

6. Neustaedter, M.; Larkin, J. H., and Banzhaf, E. J.: A Contribution to the Study of Lethargic Encephalitis in Its Relation to Poliomyelitis, Am. J. Med. Sc. **162**: 715 (Nov.) 1921.

mity in the matter of transfer of members from one state to another. There should be uniformity along the lines of legislation, medical education, hospital standards, and public information.

DR. W. E. MUSGRAVE, San Francisco: The fundamental principles of organization apply to the medical profession exactly as they do to every other vocation or activity of mankind. These problems have been so successfully worked out by religious bodies and business organizations that we can do no better than to copy them. Every physician has a dual function. He has the professional care of the sick patient, and he is charged with the duty and responsibility of citizenship, and that is true of every other man, whether he be a banker or a lawyer. The trouble with us as a profession is that by some curious method we have been trained as individuals; we have not had the character of training that every other young man that amounts to anything in the world gets; that is the training necessary for him to become an active member in organization work.

We have two state organizations in California, the state medical association and the League for the Conservation of Public Health. The state society keeps in close touch with the League for the Conservation of Public Health. If you will examine the constitution and by-laws of the state association or of the American Medical Association you will not find the machinery that is effective to handle such problems as politics, social medicine and medical economics, nor does it appear wise that a scientific organization should be so trained that it can handle these problems. All these problems require 365 days of work in the year, and they must be handled by men who are specialists in their line.

In California, about four years ago, the members of the medical profession met and organized the League for the Conservation of Public Health which has a constitution and by-laws very similar to any other business organization, like the Standard Oil Company, or any other organization that is successful. They have a powerful executive committee which is the mouthpiece for the organization. They have an office which operates every day in the year. That office is in charge of a man who is an expert, a thoroughly trained publicity newspaper man and politician. Both the state society and this organization are enabled to secure such services as they want from one of the most successful corporation lawyers in California, who gives about one third of his time to the work. The League for the Conservation of Public Health was organized to fight health insurance and other measures, and we have won 100 per cent. of the things we started out to accomplish.

We offer to members of our state society legal defense. In that regard we link up with the league, because under the leadership of our general counsel we have an assistant counsel in every county in the state, and that attorney is the best lawyer the general counsel can find in every county, as a part of the machinery of organization of both the state society and the league.

Another feature is our extension work of creating contact between the local medical society and the state society itself. We have a list of from fifty to 100 speakers from the medical centers who announce their subjects through the state journal, and they go to any society wherever they are asked to go to speak. Last month we furnished twenty-seven speakers to county societies. Our next step for extension work consists in clinic week. Any hospital that has a sufficiently large staff and is of sufficient importance to warrant assuming an educational position, is allowed to arrange a week's program of clinics, beginning Monday morning and closing Saturday night. Another phase of our extension work is to offer the services of traveling teams to cover the whole field of medicine—diagnosis, surgery and the various specialties—and we send these teams out on call to any society that wants them, preferably a group of societies.

DR. EDWARD LIVINGSTON HUNT, New York: In legislative matters the medical profession should lead, not follow. Its criticisms should be constructive, not destructive. The physicians should, through their leaders, see the needs of the community in legislative matters pertaining to medicine, should initiate the proper legislation and mold it into practical mea-

asures so as to benefit the community and both enhance and advance the profession. To accomplish this desired result, the physicians of the country must be organized, interested and instructed. There are several ways in which they may be organized by the aid, advice and cooperation of the national and state officers, by the elimination of medical politics and by editorials, communications, and high character of the national and state journals. Here I might add my hearty endorsement to a bureau of publicity. It should be official and ethically conducted. In New York we have formed a bureau of legislation. Last spring we appointed a legislative committee. The chairman of this committee resides at the state capital. We appropriated \$4,000 so as to enable him to have an office and a stenographer. In this way he will be able to follow legislation, and become familiar with the views of legislators and the kinds of bills introduced into the legislative assemblies. This committee can inform the various county societies of what legislation is pending and can readily focus attention on the pertinent and prominent subjects. It can arouse interest throughout the state and stimulate discussion. No better way can be found to instruct the physician than this bureau of legislation. It should issue a weekly bulletin to each of the several county societies during the legislative session, familiarizing them with the immediate and future activities of the legislation along medical lines and inaugurating new ideas. A national bureau along that same line would help. Once interested and instructed, work on these lines is bound to follow. Another way in which interest may be aroused is to ask the various county societies to allot a certain proportion of their monthly meeting to a consideration of legislative rather than scientific subjects. At these meetings the subject for discussion might well be some reform which is agitating the public, or some bill pending before the state legislature. Papers should be read on both sides and a free discussion indulged in. Finally, there should be obtained from each county society an expression of opinion on the proposed bill or reform. This should be forwarded to the state secretary, who would then be in a position to discuss the subject and could in turn inform the parent organization as well as the other county societies. At these county society meetings the local assembly men and state senators should be invited not only to obtain their opinion and advice, but also to instruct and aid them in reaching a decision and outlining a course of action.

DR. W. G. RICKER, St. Johnsbury, Vt.: One feature of this discussion which appeals to me is the relationship between ourselves and the public. It is very easy to look at these questions from our own standpoint, but the valuable thing for ourselves is to look at them from the point of view of the public. The American public demands a right to regulate its own affairs. It demands the right to regulate railroads, corporations, labor unions, and the control of its own health; and when we assume the attitude of dictating to it what it shall do it is dangerous; but if we can go to the people as their advisers and appeal to them in such a way that they will place confidence in our advice, we have accomplished a great feat. The Vermont State Society at its October meeting took an action which I think promises a great deal for our society. In the House of Delegates one of our members, whose practice seemed to have been affected by having his consulting practice interfered with by the tuberculosis people who were conducting free clinics throughout the state, brought in a resolution, and two or three others supported his action. I do not recall the wording of the resolution, but if it had been passed and made public it would have presented the medical profession as being in an antagonistic mood, and the public would have had a right to say that we as physicians were looking after our own pocketbooks without regard to the public health. The Red Cross people, the tuberculosis people, the infantile paralysis people, and other activities are working with the same aim that we are, namely, to better the health of the people of the state. Undoubtedly those agencies are groping blindly when trying to bring people under medical care who otherwise would not receive it. There is no antagonism on the part of the public toward the doctors, and there is none on our part toward them; but there is a tremendous amount of misunderstanding reflecting itself in these

various activities in legislation, etc., and what is necessary is to get together all these different elements, and this winter we are going to have a meeting in our state of probably a hundred people representing all these agencies and try to come to an understanding of what is the best course to pursue.

DR. WENDELL C. PHILLIPS, New York: A great many of the points and suggestions made in these papers and discussions have been in the minds of the members of the Board of Trustees for the last year, and we are delighted to get this reaction from you. For instance, the education of the public regarding matters that are of vital importance to it and of which it knows very little. I have no doubt Dr. Green had in mind some of the things when he said the public is overfed. The public is not overfed. But it needs instruction and direction in regard to many things of which it knows very little. Your Board of Trustees has in mind at present the question of the best methods to be employed to educate the public. I have been much impressed regarding the methods employed in California, and I believe the outcome of all we are attempting to do will be to gradually bring the public up to the point where it will look after its health interests, and it ought to be doing this somewhat after the manner suggested. There must be a survey of the whole problem. Within six months one of the most searching surveys of this whole question will be undertaken in such a way as to bring to light all facts so that organized efforts can be made that will place the American people on a proper basis.

We are all at sea as to the word "state medicine." It is so loosely used that it leads to misunderstanding. We are using terms we are not clear about. The Board of Trustees has decided to make a survey of certain things and to do it in a thorough way, so that we may know all the facts about it. There are some evils lurking in certain partially organized plans, particularly the diagnostic clinic, and if there are any diagnostic clinics up to the time we begin this survey we shall survey them. We contemplate knowing whether they are conducted for private gain or for the public good. Some of the health centers schemes, some of the tuberculosis clinics, venereal clinics and Red Cross undertakings will be included in this survey. We propose to get all the facts. Those are some of the things that your Board of Trustees is attempting to do.

DR. E. J. GOODWIN, St. Louis: The Board of Trustees of the American Medical Association, as far back as I can remember, has been one of the most hard working and most unselfish bodies I have ever seen, working in harmony for the highest ideals of the profession. Speaking of the education of medical men, I have for a long time felt that medical colleges are at fault for permitting the entrance into the profession of men who are not capable of meeting the responsibilities of the medical profession from a moral standpoint. Such men have an inadequate conception of what loyalty means. If our medical colleges could limit their students to those whose moral attributes and ability to stand up loyally and firmly against personal interest, and who hold high conceptions of medicine as it ought to be practiced, I do not think we would have so many quacks and disrupters in our profession.

DR. OLIN WEST, Nashville, Tenn.: It has been only a few years since the American Medical Association did the first real educational work in spreading information concerning medicine among the people. They gave large doses of information and then quit. I am told that plans are under way for the organization of some effort that will take up that work where it was left off, and that the Association will have an avenue by which it can continue to give the right sort of information and advice about medical matters to the people. Another thing: If we could have men like Dr. Billings, Dr. Phillips, Dr. Richardson or Dr. Mitchell, and other members of the Board of Trustees, at our annual meetings every year to talk about the things we are discussing today, it would go far in solving some of the problems that are mutual between the state associations and the American Medical Association.

DR. ARTHUR T. MCCORMACK, Louisville, Ky.: I would appeal to this body to look back to the history of medicine and to think of the spirit of sacrifice and the spirit of service that animated our forefathers. I would appeal to the members of the profession who are responsible for bringing young men into it to teach them the history of medicine and point out

to them the high lights in our profession in the country. I agree with Dr. Phillips that we ought to make a survey of the problems confronting us, and in so doing let us assume the leadership that belongs to the medical profession. The responsibility of protecting the health and lives of the people is what we have before us. The medical profession has two purposes: first, to take care of the people who are going to be sick so that they may keep well, and second, to take care of ourselves, and if we do the first right, the people will do the second. We have to realize as a profession that one third of the men examined during the draft in this country were found to be defectives, and if they had been properly cared for at the right time by members of our profession, a vast majority of them would not have been defectives. We have to realize in organized leadership that is the task we have to perform. Until we have done that, we shall have the Red Cross, the tuberculosis societies, and all sorts of organizations attempting to do what we ought to be doing, and if we had been doing it these organizations would not have been necessary.

DR. L. B. McBRAYER, Sanatorium, N. C.: I would like Dr. Colwell to tell us of the relation of the American Hospital Association and the various state hospital associations to the state medical societies; i. e., whether those organizations are attempting to standardize hospitals the same as the American College of Surgeons is trying to do.

DR. T. B. THROCKMORTON, Des Moines, Iowa: After all, the whole medical profession of this country is built upon the foundation of the general practitioner. I take it that, just as the general practitioner is the foundation of the medical society, so is he the whole foundation of the medical profession of these United States. The great problem before us is getting information to the lay people. All that a physician gets as a reward in a professional way is being paid for his advice. I have often thought if it would be feasible to publish a bulletin of some sort to circulate not so much among medical men as among the laity, in which the truths concerning the things relating to medicine and the profession can be brought before the public. I have the confidence in the average American citizen that if facts are put before him and he draws a conclusion, in the majority of cases that conclusion will be correct. I simply put that idea forward at this time because it would be one way of counteracting the propaganda that is being spread by the different cults.

DR. ALEXANDER R. CRAIG, Chicago: So far as organization is concerned, I would repeat that we have the machinery for conducting the work of the organized medical profession; but no matter how effective a piece of machinery we may have, it will be of no value unless we put motive power behind it, and the motive power is the personality of the executive officers of the several organizations, state and county, together with the membership of these organizations. This meeting will have value just in proportion to the degree in which the inspiration we have received is carried back and made effective in the work and life of the individual members of the organization.

DR. FREDERICK R. GREEN, Chicago: In regard to the suggestion made by Dr. Throckmorton of issuing a bulletin, about six years after the Council on Health and Public Instruction was organized it published a press bulletin which contained the most suitable things taken from THE JOURNAL and from other sources, and which were sent out to 5,000 newspapers. This bulletin was necessarily discontinued before we entered the war in 1916 on account of necessary financial restrictions, and so far the Council has not had sufficient funds to take it up again.

DR. N. P. COLWELL, Chicago: As to the hospital situation, as far as the Council on Medical Education and Hospitals is concerned, there is no conflict whatever between us and other organizations working in this field. The American Hospital Association and its state organizations are doing splendid work in connection with the questions they have to solve, such as hospital management, hospital equipment, nursing, kitchen supplies, and things which pertain to a hospital and its make-up. There is no conflict with the work of our Association in the study and investigation of hospitals.

DR. FRANK BILLINGS, Chicago: It was my hope that there would have been more discussion and suggestions offered concerning the general practitioner and how to improve his status and his knowledge. The replies to the questionnaire sent

but by Dr. Hines were enlightening in regard to whether we should encourage young men to study medicine as a vocation, and the answer given by one man was a good one. If I had a son who was blessed with a good physique and had the average amount of brains, if he was inclined to study medicine, I would rather have him do so than to take up any other vocation in life. When you say it is not worth while to study medicine because of the economic conditions of today, it simply means that there are not enough young men today who possess the moral stamina. (Applause.) If a young man is qualified, if he is honest, if he is animated by a desire to give service, and will practice medicine, regardless of what he may get out of it in a financial way he cannot keep patients away from him. We fear social medicine, and the tendency since the war has been for national organizations and for the government to favor paternal medicine, but it will never succeed. In the poorest hospitals in this country the average patient gets better treatment than the discharged soldiers have had. You may talk of any health work you please, but any scheme centralized in the federal government or centralized in the state will fail, for it is axiomatic that any work of value for the welfare of the people must be done by themselves and paid for by themselves.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Eradication of Malaria.—According to a statement of the state health officer, Dr. Samuel W. Welch, Montgomery, sixty-three malaria control projects are now under way in the state, as compared to one in 1917, and twelve in 1920. A tentative program for the work in 1922 has been decided on, in which the U. S. Public Health Service and the International Health Board will cooperate with the state. In addition, various communities will give financial aid.

ARKANSAS

Physician Wounded.—Dr. William E. Bone, Brookland, was recently shot through the right lung. Dr. Bone is in St. Bernard's Hospital, Jonesboro.

CALIFORNIA

Los Angeles County Medical Society.—The trustees of the association purchased a site, November 23, on which permanent quarters will be erected for the society.

Hospital News.—A unit, consisting of twenty-one beds, a new obstetric room, physicians' clean-up room, infant nursery and chart rooms, has been added to Loamshier Hospital, Santa Monica.—A drive which has been completed for the San Jose Hospital resulted in subscriptions of more than \$170,000. This amount covers the requirements for site and building, and a new drive has been started to obtain funds for equipment.

DISTRICT OF COLUMBIA

Georgetown Medical School.—The president of Georgetown University has announced the names of four additional members of the faculty of the Georgetown University School of Medicine: Dr. Howard F. Strine, surgeon in the U. S. Navy, has been appointed associate professor of the principles and practice of surgery; Dr. Francis M. Munson, U. S. Army, retired, lecturer on prevention of diseases; Dr. Henry S. Bernton, lecturer on hygiene, and Dr. James A. Gannon, a graduate of the medical school class of 1906, associate professor of surgery.

GEORGIA

Personal.—Governor Harwick has announced the appointment of Dr. Marcus F. Carson, Griffin, as a member of the state board of medical examiners, to fill the vacancy caused by the recent death of Dr. Henry W. Terrell.

ILLINOIS

Hospital News.—The new \$500,000 addition to the Evanston Hospital was opened for public inspection, December 3. The addition is built in the shape of a cross so that future additions may be made on the 4 acres of ground surrounding it. The original building was dedicated twenty years ago.

CHICAGO

Personal.—Dr. Emilius Clark Dudley has been given leave of absence from the Northwestern University Medical School to accept an invitation from Yale University to give a course in clinical surgical gynecology at the Hunan-Yale College of Medicine, Changsha, China. Dr. Dudley will sail from New York, December 10, and expects to return to Chicago, about July 1, 1922.

INDIANA

Conference on Mental Health.—Under the auspices of the Indiana Society for Mental Hygiene, of which Dr. William Lowe Bryan, president of the Indiana University School of Medicine, is president, the state conference on mental health will be held, December 15, at Indianapolis.

Hospital News.—As soon as plans can be drawn for additional buildings, the tuberculosis state hospital at Rockville will be enlarged and used for the ex-service men afflicted with tuberculosis. The state will provide buildings and medical care, while the federal government will meet the maintenance expense. The governor plans to erect at once a unit for the care of fifty men. Additional units will be added as needed. The U. S. Veterans' Bureau has also approved the plan for taking care of the insane among ex-service men at the Southern State Hospital at Evansville.

Campaign for Health Education.—Indiana University is continuing this year the health education campaign carried out last spring throughout the state at the instance of the state department of public instruction, with the primary purpose of interesting the people of the state in the employment of public health nurses, and with the additional aim of reaching high school girls, women's organizations and the general community in such a way as to encourage recognition of the importance of increasing the number of young women being trained for nursing service. By means of conferences, demonstrations of nursing procedure, exhibits on the care of children, and moving pictures the nurses make their work of practical value to the communities visited.

KANSAS

Personal.—Dr. Lot D. Mabie, Kansas City, member of the staff of Bethany Hospital, has been appointed federal physician for the eastern district of Kansas.

KENTUCKY

National Health Exposition.—Under the auspices of the U. S. Public Health Service, the state board of health of Kentucky, the board of health of Jefferson County, and the health department of the city of Louisville, a national health exposition will be held at the Jefferson County Armory, Louisville, Feb. 1-9, 1922. An institute will be conducted by the U. S. Public Health Service. The speakers will include: Dr. Milton J. Rosenau, dean of the Harvard School of Public Health, Boston; Dr. Josephine Baker, director of the Department of Child Hygiene, New York City Board of Health; Dr. Frederick R. Green, secretary of the Council on Health and Public Instruction, American Medical Association, Chicago; Dr. Valeria H. Parker, director of the Interdepartmental Board of Social Hygiene; Dr. Frankwood Williams, director of the National Association of Mental Hygiene, New York City; Dr. Watson S. Rankin, Raleigh, N. C., state health officer of North Carolina, and others.

LOUISIANA

Appropriation for Leper Colony.—An appropriation of \$200,000 for the leper colony at Carville was included in the deficiency appropriation bill, which has passed the House and has been sent to the Senate for adoption.

Health Survey.—Dr. Mayo Toleman, of the Bureau of Municipal Research of New York, has begun a survey of the city board of health with the cooperation of Dr. John Callan, New Orleans, president of the board of health and other health officials.

MARYLAND

City Medical Society Meeting.—At the annual meeting of the Baltimore City Medical Society held, December 2, at Osler Hall, Medical and Chirurgical Faculty Building, Baltimore, Dr. Thomas B. Futcher was elected president; Dr. Alexius McGlannan, vice president; Dr. Frank Lynn, secretary, reelected, and Dr. Charles Emil Brack, treasurer.

Appointments at Johns Hopkins University.—The department of pharmacology in the Johns Hopkins University Medical Department has been subdivided to provide for carrying on a wider scope of work and a new division established, that of biophysics. The new division will be in charge of Dr. Jan Stephanus Van der Lingen, formerly senior lecturer in applied mathematics in the University of Cape Town, South Africa. No change in the department of pharmacology is anticipated, the division still being under the direction of Dr. John J. Abel, professor of pharmacology. Drs. Karl Schlaepfer and Ernst Huber, both of the University of Zurich, Switzerland, have been appointed associates in surgery and in anatomy, respectively, in the Medical School. Dr. James H. Mason Knox, Jr., associate in clinical pediatrics, has been granted a year's leave of absence to assume charge of child welfare work in Europe, under the Red Cross. During his absence, Dr. Daniel C. Wharton Smith, 2d, will fill his place.

MASSACHUSETTS

Personal.—The nominations of Dr. Joel E. Goldthwait, Boston, and Dr. Walter B. Cannon, Harvard Medical School, to serve in the Medical Reserve Corps of the U. S. Army, with the rank of brigadier general, have been confirmed by Congress.

Health Regulations.—Representative health officials from various sections of New England met in the health department office to reorganize a New England city and town milk council to prevent duplication of inspection of milk supplies and to work as a unit in enforcing compliance in regulation as to sanitation. The following governing board was elected: Health Commissioner Dr. William C. Woodward, Boston, chairman; Willard E. Ward, Brookline; Herbert E. Bowman, Somerville; Dr. Caleb Fuller, Providence, R. I., and F. L. Robertson, Springfield. The health authorities of Boston have announced that they will henceforth strictly enforce the regulation which requires that "show cases, shelves and other places where bakery products are sold shall be kept by the dealer well covered, properly ventilated, adequately protected from dust, flies and other contaminating matter and shall at all times be maintained in a sweet, clean and wholesome condition."

MICHIGAN

Head of Roosevelt Hospital Selected.—Dr. Albert N. Wehinkel, Detroit, for seven years consulting specialist on the board of health staff, has been selected as head of the Roosevelt American Legion Hospital at Camp Custer.

Clean Milk.—At the recent state conference of health officers in Lansing, Dr. Charles E. North, director of the North Public Health Bureau, New York City, in a lecture on milk inspection, offered as a solution for providing a community with pure milk, "Pay the farmer for his milk on the basis of freedom from bacteria." To produce acceptably clean milk, that is, milk with less than 50,000 bacteria per cubic centimeter of milk, Dr. North states that it is necessary: "To curry and brush the cows; to wipe the udder with a clean, damp cloth and to dry it with another; to wash and dry the hands before milking; to use a straight-fronted milk pail with not more than a 5-inch opening; to bring the pail close to the udder . . . to cool the milk immediately without straining; and to sterilize and dry thoroughly all milk utensils."

Harper Hospital's Diagnostic Clinic.—To aid the family physician in procuring expert assistance for his patients who need, but cannot afford to pay the fees of, specialists, a diagnostic clinic has recently been opened at the Harper Hospital, Detroit. It places within the reach of family physician and patient the entire facilities of Harper Hospital's staff and clinical department, laboratories, roentgen and dental departments, with a complete examination of the patient, including all special diagnostic work that the individual case may require. This is offered for the fee of \$25 plus \$3.50 a day during the patient's stay in the hospital. No patients are received except on recommendation of a reputable physician, who is urged to attend any examinations made of the patient.

The family physician is furnished a complete written report of all examinations, treatments, results and recommendations when the patient is discharged. Two small wards accommodating four patients each are used. Any and every physician on the hospital staff may be called on to attend patients in the clinic, and every resource of the entire hospital is at the disposal of the physicians and nurses. A complete staff of interns and nurses is in charge of the clinic and on regular duty.

MISSOURI

Smallpox Epidemic.—Since September 1, ninety-one have died from smallpox in Kansas City. There have been 265 cases in the city since the epidemic started. Dr. James P. Leake, U. S. Public Health Service, Washington, D. C., has been sent to study the form of smallpox which is said to be unusually virulent.

NEW YORK

New Rochelle to Have New Hospital.—A campaign has been launched to raise \$250,000 for the New Rochelle Hospital, which plans to erect a new hospital building. George E. Vincent, president of the Rockefeller Foundation, made the address which initiated the campaign.

Traffic Accidents.—The National Highways Protective Association has submitted a report including the period from Jan. 1, to Nov. 30, 1921, which shows that 1,741 persons were killed by automobiles and motor trucks in this state, as against 1,429 for the entire year of 1920. During the month of November 225 persons were killed by these causes in the state. In New York City sixty-six were killed by automobiles.

New York City

Harvey Society Lecture.—Dr. Clemens Pirquet, professor of pediatrics, University of Vienna, will deliver the third Harvey Society lecture at the New York Academy of Medicine, December 17. His subject will be "Nutrition Treatment of Tuberculosis in Childhood."

New York Hospital Opens Immunization Clinic.—A clinic for the treatment of hay-fever, eczema, asthma and poison ivy has been opened at the New York Hospital on Tuesday and Thursday evenings. Immunization against diphtheria and typhoid fever will also be administered.

Dr. Gibney Honored.—Dr. Virgil P. Gibney, who for fifty years has been surgeon in chief of the New York Hospital for Ruptured and Crippled Children, was honored by a testimonial dinner given by physicians associated with him in his work, at the Hotel Commodore on the evening of November 22, as an expression of appreciation of his long and faithful services.

New York Academy of Medicine Elects.—At the annual meeting of the New York Academy of Medicine held, Dec. 1, 1921, the following officers were elected for the ensuing year: vice president, three years, Dr. Arthur B. Duel; recording secretary, Dr. Royal S. Haynes; trustee, five years, Dr. Charles L. Dana. The term of the president, Dr. George David Stewart, has not yet expired.

Recruiting of Nurses Remedies Shortage.—The New York County Chapter of the American Red Cross has issued a statement announcing that its traveling recruiting service for nurses together with unemployment has in a large measure remedied the shortage of nurses which has existed in this city since the war. The report states that the nurses' training schools in the hospitals of the city, which had only half their complement of pupils last year, are filling up.

Food Poisoning Should Be Reported.—Physicians who meet cases in which a suspicion of food poisoning is justified are requested to report the facts to the department of health, so that the bureau of foods and drugs may make an investigation. In making this request the department of health points out that such illnesses are reportable in California and elsewhere and, as information accumulates as to their epidemiology, will doubtless become generally notifiable maladies.

Medical Society of the County of New York Elects.—At its one hundred and fifteenth annual meeting held, Nov. 28, 1921, the Medical Society of the County of New York elected the following officers for the ensuing year: president, Dr. Orrin S. Wightman; first vice president, Dr. Arthur F. Chace; second vice president, Dr. Eugene H. Pool; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. John Milton Mabbott; treasurer, Dr. James Pedersen; assistant treasurer, Dr. William TenEyck Elmendorf.

Tuberculosis Meeting.—Under the auspices of the Association of Tuberculosis Clinics, a meeting was recently held at the New York Academy of Medicine: Dr. Lawrason Brown, Saranac Lake, spoke on the early diagnosis of tuberculosis; Dr. George Ornstein, Vanderbilt Clinic, Medical Department of Physicians and Surgeons, told of his practical experience with roentgen-ray work in tuberculosis and Dr. Louis I. Harris, director of the bureau of preventable diseases of New York City Department of Health, also spoke.

Society for Cinematographic Instruction in Medicine and Surgery.—The society, recently organized and incorporated, is devoted exclusively to the advancement of the science and art of medicine and allied subjects by means of cinematographic reproduction. At a meeting held, November 19, in New York City, the following officers were elected for the first term of office: president, Dr. James S. Etlin; vice presidents, Drs. Charlton Wallace and Rodriguez Ottolengui, D.D.S.; secretary, Dr. Alfred Kahn, and treasurer, Dr. Maximilian Lewson.

An Investigation of Malnutrition.—The bureau of educational experiments has recently made public a report entitled "Health Education and the Nutrition Class," or the results of three years' experiments with nutrition classes in a New York public school. The experiment was carried out at Public School No. 64 in East Ninth Street from February, 1918, to June, 1921. The experiment included 404 children, of which 104 were children of normal development used as controls. The main conclusions from the investigation are as follows: "Gain in fitness was greatest on the part of children supposedly well. Other conditions being equal, the better the initial physical status of the child the better the results obtained from improved conditions of regimen and home care. A very large percentage of children now considered physically fit are living on a plane of physical vigor considerably below their individual potentialities. Gain in fitness was greatest on the part of unusually bright children. A larger percentage of underweight was found among this group than among any other group studied. Except for this group of children with unusually high intelligence quotients, mental tests failed to reveal any significant differences between the underweight children studied and the normal children of control groups."

OHIO

Physician Appointed to Diplomatic Service.—Dr. J. Morton Howell, Dayton, has been appointed as diplomatic representative and consul general for the United States to Egypt, and sailed for Cairo early in November.

Hospital News.—The trustees of the Memorial Hospital, Freeport, have announced that the medical profession of the county may make free use of the hospital, and that the staff will be an open one for all time. The medical board chosen by the trustees will consist of thirteen members, three to be appointed each year. Three members will be chosen by the members of the Sandusky County Medical Society, and three by the directors together with the president of the board of trustees. The medical board will have charge of the professional work of the hospital but no physician or surgeon in good standing will be prevented from practice in the hospital. —Dr. Benjamin R. McClellan of the McClellan Hospital, Xenia, has been made chairman of the Ohio committee of the American Legion on Hospitals, which is charged with the investigation of hospitals used for the care of disabled soldiers. —The children's section of the Franklin County Tuberculosis Hospital was opened for the admission of patients, October 31. The building will accommodate about 200 patients and was erected at a cost of \$198,973. —The Fraternal Order of Eagles has given \$500 for the equipment and complete furnishing of a room in the new Otis Hospital, Celina. —Directors of the Lakeside Hospital, Cleveland, are considering plans for a convalescent hospital and other hospital buildings. The site, a 200-acre tract of land on the lake shore, 2 miles north of Willoughby, has been donated by Edward S. Harkness of New York City, formerly of Cleveland.

PENNSYLVANIA

Special County Medical Meeting.—The Washington County Medical Society held a special meeting, November 9, at Washington, which was attended by members from the societies of Fayette, Greene and Westmoreland counties, physicians from Wheeling and Pittsburgh, and premedical students of Washington and Jefferson College. Dr. Harold A. Miller, Pitts-

burgh, delivered an address on the subject of obstetrics, followed by five reels of moving pictures of scenes in Dr. Wertheim's obstetric clinic in Vienna, Austria.

Philadelphia

State Aid Denied Seventeen Charities.—Seventeen Philadelphia institutions lose their state charitable appropriations for the current two years as a result of a ruling made by Auditor General Samuel S. Lewis, at Harrisburg. The institutions were adjudged to be sectarian.

Personal.—Dr. Charles J. Hatfield of the class of 1900, medical school, has been elected a member of the board of trustees of the University of Pennsylvania to succeed Dr. Morris J. Lewis. —Dr. Eugene L. Opie, professor of pathology at Washington University School of Medicine, St. Louis, addressed the annual conversational meeting of the Pathological Society of Philadelphia at the College of Physicians, December 8, his subject being "Latent Tuberculosis Infection and Its Relation to Phthisis."

SOUTH CAROLINA

Memorial Hospital Building Completed.—The Thompson Memorial Building of the Roper Hospital at Charleston has been completed, and will be known as the Riverside Infirmary. The old building will be remodeled and used as a nurses' home.

Plan to Record Hospital Births.—The executive committee of the state board of health has adopted a resolution making available for inspection of the state health officer, or his representative, records pertaining to births in all hospitals in South Carolina.

TENNESSEE

Hospital News.—The New Methodist Hospital at Memphis, which was recently opened to patients, has chosen Dr. Henry Hedden as superintendent. The hospital has 150 beds.

TEXAS

Surgical Instruments Found.—A package containing practically everything in the line of small surgical instruments was left in the office of Dr. J. W. Gooch, Shamrock, by a farmer who found them in the road near Shamrock. The owner should communicate with Dr. Gooch.

Advisory Board for Sanatorium.—The governor has appointed Dr. Zachary T. Scott, Austin; Dr. James W. McCarver, Brownwood, and Dr. William H. Hargis, San Antonio, members of the advisory board of the American Legion Memorial Sanatorium at Kerrville. They are ex-service members of the medical corps and will act in connection with the state board of control, which has authority over the Kerrville institution.

VIRGINIA

Personal.—It has recently been announced that Dr. Allen Fisk Voshell, former resident orthopedic surgeon at Johns Hopkins University, Baltimore, will assume charge of the department of orthopedic surgery at the University of Virginia Medical School and Hospital, Charlottesville. —Dr. William Edward Brown, former first assistant to the late director of the Catawba Sanatorium, Charlottesville, and connected with the tuberculosis work of the state board of health for the last five years, has been made superintendent of the Blue Ridge Sanatorium, the state institution for the care and treatment of tuberculosis, near Charlottesville. Dr. Brown succeeds Dr. Walter C. Klotz, who recently resigned to accept a similar position at Johnson City, Tenn.

WEST VIRGINIA

County Medical Meeting.—The Ohio Valley Medical Society held a meeting, November 18, at Wheeling. Dr. John Phillips, professor of medicine, Western Reserve University, Cleveland, and head of the medical division of the new Cleveland Clinic, spoke on "Some General Considerations in Diagnosis, Prognosis and Treatment of Nephritis."

WISCONSIN

Requirements for Registration of Nurses.—Answering a request from the state health officer for an interpretation of the residence requirement in the new Wisconsin law on registration of nurses, the attorney general of Wisconsin has advised that a specific residence period within the state is

unnecessary to satisfy the legal intent. The Committee on Nursing Education (created by the law) had made a rule that a nurse otherwise qualified for registration under the waiver provision should have resided six months in Wisconsin immediately preceding Sept. 1, 1921, to be entitled to register without examination. The opinion says: "Residence may be established by an adult at any place on the instant. When a person arrives at any place with the intent of making the same his or her permanent home, a legal residence is thereby established. We think that it is within the power of the committee to require that the nurse have a legal residence in Wisconsin at the time a certificate of registration is issued to her by the state board of health, but cannot require any length of residence prior thereto as a condition of obtaining the certificate."

CANADA

Western Ontario Academy of Medicine.—At a meeting held in the auditorium of the medical school, November 28, Dr. Edward Archibald, Montreal, delivered an address on "The Place of Surgery in Pulmonary Tuberculosis," and Dr. Joseph C. Bloodgood, Baltimore, spoke on "Cancer in Its Earliest Manifestations."

Ontario Medical Association.—The annual meeting of District 2 of the Ontario Medical Association was held recently at Woodstock, Ont. An interesting address was given by Dr. Charles White, Pittsburgh, director of tuberculosis at the Rockefeller Foundation Institute. Among the medical men present and who gave addresses were Edward R. Secord, Brantford; Henry F. MacKendrick, Galt; William Goldie, Toronto; John A. Marquis, Brantford; Arthur D. Proctor, Kitchener; Thomas A. Routley, Toronto, and Herbert Bruce, Toronto.

Public Health News.—Dr. George S. Cronk has recently been appointed medical officer of health for Belleville, Ont., succeeding Dr. Horace A. Yeomans, whose retirement follows a period of ill health. Dr. Cronk has been practicing in Belleville only since the war.—An alarming increase in the number of cases of diphtheria is shown in the November report of the provincial board of health. There are 940 cases of this disease throughout the province, as compared to fifty-five cases for the same month last year. The deaths from this disease have been eighty-two, as compared with forty-three deaths last year. The disease, officials say, is not so prevalent in Toronto as in outside centers. It is said to commence in a mild form in those it attacks, and later to increase in virulence.—Addressing the Canadian Conference on Public Welfare at Montreal recently, Dr. Clarence M. Hincks, Toronto, secretary of the National Committee for Mental Hygiene, declared that expert medical evidence in court is an absurdity under the present system. Dr. James C. McClelland of the Toronto General Hospital spoke on venereal diseases and quoted figures indicating that in the Montreal General Hospital in one year 26 per cent. of the patients were affected and that 5.7 per cent. of men for the Canadian army among the draftees were tainted. Dr. Robert E. Wodehouse, Toronto, secretary for the Canadian Association for the Prevention of Tuberculosis, traced the history of the disease and the methods used to combat it.

University of Toronto.—It is estimated that in the Faculty of Medicine, University of Toronto, fifty-five loans, totaling \$10,535, have been recommended for the returned-soldier students of the faculty to enable them to continue their studies. The loans will be made from the University of Toronto Memorial Loan Fund.—Prof. William Bateson, eminent biologist, and director of the John Innes Horticultural Institution, England, is to deliver a series of five lectures entitled "Genetics and Heredity" in the medical building of the University of Toronto, in the early part of January. The lectures are open to the public.—Results are now coming from the generous gifts made by Sir John Eaton and the Rockefeller Foundation for the furtherance of the study of medicine at Toronto University. Sir Robert Falconer, speaking of the advantages already apparent, said recently: "These gifts have made possible the appointment of physicians and surgeons of established reputation who are now to devote almost all their time to the organization of medical education and the administration of the medical department in the Toronto General Hospital. This reorganization, so long desired, has already shown its superiority over the former system, and the change has also made possible the segregation for better treatment and more careful observation of patients suffering from similar diseases. This unification and coordination of all departments has naturally resulted in

a more efficient organization both in the faculty of medicine and the General Hospital." The gift from Sir John Eaton amounts to half a million dollars spread over twenty years, and that from the Rockefeller Foundation is a million dollars.

GENERAL

Personal.—At the recent meeting in Kansas City of the National Anesthesia Research Society, in conjunction with the Mid-Western Association of Anaesthetists, a silver loving cup was presented to Dr. Arthur E. Guedel of Indianapolis, in recognition of his priority in gas anesthesia in obstetrics in America, and to encourage his further efforts in that line. Dr. Guedel has recently been appointed a member of the city board of health in Indianapolis.

Hospitals in Newfoundland and Labrador.—Dr. Joseph A. Andrews, who has recently returned to Santa Barbara, Calif., from his work with the International Grenfell Association, states that the association now has five hospitals on the shores of Newfoundland and western Labrador, and an orphanage was built at St. Anthony, on the north coast of Newfoundland, last summer. The work of the Grenfell Association is all done by volunteers which include men of high rank in the medical profession and medical students from leading universities.

Annual Meeting of the Federation of the American Society of Experimental Biology.—The American Physiological Society, the American Society of Biological Chemists, the American Society of Pharmacology and Experimental Therapeutics, and the American Society of Experimental Pathologists, which compose the Federation of the American Society of Experimental Biology, will meet in New Haven, Conn., December 28-30, under the auspices of Yale University. Dr. John J. R. McLeod of the University of Toronto, president of the American Physiological Society, is executive chairman of the federation meeting. The American Association of Anatomists will meet at the same date and place.

International Society of Medical Hydrology.—In accordance with resolutions passed at a conference in London, April 15, to form an international society for the promotion of the study and better knowledge of medical hydrology, a general meeting of the society was held in London, December 8, for the registration of members and the passing of the rules. The objects of the society are: (1) to encourage in all countries clinical and experimental research in medical hydrology; (2) to form an international union between scientific workers in this branch of medicine, and (3) to make better known, through the recognized organs of the medical profession, by periodic reports from time to time, the scope and nature of treatment by waters and baths in the prevention and cure of disease.

Resolutions of Mid-Western Association of Anesthetists.—THE JOURNAL has been requested to publish the following preambles and resolution, "unanimously adopted at the Mid-Western Association of Anesthetists meeting held in Kansas City, Mo., October 25":

WHEREAS, The Middle Western states are being circularized with false and misleading statements regarding the general practice of anesthesia and particularly the use of nitrous oxid-oxygen, and

WHEREAS, The Mid-Western Association of Anesthetists is formed for the study and promotion of truth as it relates to the specialty of anesthesia in medicine; now, therefore, be it

Resolved, That this society, in convention assembled, condemns the statements and the actions of Dr. J. F. Baldwin of Columbus, Ohio, in his utter disregard for truth and official records of recognized institutions as these relate to the practice of anesthesia and his efforts to discredit scientific advance by the unethical practice of disseminating false and misleading statements among medical, dental and hospital authorities throughout the United States.

RALPH M. WATERS, M.D., President,
Sioux City, Iowa.

MORRIS H. CLARK, Secretary,
Kansas City, Mo.

To Study Effect of Altitude on Human Life.—Eight investigators, five of them Harvard Medical School graduates and the other three British, sailed, November 16, for Peru, where they will make their headquarters at Cerro de Pasco, at a height of 14,000 feet in the Andes. The object of the expedition is to study the changes in the heart, circulation, respiration and chemical composition of the blood, which enable the permanent residents of Cerro de Pasco to live there in comfort and do arduous work in the copper mines, at an altitude in which most people would be able to do very little on account of the rarity of the air. The problem is also of

interest to aviators, who frequently suffer from the effects of flying at high altitudes. The Harvard members of the party are: Dr. Alfred C. Redfield, assistant professor of physiology, Harvard Medical School; Dr. Arlie B. Bock, Massachusetts General Hospital; Dr. Henry S. Forbes, now engaged in research in industrial medicine at Harvard; Dr. Carl A. L. Binger, Rockefeller Institute, New York City, and Dr. George Harrop, Presbyterian Hospital, New York City. The expedition was organized by Joseph Bancroft, Cambridge University, England, and he will also be accompanied by Prof. J. G. Meakins, Edinburgh University, Scotland, and Dr. Doggart of Kings College, Cambridge. They will return by February 1, and later in the year Mr. Bancroft will give a series of lectures at the Lowell Institute in Boston. The expedition is financed by Kings College, Cambridge, Royal Society of London, Carnegie Foundation, Rockefeller Institute, the Presbyterian Hospital, New York City, University of Toronto, Harvard Medical School, and certain private individuals who are interested in the problems to be investigated.

LATIN AMERICA

Vaccination in Chile.—The new Chilean vaccination regulations forbid travelers to enter or leave the country unless previously vaccinated.

Addition to Guatemala Hospital.—In connection with the celebration of the centenary of Guatemala independence, four operating rooms and five wards were added to the General Hospital of Guatemala City.

Infant Welfare in Chile.—The yearly budget of the society Patronato de la Infancia of Chile amounts to 600,000 pesos (about \$80,000) for 1922. The society operates eleven milk stations, a diet kitchen and a maternity home.

New Journal in Cuba.—A new monthly, *Sanidad Militar*, has just begun publication in Havana. Its editor is Lieut.-Col. Horacio Ferrer, M. C., and its assistant editor, Capt. G. Silverio, M. C. It is well printed on good paper, and its first paper on venereal prophylaxis is cleverly and profusely illustrated.

Medicolegal Society Founded at S. Paulo.—The Sociedade de Medicina Legal e Criminologia, recently founded at S. Paulo, has a membership of physicians, lawyers and others to a total of 100. The officers elected include Dr. Alcantara Machado, president; Dr. Franco da Rocha, vice president, and Dr. O. Freire, secretary general. The "Archives" is to be in charge of Dr. J. B. de Souza and Dr. V. de Nascimento.

The Uruguay Medical Congress.—Among the resolutions adopted by the Second National Medical Congress, held at Montevideo in October, was one calling for a permanent committee to study the anthrax question. Another resolution commended introduction of chlorination for drinking water, and still another ratified the conclusion of the First Congress condensed into the phrase "War on alcohol." The next congress is to be held at Montevideo in 1925.

Santo Tomás Hospital.—Four of the new buildings of the Santo Tomás Hospital at Panamá City are approaching completion. The hospital was begun two years ago and it will probably be finished in 1923. It will have room for 700 patients, which can be increased to 900 in emergencies. There will be maternity, isolation, tuberculosis, venereal, clinical and surgical wards, besides a well equipped laboratory. The hospital will face Balboa Square, in which there will be erected a statue of the famous discoverer by the Spanish sculptor, Benlliure.

Isolation for Contagious Diseases at Rio de Janeiro.—The *Brazil-Medico* makes a scathing arraignment of conditions in the isolation hospitals at Rio, the S. Sebastião and the Jurujuba, stating that soldiers taken recently to the former for isolation on account of epidemic meningitis contracted smallpox there. An official complaint to this effect has just been presented by the army authorities to the chief of the public health service. The editorial relates further that in the last few months fifteen persons taken from ships as influenza suspects and interned at Jurujuba contracted smallpox in the isolation hospital. The editorial states that these facts are so grave and reflect so seriously on those responsible for this state of affairs that it was only after much hesitation that they are published. It is the more inexcusable, it adds, because the public health service at present almost has carte blanche in the matter of expenditures.

Personal.—Dr. Jorge del Toro, a prominent surgeon of San Juan, P. R., is seriously ill with pneumonia in New York.—Dr. Miguel Villacencio, Lima, Peru, is now, with

his wife, in New York, where he represented his country at the recent meeting of the American Public Health Association.—Dr. Gustavo Cuervo of Havana is now in New York on his way from Europe.—Dr. Aurelio Beraun, a prominent Peruvian physician, has returned to his country with his wife, after visiting Eastern cities.—Dr. Rosendo Amor, professor of surgical therapeutics in the school of medicine of Mexico, has resigned his position.—Dr. R. Andino Aguilar, Tegucigalpa, Honduras, has moved his residence to Paris.—Dr. Enrique Yániz, superintendent of Sagua Hospital, Sagua, Cuba, has resigned.—Dr. Diego Carbonell, Venezuelan minister to Brazil, has been appointed a member of the Academia Nacional de Medicina of Rio de Janeiro, Brazil, to replace the late Dr. Aguerrevere.

FOREIGN

South African Medical Congress.—The Seventeenth South African Medical Congress was held, October 10-15, at Cape Town.

Celebration of Birthday of German Pathologist.—The centennial anniversary of the birth of the late Dr. Rudolf Virchow was celebrated, October 13, at the Pathologic Institute of the Tokyo Imperial University. Speeches were made in review of Dr. Virchow's achievements in pathology by Prof. K. Fujinami and R. Koganei. The German ambassador, Dr. Solf, was present.

Public Health in Australasia.—The first annual meeting of the public health association of Australasia was held, September 7-10, at Melbourne. New Zealand and every Australasian state, except one, were represented. Greetings were sent to the American Public Health Association, which was preparing for the celebration of the fiftieth anniversary of its existence.

Prize for Antoni.—The docent of neurology at the Karolinska Mediko-Kirurgiska Institut at Stockholm, Dr. N. Antoni, has been awarded the Lennmalm prize for 1921 by the Swedish Medical Association. He has published a number of works on clinical neurology, including his recent monograph on spinal cord tumors and neurofibromas, based on twenty neurofibromas and ten endotheliomas, studied from the clinical, embryologic and anatomic standpoints.

Semicentennial of Netherlands Neurologic Association.—The Nederlandsche Vereeniging voor Psychiatrie en Neurologie celebrated in November the fiftieth anniversary of its foundation with a gala meeting at Amsterdam. The president, Prof. L. Bouman, reviewed the history of the society, and Jelgersma and Winkler the development of psychiatry and neurology in the last fifty years. The Adrian medal was awarded and honorary members elected, but the details have not yet been received.

French Congress "de la Natalité."—This third three-day congress was held recently at Bordeaux, the minister of hygiene presiding. These annual meetings are due mainly to the initiative of the chambers of commerce, but they aim to "study and promote the principal social, moral, religious, fiscal, legislative and hygienic measures which are likely to preserve intact the human capital necessary for the development and safety of the country." The medical profession always takes a leading part in them. One of the measures advocated is that nursing mothers should be paid a pension so that they will not have to go to work but can stay home, like a paid wetnurse, for the infant. Other measures to promote breast nursing have proved failures.

Health Center for Tokyo.—Dr. R. B. Teusler, director of St. Luke's international hospital at Tokyo, is visiting America for the purpose of interesting American physicians in a project to establish a health center in Tokyo such as exists in all cities of the United States and Europe. The Japanese capital has no institution of this sort, and it is proposed to make St. Luke's hospital the nucleus of an establishment which shall include a hospital of 250 beds; a training school for 150 Japanese nurses; a postgraduate department for training Japanese interns and for medical research work; a public welfare and health department to include medical social service, and a medical library for American and British medical literature and magazines. A million dollars will be needed to establish the proposed health center in Tokyo.

Training of Health Visitors in Poland.—As an outgrowth of the immediate need for trained Polish workers to assist in carrying out the child health work as it will be demonstrated in the health centers and ambulatoriums opened in various

parts of Poland by the American Red Cross, there has been established at the University of Krakow a short course in training for health visitors. Arrangements were made with the medical faculty of the University of Krakow whereby several of the physicians on the staff of the children's department agreed to give a series of lectures and conduct demonstrations in ambulatoriums and hospitals connected with the university. Three American nurses (two speaking Polish) and one trained social worker were detailed to give instruction and conduct classes in practical work in connection with the Red Cross milk dispensing station, the ambulatorium, and in home visiting. The course was originally planned to extend over a period of six months, the entire time being spent in Krakow, but it was found that it was possible to complete the didactic work within a period of four months and to have the pupils spend the last two months in the field under supervision.

CORRECTION

American Public Health Association Meeting.—In the report of the American Public Health Association meeting which appeared in *THE JOURNAL*, November 26, p. 1746, two groups of narcotic addicts were described. A third group, for which control is unnecessary, was inadvertently omitted. The report should read: "Furthermore, the group of addicts in whom the clinical condition, which was the reason for beginning the drug, no longer exists, or who began the addiction for other than clinical reasons, is also a medical problem. These three groups, which include all addicts, do not constitute a public health problem in the ordinary sense of the word."

Government Services

Public Health Service Opens New Hospitals

Three new hospitals will be opened by January 1 under the direction of the U. S. Public Health Service. These hospitals are at Fort Logan H. Roots, Little Rock, Ark.; Fort McKenzie, at Sheridan, Wyo., and the former Navy Hospital at Las Animas, Colo. This makes seventeen hospitals which have been opened by the service during the present year. All have either been leased from private owners or taken over from the Army and Navy, the new construction authorized by Congress not yet being well under way. Hospitals put in commission during the last three months are the Navy Hospital at Gulfport, Miss., with 150 beds; the hospitals at Jackson Park, Chicago, Colfax, Iowa, and Portland, Ore., with a total of 350 beds; and the Edward Hines, Jr., Hospital at Maywood, near Chicago, with 1,000 beds. These hospitals will increase the total capacity of Public Health Service hospitals to about 22,600 beds. Hospitals planned to be opened during 1922 include the tuberculosis hospitals at Dawson Springs, Ky.; Excelsior Springs, Mo.; Rutland, Mass.; Fort Walla Walla, Wash.; Norfolk, Va., and the Bronx, New York City.

Assignments of Medical Reserve Officers

As a result of the issuance of regulations of the Officers' Reserve Corps, assignment of officers is being made in the Medical Department of the Army. These assignments with various units are under authority of the various commanders of the corps areas, and when completed will result in a system whereby every medical reserve officer will have a post to fill immediately on being called into active duty. All of these assignments are made to paper units, but in case of war these units will rapidly be turned into real organizations. A large number of medical reserve officers are retained by the Surgeon General of the Army to be used at base hospitals.

Assignment in Naval Medical Corps

Capt. Frank E. McCullough, Medical Corps, U. S. Navy, has been assigned as inspector of naval hospitals, having been relieved from duty as assistant in the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., by Capt. Frank L. Pleadwell, Medical Corps, U. S. Navy, who was recently in charge of the division of publications of the bureau.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 7, 1921.

Society for Birth Control

A society entitled the "Society for Constructive Birth Control and Racial Progress" has been formed. The president is Dr. Marie Stopes (the author of a book on the subject). Among the vice presidents are several leading members of the profession, including Sir Arbuthnot Lane, Sir James Barr and Sir Archdall Reid. The objects of the society are: (a) to bring home to all the fundamental nature of the reforms involved in the conscious and constructive control of conception and the illumination of sex life as a basis of racial progress; (b) to consider the individual, national, international, racial, political, economic, scientific, spiritual and other aspects of the theme, for which purpose meetings will be held, publications issued, and research committees, commissions of inquiry and other activities will be organized; (c) to supply all who still need it with the full knowledge of sound physiologic methods of control.

A New Species of Fossil Man

Considerable interest has been aroused by the discovery in the "bone cave" at Broken Hill Mine, northern Rhodesia, of a fossil skull, which reveals a new chapter in the history of man. The bone cave is already famous for the beauty of its stalactites and stalagmites and the remarkable fact that the lime of which they were originally composed has been largely replaced by zinc and lead phosphates. Hence its value for mining, which proved very peculiar, for the floor was a mass of fossilized remains of elephants, lions, leopards, rhinoceroses, hippopotami, antelopes, birds, bats and small mammals. Many hundred tons of these animals have been removed during mining operations, but no trace of man was discovered until a depth of 60 feet below water level was reached, when the bones of a remarkable type were found surrounded by soft lead conglomerate. G. Elliot Smith, professor of anatomy in the University of London, who has examined the remains, declares that the skull is of a type of mankind new to science. Comparing it with the skull of *Pithecanthropus erectus* found in Java by Dubois in 1892, the most primitive type of human remains known, he finds that the African skull presents certain resemblances, especially in the general form of the great eyebrow ridges, the flatness of the skull, and its broadness at the back. The face also presents some resemblance to that of Neanderthal man, though it is of a more primitive type. Anthropologists have supposed that European man came from Africa. Smith suggests that this newly discovered skull may represent the ancestral form from which Neanderthal man sprang. The upper part of the face is flat, somewhat like that of the apes. Although bigger than the Java skull and probably of a higher form, it presents so remarkable a likeness to this that it may be of the same genus. A striking feature is the enormous impression of the cervical muscles on the back of the skull. The creature must have had a tremendously thick and powerful neck, much more powerful than any other fossil skulls suggest. Another remarkable feature is that some of the teeth are affected with dental caries, a most surprising thing, for in modern man, dental caries is comparatively recent and does not date back long before the time of the pyramids. Unfortunately, owing to blasting operations, the lower jaw is missing. The other remains found were fragments of the femora, which will have to be investigated carefully before any inferences can be drawn.

Commenting on the discovery, Sir Arthur Keith says that one important matter—the age of the geological deposit in which the bones were found—has not been mentioned. He thinks that we are dealing with an early or late Pliocene fauna, of the age of Piltdown man. The skull was not unexpected. It shows that, as he has suggested, in ancient times the world was covered by very diverse races of man, that it was a patchwork of different species or genera. The skull fills in the gap between the Neanderthal and the Java man. Sir Arthur Keith thinks that South Africa will turn out to be a mausoleum of remains, for this is the second important find within ten years: the first was the Boskop skull. He cannot help thinking that South Africa is a very ancient center for the production of man. The Hottentots today are far away the most peculiar people on the face of the earth, and their cousins, the Bushmen, are also peculiar.

Decline of Lunacy During the War

A report of the London County Council, just issued, shows that the number of lunatics under reception orders declined from 215,139 in 1915 to 17,226 in 1919. This large reduction was due to the high death rate during the interval of four years, and prevailed also in the asylums of England and Wales and is attributable to war conditions. Three of the London mental hospitals were converted into war hospitals, which led to overcrowding in the remaining seven. This was not conducive to health. In common with the rest of the population, the patients suffered from scarcity of suitable food. A further cause was a reduction in the number of admissions. This was partly explained by limitation of admissions to urgent cases. But there was a more potent reason. Though the nation was suffering all the agonies of the greatest war in history, there was a remarkable absence of those stresses connected with poverty to which the mentally unstable react. There was practically no unemployment, and wages were good. Persons of poor mentality, who in normal times would have been a drug on the market, were eagerly sought after by employers (if not absorbed into the army). The number of lunatics in 1920 showed an increase of seventy.

PARIS

(From Our Regular Correspondent)

Nov. 11, 1921.

Antianaphylaxis

Antianaphylaxis was the subject of an important communication presented by Dr. F. Widal, professor of clinical medicine in the University of Paris, with the collaboration of Drs. P. Abrami and Pasteur-Vallery-Radot, at the fifteenth French congress of medicine, recently held in Strasbourg. The essayist laid particular stress on the complexity of the mechanism of anaphylactic accidents. Disturbances noted in subjects suffering from such are so variable, and the sensitization is effected in so many ways, that the effectiveness of various antianaphylactic processes is subject to a considerable amount of variation. In combating a pathogenic mechanism of such complexity, the methods of antianaphylaxis cannot pretend to possess the efficacy and uniformity of a specific therapy such as attaches to serum treatment. Widal and his pupils, as we know, designated the physical process, of which the shock is the expression, by a new term, "colloidoclasia." They comprehend under this term the rupture of the physical equilibrium of the colloids of the organism. But, when we endeavor to define the mechanism of this colloidoclasia, we encounter a great many difficulties. Kopaczewski and also Auguste Lumière endeavor to explain this rupture of the colloids by a special process called "flocculation." The term flocculation signifies the formation, in a colloidal solution, of floccules, resulting from the coales-

cence of particles into a voluminous mass. In order that they may produce the effects of shock attributed to them by Kopaczewski and by Lumière, and in order that they may obliterate by embolism the pulmonary capillaries, or mechanically irritate the endothelium of cerebral vessels, the floccules formed, during shock, in the blood of experimental animals must be of a material and discernible nature. In experiments carried out by Kopaczewski, in which, going back to the study of the Bordet phenomenon, he brings guinea-pig serum and gelose in contact in vitro, he witnessed the appearance in the serum of large flocculent masses, which were plainly visible with the ultramicroscope and were afterward shown kinetographically on the screen. Thus we must incriminate a phenomenon similar to that which is produced in vitro in order to conform with the theory of shock by contact or mechanical shock as held by Kopaczewski. If we accept Lumière's theory, we may also expect to find voluminous floccules in the plasma of organisms in a state of shock, for he explains the phenomenon by the mechanical action that floccules exert on the walls of vessels. However—and here we face a surprising fact—the flocculation that we can witness and produce in vitro, no one thus far has been able to discover in the blood of animals during shock. Lumière admits having sought for it in vain. Widal, during microscopic examination of serums and plasmas taken during anaphylactic, peptonic and-arsphenamin shock, has never observed flocculation. Thus, while the theories are based entirely on the hypothesis of a flocculation of the colloids of the blood plasma, this flocculation, which we ought first of all to discover, remains indiscernible. On the other hand, though the substances studied by Kopaczewski do produce in vitro a diminution of surface tension or an increase in the viscosity of serums to which they are added, is it certain that in vivo, with the given doses, they exert the same effects? Camphorated oil, which, to judge from Kopaczewski's finding in regard to its action in vitro on surface tension, might be expected to exercise a strong prophylactic influence on neo-arsphenamin shock, was shown by experiments conducted by Widal, with the collaboration of Joltrain and Bénard, to have no effect whatever. The subcutaneous injection of 0.15 gm. ($2\frac{1}{2}$ grains) of camphorated oil thirty minutes before an intravenous injection of neo-arsphenamin did not prevent, in three experimental subjects, the hemoclastic crisis or the clinical manifestations of shock, whereas sodium carbonate and sodium chlorid proved efficacious.

Seventh Centenary of the School of Medicine of Montpellier

The city of Montpellier recently celebrated the seventh centenary of its school of medicine. Amidst the sound of cathedral and other church bells of the city, the president of the republic, preceded by mace bearers in medieval costumes, and followed by the minister of public instruction and the dean of the school of medicine, made his entry into the principal court of the old school. In this court, transformed for the occasion into an amphitheater, the centenary ceremonies were celebrated. Dr. Derrien, dean of the medical school, delivered the opening address. Then two papers on "Seven Centuries of Medicine in Montpellier" and "Seven Centuries of Surgery in Montpellier" were read by Professor Vires and Prof. Emile Forgue, respectively. Dr. Fernand Widal paid homage to Montpellier in behalf of the medical profession of France. Professor Bordet, the Belgian scientist, spoke in behalf of foreign universities, and then the representatives of the various foreign universities deposited in written form with the dean of the school their official compliments and congratulations. On the occasion of this celebration, a monument to the memory of Rabelais was unveiled in Montpellier; for the famous author of Pantagruel,

before becoming a writer, studied medicine here, he having been registered in September, 1530. In 1537 he received his title of doctor of medicine. For a long time after his death, the school preserved his cap and robe. The writings of Rabelais teem with reminiscences of his medical life, and Montpellier comes in for frequent mention.

BELGIUM

(From Our Regular Correspondent)

LIÉGE, Nov. 7, 1921.

Prophylaxis in Schools

I. MEDICAL INSPECTION

In previous letters I have referred to the regulations in regard to the medical inspection of schools that were recently adopted in Belgium as the result of a royal decree following proposals made by Monsieur Destrée, minister of arts and sciences. The minimal requirements of such inspection are: (1) an examination of children on entering school for the first time, and an annual examination throughout their school life; (2) a more frequent examination of pupils who, in the opinion of the medical inspector, need to be subjected to special surveillance, and also those to whom his attention is directed by the instructors or the school nurse; (3) in case of an epidemic in the locality, the strict enforcement of prophylactic measures within the school; (4) inspection of the plumbing (and of shower baths where there are such) on the occasion of every visit; (5) semiannual general inspection of school buildings, furniture and outbuildings. Medical inspection of schools does not include affections already diagnosed.

II. DISEASES OF CHILDREN

In addition, a set of special instructions to be observed by teachers was adopted. 1. The teacher must send home, in the company of some one, any child who appears seriously ill. When a pupil has been dismissed, or is absent, on account of illness, the teacher or the principal will inquire, without delay, of the parents the nature of the affection from which the child is suffering. 2. If the teachers or pupils are suffering from a contagious disease or there are cases of such disease in the family, they may not be admitted to the school without a certificate from the attending physician attesting that they present no danger as regards transmission of infection. This certificate must also specify: In cases of diphtheria, that two bacteriologic examinations of the throat secretions, with an interval of a week between, showed negative results, and that the necessary measures for disinfection have been taken in the patient's home; for smallpox, that all crusts have fallen and that the throat conditions have completely cleared up; in scarlet fever, that the period of desquamation has passed, that the throat is intact, that the child has been given a soapy bath and that disinfection has been effected; in measles, that a soapy full bath has been given the child, and that he no longer presents any suspicious signs; in mumps, that a period of twenty days has elapsed since the onset of the affection, and that the child is free from all signs of the disease; in whooping cough, that a period of three weeks has elapsed since the disappearance of characteristic attacks of coughing; in chickenpox, that all scabs have disappeared and that a full bath or a soapy wash-off, including also the scalp, has been given the child; in typhoid fever, that the child has received a thorough soapy bath since his recovery, or has been given a general soapy wash-off; in cerebrospinal meningitis, that a period of forty days has elapsed since recovery or that two separate and distinct bacteriologic examinations, a week apart, have established the absence of meningococci in the nasopharyngeal secretions; in ringworm (trichophytosis) of the scalp, that

careful and repeated microscopic examinations do not reveal either in the hairs or the scales (if there are such) the least trace of spores or mycelium; in scabies, that the parasite and its eggs have been destroyed and that a careful examination does not reveal suspicious symptoms, more especially, burrows; in true impetigo, that all traces of pustules or scabs have disappeared; in trachoma or granular ophthalmia, that suppuration has ceased, and in tuberculosis that there are no longer any signs of open lesions.

III. INDIRECT INFECTION AND MEASURES FOR ITS CONTROL

Measures against indirect infection were also adopted. Brothers and sisters of a patient suffering from an infectious disease, and also other children living in the same house, will not be admitted to the school except as they present a medical certificate testifying: in diphtheria, that ten days have elapsed since the isolation of the patient, that disinfection has been effected during the course of the disease and that two bacteriologic examinations of the secretions, made ten days apart and since the isolation of the patient, gave negative results; in smallpox, that isolation of the patient is complete, that disinfection of his clothing and the home has been effected with all necessary care following isolation, that the children in question have been revaccinated, and that a period of at least ten days has elapsed since the action was taken; in scarlet fever, that a period of two weeks has elapsed since the isolation of the patient, that disinfection has been carried out during the course of the disease, and that the throats of the children do not present any suspicious signs; in measles, that a period of two weeks has elapsed since the isolation of the patient; in mumps, that fifteen days have elapsed since the isolation of the patient and that the children do not present any suspicious signs; in whooping cough, that fifteen days have elapsed since the isolation of the patient, and that the children have no catarrhal affection of the respiratory tracts; in cerebrospinal meningitis, that twenty-eight days have elapsed since the isolation of the patient, and that disinfection has been carried out during the course of the disease; in addition, in the case of children in whom meningococci have been demonstrated, that two bacteriologic examinations, made a week apart, of the secretions of the throat, etc., have not revealed the presence of meningococci.

IV. TEMPORARY CLOSING OF SCHOOLS IN CASE OF AN EPIDEMIC

Whether a school should be closed or not will depend on the extent of the epidemic and the gravity of the disease. In measles, closing will seldom be indicated. The closing of a school accomplishes its purpose only when promptly carried out during the four or five days following the diagnosis of the first case. If the prevalent disease is of an especially grave character, it may be necessary to close the schools, or at least the classes attended by children between the ages of 3 and 6, in whom measles is always more grave than in older children. The school should ordinarily be reopened fifteen days from the date of closing. In scarlet fever, the closing is often opportune when a number of cases have been reported and the disease is not already scattered throughout the community or the section of the town where the school is located. The reopening may usually take place fifteen days after the closing. In diphtheria, the closing will be ordered as in scarlet fever. The reopening of the school will take place three weeks after closing. As for typhoid fever, this disease may necessitate the closing of boarding schools, provided a sufficient number of cases occur in quick succession. The reopening of the school will take place after a visit of the sanitary inspector, followed by his

approval of such action. In cerebrospinal meningitis, the closing of school would be indicated if several cases had occurred among the pupils or if an epidemic were prevalent in the locality, or the part of the town in which the school is located. In such a case the school should not be reopened until authorization from the sanitary inspector has been secured.

BERLIN

(From Our Regular Correspondent)

Nov. 10, 1921.

Physiologic Findings in Connection with Sport Activities

When compulsory military service ceased to exist, it became necessary to discover in place of it something that would present, at least approximately, the same hygienic advantages. For this reason, the "Deutsche Hochschule für Leibesübungen" (a university school of physical training) was established in Berlin, two years ago, under the general direction of the Berlin surgeon Professor Bier. In order that this university school may not only train athletic directors and athletes, who are recruited mainly from the student ranks, but also contribute to the progress of science, a physiologic laboratory specially equipped to conduct experiments in connection with various sports has been added, in which Dr. Kohlrausch, assistant in the Physiologic Institute, is carrying out certain investigations. From his recent report it appears that, last winter, investigations on blood pressure during and after certain sport activities were made. The blood pressure values observed in ski-runners were different from those noted by other investigators and seemed to indicate that the changes in blood pressure immediately after such sport activities are very great. Several series of investigations were carried out, in which this method was used: The blood pressure was measured soon after completion of some sport activity requiring a maximum of exertion and was then noted at intervals of from two to ten minutes for a period ranging from one-half hour to an hour and a half. It was thus seen that the blood pressure shortly after the completion of the activity was very high, and in some cases continued to rise. However, after an interval of from one half to three minutes it began to fall, and in the course of from ten to fifteen minutes it sank way below normal, and did not get back to normal for from one half to one and a half hours. The shorter the duration of the effort, the more quickly the blood pressure fell and rose again, and the greater was the fluctuation. Long continued exertions did not produce the same high (or low) blood pressure records, and the return to normal was found to be slower.

For example, in the 100 meter dash, the blood pressure of the runner before the exertion was 113 mm. of mercury; afterward, 189 mm.; sixteen minutes later, 71 mm.; fifty minutes later, 112 mm. In the 1,000 meter run, the blood pressure prior to the run was 119 mm.; afterward, 145 mm.; twenty minutes later, 89 mm.; seventy minutes later, 119 mm. A scientific explanation of the manifestations cannot be attempted here, but suffice it to state that they are not due mainly to fatigue but that it is a question of physiologic circulatory phenomena. The results of the figures secured in fifty series of investigations have some importance from the standpoint of pathology. The attempt was made to bring the conditions surrounding sport activities into some sort of relation with clinical pathology, which attempt promises to be successful, since the demands that the various forms of sport make on the normal human organs are at least equal to the demands made by the affairs of daily life on diseased organs. That so few scientific investigators make use of the opportunity for experimental observation offered by sport activities is doubtless due to ignorance of the conditions prevailing in

this field. One form of experimental physiologic research was the determination of the muscular elasticity under various circumstances. The proposed testing of the effect of massage on athletes was postponed until a later season, as special attention had been called to the differences in elasticity in the muscles of light-weight and heavy-weight athletes. It was found, above all, that the musculature of a number of athletes was harder than that of light-weight athletes. The muscles of the calves of the legs, especially, were tested. It was further shown that the muscles after the 10 kilometer run at a moderate pace were surprisingly soft, whereas during the following days they became much harder. But in the 100 meter dash it was different, for here the hardness of the muscles was noted at once. In the case of the moderate, 10 kilometer run it was a question of holding the muscles sufficiently taut to protect them against the pain caused by the dissemination of fatigue substances; in the case of the short, quick run it was a matter of muscular spasm or tonic tension. Through observations on swimmers and runners it was shown that in the various forms of sport different types of breathing may be noted.

Attendance at German Universities

During the summer semester of 1920, the number of students attending German universities was not materially less than during the previous winter semester. In the winter semester, 1920-1921, there was a slight increase of attendance. With the omission of Königsberg, there were 84,837 students in attendance during the winter semester, 1920-1921, as compared with 84,142 matriculated in the summer semester. The university of Berlin has about 12,500 students. The universities of Munich, Leipzig, Breslau and Bonn have more than 5,000 each. Cologne has 4,000; Münster, Frankfurt, Würzburg, Halle, Hamburg, Göttingen and Freiburg over 3,000; Tübingen, Heidelberg, Marburg, Jena over 2,000, and Kiel, Erlangen, Greifswald and Rostock, between 1,000 and 2,000 students this year.

Death of Wilhelm Heinrich Erb

Wilhelm Erb, the senior representative of German neurologists and the former director of the Heidelberg Neurologic Clinic, died, November 1, at the age of 81. His name is well known in the field of investigations on the spinal cord. But also in other branches of neuropathology he conducted important researches. His numerous works deal with progressive muscular dystrophy, pseudoparalytic myasthenia, spastic spinal paralysis, acromegaly, dysbasia angiosclerotica (a term he invented) and many other disease conditions. For many years he defended the conception that tabes dorsalis rests on a syphilitic basis. He championed this view against the opposing belief of Leyden; more particularly. With the advent of the Wassermann test, whereby it became possible to establish with certainty the presence of syphilitic affections, the controversy was definitely decided in Erb's favor. At approximately the same time as Westphal, he discovered the significance of the knee tendon phenomenon. Not only as an investigator, but also as a clinician and consulting physician, he was distinguished among a large circle of clients, including many from foreign countries, for his reliability and thoroughness. To the superficial observer he seemed austere in his manner and at times even gruff. But those who learned to know him well soon grew to like him for his upright, irreproachable character and his depth of feeling. In recent years he found it difficult to bear up and to preserve his strength of character in the face of the severe misfortunes that overtook him. His two eldest sons, one of whom had distinguished himself by his excellent experimental researches in medicine, died some time ago, one having committed suicide, while the other fell on the field of battle.

Marriages

WILLIAM O. NELSON, Lieut., M. C., U. S. Army, Baldwyn, Miss., to Miss Alma Holly of Booneville, Miss., October 23.

FREDERICK S. HARRELL, Olney, Texas, to Mrs. Sallye D. Harle of Malta, Mont., at Wichita Falls, November 23.

ALLEN FISKE VOSHELL, Charlottesville, Va., to Miss Louise de Lancey Barclay of Baltimore, November 24.

CHARLES DOUGLASS WALTON to Miss Louise Elizabeth Orr, both of Mount Pleasant, Tenn., November 16.

GEORGE REED TABOR, Oklahoma City, to Miss Jessie Kirk Wainwright of Jackson, Miss., November 4.

RALPH BOWMAN EARP, Eldorado, Kan., to Miss Frances Davenport of Arcadia, Kan., October 19.

MARCUS ROLLA DAMRON, Pinckneyville, Ill., to Miss Elizabeth Sandlin, in St. Louis, November 1.

DUDLEY PAUL FAGERSTROM, Boone, Iowa, to Miss Deane Whitbred of St. Paul, November 17.

RALPH EMERSON MCINDOO to Miss Phronsie Lucille Martin, both of Kokomo, Ind., October 15.

EMERSON BARNUM, Shelbyville, Ind., to Miss Pearl M. Coers of Manila, Ind., October 6.

STEPHEN W. STAFFORD to Miss Marie Aurore Tircuit, both of New Orleans, November 24.

JOSEPH ADJUTOR RUEL to Miss Corinne Foisy, both of Haverhill, Mass., November 10.

OLIVER CURRY BRUNK, Richmond, Va., to Miss Bernice Hall of Lynchburg, October 25.

Deaths

Walter Channing ☉ Brookline, Mass.; Medical School of Harvard University, Boston, 1872; died, November 23, aged 72; superintendent of the Channing sanatorium for the treatment of mental diseases, near Brookline; professor of mental diseases, Tufts College Medical School, Boston, 1895-1903; chairman of the board of trustees, Boston State Hospital, 1908-1914. He was a member of the American Neurological Association; American Medico-Psychological Association and the New England Society of Psychiatry.

James Milton Spear, Cumberland, Md.; Miami Medical College, Cincinnati, 1869; member of the Medical and Surgical Faculty of Maryland; former president of the Allegany County Medical Society; chief surgeon of the Baltimore and Ohio Railroad, Cumberland, for twenty-five years; Civil War veteran; died, November 17, from heart disease, aged 78.

James Lee Reat, Tuscola, Ill.; Eclectic Medical College, Cincinnati, 1858; Rush Medical College, Chicago, 1877; member of the Illinois State Medical Society; surgeon in the Civil War; practitioner for more than half a century; member of the Douglas County board of medical pension examiners for twenty-seven years; died, November 26, aged 86.

Henry Walker Terrell ☉ LaGrange, Ga.; Atlanta Medical College, Atlanta, 1892; vice president, Medical Association of Georgia; served on the LaGrange board of education; member of the Georgia State Board of Medical Examiners; died, November 24, from angina pectoris, aged 50.

Irvine Moore Flinn, Wilmington, Del.; Jefferson Medical College, Philadelphia, 1883; Hahnemann Medical College and Hospital of Philadelphia, 1887; chief of medical staff, Homeopathic Hospital, Wilmington; died suddenly, November 22, from acute indigestion and heart disease, aged 67.

Edward August Bogue ☉ New York City; Castleton Medical College, Castleton, Vt., 1857; also a dentist; member of the New York Academy of Medicine and former president of the New York Odontological Society; died, November 22, from pneumonia, aged 83.

William Porter ☉ St. Louis; Jefferson Medical College, Philadelphia, 1872; member of the Missouri State Medical

Association; former professor of clinical medicine, St. Louis University; died, November 13, at Ocean Springs, Miss., from acute indigestion, aged 69.

B. Lawrence Taliaferro ☉ Catawba Sanatorium, Va.; Medical College of Virginia, Richmond, 1898; chief physician of Catawba Sanatorium; at one time on the staff of the Trudeau Sanatorium, Saranac Lake, N. Y.; died, November 21, at Roanoke, aged 45.

Robert Joseph Baze, Chickasha, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1892; member of the Oklahoma State Medical Association; founder of the Baze Sanatorium, of which he was surgeon in charge; died, November 14, aged 51.

Lewis Holston Hendrixson, New Holland, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; former associate professor of chemistry, Hahnemann Medical College; died, November 12, from cerebral hemorrhage, aged 48.

John F. Sanderford, Creedmore, N. C.; College of Physicians and Surgeons, Baltimore, 1890; member of the Medical Society of the State of North Carolina; died, November 12, in the Watt's Hospital, West Durham, from uremia, aged 57.

Jesse M. Spikes, Swarts, Ark.; University of Arkansas, Little Rock, 1911; member of the Arkansas Medical Society; died, November 13, from fracture of the skull, the result of an automobile accident near Pocahontas, Ark., aged 36.

Samuel M. Patton, Meadville, Pa.; Medical Department of Western Reserve University, Cleveland, 1882; served in the county commissioner's office for more than eighteen years; died, November 14, after a long illness, aged 63.

Sarah Isabel Shuey ☉ Oakland, Calif.; University of California, San Francisco, 1878; practitioner in Oakland for forty-four years; died, November 22, from cerebral hemorrhage, in the Merritt Hospital, aged 70.

Wallace A. Ort, Springfield, Ohio; College of Physicians and Surgeons, Baltimore, 1901; member of the Ohio State Medical Association; died, November 24, from chronic nephritis and arteriosclerosis, aged 43.

Joshua U. Burnett, Sussex, N. B.; Jefferson Medical College, Philadelphia, 1862; was recently lost in the woods several days and found dead from exposure, near his fishing cottage, Chisholm Lake, aged 80.

George Oscar Marsh, Prescott, Ark.; Tulane University of Louisiana, New Orleans, 1895; member of the Oklahoma State Medical Association; died suddenly, November 16, from cerebral hemorrhage, aged 65.

Robert J. McArthur, South Sioux City, Neb.; Sioux City (Iowa) College of Medicine, 1901; was accidentally shot through the head and killed while duck hunting, near Jackson, Neb., November 14, aged 45.

Walter Scott Vincent, Burlington, Vt.; University of Vermont, Burlington, 1861; practitioner for more than half a century; surgeon in the Civil War; also a druggist; died, November 10, aged 83.

Frank Harold Tyler ☉ Kalamazoo, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1880; died, October 19, from embolism, at the University Hospital, Ann Arbor, aged 66.

Harley H. Miller ☉ Galveston, Ind.; Louisville Medical College, Louisville, Ky., 1897; was instantly killed, November 21, when the automobile in which he was driving was struck by a train, aged 50.

James Symington, New York City; College of Physicians and Surgeons (Columbia University), New York City, 1875; died, November 5, at a New York hospital, from lymphosarcoma, aged 67.

William F. Batman, Crawfordsville, Ind.; Jefferson Medical College, Philadelphia, 1880; member of the Indiana State Medical Association; died, October 23, from cerebral hemorrhage, aged 63.

John Martin Adams, Medina, Texas (years of practice); registered by Texas State Board of Medical Examiners, Act of 1907; died, November 21, at the Secor Sanatorium, Kerrville, aged 56.

David Collins Dinsmore, Kirksville, Iowa; Cleveland Medical College, Cleveland, 1861; practitioner for more than half a century; Civil War veteran; died, November 9, at Iowa City, aged 91.

Bernard Hove Harrison, Washington, D. C.; Howard University, School of Medicine, Washington, 1903; member of the Medical Society of the District of Columbia; died, October 18, aged 52.

William Sellers, Shreveport, La.; Tulane University of Louisiana, New Orleans, 1870; Confederate veteran; practitioner for more than half a century; died, November 25, aged 76.

Joel Davis Madden, Ossining, N. Y.; New York Homeopathic Medical College, New York City, 1876; former physician at Sing Sing Prison; died, November 18, aged 70.

Harry K. Weiler, Riverside, N. J.; Hahnemann Medical College and Hospital, Philadelphia, 1883; died, November 24, at Delanco, N. J., from cerebral hemorrhage, aged 65.

Arick Sutherland, Brodhead, Wis.; Milwaukee Medical College, Milwaukee, 1900; Civil War veteran; died suddenly in his chair, November 11, from heart disease, aged 75.

Harvey Louis Biggs, Olive Hill, Ky.; Kentucky University, Louisville, 1903; served as army surgeon during the World War; was shot and killed, November 21, aged 40.

Charles Wesley Gordon, Fort Wayne, Ind.; Medical College of Fort Wayne, 1877; Rush Medical College, Chicago, 1880; died, November 21, from arteriosclerosis, aged 69.

Henry Clarence Williams ♂ Boston; L.1880, M.1882, R.C.P., Edinburgh, Scotland; died, October 25, from uremia following operation for strangulated hernia, aged 66.

James K. P. Kessler, Cherryvale, Kan.; Cincinnati College of Medicine and Surgery, 1881; city physician of Cherryvale; died, November 18, from heart disease, aged 77.

Clarence P. Colburn, Richmond, Ind.; Miami Medical College, Cincinnati, 1883; died, November 17, at the Crane Sanatorium, from cerebral hemorrhage, aged 62.

L. D. J. Ensor, Cookeville, Tenn. (license, Tennessee, 1889); member of the Tennessee State Medical Association; was found dead in bed, November 18, aged 66.

Eddy Stearns Haswell ♂ Albany, N. Y.; Albany Medical College, 1909; specialist in internal medicine; died, November 19, at the Homeopathic Hospital, aged 35.

Charles Rosewater ♂ Omaha; University of Würzburg, Germany, 1920; member of the Omaha Pathological Association; died, November 23, aged 62.

Albert Daniel Yorke, Boston; University of Vermont, Burlington, 1891; also a pharmacist; died, November 22, at Jamaica Plain, Mass., aged 58.

Reuben C. Binns, Crawfordsville, Ala.; University of Georgia, Augusta, 1878; died, October 27, at the State Sanatorium for the Insane, aged 67.

Horace Augustus Yeomans, Belleville, Ontario, Canada; Victoria University, Toronto, 1889; for many years local health officer; died recently.

Samuel Echols Hale, New Orleans; University of Louisville, Ky., 1872; practitioner for nearly half a century; died, November 25, aged 71.

Thomas John Stafford ♂ Stockton, Ill.; Rush Medical College, Chicago, 1889; died, November 21, from peritonitis and gallstones, aged 61.

Banks I. Paul, Benford, Texas; Memphis Hospital Medical College, Memphis, Tenn., 1912; was shot and killed, October 31, aged 33.

Obe F. Watlington, Jackson, Tenn.; University of Louisville, Louisville, Ky., 1882; died suddenly, November 19, aged 60.

Robert W. Read, Murfreesboro, Tenn.; University of Tennessee, Memphis, 1883; died, recently, from pellagra, aged 69.

William Henry Bruns, St. Henry, Ohio; University of Cincinnati, 1915; died, November 22, from tuberculosis, aged 28.

S. L. Susong, Walland, Tenn. (license, Tennessee, 1889); died, November 11, at Maryville, from pneumonia, aged 70.

H. W. Nichols, Clarksdale, Miss.; Meharry Medical College, Nashville, Tenn., 1901; died, November 22.

Johnson C. Lindsay, Los Angeles; Miami Medical College, Cincinnati, 1872; died, November 23, aged 77.

James C. Palmer, Rogersville, Tenn. (license, Tennessee, 1889); died, October 25, aged 67.

James A. Smith, Brownsville, Ind. (license, Indiana, 1897); died, October 5, aged 83.

John O. Kent, Linesville, Pa. (license, Pennsylvania, 1881); died, November 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"THE ALSAKER WAY"

During the past two or three years THE JOURNAL has received many inquiries regarding one R. L. Alsaker who issues a series of "Books That Teach The Alsaker Way to Health and Efficiency." Some of the more recent and typical inquiries follow. This from a physician in Pennsylvania who sent one of the Alsaker advertisements:

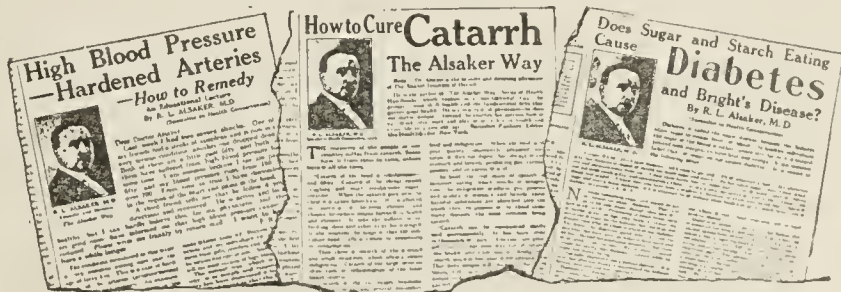
"Who is this 'M.D.'? His book 'Curing Diseases of Heart and Arteries' has driven a woman I know to be organically sound, into a state of serious, almost grave invalidism."

And a Nevada attorney:

"My wife has been reading 'Curing Diseases of Heart and Arteries' by Dr. R. L. Alsaker, published by Frank E. Morrison, N. Y. She is so impressed with this book that she is disposed to try to locate Dr. Alsaker and take treatment from him. She is troubled with a nervous affection of the heart. We would like to know something of Dr. Alsaker, and have been advised by Dr. ——— here to write you concerning him. We do not want to spend any money on him, unless he is really a first class specialist in heart diseases."

And this just received from a New York physician who sent with his letter one of Alsaker's advertisements on "High Blood Pressure—Hardened Arteries":

"The enclosed advertisement was taken from *Harper's Magazine*, I think for November. What can you tell me about this proposition? Will you kindly return the advertisement?"



Greatly reduced reproductions of part of some typical Alsaker advertising.

According to our records, Rasmus Larssen Alsaker was born in 1883 in Norway; was graduated by Bennett Medical College, Chicago, in 1910; received licenses to practice in Illinois and Colorado in 1910 and in Missouri in 1915. After graduation he seems to have lived for two or three years in Denver, for a short time in Starbuck, Minn., and then to have moved to St. Louis, Mo., where he now is.

Alsaker's books are at present being advertised by Lowrey-Marden Corporation, 1133 Broadway, New York, although until comparatively recently, they were advertised from the same address under the name of Frank E. Morrison. Some years ago Alsaker advertised his books under his own name. In 1917, when Alsaker was 34 years of age and had been out of medical college barely 7 years, he was heralded in the advertisements as "an eminent authority" who had "put the net result of his many years of professional experience with sick people into his writings."

During the influenza epidemic public fear was capitalized in an attempt to sell the book: "The Alsaker Way to Prevent and Cure Influenza, Catarrh, Pneumonia, and Other Troubles of the Nose, Throat, Lungs, Etc." The public was reminded of the "terror that spread over this country during the 'Flu' epidemic when human lives—young and old—were being slaughtered in appalling numbers, and medical science was powerless to control it." The public was told, too, that "medical science predicts that this horrible destroyer of life is coming back again to work still more frightful havoc." All this leading up to this statement:

"There is a skilled physician in one of our largest cities who successfully treated hundreds of cases during the epidemic. All who followed this doctor's advice got well."

"In addition, he advised thousands of men and women in scores of other towns and cities of the country—HOW TO PROTECT THEMSELVES—and actually DEFY THE EPIDEMIC. (These facts can be verified by any genuinely interested inquirer.)

"This skilled physician—R. L. Alsaker, M.D.,—has put his expert knowledge at everybody's disposal in a printed form which explains in the simplest and plainest English all about the cause, the prevention and the CURE of Colds and Influenza, Pneumonia, Catarrh (all forms, chronic and acute) and all kinds of lung, chest, throat, nose, stomach and intestinal troubles which make ourselves and our loved ones easy victims of these dread diseases."

Alsaker's book "Curing Diseases of the Heart and Arteries" seems to be the one that is being pushed at present. The first part of this book contains certain elementary facts of physiology and hygiene, obvious to the point of banality, and such as could be found in the ordinary common-school textbooks on such subjects. The therapeutic phases of the subject are so treated that the average reader might well reach the conclusion that all other physicians, except Alsaker, are either fools or rogues, and that from Alsaker alone flows the only pure, unadulterated, 100 per cent. medical knowledge. For instance:

"I have seen many cases of heart disease where physicians had passed sentence of speedy death; but when these individuals ceased taking drugs and learned how to give themselves correct care they improved vastly and most of them were able to lead comfortable useful lives." (Page 14.)

"The fact that an individual has undergone much 'medical' treatment without benefit is no proof that a disease is incurable." (Page 16.)

"The ordinary treatment is a generous diet of liquid food, and various drugs are used to stimulate the heart. The most popular drug is digitalis. Rest in bed is prescribed. The rest is correct treatment, but the medicating and generous feeding are mistakes, as we shall see when we take up the treatment." (Page 39.)

"The usual treatment is liquid food, heart stimulants and rest in bed. The rest is the only correct part of the treatment." (Page 42.)

"In discussing the causation of heart troubles, other diseases have been given as causative factors. This is the usual medical way, but it is not correct. It is convenient." (Page 69.)

"To show what correct treatment will do, after medical treatment has failed, I shall tell you about a few cases taken from my own practice, . . ." (Page 73.)

The book details a number of "clinical cases" purporting to show the remarkable results produced by Alsaker where other physicians had failed. Where suggestions are made as to diet, the reader is referred to another one of Alsaker's books. Thus:

"It is very important to cook and dress the foods correctly. This subject would in itself require about 50 pages of space, so it can not be given in this volume. You will find it detailed in chapters 8, 9 and 10 of 'Eating for Health and Efficiency.'"

And this:

"All foods are to be simply cooked and dressed as directed in my book on 'Eating for Health and Efficiency.'"

More than thirty pages are given to the "treatment of heart disease." One would suppose that even the intelligent layman would realize that there is no justification for leading the public to believe that diseases of the heart and arteries can be self-diagnosed and self-treated. Alsaker's book on this subject may be counted on to have one very definite effect on the person who accepts its teaching. It may lead any patient, who because of an impaired circulatory system is under the care of a physician, to abandon such rational means as the physician might recommend and attempt self-treatment "The Alsaker Way."

Alsaker and others in similar business are exponents of the new near-quackery which is proving such a gold mine for those who practice it and for the magazines and newspapers which furnish the point of contact. The theories put forth by men of this type usually consist of 5 per cent. banalities of elementary science and 95 per cent. pseudo-scientific buncombe. The occasional rational—and obvious—thing that men of this type propound misleads intelligent people into accepting ridiculous and commercialized theories.

The Alsaker advertising is accepted by many magazines that will not open their pages to ordinary medical advertising.

Cure Versus Prophylaxis in Health Work.—We talk glibly of health protection, of health leagues, of health departments, and when you analyze their works, you find them engaged chiefly in the treatment or alleviation of the end results of disease.—H. Emerson, *Hosp. Soc. Service* 4:272 (Nov.) 1921.

Correspondence

"GROUP PRACTICE; DIAGNOSTIC AND PAY CLINICS"

To the Editor:—Modern clinical medicine is an applied science and embraces such a vast field of knowledge that it is beyond the capacity of any individual to acquire the necessary learning, experience and skill to care efficiently for all patients. This fact has led to specialization and to the evolution of the internist, the surgeon and specialists in the narrower fields of medicine and surgery. A specialist may be eminently qualified in his own field of practice, but as a rule he is professionally incompetent outside it. Consequently, if the patient as a whole is to be examined and treated, it will take "nine tailors to make a man." This statement is not intended to indicate that specialization in the practice of medicine is wrong; but the number of specialists is greater than the need if one will honestly consider the welfare of the public. It is my opinion that a painstaking general practitioner is able to make a correct diagnosis in a large majority of all patients with the readily available small chemical and instrumental equipment and a thorough use of properly trained special senses.

Here lies the crux of the present situation. Today the public suffers because many general practitioners neglect to make the examination and record of the patient's condition, and in consequence the treatment and management given are slipshod, haphazard and often ineffectual. It is natural, therefore, that a substantial number of the public should turn for relief to the public pay or free clinic, or to a group of private practitioners, or place themselves in the hands of faddists and practitioners of the cults. In fact, one of the chief reasons for the growth of the cults is the failure of the general practitioner to give the best that is in him in service to his patients. Just why this is so, it is difficult to estimate. In part, it is due, I think, to the belief of many practitioners that modern medicine requires in all cases the application of all the refinements of laboratory and instrumental assistance in making a diagnosis; the fact is, these refinements in diagnosis are required in a small percentage of patients.

Pay clinics and group practice are the natural outgrowth of the conditions which I have briefly mentioned. These innovations in practice will probably continue; the public will demand them and will make use of them just so long as the needed relief is only partially given by the family physician. But the demand of the public for relief will not be afforded by the public pay clinic or by private group practice unless these organizations are conducted on fundamental principles and policies characterized by unselfish and sympathetic understanding of the needs of the public.

The welfare of the general public in the program of preventive medicine and in the treatment of disease and injury is fundamentally dependent on the preservation and the professional advancement of the general practitioner in the person of the family physician and the all important domiciliary visitation. Therefore, if the pay clinic and the groups of private practitioners are selfishly conducted for commercial purposes—in the interest of the individuals forming the staff or the group—the result will be harmful, yes disastrous, to the medical profession. This service to the public should include the general practitioner. If the staff of the clinic and the members of private group practitioners honestly do their whole duty to the public, the general practitioner may become the important factor in the whole program which his position as a family physician requires if the public is to receive due consideration and relief in the

operation of the pay clinic and group practice. The pay clinic and the private group must assume the responsibility for the improvement of the standard of medical practice in the community they serve. The clinic and the group may and should afford opportunity to the practitioners of the community for aid in making diagnoses in cases requiring special laboratory and roentgen-ray equipment as well as for graduate study and improvement in clinical work, if they desire it.

The question of fees in the pay clinic and in the private group is an important consideration, but is subsidiary to the fundamental principles and policies which must characterize the conduct of these organizations. There is a distinct need of facilities for diagnosis and treatment, including a qualified group of specialists for those patients who suffer from a small group of ailments. In the cities, public pay clinics will be of benefit to a class that is unable to pay the usual fees charged by private groups of specialists for this essentially expert service. But, as stated, the sick public that requires this expert service is relatively small. The larger group of patients requires only the services of a good, honest and resourceful practitioner who will give the best that is in him. If he does this, he will not lack for patients or for financial reward.

Finally, to judge from known conditions in Chicago, there is a lack of the old fashioned, resourceful family physician in the larger cities. Many private practitioners whose chief practice a few years ago consisted of domiciliary visitation now refuse to give this real obligation to the public and compel their patients who are too ill to visit the office, to go to the hospital. Whatever excuse may be given for this disregard for the comfort, welfare and financial condition of these patients, one is obliged to conclude that it is due really to selfishness and laziness in the desire to escape the hardships experienced by a real family practice; the best and most valuable service a physician may give.

FRANK BILLINGS, M.D., Chicago.

To the Editor:—The communications in THE JOURNAL (November 19 and 26) about the Cornell Pay Clinic illustrate the sort of disorder that is bound to arise at every fresh jolt in the journey of the medical profession from its old individualistic status to the new socialized status just appearing on the horizon.

Twenty years ago I presented at the Johns Hopkins Hospital in Baltimore the evidence that, in view of increasing public health activities, it was absolutely inevitable for the status of the general practitioner to be considerably modified. The change has been going on steadily before and since that time. But from time to time physicians wake up to its existence in New York, in Chicago, in Rochester, Minn., in Berkeley, Calif., or elsewhere and exclaim that it is an outrage, that the work of the general practitioner is being interfered with by hospital clinics, by college clinics for students, by public health clinics, by industrial clinics, by salaried physicians in factories, by public health nurses and by many other similar agencies—all of which is true.

There is no possible question that all these agencies and many more do interfere with the practice and prestige of the family physician. There is no question in my mind, also, that for an indefinite time to come, the public is going to want both the services of the private practitioner and also the services of the public health, hospital, college, factory and other clinics. Neither will be allowed to crush out the other. It is wholly a task of adjustment and readjustment over and over again.

The Cornell Pay Clinic and the similar pay clinic started some years ago at the Massachusetts General Hospital in Boston are needed to supply a group diagnosis (the only

approximately correct diagnosis in difficult cases) for people of moderate means. These clinics can and do cooperate successfully with the general practitioners who send patients there. But the large number of persons who apply at such clinics stating that they have no family (or other) physician cannot be refused without injustice to the applicant and harm to the public health, and yet cannot be accepted without protest from the physicians. The same thing has been true for years in our "free" clinics, many of which now charge 50 cents a visit, with extra charge for roentgen-ray examinations, Wassermann tests, etc.

Patients want this service, and the public health is vastly the better for it. But it certainly competes and always will compete with the practice of private physicians. It is impracticable to identify and to exclude from hospital clinics all the patients who might pay a small fee to a private physician, although he (without the aid of roentgen-ray and laboratory tests) cannot in many cases give such patients good service and is therefore passed by in favor of the hospital clinic by dozens of sufferers.

What is called "hospital abuse" is denounced about every five years in some of our great cities. But it goes right on and increases steadily because the public wants it. In most places and for most of the time, private practitioners adjust themselves to this competition as they do to the competition of many other public health agencies. But now and then (as on Nov. 19, 1921) a journal publishes the old indignant protest and the old question is reopened.

The public wants *both* the private practitioner and his competitors, the public clinics in colleges, factories, schools, hospitals, juvenile courts, and group clinics like the Mayos. Neither can kill the other. They must adjust themselves in New York as they have elsewhere.

RICHARD C. CABOT, M.D., Boston.

"THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS"

To the Editor:—I should like to point out that the adverse critics are missing the major idea of the Pirquet system. That system is essentially one of feeding children—not one of academic discussion of methods of estimation of the nutritional states. Even stripped of both its "pelidisi" and its "nem" features, it would still be a feeding system. The Wood tables are admittedly defective; so also may be the Pirquet scale. A faultless method is still held in the future. But at present the conclusions arrived at by the use of each method indicate the same thing, viz.: that many American children are undernourished. A consideration of the methods of arriving at that conclusion is interesting, but at the present stage it is not vital.

The American Relief Administration has shown that, aside from the removal of physical defects, the well-balanced, supplemental, warm, noonday meal is the solution of the question. Besides this observation, all else at present is of minor consequence. Mr. Hoover's organization also demonstrated that a workable machine—a system, if you please—can be developed that will administer food cheaply and efficiently on a large scale. That is the outstanding lesson to us.

I should like to point out, further, that in America no such machinery is in operation, although it stands in readiness in the form of our schools; that we would have to modify any scheme to fit various circumstances. For example, in this country all children, regardless of their nutritional state, should be offered a midday meal—for a consideration. This feature varies considerably from that of the American Relief Administration.

The necessity of the well-balanced, supplemental meal, rather than the makeshift milk and sandwich feedings now coming into use, and the method by which this meal could be supplied, are the things that I attempted to make plain in my paper.

W. E. CARTER, M.D., San Francisco.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTRAVENOUS SPECIALTIES

To the Editor:—There is a salesman here in Salt Lake City making extravagant claims about the medicines advertised in the enclosed pamphlet. Would you kindly advise me as to your opinion of it?

W. C. SCHULTE, M.D., Salt Lake City.

To the Editor:—I am interested in knowing the attitude of the Council on Pharmacy and Chemistry regarding the products of the Intravenous Products Company of America, 121 Madison Avenue, New York City. If the Council has already reported, please refer me to the appropriate number of THE JOURNAL. If it has not, please give me any information available.

H. B. GESSNER, M.D., New Orleans.

ANSWER.—The Intravenous Products Company of America has not requested the Council on Pharmacy and Chemistry to examine any of its intravenous specialties, nor have they been discussed in THE JOURNAL or examined in the American Medical Association Chemical Laboratory. The firm's list of specialties bears a striking resemblance to those of other "intravenous specialty" firms. Endorsan, like Venarsen of the Intravenous Products Company of Denver, is stated to contain a cacodylate (dimethylarsenate) along with mercury and iodid. Venarsen was reported on unfavorably by the Council (THE JOURNAL, May 22, 1915, p. 1780), the inferior efficacy of sodium cacodylate was discussed (THE JOURNAL, March 25, 1916, p. 978) and the worthlessness of sodium cacodylate as a spirocheticide confirmed by H. N. Cole (THE JOURNAL, Dec. 30, 1916, p. 2012), William G. Ward (THE JOURNAL, Feb. 3, 1917, p. 390), and R. L. Sutton (THE JOURNAL, Feb. 17, 1917, p. 566). Endosal, like Venosal of the Intravenous Products Company of Denver, is stated to contain salicylate and a colchicum preparation (the latter is also stated to contain iodids). Venosal was found unacceptable for New and Nonofficial Remedies by the Council on Pharmacy and Chemistry. Like other "intravenous" firms, this company advertises the intravenous administration of drugs such as sodium iodid and hexamethylenamin. The objections to and the dangers of indiscriminate administration of drugs intravenously was recently emphasized in a report of the Council on Pharmacy and Chemistry "Some of Loeser's Intravenous Solutions" (THE JOURNAL, April 16, 1921, p. 1120).

REDUCTION OF PHAGOCYTOSIS BY HEXAMETHYLENAMIN

To the Editor:—Would the intravenous injection of from 20 to 50 grains of hexamethylenamin in solution have a tendency to destroy antibodies, injure white or red blood cells or otherwise lower vital resistance?

GEORGE S. GREENE, M.D., Gary, Ind.

ANSWER.—In the body, hexamethylenamin is converted into formaldehyd. Hektoen and Ruediger (Studies in Phagocytosis, *Journal of Infectious Diseases* 2:128, 1905) found that solution of formaldehyd in dilutions of about 1:5,000 greatly reduced phagocytosis in vitro by the leukocytes in defibrinated blood. This effect was apparently due to the action of the formaldehyd on the opsonin in the serum.

"AUTOMOBILE ANTIFREEZING MIXTURES"

To the Editor:—Referring to your discussion in THE JOURNAL of November 26, page 1756, I have used straight kerosene for several years with perfect results. It is simple and inexpensive.

JAMES HUNTER, JR., M.D., Westville, N. J.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

- ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.
- ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
- DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homco. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.
- DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
- HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
- INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.
- MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.
- MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
- NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.
- NEW YORK: Albany, Buffalo, Syracuse and New York City, Jan. 23-26. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.
- NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.
- OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.
- OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.
- PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.
- PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
- RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.
- SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonsteel.
- UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.
- VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.
- WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.
- WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.
- WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Massachusetts July Examination

Dr. Walter P. Bowers, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, July 12-14, 1921. The examination covered 13 subjects and included 130 questions. An average of 75 per cent. was required to pass. Of the 162 candidates who took the physicians' and surgeons' examination, 135, including 8 osteopaths, passed and 27, including 7 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists.....	(1916)		79.8
College of Physicians and Surgeons, Los Angeles.....	(1921)		75
Georgetown University	(1918)		76.7
Emory University	(1920)		78.6
Baltimore Medical College.....	(1902)		75
Johns Hopkins University.....	(1919)		83
University of Maryland.....	(1919)	77.5, (1921)	75.5
Boston University.....	(1921)	75.5, 77.6, 78.6, 79, 79.4, 79.4	81, 82
College of Phys. and Surgs, Boston.....	(1920)	76.8, (1921)	77.3
Harvard University.....	(1920)	81.5, 81.6, (1921)	77.5,
	79.6, 79.8, 80, 80.2, 80.3, 80.4, 80.4, 80.5, 80.8,		
	81, 81.5, 81.6, 81.7, 82, 82, 82.4, 82.5, 82.7, 83,		
	83, 83, 83.2, 83.2, 83.4, 85		
Middlesex College of Medicine and Surgery.....	(1920)		75,
	75.5, 76.5, 76.7, (1921)	76.1, 76.2, 76.7, 78, 79.2,	
	79.5, 85.7		
Tufts College Medical School.....	(1920)	76.4, 85.8, (1921)	75,
	75, 75, 75.1, 75.7, 76, 76.1, 76.4, 76.5, 76.7, 76.7,		
	77, 77, 77.2, 77.4, 77.4, 77.5, 77.6, 77.8, 77.8,		
	78, 78, 78.2, 78.3, 78.4, 78.6, 78.6, 78.7, 78.8, 78.9,		
	79.1, 79.2, 79.5, 79.6, 79.8, 79.8, 79.8, 79.8, 79.8,		
	80, 80, 80.6, 80.7, 80.9, 81, 81, 81.2, 81.5,		
	81.5, 81.7, 81.9, 82.5, 82.8, 83, 83		
Detroit College of Medicine and Surgery..	(1913)	75.1, (1921)	85
Kansas City University of Physicians and Surgeons....	(1921)		78
Bellevue Hospital Medical College.....	(1873)		75
Columbia University.....	(1920)	78.2, 82, (1921)	80.9
Long Island College Hospital.....	(1921)		81.5
Jefferson Medical College.....	(1921)		81
University of Pennsylvania.....	(1913)		90.4
University of Vermont.....	(1921)		78.2
Queens University	(1904)		75
University of Naples.....	(1919)*		75
Osteopaths.....	75, 75, 75.2, 75.8, 77.5, 78.1, 79.7, 81.6		
FAILED			
College of Physicians and Surgeons, Los Angeles.....	(1920)		63.4
Kentucky School of Medicine.....	(1906)		66.1

College of Physicians and Surgeons, Boston.....(1918)	66.7,
(1920) 60.8, (1921) 68	
Middlesex College of Medicine and Surgery.....(1918)	59.8,
(1920) 72.2, (1921) 68.3, 70, 70.5, 71.7, 72.7, 73.2	
Tufts College Medical School.....(1898) 62.8, (1921) 71.7, 72.5, 73.2	
Laval University .....(1920)	69.4
University of St. Vladimira.....(1904)*	70.9
University of Constantinople.....(1915)*	40.8
Osteopaths.....65.1, 67.7, 68.1, 71.3, 73.2, 73.4, 73.5	

* Graduation not verified.

Social and Industrial Medicine

HOUSE DEBATE ON THE SHEPPARD-TOWNER BILL

The discussion in the House of Representatives on the Sheppard-Towner bill, which appears in the *Congressional Record* for November 18 and 19, is illuminating. In opening the discussion, Mr. Winslow of Massachusetts, chairman of the House Committee on Interstate and Foreign Commerce, stated that the committee had held long hearings and had given careful consideration to the subject:

"The members of the committee know, and probably most of the members of the House who have been here know, and all the country ought to know that this has been an extremely annoying, perplexing and discouraging subject. . . . Those who were the active proponents of it had an idea in their minds but had given mighty little thought to the method by which that idea could be put into execution. The log-rolling, which had been greater than in all of the log-rivers of the country in the spring season, was directed toward the passage of a maternity bill whether or no."

This is simply a polite and parliamentary way of saying that the various women's organizations had fixed their minds on securing the passage of something which could be called a maternity bill, with little idea of what it was to do or how its purposes were to be accomplished, and that they had organized for this purpose one of the strongest lobbies that has ever been seen in Washington. Mr. Winslow stated that there were two general propositions in the bill: First, whether it was advisable for the federal government to continue to contribute to the states in order that the states may carry out work within their own limits. The second question was whether the situation regarding maternal and infant welfare is so pressing and imperative as to warrant legislation. Mr. Winslow said that the bill as originally drafted and as passed by the Senate made it possible "for the Children's Bureau to dominate absolutely the methods to be pursued by the state." The plan proposed in the original bill Mr. Winslow characterizes as "as pretty a little bunch of concentrated departmental authority as was ever brought before the House. . . . The original bill was in such form that it was possible for the Children's Bureau and the chief of the Children's Bureau, without the control of any one, to tell every state in this nation how it had to carry on its health department, as affecting maternity and infancy."

Dr. John J. Kindred of New York led the opposition to the measure. He stated that the organized medical profession of the country was solidly against the measure and through no selfish reason whatever; that there is no disquieting death rate at the present time; that the statistics presented in support of the bill were unreliable and that the various states can more effectively carry out measures for maternal and child welfare than "the mongrel measure pending before us." As evidence of the last statement, he described the maternal and child welfare work now being carried on by the various state health departments.

Mr. Hawes of Missouri presented a lengthy statement regarding the history of the measure. He stated that the Sheppard-Towner bill had been changed eighty-eight times, that whole sections had been rewritten, sections had been stricken out, and new sections had been added. Discussing the means used in securing the passage of the measure he said:

"Laws by propaganda are becoming a dangerous menace. Congress desires information above all things. It particularly requests specialized information. Whether this infor-

mation comes through the mail or is delivered personally, it is welcomed by the conscientious representatives. But there is another form of so-called information that is not information at all. A small group of citizens conceive an idea. They finance that idea and employ attractive men and women to travel from state to state and city to city promoting this idea. Hurriedly, without investigation and in nine cases out of ten without ever hearing the proposed bill read, with no comprehensive understanding of the enactment, acting merely on the delightful tale related by the propagandist, a resolution is passed, the endorsement is given, a local committee is appointed, and then the attractive gentleman or lady proceeds to the city of Washington. At the proper time the pounding process begins. Resolutions, telegrams and letters pour in upon the congressman, warp his own intellectual judgment, distort his personal view, and curtail his capacity by pounding and pushing him into a position which does not agree with his own intellectual conviction. . . . In many cases, this artificially organized propaganda distorts the public mind and beguiles to its support intelligent men and women who, upon explanation, become ashamed of their support or opposition to a measure. This has notably happened in this bill. People have supported it because it had the word 'mother' and the word 'child' connected with it. They have not considered cost. They have not considered national control of a state function. They have not considered state control of sacred and intimate things of life. They have not considered the possibilities of an opening, by way of precedent, for the promulgation of theories and doctrines totally antagonistic to the American idea of the rights of the home, the privacy of the individual, and the fundamental fact that motherhood is the fruition of love and not of science."

Mr. Greene of Vermont presented a strong argument against the bill and, in closing, said that he did not believe that "the women of the little state of Vermont were ready to admit that the social order had so far broken down that they must cry out to Washington for help in the care and safeguarding of maternity and infancy in the homes where for nearly two centuries the flower of American manhood and womanhood has been bred and reared."

Mr. Hill of Maryland stated that the members of Congress had been told that if they voted against this measure every woman in their district would be against them. He presented a letter from Dr. John Howland, chief pediatrician of Johns Hopkins Hospital, in which Dr. Howland stated that he was opposed to the bill because he did not believe that any such emergency existed as was claimed or that there is any basis for the statement that the United States stands seventeenth in the maternal death rate; that he did not believe that the way to improve health conditions in states is by federal control, that he believed that public health work depends primarily on local conditions, that if the federal government is to undertake maternal and infant welfare work, it should be under the United States Public Health Service, and that he was opposed to the federal aid plan as an unsound financial policy.

Miss Alice Robertson of Oklahoma, the only woman member of the House, spoke strongly against the measure, and in closing said: "Mr. Chairman, I think this is a harmful bill and I stand here and tell you so, and if I am digging my own political grave in doing so, let me say that it will be a mighty comfortable grave."

Speaking in favor of the bill, Mr. Barkley of Kentucky made a lengthy argument in favor of its constitutionality. He resented the insinuation that the members of the House were influenced by a women's lobby. He repeated the arguments made in the Senate in favor of the measure, that more than 300,000 children die in this country every year under 1 year of age, that Congress appropriated money without hesitation for the welfare of animals, and that there was no reason why it should not make an appropriation for the welfare of mothers and children. He said there was a decided difference of opinion in the committee as to whether the proposed bill should be administered by the Public Health Service or by the Children's Bureau, and that the committee felt that the Children's Bureau was better equipped for this purpose than any other branch of the federal government. He was in favor of this arrangement because one of the objections made against the bill was that it would establish a system of government medicine. The Public Health Service

is primarily a medical organization, while the Children's Bureau is not. "In that way" he said. "we met the objections. It was, however, feared that the government wanted to recognize and establish a particular school of medicine in the United States and send its doctors around to attend patients. There never was any ground for that fear, but some people seemed obsessed with it." Mr. Barkley quoted from the campaign speech of President Harding and from the Democratic platform endorsing health measures.

Mr. Cooper of Ohio said that the bill does this and nothing more than this: It provides that the federal government may stimulate, encourage and aid the several states of the Union in promoting the welfare and hygiene of maternity and infancy, if the several states themselves desire to do so. He repeated the arguments of the advocates of the bill, that 23,000 mothers died in childbirth in this country every year, that 250,000 infants died under 1 year of age, that most of these deaths were preventable, and that it is safer to be a mother in seventeen foreign countries than it is in the United States.

Mr. Graham of Illinois made a lengthy speech in favor of the bill, reviewing its history and summarizing the arguments in favor of it. As evidence of the attitude of the medical profession, he read the following resolution adopted by the American Medical Association at its Boston session: "Resolved, by the House of Delegates of the American Medical Association that it approves and endorses all proper activities and policies of the state and federal governments directed to the prevention of disease and the preservation of the public health."

Strangely enough, to those who know the history of this resolution and the discussion which took place at Boston, this expression of opinion on the part of the House of Delegates was regarded by the members of Congress as an endorsement of the Sheppard-Towner bill, and its reading was greeted with applause.

Mr. London of New York, one of the Socialist members of the House, made a strong speech in favor of the measure. He said that the progress of civilization is due to the raising of the general level of education, and that to the extent that fundamental and elementary principles of medical science have become known to the masses, to that extent have we made real and genuine progress in promoting health. He said that there is a larger measure of intelligence among American women than among American men, since American women, not being absorbed in the business of money making, have more time and are more interested in profound social problems that are brought to their attention than the men are. It is the undeniable obligation of the state to equip every citizen with the knowledge of elementary facts of those sciences about which there can be no difference of opinion, and among these is elementary hygiene. All the bill proposes is to make an appropriation to encourage the states in organized child welfare work.

Mr. Mondell, republican floor leader, urged the passage of the bill in a short speech in which he held that it was quite as logical to appropriate money for the care of human beings as for the care of animals or crops; that he believed in keeping pledges, and that while he had not made any pledges in favor of the bill, he imagined that "there are many gentlemen here whose majority was at least increased by reason of the fact that if they did not, others did for them give approval to legislation along these lines." He quoted from the Republican and Democratic platforms and Mr. Harding's pre-election speeches, and said that "We on the Republican side would be derelict in our duty to our party's declaration and to the recommendation of the Chief Executive had we not presented this measure at this session of Congress. . . . I am confident that a number of votes were cast for our candidate with the understanding that the party [Republican] stood for legislation along these lines. Are we to keep the party pledge or are we to quibble over this measure on the ground that it is somewhat paternalistic. . . . In my opinion it is our duty to . . . give this measure our earnest support."

After two days' discussion, the House substitute was adopted by a vote of 279 to 39. The Senate concurred in the substitution of the House bill, and the measure went to the President for his signature.

Book Notices

MENTAL HOSPITAL MANUAL. By John MacArthur, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, London County Mental Hospital, Colony Hatch. Cloth. Price, \$5.25. Pp. 215. New York: Oxford University Press, 1921.

The author of this little manual has given the essential points in the practical management of institutions for mental cases. Such a book was needed. The young medical man entering the service of a hospital for mental cases is confronted with a different situation from that to which he has been accustomed in a general hospital. There the patients are at liberty to come and go; the relation of the nursing staff to the patient is quite different, and the administration is complicated by many factors which do not obtain in a general hospital. The latter part of the book deals with the legal control of the insane, and is obviously based entirely on the English procedure. There the Lord Chancellor has charge of all patients who have or have had property. The necessary rules and procedure under the English system are set forth. In this country a similar book could not be devised, as the laws and regulations vary in different states. The first part of the book, dealing with the care and management of the insane, is applicable everywhere. It includes chapters on the organization of a mental hospital. A too brief chapter on the duties of the assistant medical officer is supplemented by an excellent statement of the treatment of the insane. It deals with such subjects as hydrotherapy, seclusion, mechanical restraint and forced feeding. The discussion of hypnotics is perhaps the least satisfactory. The danger from the prolonged use of bromids is emphasized, but comparatively little is said as to their uselessness except when they are combined with other remedies, and then so far as the treatment of simple states of excitement is concerned they would better be omitted. The preference expressed for paraldehyd over chloral hydrate on account of the supposed dangers of the latter seems rather far fetched. The author has wisely refrained from attempting to make the manual in any sense a substitute for a treatise on mental disease. His only classification is based on that customary in the average mental hospital. He goes into only such questions as are likely to arise in the practical work of the medical officer, especial emphasis being placed on the training of the attendants and nurses to the end that they may be fully instructed in their duties. He recognizes that the efficiency of the nursing staff depends in large measure on the industry and watchfulness of the assistant medical officer.

LEHRBUCH DER SÄUGLINGSKRANKHEITEN. Von Professor Dr. H. Finkelstein. Second edition. Paper. Price, 140 marks. Pp. 864, with 174 illustrations. Berlin: Julius Springer, 1921.

In the ten years which have passed since the last edition of this book, pediatrics has developed in many directions. The developments are reflected in the new edition. Some sections, such as those on the nutrition of healthy infants, spasmophilia, eczema, and the classification and pathogenesis of nutritional disturbances, are practically new, while others, as those on tuberculosis, congenital syphilis and hemorrhagic pachymeningitis, have undergone considerable expansion. A few well chosen pictures have been added. The curves, which are numerous and extremely valuable, are almost entirely new. The book is primarily for the clinician, so that pathologic anatomy, physiology and bacteriology are presented only in sufficient detail to make the clinical picture clear. In considering the etiology of spasmophilia, the author discusses disturbances of nutrition, the question of a spasmogenic substance in cow's milk, and hereditary constitution, but thinks that several of the apparent causes act through variations in the alkali and water content of the body. In the treatment, he emphasizes the "salt free" diet when breast milk is not available. Cod liver oil and phosphorus are regarded as having a specific influence in all forms of spasmophilia. Congenital syphilis is treated by intravenous injections of neo-arsphenamin, alternating with calomel in oil intramuscularly and later with mercury rubs. Albumin milk, though introduced for fermentative diarrheas, has come to be

used for other gastro-intestinal disturbances. Eczema, which the author distinguishes from the exudative diathesis, is considered to have a varying etiology. In some children it is due to defects of nutrition; in others, it is due to a "hydro-labile" constitution, and is then best treated by a "salt free" diet. In still other cases, the external application of soothing preparations is of primary importance. The value of alkalis, especially potassium citrate, in pyelitis, as used by English and American physicians, he thinks is due largely to the amount of water given with the alkali. He prefers phenyl salicylate and secondarily hexamethylenamin, but admits that the clinical improvement depends largely on the amount of fluid which the patient can be made to take. He thinks that the potassium citrate is responsible for fever, thin stools, loss of weight, restlessness and fatigue, and therefore suggests combining tepid baths and suitable packs with the alkali treatment. The book is an excellent general textbook of pediatrics, and is worth translating into English to make it more easily available.

JACK O'HEALTH AND PEG O'JOY. A Fairy-Tale. By Beatrice Slayton Herben, M.D. With jingles by schoolchildren of Public School No. 15 of New York City. Illustrated by Frederick Richardson. Cloth. Price, 60 cents, net. Pp. 39, with 12 illustrations. New York: Charles Scribner's Sons, 1921.

This is a health book for children written mostly by children! The pupils of Public School 15 of New York City wrote a number of jingles parodying the rhymes of Mother Goose and teaching health lessons. These verses Dr. Herben has strung together into the daily life story of a boy and a girl. The story is full of fairies who sing the jingles. Children like it. The illustrations of Frederick Richardson are in the most accepted style of fairy tale illustration—attractive little figures and not the grotesques of Rackham or of some of the modern German illustrators. At only one point does the story go beyond the bounds of what a child's fairy book requires. There is, in its sixth chapter, a strenuous effort to say something about tuberculosis. To the average child this will mean nothing. The book is attractively printed and will make a most suitable gift.

THE PRINCIPLES OF THERAPEUTICS. By Oliver T. Osborne, M.A., M.D., Professor of Therapeutics, Department of Medicine, Yale University. Cloth. Price, \$7 net. Pp. 881. Philadelphia: W. B. Saunders Company, 1921.

The least exact of the medical sciences is unquestionably therapeutics. No branch of medicine has suffered more from *a priori* reasoning, from uncontrolled observation, and from tradition than has this department. It is therefore refreshing to find a textbook which seeks rationality. Professor Osborne, for several years a member of the Council on Pharmacy and Chemistry and a voluminous writer on therapeutic subjects, has committed to one volume a store of therapeutic facts and observations. His first section, devoted to prescription writing, is replete with sound aphorisms and practical data useful to the medical student. The second part gives his own selection of useful drugs, following closely, with a few exceptions, the list prepared by the committee of the Council. His table of synonyms, however, is subject to criticism, since proprietary names are not distinguished from nonproprietary and preferred names are not indicated in any manner. He has given consideration to classification, his list being a clinical one based on indications. He is rather inclined to find indications for the therapeutic use of alcohol, although his views tend to the substitution of equally satisfactory drugs which prove to have the same therapeutic effects. The section on drugs occupies half of the book. The author then takes up the endocrine glands and organotherapy. He endeavors to cling to rationality, but has been inclined to accept as facts much uncontrolled evidence, and to reason therapeutic possibilities from admitted physiology. One of the most valuable sections of his book is that dealing with such practical therapeutic measures as inhalation, douching, gargling and lavage. The section on vaccines and serums begins with a brief consideration of immunology. The brevity of this section reflects the present status of this form of therapy, which ten years ago might have taken the same amount of space devoted in the present issue to endocrinology. On the other hand, the author has not permitted the importance of physical therapy

to escape him, and gives adequate consideration to this subject. The remainder of the book is devoted to chronic drug poisoning, industrial poisoning, treatment of simple skin diseases, advice to physicians and a complete code of medical ethics. On the whole, Dr. Osborne's book is to be commended for its simplicity of style and for his conscientious effort to follow rationality in therapeutics.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians, and Health-Officers. By D. H. Bergcy, A.M., M.D., Dr.P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Seventh edition. Cloth. Price, \$5.50 net. Pp. 556, with 63 illustrations. Philadelphia: W. B. Saunders Company, 1921.

This is the seventh edition of a book first published in 1901. It is to be regretted that a more complete revision has not been made in view of the great advances in hygiene during the last twenty years. Many of the tables are old—such as that of Atwater's giving the nutrients furnished for 25 cents. Such important public health problems of today as infant welfare and venereal disease are given scant consideration. Although some comparatively unimportant diseases, such as trench fever, are given a place in the chapter on "Vital Causes of Disease," tuberculosis is not mentioned. The sixty pages devoted to a verbatim copy of the quarantine laws of the United States might better have been used for a discussion of tuberculosis. The statement on page 21 that the infant mortality rate is "due, primarily, to the effects of faulty nutrition" is certainly not true at the present time. The explanation of the rôle of micro-organisms in water purification, as given on pages 125 and 126, is quite inadequate, and there is much disagreement with the author's statements on the alleged value of terminal disinfection. The author apparently accepts the Pfeiffer bacillus as the cause of influenza, and quotes with approval tables on the value of a "composite vaccine."

MUSKELARBEIT UND HERZTÄTIGKEIT. Von Professor Dr. A. Jaquet. Rektoratsprogramm der Universität Basel für das Jahr 1920. Paper. Pp. 119. Basel: Friedrich Reinhardt, Universitäts-Buchdruckerei, 1920.

The subject is treated under three general heads: muscular work and pulse frequency; muscular work and the circulation; influence of muscular work on the heart muscle. Under the first caption are discussed the acceleration of the heart beat with muscular work, the mechanism of such acceleration, and the relation to pulse frequency of breathing, temperature of the blood and the metabolic products of working muscle. Under the second head are considered the relation between the work of muscles and the heart, the blood pressure and the peripheral circulation. The last chapter is concerned with the enlargement of the heart associated with prolonged overwork of the body, and the acuter overstrain of the heart. It may be noted in passing that the author is one who believes that there is a recognizable cardiac enlargement due to long continued overexertion. He also believes in an acute enlargement of the heart from overstrain, citing as one proof his own personal experience, which is almost a duplicate of Sir Clifford Allbutt's described about fifty years ago. Jaquet, however, admits that a decrease in the size of the heart is often seen after severe exertion, as contended by Moritz and others. The brochure is a review in the shape of abstracts of the work of others, with but few observations and conclusions of the author. There are few or no references later than 1915. While English and American authorities, and a few French, are quoted quite freely, some of the creditable work of Americans of the last decade is not mentioned.

UROLOGISCHE OPERATIONSLEHRE. Herausgegeben von Prof. Dr. Voelcker, und Prof. Dr. Wossidlo. Zweite Abteilung bearbeitet von Privatdozent Dr. O. Kneise, Geh. Med.-Rat Prof. Dr. Hermann Kümmel, Dr. Oscar Orth, 1. Ass.-Arzt der chirurgischen Universitätsklinik in Halle, Privatdozent Dr. R. Paschkis, Professor Dr. F. Voelcker, Direktor der chirurgischen Universitätsklinik in Halle, and Prof. Dr. O. Zuckerkandl. Paper. Price, 108 marks. Pp. 307-581, with 220 illustrations. Leipzig: Georg Thieme, 1921.

The second part of this brilliant book on operative urology is the work of such authors and authorities as Kümmel of Hamburg and the late Otto Zuckerkandl of Vienna. The surgical technic of operations on the bladder, kidneys and ureter as well as on the scrotum and its contents are lucidly described and beautifully illustrated.

Medicolegal

Refusal of Examination on Account of School

(*State ex rel. Crites v. Clark et al. (Mo.)*, 230 S. W. R. 609)

The Supreme Court of Missouri, in affirming a judgment for the respondents, says that this was an action in mandamus to compel the state board of health to give to relator Crites an examination for a license to practice medicine and surgery in the state of Missouri. The refusal to give him an examination was predicated on the character of the medical school from which he was a graduate. The board contended that the school was not "a reputable medical college of four years' requirements," as provided and required by the board in its schedule of requirements of 1907, and as defined in the statute of that year. The burden of showing that his college was reputable was on the relator. This was made so by the terms of the statute. The state board of health could exercise its reasonable discretion in determining the character of the school. It must exercise reasonable discretion, and not an arbitrary discretion. The evidence showed that the board made several examinations, and from the facts seen reached the conclusion that the school was not so equipped with instruments, library, hospital connections, and other things which would place it within the category of a reputable medical college of four years' requirements, as provided by law. Considering all the evidence, the most that could be said on the question was that on the character of the school the evidence conflicted seriously. In such case the trial court could well say (as it did say, by its judgment) that there was no arbitrary action on the part of the state board of health in refusing to recognize the school as one designated in the statutes. A detail of this conflicting evidence would serve no good purpose. It sufficed to say that the facts shown did not show arbitrary action on the part of the respondents. The writ of mandamus, in cases like this, reaches arbitrary action only, and not reasonably founded discretion. It followed that the judgment of the court below should be affirmed. A motion for a rehearing was denied.

Unlicensed Practitioners to Be Prosecuted, Not Enjoined

(*Dean v. State (Ga.)*, 106 S. E. R. 792)

The Supreme Court of Georgia says that, on the information of the commissioner of health of Colquitt County, the solicitor general of the southern circuit, in the name of the state, brought an equitable action in the superior court of that county against defendant Dean. The petition alleged that the defendant was a chiropractor; that he visited the homes of the people in the community and county for the purpose of treating diseases, and maintained an office and place of business in said county, where he treated diseases; that he lacked the necessary skill and training to combat the spread and growth of communicable diseases, and was maintaining a public nuisance in the practice of his profession, in that, without having obtained a license to practice medicine from the state board of medical examiners as required by statute, he engaged in the practice of his profession in said county. The petition generally charged the defendant with misdeeds and with malpractice, to the injury of his patients and to the injury of the good morals and health of the public at large. The prayer was that he be restrained and enjoined from treating any person or persons or prescribing or directing any method of treatment, or in any other manner violating the laws of the state regulating the practice of medicine. On the hearing for an interlocutory injunction, the chancellor passed an order enjoining the defendant, as prayed. The chancellor did not pass on any issue of fact raised by the pleadings. He based his order enjoining the defendant from practicing his profession as a chiropractor expressly on the ground that the act of the general assembly approved Aug. 18, 1913, and the several acts amendatory thereof, were valid statutes of the state and applicable to the defendant, and that the practice of his profession by the defendant without having complied with the provisions of the statutes constituted a violation of the criminal law of the state. But the unlawful

practice of medicine in the state is simply declared to be a misdemeanor. Neither the act approved Aug. 18, 1913, nor any of the acts amendatory thereof, declares one who engages in the practice of medicine in the state without having first taken the prescribed examination and obtained a license from the state board of medical examiners to be a public or common nuisance. None of the medical acts of the state undertake to extend the jurisdiction of equity over nuisances or to enlarge the category of public nuisances. The question was, therefore, whether equity, at the instance of the state will enjoin as a common nuisance one who is engaged in the practice of medicine who has not taken the prescribed examination and obtained a license from the state board of medical examiners authorizing him to engage in the practice of medicine in the state. The question may be stated as follows: Will equity, at the instance of the state, enjoin a person from practicing the profession of medicine simply because such person has failed to take the prescribed examination and to obtain a license from the state board of medical examiners authorizing him so to do, in violation of the penal laws of the state? To state the question is to answer it. A court of equity will not enjoin the commission of crime generally. That the act of which abatement by injunctive process is sought is made penal by statute neither gives nor ousts jurisdiction in chancery. Accordingly, injunction will not lie at the instance of the state to restrain one from engaging in treating persons merely because he is amenable to the criminal laws of the state, in that he has not taken the prescribed examination and obtained a license from the state board of medical examiners, required of practitioners of medicine. So the mere fact that the defendant in practicing his professional without a license might be guilty of a misdemeanor would not authorize a court of equity to enjoin him from practicing his profession. If the medical acts of the state are applicable to him, he is amenable to criminal prosecution.

Revocation of License for Conviction of Selling Morphin—"Moral Turpitude"

(*White v. Andrew et al. (Colo.)*, 197 Pac. R. 564)

The Supreme Court of Colorado, in affirming a judgment of the district court of Denver, which dismissed a writ of certiorari from that court to the defendants, constituting the state board of medical examiners, is brief in its statement. It says that the board revoked the license of the plaintiff on several charges, one of which was that he was convicted in the district court of the United States of a crime involving moral turpitude; that is, the sale of morphin for other than medicinal purposes to an habitual user thereof. The conviction of such an offense is one of the statutory grounds for revocation of a physician's license. It is proper for the court on certiorari to say whether the crime shown in the evidence involved moral turpitude. The supreme court thinks there can be no question that it did. No other abuse of discretion was suggested, so the board was not guilty of such abuse, and it had jurisdiction of the subject-matter and person. On certiorari the court could review the board's action only on a question of jurisdiction or great abuse of discretion. There was nothing, therefore, on which the district court could reverse or modify the board's action, and the judgment of dismissal was right. It was urged that moral turpitude is too indefinite a term, and that therefore the statute is void; but that expression has been used, in statutes, textbooks and opinions on the common law for too many years to leave any question on that subject.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.
Southern Surgical Association, Pinchurst, N. C., Dec. 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, 1921, 162, No. 5

- Pathways of Infection in Nervous System. F. Kennedy.—p. 625.
*Effect of Treatment for Syphilis on Severe Anemias. H. O. Foucar and J. H. Stokes, Rochester, Minn.—p. 633.
*Leukemia in Children; Special Reference to Lesions in Nervous System. M. H. Bass, New York.—p. 647.
*Pericarditis: Incidence and Diagnosis. W. W. G. MacLachlan, Pittsburgh.—p. 654.
Balantidium Coli and Pernicious Anemia: Report of Four Cases. A. H. Logan, Rochester, Minn.—p. 668.
Meltzer-Lyon Method of Draining Biliary System. A. Bassler, W. H. Luckett and J. R. Lutz, New York.—p. 674.
Acute Pancreatic Necrosis. J. Douglas, New York.—p. 687.
Immune Bodies in Type I Lobar Pneumonia. E. Steinfield and H. J. Darmstadter, Philadelphia.—p. 696.
Chemistry of Body in Diseases of Skin. O. L. Levin and M. Kahn, New York.—p. 698.
*Acute Suppurative Appendicitis (Gangrene of Appendix) Experimentally Produced. R. J. Behan, Pittsburgh.—p. 705.
*Auscultatory Sign Observed in Acute Abdominal Diseases. P. W. Aschner, New York.—p. 712.
Lethargic Encephalitis in Its Relation to Poliomyelitis. M. Neustaedter, J. H. Larkin and F. J. Banzhaf, New York.—p. 715.
Meralgia Paresthetica (Roth's or Bernhardt's Disease): Report of Cases; Three Cases Occurring in Same Family. H. I. Goldstein, Philadelphia.—p. 720.
Chronic Tuberculosis of Kidney. E. Beer, New York.—p. 736.

Effect of Treatment for Syphilis.—Severe anemia either primary or secondary, associated with late or latent syphilis, is apparently rare. Only twenty-five cases were discovered by Foucar and Stokes in approximately 4,800 records. The effects of treatment for syphilis on these anemias is discussed. It appears that in syphilis with anemia mercury should be used with caution, especially if the picture suggests the primary type. Arsphenamin has been much more effective in secondary anemia than in primary anemia, but curiously disappointing in secondary anemia with associated manifestations of syphilis. Transfusion should be a preliminary to arsphenamin when the hemoglobin is below 20 per cent. Reactions to arsphenamin injections must be avoided since they may produce an alarming drop in hemoglobin. No satisfactory rule for determining which case would improve on treatment for syphilis and which case would not could be arrived at. In general, half the cases may be expected to improve. The degree of improvement is not necessarily proportional to the demonstrability of syphilis. Hemoglobin estimations alone are not sufficient to indicate the progress of the patient. Arsphenamin treatment is safe if carefully used in anemia and should be employed in patients with undoubted evidence of the disease, and, as a therapeutic test, when reasonable suspicion of its presence exists. Transfusion must remain in the ultimate resort in primary cases, and in those cases associated with syphilis in which arsphenamin has failed, even in the presence of syphilis, the best effect will be secured by both together.

Leukemia in Children.—Six cases of leukemia in children in which symptoms referable to the nervous system were prominent are reported by Bass. Four of these gave the picture to cerebral hemorrhage. Three were proved cases: one by postmortem examination, two by lumbar puncture. The fourth case neither came to necropsy nor had a puncture performed; from its clinical picture, however, cerebral hemorrhage could with probability be diagnosed. Bass describes a case of acute leukemia mistaken for cerebrospinal meningitis, the clinical findings of which pointed to a leukemic infiltration as the cause of the symptoms. A very similar case with necropsy is reported from the literature. A case with terminal cerebral symptoms in which areas of macroscopic leukemic infiltration were found at postmortem examination is also described.

Pericarditis.—Ten per cent. of the necropsies reported on by MacLachlan disclosed pericarditis; 5 per cent. were acute; 4 per cent. were chronic and 1 per cent. were tuberculous.

The principal etiologic factor in the acute and chronic forms of pericarditis seems to be associated with acute rheumatic fever. Acute pericarditis was present in 7 per cent. of the acute lobar pneumonias. In fifty-four cases of death due to tuberculosis there was no evidence of tuberculous pericarditis.

Experimental Appendicitis.—From experiments on rabbits Behan noted that the only time acute inflammatory reactive changes in the appendix occurred was when the lumen of the appendix was entirely obstructed, with strangulation of the mucosa, submucosa and muscularis. Obstruction to the lumen alone apparently resulted only in a collection of fluid between the mucosa and the muscularis in the submucous space, so that a cyst of the appendix was formed. However, when the obstruction extended beyond the mucosa and included the submucosa and muscularis a very marked reactive inflammation resulted, and gangrene of the appendix with sepsis and death of the rabbit took place.

Auscultatory Sign in Acute Abdominal Diseases.—Believing that some information might be obtained by examining with the stethoscope, auscultation was applied by Aschner to the abdomen in acute cases, mostly cases of appendicitis. In some of the patients examined in this way it was found that the heart sounds and the inspiratory murmur were audible over three or four of the quadrants. The heart sounds were somewhat distant and resembled fetal heart sounds. The inspiratory murmur was audible at times with quiet respiration, at other times only when the patient was requested to breathe more deeply. When the abdomen was opened, the peritoneal cavity of patients presenting these auscultatory signs was found to contain free pus, seropurulent fluid or blood (as in a case of ruptured tubal pregnancy). Of twenty such cases the sign was positive in eighteen, doubtful in one, and negative in one. In eight cases the symptoms and usual physical examination did not suggest the presence of peritonitis. In two cases presenting the sign and not showing the expected peritonitis marked intestinal distention was present. In three other cases of distention without peritonitis the sign was not present. One case of intraperitoneal hemorrhage, a ruptured tubal pregnancy showed the sign.

American Journal of Syphilis, St. Louis

October, 1921, 5, No. 4

- Differential Diagnosis of Chancre and Carcinoma of Cervix. A. S. Warthin, Ann Arbor, Mich., and L. Noland, Birmingham, Ala.—p. 553.
Concerning Pre-Columbian Existence of Syphilis in Europe. D. W. Montgomery, San Francisco.—p. 563.
Thorough History an Important Factor in Syphilis. C. J. Broeman, Cincinnati.—p. 565.
Syphilis of Genital Organs of Male and Urinary Organs. V. L. Thompson, Hot Springs National Park, Ark.—p. 573.
Age of Recipient as Factor in Toxicity of Arsphenamin. G. B. Roth, Washington, D. C.—p. 588.
Syphilis in Third Generation. I. H. Tumpeer, Chicago.—p. 601.
Standardization of Wassermann Reaction. XXI. Study of Methods for Conducting Secondary Incubation and Time of Reading of complement Fixation Reactions in Syphilis. J. A. Kolmer, Philadelphia.—p. 614.
Id. XXII. Method for Preventing Influence of Natural Antisheep Hemolysin on Complement-Fixation Reactions After Secondary Incubation. J. A. Kolmer, Philadelphia.—p. 628.
Relation Between Syphilis and Diabetes Mellitus. J. Rosenbloom, Pittsburgh.—p. 634.
Epitrochlear Adenopathy in Syphilis. R. H. Rulison, New York.—p. 643.
Silver Arsphenamin. W. H. Guy and F. M. Jacob, Pittsburgh.—p. 670.
Public Health Activities in Venereal Disease Control. H. H. Hazen, Washington, D. C.—p. 674.
Dilute or Concentrated Solutions of Arsphenamin. D. W. Montgomery and G. D. Culver, San Francisco.—p. 677.

Archives of Dermatology and Syphilology, Chicago

November, 1921, 4, No. 5

- Poikiloderma Atrophicum Vasculare. J. E. Lane, New Haven, Conn.—p. 563.
*Clinical and Histologic Features of Certain Types of Cutaneous Tuberculosis. F. Wise and D. L. Satenstein, New York.—p. 586.
*Darier's Disease in Infant. J. A. Borghoff, St. Louis.—p. 609.
Refractometric Studies with Serums of Normal Rabbits Receiving Intravenous Injections of Arsphenamin and Neo-Arsphenamin. K. Tokudo, Philadelphia.—p. 616.
Experimental Work on Blood Nitrogen in Psoriasis. R. C. Jamieson, Detroit.—p. 622.

- *Treatment of Psoriasis. R. L. Sutton, Kansas City, Mo.—p. 633.
 Problem of Psoriasis. P. Kilroy, Springfield, Mass.—p. 636.
 New Method of Roentgen-Ray Therapy in Psoriasis. O. H. Foerster and H. R. Foerster, Milwaukee.—p. 639.
 Dermatologic Symptoms of Endocrine Dysfunction. P. E. Bechet, New York.—p. 660.
 Roentgen-Ray Treatment of Acne Vulgaris. H. H. Hazen and F. J. Eichenlaub, Washington, D. C.—p. 671.
 Infective Origin of Anogenital Pruritus. J. M. Winfield, Brooklyn.—p. 680.

Tuberculosis of Skin.—The clinical and histopathologic features of two different types of disseminated tuberculosis of the skin have been recapitulated by Wise and Satenstein, namely, lupus miliaris disseminatus faciei, and the papulo-necrotic tuberculids.

Darier's Disease in Infant.—Darier's disease is generally understood to be a disease of early adult life, starting usually between the ages of 8 and 20 and extending on beyond middle age. Borghoff's patient was only 27 months old. The patient died about five months after being presented for treatment. The cause of the death could not be ascertained though the family attributes it directly to the disease of the skin. A necropsy was not obtainable.

Treatment of Psoriasis.—In the treatment of this condition Sutton places dependence on the injection of a foreign protein (in the form of an autogenous colon vaccine) and the liberal use of a chrysarobin ointment, much stronger than that commonly employed (20 per cent.). The ointment is applied to the patches twice daily by means of a stiff tooth brush. The patients are kept in bed, and as a rule wear a full length suit of union underwear all the time. The eyes are bandaged at night. The average period of confinement is seven days. Following this, any few remaining patches can be treated and kept covered (to prevent staining of the clothing), the vaccine is discontinued, and arsenic medication begun.

Archives of Internal Medicine, Chicago

Nov. 15, 1921, 28, No. 5

- *Clinical Studies of Respiration. VII. Effect of General Weakness and Fatigue on Vital Capacity of Lungs. F. W. Peabody and C. C. Sturgis, Boston.—p. 501.
 Studies on Erythrocytes; Reticulum, Polychromatophilia and Mitochondria. J. A. Key, Boston.—p. 511.
 *Uncinari Nephritis. F. Rojas and J. T. Morengo, Guayaquil, Ecuador.—p. 550.
 *Comparative Studies in Chemistry of Blood and Cerebrospinal Fluid. G. Egerer-Seham and C. E. Nixon, Minneapolis.—p. 561.
 An Analysis of Ninety Cases of Functional Disease in Soldiers. J. M. Swan, Rochester, N. Y.—p. 586.
 *Variation of the Phenolsulphonephthalein Excretion with Urine Volume in Chronic Interstitial Nephritis. R. R. Snowden, Pittsburgh.—p. 603.
 Relation of Gastric Content to Secretory and Motor Functions of Stomach. H. Wheelon, St. Louis.—p. 613.
 *Case of Alkaptonuria; Its Metabolism. R. B. Gibson and C. P. Howard, Iowa City.—p. 632.
 *Influence of Inorganic Iron on Regeneration of Blood After Hemorrhagic Anemia. J. H. Musser, Philadelphia.—p. 638.
 New Method of Interpretation of Renal Function Test Meal. H. Sharlit and W. G. Lyle, New York.—p. 650.
 *Terminal Cardiac Arrhythmias. F. R. Dieuaide and E. C. Davidson, Baltimore.—p. 663.
 Experimental Inquiry into the Cerebral and Neuromuscular Manifestations of Digitalis. D. I. Macht and W. Bloom, Baltimore.—p. 678.

Physical Weakness and Vital Capacity of Lungs.—The vital capacity of the lungs in patients with great physical weakness, but without disease of the heart or lungs, Peabody and Sturgis found to be not more than 26 per cent. below the normal standards. In heart disease, the vital capacity may be as much as 75 per cent. below the normal standards. Repeated tests of the vital capacity were made every fifteen seconds for ten minutes in patients with severe heart disease. The exertion involved was considerable, but no evidence of fatigue of the muscles of respiration was observed. The volume of the maximum expiration was as great at the end of the series of tests as at the beginning. These observations indicate that general muscular weakness and fatigue of the muscles of respiration are not important factors in causing the reduction of the vital capacity of the lungs in heart disease.

Uncinari Nephritis.—In nine subjects studied by Rojas and Morengo hookworm infection caused nephritis with chlorid retention. The index of urea excretion was low in three cases. The return to normal took place as soon as

anthelmintic therapy expelled the hookworm; although the red cell count was still low.

Chemistry of Cerebrospinal Fluid in Syphilis.—Seham and Nixon found that in the cerebrospinal fluid in syphilis no constant deviation from normal is encountered in sugar creatinin or urea content, in acid base equilibrium, in specific gravity, or in enzymatic activity.

Kidney Function in Chronic Interstitial Nephritis.—Snowden asserts that in cases of chronic interstitial nephritis, showing functional impairment as regards phenolsulphonephthalein, there is a retardation and prolongation of the excretion of the dye. This retardation is the earliest indication of functional disability. As impairment becomes more marked the retardation becomes more pronounced. In most cases of marked functional impairment, the excretion of the phenolsulphonephthalein varies more or less directly with the volume of urine, and in these cases the phenolsulphonephthalein output is materially increased when the flow of urine is stimulated and increased by the free administration of water.

Metabolism Study in Alkaptonuria.—In the case studied Gibson and Howard found a high ammonia nitrogen, low urea nitrogen, moderately high uric acid nitrogen figures, creatinuria, and high undetermined nitrogen. The sulphur excretion seems to have been essentially normal.

Value of Inorganic Iron in Hemorrhagic Anemia.—After hemorrhagic anemia in otherwise normal dogs, under standard conditions, dogs receiving iron in two of four experiments, regenerated blood more rapidly than their controls during the early stages; but both test and control dogs attained figures approximately normal in about the same time interval. In the other two studies, regeneration was more rapid and complete in the control dogs, particularly when the blood counts are analyzed in relation to the blood volume changes. Musser concludes, therefore, that the administration or inorganic iron cannot be said to produce any constant alteration in the course of an experimental hemorrhagic anemia.

Terminal Cardiac Arrhythmias.—Three cases are reported by Dieuaide and Davison because of the occurrence of interesting arrhythmias determined electrocardiographically shortly before and during the interval immediately preceding death. The general changes which occurred were a gradual slowing of the cardiac rate with coincident lengthening of the P R, Q R S and Q T intervals and diminution in the amplitude of the R and T waves; and loss of control of the rhythm by the normal pacemaker, apparently with the inception of auriculoventricular nodal rhythm. Further, as a result of the functioning of various abnormally irritable foci, the following arrhythmias were observed in addition to heart block and nodal rhythm: auricular and ventricular extrasystoles; ventricular tachycardia and auricular and ventricular extrasystoles; ventricular tachycardia and auricular and ventricular fibrillation. It is suggested that oxygen want and, perhaps, carbon dioxid accumulation, following cardiac failure, underlie these abnormalities in such cases as those presented.

Colorado Medicine, Denver

November, 1921, 18, No. 11

- Diverticulitis of Large Bowel. J. C. Masson, Rochester, Minn.—p. 235.
 Present Knowledge Regarding Cause of Cancer. L. Freeman, Denver.—p. 238.
 Chronic Nontuberculous Pulmonary Suppuration. L. W. Frank, Denver.—p. 240.

Iowa State Medical Society Journal, Des Moines

Nov. 15, 1921, 11, No. 11

- Organization or Association of Physicians as Against Individualism or Socialization. C. B. Taylor, Ottumwa.—p. 417.
 Mental Deficiency Problem. C. E. Van Epps, Iowa City.—p. 421.
 Special Field of Neurologic Surgery After Another Interval. H. Cushing, Boston.—p. 426.
 Treatment of Chronic Arthritis with Special Reference to End Results. W. L. Bierring, Des Moines.—p. 430.
 Pellagra. J. W. Myers, Sheldon.—p. 433.
 Detachment of Adherent Placenta and Delivery in Abortion. C. E. Ruth, Des Moines.—p. 434.
 Dietary Treatment of Nephritis. R. L. Fenlon.—p. 437.

Johns Hopkins Hospital Bulletin, Baltimore

November, 1921, 32, No. 369

- *Radiographic Evidence of Influence of Cod Liver Oil in Rickets. E. A. Park and J. Howland, Baltimore.—p. 341.
- *Lipodystrophia Progressiva. Report of Case. H. L. Smith, Baltimore.—p. 344.
- *Experimental Study of Phagocytosis in Relation to Terminal Infections. H. B. Cross, Baltimore.—p. 350.
- Chemical Dynamics of Muscle. F. G. Hopkins, Baltimore.—p. 359.

Value of Cod Liver Oil in Rickets.—A study of fifty cases in which cod liver oil was administered with uniformly consistent results leads Park and Howland to say very definitely that cod liver oil brings about a change in the bones which, if the diet is not too faulty, amounts to complete cure. The change is not noticeable at once, but is readily demonstrable in almost all cases by the end of a month. In two or three months so much infiltration with salts has taken place that the extremities of the bones, except for deformities, are practically normal, and only differences in the finer architecture of the ends of the bones indicate the previous existence of a rachitic process. Park and Howard regard cod liver oil as a specific for rickets. They have not seen it fail in a single instance and have known it to cure the rickets even though the children were dying of some other disease.

Lipodystrophia Progressiva.—Smith's case is one of lipodystrophia progressiva associated with arteriosclerosis, chronic nephritis, hypertension and a moderate thyropathy as shown by the slight enlargement of the thyroid gland, the rather prominent eyes, the slight lid lag, the tremor, the slight nervousness, the increase in the pulse rate, the acroctanosis and the accelerated metabolic rate.

Phagocytosis in Terminal Infections.—No decrease in phagocytic activity against any bacteria not concerned in the primary infection has been demonstrated by Cross even in the late stages of fatal infection. This would suggest that terminal infections do not arise primarily as the result of a rupture in the phagocytic defense. A subnormal opsonic index for the specific infecting organism is not an invariable phenomenon in fatal infections. Death in fatal infections does not always occur at the period of lowest opsonic activity.

Journal of Infectious Diseases, Chicago

November, 1921, 29, No. 5

- *Relationship of Pneumococcus to Acute Infections of Upper Respiratory Tract in Man. Influenza Studies. VI. J. E. Gordon, Chicago.—p. 437.
- *Gram-Negative Cocci in "Colds" and Influenza. Influenza Studies VII. J. E. Gordon, Chicago.—p. 462.
- Chemotherapy of Experimental Typhoid Carrier Condition. T. D. Beckwith, San Francisco.—p. 495.
- *Organisms of B. Lactimorbi Group Found in Throat Cultures and Simulating B. Diphtheriae. R. G. Perkins and D. S. Spreng, Cleveland.—p. 513.
- *Rapid Method of Pneumococcus Typing. W. W. Oliver, New York.—p. 518.
- *Occurrence of Hemolytic Streptococci in Normal Throat. D. J. Davis, Chicago.—p. 524.
- Logarithmic Nature of Thermal Death Times Curves. W. D. Bigelow, Washington, D. C.—p. 528.
- Bacteriology of Peridental Tissues Radiographically Suggesting Infection. C. C. Berwick, San Francisco.—p. 537.
- Incidence of Tuberculosis in Various Organs of Pigeon. O. Riddle, Cold Spring Harbor, N. Y.—p. 544.
- *Opsonic Reactivation of Antimeningococcus Serum. L. Hektoen and R. Tunncliffe, Chicago.—p. 553.
- *Blanching of Skin by Serum Injection in Scarlet Fever. F. W. Mulsow, Chicago.—p. 557.

Relation of the Pneumococcus to "Colds."—Simple acute respiratory infections of varied clinical type, occurring in an urban population, and broadly classified as "common colds," and a recurrent epidemic of influenza were investigated by Gordon to determine, first, the frequency with which the pneumococcus could be demonstrated in cases of influenza and in waves of common colds, and then to compare the extent of its incidence in these conditions with its occurrence in the upper respiratory tract of normal persons. The average incidence of the pneumococcus in normal throats was about 21 per cent. Cases of common colds showed pneumococci more commonly, 35 per cent., and the same was true of influenza, 38 per cent. Type incidence of pneumococci in normal persons and in persons with colds was characterized by the infrequent occurrence of the fixed types of pneu-

mococci. Fixed types are somewhat more frequent in influenza than in other acute infections of the upper respiratory tract. No serologic relationship could, in general, be demonstrated between the pneumococci found in these infections. Types other than Type IV were observed. Type IV strains in this series show a division into eight different strains and three small groups. No common strain of pneumococcus was present in acute respiratory infections. A particular group of cases occurring in a localized epidemic showed a uniform occurrence of the pneumococcus in practically all of the cases studied, a Type IV pneumococcus. The strains were proved to be serologically identical. It seems certain, then, that although the general statement can be made that pneumococci are not found in the majority of colds, and that when they do occur they are rarely related to each other, nevertheless instances occur in which a single type of pneumococcus is involved in all cases of a given group. Comparative virulence tests showed that the pneumococci from colds and from influenza were more pathogenic than the strains from normal throats.

Gram-Negative Cocci in "Colds."—No essential difference was distinguished by Gordon between the incidence of the various groups of gram-negative cocci in common colds, and in a like series of normal persons. In epidemic influenza, the incidence was less than in normal persons. *M. catarrhalis*, the most common member of the group, is carried for long periods of time in the throats of many normal persons, constituting a permanent member of the normal throat flora. No distinguishable differences in virulence for mice and rabbits could be determined between strains of *M. catarrhalis* from normal sources and those from colds or influenza. These observations do not indicate that *M. catarrhalis* is generally concerned in the pathogenesis of common colds or influenza.

Throat Bacteria.—In normal and pathologic throats Perkins and Spreng assert organisms occur from time to time which under routine conditions so closely resemble *B. diphtheriae* as to cause possible confusion. These organisms may be readily differentiated, even under these conditions, by certain constant morphologic characteristics, and when isolated spores and motility are seen.

Rapid Typing of Pneumococci.—In 100 consecutive, unselected cases of pneumonia, in all but two instances, a typing of the pneumococcus has been effected by Oliver within from thirty to forty minutes by the rapid precipitin method, which was checked by the longer cultural or mouse method. The substitution of inulin for dextrose and the addition of Andrade indicator seems to possess certain advantages over the standard Avery cultural method.

Hemolytic Streptococci in Normal Throats.—Davis claims that cultures taken at short intervals sooner or later reveal the presence of hemolytic streptococci in the throats of practically all normal adult persons. The cocci as revealed by throat swabs are not numerous; far less than in the crypts of tonsils or adenoids.

Opsonic Reactivation of Antimeningococcus Serum.—The results reported by Hektoen and Tunncliffe are in complete harmony with earlier observations showing that opsonic serum, "normal as well as immune owe their full action to a thermostabile opsonic substance and a thermolabile complement-like body which greatly promotes the action of the first substance," and confirm the conclusion of Kolmer, Toyama and Matsumami that the opsonic power of antimeningococcus serum may be increased by fresh normal serum. These observations are not in accord with those of Evans. The authors conclude that evidently the method used by Evans is not suited to bring out the activating influence of normal serum on antimeningococcus serum. The view that there is a fundamental distinction between the "labile opsonins" of normal serum and the hypothetical tropins lacks the support necessary to justify its retention, and the use of the word tropin to designate a special opsonic substance, the existence of which has not been demonstrated, would better be dropped.

Skin Blanching by Injecting Scarlet Fever Serum.—It appears that the serum from those acutely ill with scarlet

fever rarely produces any blanching effect. The serum from normal persons or scarlet fever convalescents produced quite a definite blanching in approximately half of the cases studied by Mulsow; there was a faint suggestion of blanching in 12 per cent. and an entire absence of any blanching in the rest. In considering the practical applications of this test it must be recalled that when the rash is rather faint or fading, blanching cannot be observed. In general, if no blanching occurs when serum is injected into a patient in the acute stage of scarlet fever, the results would mean little, but should blanching occur it would appear that the injected serum is not from a scarlet fever patient in the acute stage of the disease. Although the blanching phenomenon is interesting from the scientific standpoint, Mulsow says it does not appear at present to be of signal value in the differential diagnosis of scarlet fever.

Journal of Orthopaedic Surgery, Boston

November, 1921, 3, No. 11

- Principles of Surgery of Peripheral Nerve Injuries of Warfare. Harry Platt, Manchester, England.—p. 569.
Primary Osteomyelitis of Patella. Case Report. E. B. Mumford, Indianapolis.—p. 583.
Coalitio Calcaneo-Navicularis. Slomann, Copenhagen.—p. 586.
*Bone Sarcoma, an Analysis of Cases Admitted to Massachusetts General and Collis P. Huntington Memorial Hospitals from January 1, 1911, to January 1, 1921. R. B. Greenough, C. C. Simmons, T. R. Harmer, Boston.

Bone Sarcoma.—One hundred and forty-eight cases of supposedly bone sarcoma reviewed by this committee for a ten-year period yielded for study: osteogenetic sarcoma, twenty-seven cases; benign giant cell tumor, twelve cases; angiosarcoma, one case; myeloma, three cases. The classification of Ewing has been adopted, and of the tumors of the osteogenic group three types are distinguished, of which, however, only two are available in this series: sclerosing type, one case; telangiectatic, no case; fibrocellular, twenty-six cases. The history of trauma shortly preceding symptoms is more often obtained in cases of osteogenic sarcoma than in other classes of malignant disease (ten out of twenty-seven cases). Osteogenic sarcomas are more common in young adults, but occur at all ages. They affect more often the epiphyseal ends of the long bones, especially femur and tibia, but are found occasionally in other situations. The chief symptoms are pain and tumor. Spontaneous fracture may occur but is unusual. Errors in diagnosis are common and result from confusion of bone sarcoma with other diseases. Of forty traced cases of osteogenic sarcoma, twenty-three patients had radical operative treatment, two had exploration only, and fifteen were not operated on. This gives an operability of 66 per cent. There was one operative death. There were three three-year cures, or 13 per cent., of radical operations. No material benefit was obtained by Coley serum in the four cases in which it was employed. Of twelve cases of benign giant cell sarcoma trauma appeared as a causative agent in only three cases. Of the twelve traced cases of benign giant cell sarcoma, two have to be discarded, as only six months have elapsed since operation. Of the remaining ten cases, three patients had amputation performed, two had resection, while the other five cases had only incomplete removal of the tumor by incision and curettage. Eight cases have passed the three year limit without evidence of recurrence.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, 1921, 18, No. 4

- *Determination of Coagulation Time of Blood in Animals. O. Inchley, Cambridge, Mass.—p. 237.
Influence of Electric Current on Absorption of Drugs. O. Inchley, Cambridge, Mass.—p. 241.
Influence of Colloids on Action of Noncolloidal Drugs. III. W. S. Van Leeuwen and A. Von Szent-Gyorgyl, Leiden, Holland.—p. 257.
Influence of Colloids on Action of Noncolloidal Drugs. IV. W. S. Van Leeuwen and A. Von Szent-Gyorgyl, Leiden, Holland.—p. 271.
Sensitiveness to Poisons in Avitaminous Animals. W. S. Van Leeuwen and F. Verzar, Leiden, Holland.—p. 293.
Physiologic Standardization of Extract of Belladonna. W. S. Van Leeuwen and P. H. Maal, Leiden, Holland.—p. 313.

Determination of Coagulation Time of Blood.—The method adopted by Inchley is a modification of Buckmaster's and

consists essentially in taking up a drop of blood in a fine wire loop and observing when, on slowly rotating the loop by hand, the blood no longer moves freely under gravity. It is convenient to note the time when the first sign of altered mobility appears, and also when complete fixation of the drop occurs. The mean of these is taken as the end of clotting time. The preparation is maintained at blood temperature in a small moist chamber.

Kansas Medical Society Journal, Topeka

November, 1921, 21, No. 11

- Pelvic Cellulitis. W. J. Eilerts, Eldorado.—p. 347.
Use of Pituitary Extract in Obstetrics. P. S. Mitchell, Iola.—p. 349.
Toxemia of Pregnancy. G. C. Mosher, Kansas City.—p. 353.
Law for the Doctor. L. Childs. Physician's Liability for Acts of His Partner.—p. 362.
Rupture of Aortic Aneurism with Adherent Pericarditis. H. R. Wahl.—p. 363.

Kentucky Medical Journal, Bowling Green

November, 1921, 19, No. 11

- Doctor of Tomorrow. P. D. Gillin, Owensboro.—p. 680.
Inflammatory Lesions of Nasal Accessory Sinuses. S. S. Watkins, Louisville.—p. 682.
Surgical Treatment of Certain Types of Dyspepsia. S. McGuire, Richmond, Va.—p. 727.
Some Phases of Pyloric Obstruction. J. Pritchett, Louisville.—p. 731.
Care and Feeding of Premature Infants. J. W. Bruce, Louisville.—p. 733.
Nocturnal Enuresis. G. Fulton, Louisville.—p. 736.
Cerebral Embolism; Case Report. F. G. Speidel, Louisville.—p. 738.
Basal Metabolism: Value in Diagnosis and Treatment. J. W. Moore, Louisville.—p. 740.
Extragenital Chancer; Case Reports. W. J. Young, Louisville.—p. 748.
Perforation of Uterus by Curet. L. W. Frank, Louisville.—p. 750.

Medical Record, New York

Nov. 19, 1921, 100, No. 21

- Pneumonia Study. C. S. Cole, New York.—p. 882.
Leukopenic Leukemia. N. E. Brill, New York.—p. 888.
Functional and Developmental Relations of Nervous Mechanism. D. A. Laird, Iowa City, Ia.—p. 890.
*Aneurysm of Vertebral Arteries. J. F. Morrow, Morgantown, W. Va.—p. 894.
Proposed Legislation Concerning Health Centers. J. H. Barry, New York.—p. 895.
*Gonorrheal Infection from Bath Tub. J. H. Dowd, Buffalo.—p. 897.

Nov. 26, 1921, 100, No. 22

- Roentgen-Ray Dermatitis. M. L. H. A. Snow, New York.—p. 927.
Bile Tract. L. W. Kohn, New York.—p. 931.
*Vitamins in Infant Feeding. F. Tweddell, Great Neck, N. Y.—p. 935.
*Diagnosis of Variola by Inoculation of Cornea of Rabbit. W. H. Hoffmann, Havana, Cuba.—p. 936.
Therapeutic Value of Training Center at St. Elizabeth's Hospital, Washington, D. C. W. M. Keena, Washington, D. C.—p. 939.
Stammering and Left Handedness. E. Tompkins, Pasadena, Calif.—p. 941.
*Acute Circumscribed Catarrhal Peritonitis. E. Palier, New York.—p. 943.
Therapeutic Value of Silver Arsphenamin. O. Berghausen, Cincinnati.—p. 944.

Aneurysm of Vertebral Arteries.—Morrow points out that aneurysmal dilatation of the vertebral arteries is a very rare condition. The medulla oblongata and many of the cranial nerves are damaged by the aneurysm as is manifested by the resulting compression bulbar paralysis. A correct diagnosis of vertebral aneurysm is difficult to make and it is likely to be made late in the progress of the disease. The treatment before the aneurysm has undergone a spontaneous cure is surgical, and symptomatic in the later stages of bulbar paralysis. The earlier the diagnosis of vertebral aneurysm is made, the more favorable will be the prognosis. In any event the prognosis must be considered grave.

Gonorrheal Infection from Bath Tub.—Dowd cites three cases of two young women who undoubtedly contracted gonorrhea from bathing in a tub in which some one having gonorrhea had taken a bath previously and infectious material adhered to the tub, thus infecting these two young women. He is absolutely convinced of the correctness of his assumption.

Egg Yolk for Infant Feeding.—Tweddell narrates his experience with the use of the yolk of a raw fresh egg in the feeding of infants who are not thriving as they should. One yolk is mixed with each day's feeding.

Diagnosis of Variola.—Hoffmann endorses Paul's test for variola on the basis of extensive clinical observation. The

practical procedure used in a suspicious case is as follows: A small quantity of the secretion from a suspicious pustule is removed by a sterilized knife or needle, and placed on a sterilized slide. The slide is put in a Petri dish and allowed to remain for some time. The dried secretion may be used for the test, as it has only to be moistened at the moment of inoculation of the animal, and for which either Ringer's solution or a few drops of a 50 per cent. glycerin solution in water may be used. With a small, sharp steel needle, previously sterilized by flame, there are made from three to five superficial horizontal incisions across the epithelium of the cornea of the rabbit's eye and as many in a vertical direction, crossing the first group of lines. A quantity of the secretion to be tested is placed on the surface of the cornea with a small, blunt, properly sterilized instrument, and thoroughly distributed by a closing movement of the eyelid. The inoculated animal is then placed in a cage and treated as a highly contagious case. If no specific, variolic infection of the cornea has taken place, the small traumatic lesions will be healed in twenty-four hours; and after forty-eight hours the cornea will appear absolutely clear and without irritation. If, however, the eye has become infected with variola virus, there will appear on the cornea, from thirty-six to forty-eight hours after injection, certain lesions which may be visible to the naked eye, but are much more clear under a low power lens. A definite irritation of the eye and some slight grayish epithelial prominences will be seen on the surface of the cornea. Forty-eight hours after inoculation the rabbit is killed, the eye is enucleated and is immediately placed in a solution of 4 gm. mercuric chlorid, 30 c.c. of 98 per cent. alcohol and 60 c.c. distilled water, and fixed for from one to two minutes. Then the cornea is separated from the eye in a line near the limbus. The cornea, lying in the solution, may then be inspected with a lens. If infection has taken place there will appear along the criss-cross lines previously made small, isolated circumspect prominences of a porcelain-white color. Similar lesions can be produced only when vaccine virus has been used. Forty-eight hours after infection has taken place, there will be found in the center of the variolic proliferation a desquamation of the epithelial cells; and after ninety-six hours there will be developed a round crateriform depression with a very sharply defined rim. This type of proliferation is pathognomonic of variola. These macroscopical lesions are so characteristic of variola that they allow of an undisputed diagnosis of this condition. For scientific purposes, however, the diagnosis can be confirmed by histologic examination.

Acute Circumscribed Peritonitis.—Under this term Palier describes what he believes to be a new disease. The characteristic symptoms are pain in the abdomen, with a sensation of fulness, discomfort, and pain on deep pressure, nausea and constipation. The only treatment of avail is to use salicylates. Palier prefers strontium salicylate which acts almost as a specific.

Northwest Medicine, Seattle

November, 1921, 20, No. 11

Arteriosclerosis. W. Ophüls, San Francisco.—p. 301.
Selective Regional Localization in Arteriosclerosis. F. Epplen, Spokane, Wash.—p. 309.

Pennsylvania Medical Journal, Harrisburg

November, 1921, 25, No. 2

Laboratory Diagnosis. H. G. Schleiter, Pittsburgh.—p. 77.
Correction of Sterility. F. H. Maier, Philadelphia.—p. 78.
Tuberculous Peritonitis. H. K. Mohler, Philadelphia.—p. 82.
Generalized Infection in Tuberculosis. A. J. Bruecken, Pittsburgh.—p. 85.
Association of Neuroretinitis in Each Eye with Unilateral External Ophthalmoplegia. G. O. Ring, Philadelphia.—p. 92.
Dimitry Modification of Mules Operation. F. C. Parker, Norristown, Pa.—p. 95.
*Treatment of Fibromyoma Uteri. S. E. Tracy, Philadelphia.—p. 99.
*Peculiar Pustular Condition. J. E. Rush, Pittsburgh.—p. 103.

Treatment of Fibromyoma Uteri.—While it is evident that radiotherapy has an extremely limited field in the treatment of fibromyoma uteri, nevertheless, Tracy says, it would seem that it is worthy of consideration in simple, uncomplicated neoplasms in patients, past the menopause. Even in this limited class of cases, the crux of the situation is in the diag-

nosis. What is considered a simple case, proves frequently to be a complicated one. The difficulty in the use of roentgen-ray treatment even in its limited field is the proper selection of cases. Radiotherapy may also be used cautiously with advantage on patients who do not have, strictly speaking, simple uncomplicated tumors, as follows: (a) In a patient whose general health is so impaired, from any cause, that she could not survive an operation, (b) in cases of marked anemia to control bleeding temporarily, until the patient is sufficiently restored to undergo an operation. If radiotherapy be used subsequent to operation in those patients in whom a malignancy coexisted, the results will probably be superior to those obtained if surgery alone be employed. When it is recalled that 70 per cent. of the cases of fibromyomata uteri are complicated, that of the patients subjected to operation, in addition to the removal of the tumor, the abdominopelvic pathology is eradicated, and that from 96 to 98 per cent. are cured of all symptoms, while in the same class of cases radiotherapy will give only 8 to 12 per cent. absolute cures; it would seem that the proper treatment in such cases, with the few exceptions mentioned, is surgery.

Peculiar Pustular Condition.—Rush proposes the name *B. sedgwicki* for the organism found by him in the pus removed from a pustule situated over the left fifth intercostal space a little posterior to the midaxillary line. This pus had a characteristic lilac color. An apparently destructive property of the pus discharged, denuded the epidermis. At no time was there any constitutional disturbance and no functional abnormalities were noted. When 25 per cent. argyrol was instilled into the cavity the wound closed. The causative agent was a bacillus varying from 4 to 8 microns in length and about 1 micron in width. The organisms showed a definite tendency to chain formation and frequently there were five to six cells in this chain; however a single cell was by no means rare. The chains were seldom straight but turned on themselves, frequently approaching a ring formation. Most of the organisms stained evenly but here and there the protoplasm of the cells showed a definite granular appearance. No cultures could be obtained.

South Carolina Medical Association Journal, Greenville

November, 1921, 15, No. 11

Roentgen-Ray Study of Cranium and Accessory Sinuses. W. F. Ashmore, Greenville.—p. 276.
Use of Surgical Solution of Chlorinated Soda in Civil Practice; Report of Cases. J. R. Boling, Columbia.—p. 284.
Etiology and Treatment of Enteroptosis. D. E. Walker, Rock Hill.—p. 290.
Injuries to Spinal Cord; Plea for Early Operation. G. T. Tyler, Greenville.—p. 292.
Ureteral Stricture. T. M. Davis, Greenville.—p. 295.

Southern Medical Journal, Birmingham, Ala.

November, 1921, 14, No. 11

Classification of Recurrent Convulsions. B. R. Tucker, Richmond, Va.—p. 847.
Treatment of Psychopathologic Cases in General Hospitals. T. A. Williams, Washington, D. C.—p. 851.
Early Diagnosis of Gastric and Duodenal Ulcers. S. Harris, Birmingham.—p. 854.
Diagnosis of Commoner Intestinal Parasitic Infections. C. C. Bass, New Orleans.—p. 863.
Causes and Management of Athrepsia. W. Weston, Columbia, S. C.—p. 865.
Feeding Problem in South with Particular Reference to Older Child. C. H. Rice, Jr., Montgomery, Ala.—p. 866.
Is Effectual Rural Control of Contagious Disease Possible? W. S. Leathers, Jackson, Miss.—p. 870.
Concerning Evident Though Neglected Fact That Overconfidence in Laboratory Minus Adequate Clinical Evidence Equals Many Blunders in Diagnosis and Treatment. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 876.
Kidney Tuberculosis: Is It Always Necessary to Remove Kidney for Cure? C. E. Barnett, Fort Wayne, Ind.—p. 881.
Ureteral Stricture in Male. A. E. Goldstein, Baltimore.—p. 885.
Surgical Significance of Persistent Abdominal Pain. J. W. Barksdale, Winona, Miss.—p. 893.
Appendicitis in Childhood. F. Roberson, Durham, N. C.—p. 897.
Special Methods Used in Reconstruction Work. J. S. Davis, Dallas, Texas.—p. 899.
Ideal Mastoid Operation. G. O. Sharrett, Cumberland, Md.—p. 903.
Practicability of Effecting a Complete Atrophy of Tonsils by Use of Radium. W. A. Wells, Washington, D. C.—p. 907.

- Principles of Organization in Group Medicine. S. R. Roberts, Atlanta, Ga.—p. 910.
 Group Medicine. B. B. Steedly, Spartanburg, S. C.—p. 912.
 Deductions Drawn from Four Years' Experience in Group Practice. M. B. Stokes, Houston, Texas.—p. 914.
 Group Medicine. W. Barrow, Lexington, Ky.—p. 920.

Surgery, Gynecology and Obstetrics, Chicago

November, 1921, 33, No. 5

- *Surgical Significance of Hepatic Incompetency. W. J. Mayo, Rochester, Minn.—p. 463.
 Technic of Gallbladder Surgery in Presence of Jaundice. G. W. Crile, Cleveland.—p. 469.
 *Facial Paralysis. A. Gibson, Winnipeg, Man.—p. 472.
 Movable Bodies in Knee Joint. O. F. Lamson, Seattle, Wash.—p. 490.
 *Epidermoid Cysts. H. H. Sherck, Pasadena, Calif.—p. 494.
 *Intussusception of Ileum in Adults, Due to Benign Tumors. M. H. Biggs, Rutherfordton, N. C.—p. 499.
 Subdiaphragmatic Abscess. A. L. Lockwood, Rochester, Minn.—p. 502.
 *Treatment of Tumors of Bladder Without Local Excision. B. C. Corbus, Chicago.—p. 517.
 *Physiologic Method of Tendon Transplantation. L. Mayer, New York.—p. 528.
 Case of Cyst of Mesentery. R. M. Carter, Green Bay, Wis.—p. 544.
 Two Cases of Actinomycosis of Cecum. F. W. Griffith, Asheville, N. C.—p. 548.
 *Cases of Nonunion of Fractures in Lower Third of Tibia. E. L. Eliason, Philadelphia.—p. 551.
 *Kraurosis Vulvae and Inguinal Adenitis of a Malignant Nature. F. Reder, St. Louis.—p. 554.
 Case of Bilharziasis. R. V. Day, Los Angeles.—p. 557.
 Large Mycotic Embolic Arteriovenous Aneurysm of Femoral Vessels. R. Floyd, New York.—p. 560.
 Gastroileostomy. H. Cohen, New York.—p. 564.
 *Rubin Test Simplified. H. D. Furniss, New York.—p. 567.
 Suction Apparatus for Treatment of Empyema. J. W. Snyder, Rochester, Minn.—p. 568.
 *Radium in Cancer of Bladder. G. G. Smith, Boston.—p. 570.
 Treatment of Gonococcal Arthritis with Aspirated Synovial Fluid Injected Intramuscularly. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 574.

Surgical Significance of Hepatic Incompetence.—Mayo emphasizes that no operative procedure which is not essential to the immediate recovery of the patient should be undertaken in the presence of intense jaundice. For example, after removing stones from the common duct in the cholemic patient, cholecystectomy is seldom advisable.

Operation for Facial Paralysis.—Gibson bisects the hypoglossal nerve distal to the point at which the thyrohyoid branch is given off, swings it upward and anastomoses it with the proximal extremity of the distal segment of the facial nerve. There is loss of power in one half the tongue as a result of this procedure but this does not interfere with its functions.

Epidermoid Cysts.—Sherck asserts that epidermoid cysts are very seldom recognized, and, to the majority of operators, are entirely unknown. They are almost always mistaken for sebaceous cysts. The pearly, horny, and laminated contents make their recognition easy.

Intussusception Caused by Benign Tumors.—In the case reported by Biggs the intussusception was situated in the ileum and was caused by a myxoma, which is one of the rarest of benign growths found in the intestine. Considering the intestine as a whole, one seventh of the cases of intussusception are due to malignant growths, while one fifth are due to benign tumors. Of tumors of the large bowel causing this lesion the proportion between benign and malignant tumors is about equal, while in the small intestine benign and malignant tumors bear the relation of two to one.

Diathermy for Bladder Tumors.—The "burning back" of the ureter by diathermy is offered by Corbus as a method of treating all vesical tumors without the use of any cutting procedure.

Tendon Transplantation.—Mayer discusses tendon transfers, "free" transplants and tendolysis pointing out the indications for each procedure and the operative technic.

Experimental Study of Nonunion of Tibia Fractures.—In eight dogs, in addition to producing an experimental fracture of the tibia the anterior tibial artery was doubly ligated and severed. In four of the cases the nerve was also cut. In none was there any especial attempt to get perfect reduction of the fracture. At the end of four weeks all the dogs were killed and the bone specimen removed and examined grossly

and with the roentgen ray. In four controls the union was solid and the callus formation apparently uniform. In the eight ligation cases there was union, but in five of these the union was not as firm as in the controls. The cutting of the nerve seemed to have no effect upon results. The roentgen ray showed no demonstrable difference in the callus between the controls and the ligated cases. In Eliason's opinion this evidence points to the fact that there is a lessening of the blood supplied to the lower fragment in these cases, which condition is associated with lessened bone reparative activity.

Kraurosis Vulvae and Malignant Inguinal Adenitis.—In the two cases of kraurosis reported by Reder a malignant degeneration was demonstrable. The one case exhibited a malignancy of the left labium with involvement of the left inguinal glands, the other case presented a malignancy in the region of the fossa navicularis encroaching on both the right and left labium and involving the glands of the right and the left inguinal region.

Rubin Test Simplified.—Furniss does not believe it necessary to inject such large quantities of carbon dioxide as Rubin uses. He asserts that no more than 30 c.c. need to be injected.

Radium in Bladder Cancer.—From Smith's study of cases it would appear that 400 millicurie hours, given with a screening of 0.5 mm. or 1.0 mm. silver, is a dosage which may be used in the treatment of bladder cancer without any very marked reaction. Large doses in bladders which are subject to the alternate diastole and systole of urination, are likely to set up a reaction which is very painful. If the bladder is drained suprapubically, greater doses may be used, and if the urine is entirely excluded from the bladder, doses of 1,000 millicurie hours do not cause discomfort. The duration of a reaction of moderate severity is from four to six weeks. Repeating the treatment in less than six weeks gives, therefore, cumulative effect. If, however, no reaction has developed in three weeks after the first treatment, it is proper to go ahead with the second treatment.

Virginia Medical Monthly, Richmond

November, 1921, 48, No. 8

- *Diverticulitis of Sigmoid. W. J. Mayo, Rochester, Minn.—p. 427.
 Modern Medicine—Scientific Spenthrift. A. Stengel, Philadelphia.—p. 433.
 Concerning Renal Complications of Ureteral Stone and Their Prevention. L. Buerger, New York.—p. 439.
 Humanistic Devotion. S. Harnsberger, Warrenton, Va.—p. 452.
 Nature and Treatment of Cancer. J. Shelton Horsley, Richmond.—p. 454.
 *Public Health and School. E. G. Williams, Richmond.—p. 459.
 Medical Education in Virginia. S. McGuire, Richmond.—p. 463.
 The Relation of Medicine to Law. Judge F. B. Hutton, Abingdon, Va.—p. 467.
 Atrophy of Lymphatic and Tonsillar Tissue by Radium and Roentgen Ray. C. A. Simpson, Washington, D. C.—p. 473.

Diverticulitis of Sigmoid and Cancer.—Nearly one third of the cancers of the sigmoid removed by the Mayos have had their origin in diverticulitis. In some of these cases, until the specimen has been examined microscopically, it could not be determined whether the condition was a chronic stenosing diverticulitis, carcinoma or a combination of both. Resection, therefore, in the chronic tumor forming type of diverticulitis must often be performed as would be done for carcinoma of the sigmoid. The death rate following resection for diverticulitis of the sigmoid has been approximately 10 per cent., about the same as for cancer, and the radical operation is, therefore, not to be lightly undertaken.

Teaching Prevention in Public Schools.—Williams speaks on the promulgation through the public schools of a systematic course of instruction in the principles of prevention. This course is to be approved by both the state board of health and the state board of education. In addition to the regular curriculum, a scheme of health leagues has been organized in many schools whereby a spirit of rivalry and competition in principles of personal hygiene are taught by actual practice of them. In virtually every schoolroom of the state, there is posted a placard containing two rules which, if followed, will prevent that large group of diseases carried by the secretions of the mouth and nose. In this group are measles, whooping cough, diphtheria and scarlet fever.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

October, 1921, No. 255

- Immediate Effects of Roentgen Rays on Blood Lymphocytes. S. Russ.—p. 146.
Fractures of Ulnar Styloid. C. P. G. Wakeley.—p. 150.
Case of Epilepsy. W. E. Boyd.—p. 152.
Cases Treated by Galvanism Applied to Head. M. Rathbone.—p. 155.

British Medical Journal, London

Nov. 5, 1921, 2, No. 3175

- *Causes and Prevention of Blindness. N. B. Harman.—p. 727.
Advisability of Early Operation in Strabismus Convergens. W. B. I. Pollock.—p. 733.
Treatment of Corneal Ulcers. J. V. Paterson.—p. 734.
Nodular Keratitis of South Arabia. A. Macrae.—p. 739.
*Erythema Nodosum: An Acute Specific Fever. J. O. Symes.—p. 741.
*Mountain Climates in Health and Disease. B. Hudson.—p. 742.
Eleven Thousand Cases of Spinal Analgesia. A. A. Morrison.—p. 745.
Action of "Bayer 205" on Trypanosoma Equiperdum in Experimentally Infected Mice. C. M. Wenyon.—p. 746.

Causes of Blindness.—Harman's remarks are based on an analysis of 4,288 cases. Of sixty-three blind infants, thirty-six had surface inflammations of the eyes, thirty-one due to ophthalmia neonatorum and five to purulent conjunctivitis of later months. There were seven cases of inflammations within the eyes, two due to iridocyclitis of great severity, two to cerebrospinal meningitis, five to optic atrophy or defect. There were nineteen cases of congenital defects. The total number of blind and partially sighted children brought into this inquiry is 3,300. Surface inflammations were responsible for 699 cases of which 299 cases were the result of ophthalmia neonatorum. Of 919 cases of inflammation within the eyeball, by far the greater number are of congenital syphilitic origin, interstitial keratitis, iritis or iridocyclitis, disseminated choroiditis with or without optic atrophy. Congenital defects were present in 408 cases and were of great varieties, defects of the crystalline lenses heading the list with 248 cases. The cases of high myopia not due to syphilis numbered 1,235. Harman also analyzes blindness in 925 persons of all ages as ascertained in private practice.

Nature of Erythema Nodosum.—Fifty cases of erythema nodosum were subjected to analysis by Symes with the idea of proving that this is an acute specific infectious fever and not a blood dyscrasia due to rheumatism, tuberculosis, or other chronic constitutional weakness. The strong points in favor of the theory that erythema nodosum is an infectious fever are the proof that it may be transferred from person to person and may occur in small localized outbreaks and in epidemic waves; a definite seasonal incidence and constant age incidence; systematic distribution of the rash; evidence of relapses, and conferment of immunity. On the other hand, is the constant association of erythema nodosum with other diseases, such as tuberculosis, measles, and minor conditions of ill health. The heavy incidence of the disease in girls at and about the age of puberty is difficult to explain on any ground of infection.

Value of Mountain Climate in Tuberculosis.—Before deciding on any particular climate for a tuberculous patient Hudson says two factors must be considered: the demand for tissue change made by the climate and the individual patient's power of responding to this demand. A young robust person with sound digestion, heart, etc., and with much reactive power and resistance, needs a wholly different type of climate from the elderly and feeble patient, with poor digestion indifferent kidneys and weak circulation. In mountain climates where there is a demand for an increased and higher rate of metabolism, people who do best are naturally those able to respond and react to this increased call on the constitution. Thus it is that the early cases in young and middle-aged people are those which do best in the mountains; and next in order comes the more advanced or partially arrested case, when, however, the general constitution is still good, and the patient can respond satisfactorily to the demands of the mountains. The second group often derives great benefit from the extra stimulation and "flip" caused by the climatic

conditions of a mountain resort. Another important point to be thought of is the mental side of the question; patients who have to lead the sedentary quiet life necessary to the treatment of tuberculosis will be more cheerful and in better spirits in the bright sun and clear blue skies of an Alpine climate, especially in the winter months, than in the average weather conditions prevailing at lower levels.

Nov. 12, 1921, 2, No. 3176

- Need for Cooperative Thought in Surgical Organization. H. J. Stiles.—p. 775.
*An Investigation into Circulation Through Lungs. S. W. F. Underhill.—p. 779.
Early Recognition and Corrective Treatment of Occipito-Posterior Presentations. R. C. Buist.—p. 782.
*Pulmonary Tuberculosis in Infant. A. G. Shurlock.—p. 783.
Hemochromatosis. J. S. Dunn and W. H. M. Telling.—p. 783.
Streptococci. J. M. Beattie and J. H. Dible.—p. 786.
*Blood Picture in Scurvy, with Particular Reference to Platelet. S. P. Bedson.—p. 792.
*Chronic Duodenal Ileus. D. P. D. Wilkie.—p. 793.
Local Anesthesia in Reduction of Fractures. R. A. H. Fulton.—p. 796.
Local Abscess Followed by Erythema Scarlatiniforme. F. A. Murray.—p. 796.

Study of Circulation Through Lungs.—The adaptability of the pulmonary circulation was tested by Underhill by imitating in animals, as far as is possible, the condition of embolism of one main branch of the pulmonary artery as it occurs in man. The general effects of ligature of the left pulmonary artery were studied in animals with the chest open under artificial ventilation. A further series of experiments was performed, in which, after the left pulmonary branch had been ligated, the chest was closed and the artificial ventilation withdrawn, the animal being allowed to breathe naturally. Postmortem examination of the lungs was always made, and frequently pieces were taken between ligatures for section, both during the course of the experiment and at the end. In a second series of experiments the right bronchus was clamped or tied. It was found that ligature of the left pulmonary artery in cats (with the chest open and under artificial ventilation) causes a rise of pulmonary blood pressure of from 25 to 60 per cent.—usually about 40 per cent. There is no effect on the carotid blood pressure, pulse rate, output of the heart, or its state of dilatation. The healthy heart, therefore, can accommodate itself without difficulty to sending the same volume of blood through one lung only in a given time as it previously sent through both lungs. No mechanism producing slowing of the heart from rise of pulmonary blood pressure was demonstrated in these experiments. If the chest is closed after the artery has been ligatured, the animal remains in good condition—in fact, frequently its condition is improved. Its respiratory rate is usually faster than normal, frequently about double, but the depth tends to be shallow. The saturation of the blood after ligature is about 75 per cent.; if the artificial ventilation is increased (within normal limits), complete saturation can be obtained. This has not been the case, however, with animals in which the chest has been closed and the artificial ventilation discontinued; in these the saturation remains at about 70 per cent. Examination of the lungs shows an increased quantity of blood in the right lung, due to twice the normal volume flowing through it in a given time. The left lung after ligature of the left pulmonary artery, under artificial ventilation, contains almost no blood, except a little in the veins; on the other hand, after the chest has been closed and the animal allowed to breathe naturally, it contains usually more blood than the right lung, exhibiting a varying degree of congestion. This blood comes from the bronchial arteries and stagnates in the pulmonary capillaries. Ligature of the right bronchus (in cats with the chest open and under artificial ventilation) causes a small immediate rise in pulmonary blood pressure without affecting the carotid pressure. The saturation of the blood has always been under 90 per cent., even when the artificial ventilation has been increased. There is, therefore, presumably still a certain amount of circulation through the right lung under these conditions.

Pulmonary Tuberculosis in Infant.—In Shurlock's case the mother of the baby developed a cough in the fifth month of pregnancy, and the diagnosis of pulmonary tuberculosis was made. The child was born at full term and was immediately

taken away to be looked after by the mother's sister, who lived in a different house. It was taken to the mother nearly every day, but remained in the room with the mother for about ten minutes at each visit. The mother took the baby in her arms, but was careful not to kiss him on the lips. She died from pulmonary tuberculosis two months after the baby's birth. The baby was at first fed on diluted cow's milk, but as he did not thrive, he was given condensed milk diluted to a suitable strength. Wasting became more marked, and signs were detected in the lungs. Diarrhea and vomiting set in and the child died at the age of 3 months. In the left lung there was an area 1 cm. square of tuberculous consolidation, partly caseous at its center. From the consolidated area miliary tubercles extended. By palpation and section the caseous mass could be traced into caseous glands in the hilum of the left lung. The right paravertebral glands and angular glands were enlarged. Parenchymatous degeneration was present in the liver and kidneys. Several doubtful tubercles were found under the capsule of the spleen. Thin buff-gray contents were found throughout the intestines; a score of shallow erosions extended along the line of the mesenteric attachment of the lower ileum; the mesenteric glands were 0.5 cm. in diameter.

Blood Picture in Scurvy.—In scurvy produced experimentally in guinea-pigs and monkeys, and in one human case, Bedson found the platelets normal in number. The red cells in some cases showed an increase in number, this condition coinciding with a "prescurvy" or incipient scurvy stage. In the acute stages of the disease, particularly where hemorrhages were numerous, the number of red cells fell to slightly below the normal. No variations in the total and differential leukocyte count were observed.

Chronic Duodenal Ileus.—Wilkie suggests that chronic duodenal ileus is probably the predisposing cause to acute dilatation of the stomach, both postoperative and spontaneous. It is the pathologic basis of recurring bilious attacks. It may be found in association with duodenal and gastric ulcer. Its relationship to chronic biliary and pancreatic infections, while not yet established, is worthy of further study. In cases of rapid collapse and death after the perforation of a duodenal ulcer the signs of chronic duodenal obstruction should be looked for.

Dublin Journal of Medical Science

October, 1921, 4, No. 20

- Reconstruction of Joints. W. I. de Courcy Wheeler.—p. 433.
Case of Diffuse Scleroderma. J. Craig.—p. 453.
Disability Associated with Congenitally Separate Tuberosity of Tarsal Scaphoid. A. K. Henry.—p. 454.

Lancet, London

Nov. 12, 1921, 2, No. 5124

- *Medical Aspects of Some Urinary Diseases. T. Horder.—p. 989.
*Postural Proteinuria. G. A. Harrison.—p. 991.
*Essential Causes of Adenoids and Their Association with Rickets. H. Merrall.—p. 994.
Unhealthy Tonsils and Cervical Adenitis. W. G. Howarth and S. R. Gloyne.—p. 997.
Study of Dysentery in Field, with Special Reference to Cytology of Bacillary Dysentery and Its Bearing on Early and Accurate Diagnosis. J. Anderson.—p. 998.
Shrapnel Injury to Petrous Bone. H. L. Whale.—p. 1002.

Importance of Infection as Cause of Urologic Diseases.—Horder stresses the importance of recognizing the presence of an infection in cases of enlarged prostate, kidney stone and other urinary lesions.

Postural Proteinuria.—Harrison is of the opinion that true proteinuria probably never reappears in the recumbent position in cases of cyclic proteinuria. If proteinuria does recur while the patient is lying in bed an organic lesion should at once be suspected. True proteinuria is emphasized because it is obviously necessary to make certain that the protein does not come from other parts—e. g., the vagina. Posture appears to be an important factor in causation but not the only factor, because in three cases on certain days protein disappeared from the urine while still in the upright position. The albuminuria of a small organic kidney lesion may be postural in type, or in other words, the amount of protein may fluctuate in organic albuminuria so as to simulate a

condition of functional cyclic albuminuria. In the latter condition, however, once the protein has disappeared from the urine as a result of lying down, it probably never reappears while the ordinary recumbent position in bed is maintained. It is possible that in certain cases of mild organic disease of the kidney (or other part of the urinary tract) the proteinuria is postural in type simply owing to the drainage of the foci of disease in the erect attitude. The fact that in postural proteinuria the "albumin" may appear, then disappear, and then reappear (the erect posture being maintained throughout) should operate against claiming cures as a result of any particular treatment.

Cause of Adenoids and Rickets.—Merrall believes that the essential element in the causation of adenoid vegetations is the overworking of the lymphatic glands situated behind the soft palate by repeated colds and by the exanthemata. Nasopharyngeal catarrh extends into the alimentary canal and affects both digestion and assimilation; exaggerated lymphocytosis and swollen lymph glands rapidly lose their protective influence owing to fibroid changes, besides the swallowing of large quantities of infected mucus, a drain on the system from the overproduction of lymphocytes causing anemia—to say nothing of the abnormal secretion of the connective-tissue element containing mucin and of the lessened alkalinity of the blood.

Medical Journal of Australia, Sydney

Oct. 8, 1921, 2, No. 15

- Indications for Blood Transfusion and Methods of Testing Blood of Donors. V. Hurley.—p. 275.
Blood Transfusion. W. D. Upjohn.—p. 279.
Limping as a War Injury. W. L. Potter.—p. 284.
Two Fatal Cases of Acute Asthma in Children. J. de B. Griffith.—p. 287.

Oct. 15, 1921, 2, No. 16

- Medical Practice of To-Day. A. C. F. Halford.—p. 303.
Hibb's Vertebral Fusion Operation. Summary, with Notes upon Operation in Two Cases. A. S. M. Tymms.—p. 309.
Case of Acute Frontal Sinus Suppuration, Followed by Multiple Frontal Lobe Abscesses. R. G. Brown.—p. 313.
*Case of Subacute Volvulus of Sigmoid Colon with Pulmonary Features. H. Harbison.—p. 315.
Uterine Incisional Hernia. J. C. Robertson.—p. 316.

Subacute Volvulus of Sigmoid Colon.—The subacute onset and course, the leukopenia, the remittent temperature, the spurious diarrhea and the pulmonary features, make the case cited by Harbison an extremely interesting one. The differential diagnosis was between intestinal obstruction, diaphragmatic hernia, enterica, tuberculous peritonitis, or some supradaphragmatic lesion, such as pneumothorax. Laparotomy revealed an enormous distention of the large bowel, with a volvulus of the sigmoid, which presented two and one-half twists in a counter-clockwise direction. This was untwisted, the distended bowel was punctured and delated, the puncture invaginated and sutured and the abdominal wall closed up. The patient died. At the postmortem examination the following pathologic changes were observed: A terminal peritonitis was found, associated with a colossal dilatation of the colon, 22.5 cm. in diameter, which, while affecting the whole of the large intestine, especially involved the sigmoid descending colon and splenic flexure. The splenic flexure was ballooned in direct relationship to the left side of the diaphragm, which was elevated to the third interspace. The lower lobe of the left lung was completely collapsed, being solid, blue and airless and sank in water. The heart was displaced across to the right side of the chest, so that less than one third of its area was situated to the left of the sternum. It was found that the splenic flexure and transverse colon were enabled to produce such an intensive local effect on the left half of the diaphragm owing to the almost complete absence of the left lobe of the liver, which organ presented a compensatory hypertrophy in the shape of a right Riedel's lobe. The mesosigmoid was remarkable. While its base was not more than 7.5 cm., its length and height were 30 cm. and 22.5 cm. respectively. In consequence, there was great mobility of the sigmoid flexure, with every opportunity for twisting on a limited pedicle. The interior of the colon was filled with fluid feces, while its walls were atonic, thin, somewhat inflamed and markedly ulcerated, the closely set stercoral ulcers extending to the muscular coat.

Bulletin de l'Académie de Médecine, Paris

Oct. 18, 1921, 86, No. 33

- *Experimental Increase of Phagocytosis. G. Yoannovitch.—p. 189.
- *Diphtheria in the New-Born. S. Brindeau.—p. 191.
- Pseudohypertrophic Muscular Atrophy. Rémond and Minvielle.—p. 192.

Experimental Exaggeration of Phagocytosis for Tubercle Bacilli.—When human tubercle bacilli are injected into pigeons, there is such active phagocytosis around the focus that it is rapidly walled in and the active phagocytes extinguish the focus. Yoannovitch relates that he was able to confer this same active phagocytosis on guinea-pigs so that the focus was obliterated in them also. The means by which he accomplished this was by inducing resorption of the bodies produced by fermentative destruction of tubercle bacilli and administered by parenteral injection. This is a form of protein therapy, but with a supplementary specific factor. He exposed the tubercle bacilli to the action of pepsin in a 0.3 per cent. solution of hydrochloric acid for two weeks, and then to the action of trypsin in an alkaline solution for another two weeks, and then mixed the two and injected the mixture subcutaneously in guinea-pigs. The result was an activation of phagocytosis which showed that conditions in the guinea-pig had been artificially transformed into conditions like those in the naturally refractory. This was confirmed, he says, by the microscope in each instance.

Diphtheria in the New-Born.—Brindeau cites a recent small epidemic of puerperal fever for which the diphtheria bacillus was responsible, and states that, in his own service, nine new-born infants presented diphtheric coryza and all died but one, notwithstanding antitoxin treatment. After this he injected each infant at birth with 5 c.c. of antitoxin, and the epidemic was arrested at once.

Bulletin Médical, Paris

Oct. 29, 1921, 35, No. 44

- *What We Should Ask of Radiography. E. Sergent.—p. 857.
- *Tuberculous Tracheobronchial Glands. H. Méry.—p. 863.
- *Tuberculous Antibodies. P. F. Armand-Delille.—p. 866.

Radiography of Pulmonary Tuberculosis.—Sergent reviews what the physician can and should ask of radiology in regard to the diagnosis and the course of pulmonary tuberculosis. It is important and indispensable for the differential diagnosis and for the diagnosis of the location and estimation of the course. It has largely contributed to reveal the truth in regard to tuberculosis as a disease of childhood which pursues its course insidiously or noisily all through life. Bécclère has a set of roentgenograms of the same person taken serially during childhood and into adult life—the findings corresponding exactly with the interpretation of the ordinary run of cases at different ages.

Tuberculous Tracheobronchial Glands.—Méry tabulates the physical signs of mediastinal and hilus tuberculous glands, and the means to determine whether the disease process is active or healed. The clinic and radiology, and possibly the reaction of fixation, will reveal the active cases, and we must not alarm the family on account of some old calcified and healed process.

Tuberculosis Antibodies.—Armand-Delille says that two good antigens are now available for research on the antibodies in the blood serum of the tuberculous. These antigens are Besredka's egg culture and Bocquet and Nègre's methylic antigen. The formulas for both have been published, and they allow serial titration of the antibody content by the deviation of complement. In 109 tuberculous patients, 7 healthy persons, and 10 other subjects known to have an unusual antibody content, tests with these two antigens showed that the reaction is specific, and that the titration of antibodies corresponds on the whole to the clinical manifestations, although 3 clinically healthy gave a weak reaction. It is possible that these 3 have some latent focus, enough to induce production of a low titer of antibodies. The deviation of complement reaction does not parallel the skin tuberculin reaction, and does not have the same significance. It does not occur until the focus is well established, but systematic study of it offers promise of progress.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 21, 1921, 45, No. 29

- *Arsenical Erythroderma. Gougerot, p. 1339.
- *Syphiloid Hypochromia of the Neck. Gougerot.—p. 1347.
- *Hiccup with Erysipelas. Casteran and Railliet.—p. 1350.
- *Otitis in Young Infants. M. Renaud.—p. 1352.
- *Heart Block of Traumatic Origin. C. Laubry et al.—p. 1363.
- *Arsenicals Arrest Coagulation in Blood for Transfusion. C. Flandin, A. Tzanck and Roberti.—p. 1373.
- *Heliotherapy in Tuberculous Peritonitis. P. F. Armand-Delille.—p. 1374.

Arsenical Erythroderma.—Gougerot protests against the assumption that because arsenical treatment has been vigorous enough to induce an erythroderma, the syphilis has been necessarily conquered. In seven wartime cases he witnessed recurrence of symptoms afterward in one instance, and one in seven cases this year, but none in 1920.

White Patches on Neck Suggesting Syphilis.—Gougerot calls attention to the white spots sometimes left by the lesions of ordinary eruptions which may be mistaken for syphilitic leukomelanoderma. They are usually noticed as the skin around tans in summer; search elsewhere on the body will generally reveal other traces of the eruption or seborrheic eczema.

Persisting Hiccup with Erysipelas.—The hiccup developed with the erysipelas, and persisted for fourteen days, very severe, sometimes continuing during sleep. There were no signs of epidemic encephalitis and no other cases of hiccup were known in the region.

Otitis in Infants.—Renaud remarks that of the 39 infants in his infant ward on September 11, it happened that 34 required treatment for otitis, and 3 were under observation for it. The ears seemed to be sound in only 2. Gastro-intestinal disturbances used to be the main clinical picture in his *pouponnière*, but in the last few months since he discovered the amazing prevalence of otitis in the infants, instead of devoting his energies to prescribing and modifying the way the infants are fed, he has focused his attention on the ears. The diagnosis is based on cultivation of pus aspirated by puncture; the tympanic membrane may look red or normal. When the child is growing worse, the otitis may be surmised even without an examination. In 50 cases of the kind the otitis was well established when the child was brought for treatment of its gastro-intestinal disturbance. In the majority, the otitis passes into a slow subacute phase, after the stormy infectious-toxic onset, but this leads to athrepsia, analogous to the cachexia of extensive suppuration. In 90 per cent. of the cases the otitis was bilateral. Even although there may be no signs of mischief on the other side, opening up the mastoid may reveal it full of pus. One robust 16 months infant had been emaciated by six weeks of a dysenteriform enteritis when Renaud first saw the child. The torpor then indicated meningitis, but the tympanic membrane in one ear was pink, and puncture released a flood of pus from each ear, and recovery was soon complete. In the discussion that followed, Hallé commented on Renaud's "rather adventurous raid into nursing pathology." He stated that mucopus from the throat may get into the middle ear when the ear itself is sound. The pus may even spread to the mastoid in this way, as the child lies on its back, and thus may simulate mastoiditis at necropsy. Otitis should be suspected whenever the color of the child's face is seen to vary abruptly during the day, now pale, now congested.

Traumatic Heart Block.—After a contusion of the left chest five years ago, the young woman's heart beat tumultuously for a day and then quieted down. As this occurred, the pulse dropped permanently to 40.

Arsenical-Treated Blood for Transfusion.—Flandin and his co-workers utilize in transfusion the property of the arsenicals to prevent coagulation. They draw the blood into a glass containing a little of the solution of the arsenical, and reinject it at once into the vein of the patient.

Tuberculous Peritonitis.—Armand-Delille reports the cure under heliotherapy for four months at Paris of a young woman in grave cachexia with considerable ascites. Three laparotomies had failed to arrest the tuberculous peritonitis. The sunbaths were taken, naked, for three hours morning and afternoon.

Journal de Radiologie et d'Electrologie, Paris

September, 1921, 5, No. 9

- *Deep Roentgen-Ray Therapy. Bécère.—p. 385.
 Electric Treatment of Bladder Disease. Courtade and Cottenot.—p. 392.
 Pneumoperitoneum in Radiodiagnosis. L. Mallet.—p. 401.
 Radiography of the Fifth Lumbar Vertebra. J. Garcin.—p. 410.
 Forward Luxation of Mediocrarpal Joint. Douarre.—p. 413.
 Dangers of Irradiation and Means to Avoid Them. A. Broca.—p. 414.

Deep Roentgen-Ray Therapy.—Bécère expatiates on the great progress realized by the deep irradiation now possible, but he warns against exaggerated hopes, and cites instances of failure and also of direct injury. Several German writers have reported dysenteriform symptoms following cross-fire exposures of the uterus, with bloody stools and membranous exfoliation. These symptoms generally subside harmlessly, but a few instances have been published of rebellious ulceration in the bowel or ultimate stenosis, sometimes fatal, after exposure of the uterus. Some statistics recently published compare ninety cases of sarcoma treated with roentgenotherapy before 1905, with the technic then in vogue, and a series of 117 sarcomas treated by Seitz and Wintz during and since 1919. In the first series 20 per cent. of the tumors disappeared under the exposures, and in the second series 33.33 per cent.; this is a gain, but not so much as might be anticipated. The proportion of rebellious cases is about the same in both series, ranging from 20 to 33.33 per cent. Evidently the susceptibility of sarcomas and carcinomas varies from case to case, and may be slight. Kehrer's practice is to determine the susceptibility beforehand; for this he gives a preliminary irradiation with radium for six hours, and then, four days later, excises a scrap for microscopic examination. This reveals the type of the neoplasm and the effect of the irradiation. By this means he can estimate whether to apply radium alone or associated with the roentgen rays, or whether surgical extirpation offers better prospects of a cure, the cancer cells proving resistant to the rays.

Journal d'Urologie, Paris

September, 1921, 12, No. 3

- *Transplantation of Testicles. G. Bolognesi.—p. 153.
 *Giant Bladder Stones. R. H. Kummer and P. Brutsch.—p. 175.
 Malformation of External Genital Organs in Woman. L. Sencert and A. Boeckel.—p. 193.

Testicle Transplants.—Bolognesi expresses surprise that so little attention has been paid to separating the two elements, the seminiferous and the interstitial, in estimating the effect of transplantation of testicles. He has succeeded in experimentally reducing the testicle to a small organ consisting exclusively of interstitial tissue. He has then transplanted these testicles, thus reduced to a mere "interstitialoma," by total epididymodeferentectomy. The dogs and laboratory animals receiving these implants never displayed any modification in the general or sexual function suggesting any influence from the implanted testicles. There were aged animals among them but none showed any rejuvenating influence from the grafts. One experiment was made on a man of 18 with marked infantilism; no secondary sexual characters had developed, and no effect was evident after implantation of the interstitialoma testicle from a dog. Bolognesi's research thus tends to demonstrate that the rejuvenating influence from testicle transplantation cannot be due to the interstitial element. He reviews the literature on testicle transplantation, all the data presented confirming the importance of the seminiferous tissue, and proving the absolutely negative share of the interstitial element in the rejuvenating influence from operations involving testicles.

Giant Bladder Calculi.—Kummer and Brutsch have compiled 104 cases of bladder calculi weighing over 100 gm., and tabulate the details with the bibliographic references. They have only one feature in common; that is, the absence of any symptoms until they are far advanced. The combination of a free calculus with one in a diverticulum was known in only 3 of the cases, including one described in detail in which the three calculi weighed 585 gm. in all, with a total bulk of 363 c.c. In 6 of the cases listed, the calculus weighed from 1,020 to 1,816 gm., and all recovered after its removal by suprapubic incision except the one with the very largest. There are only 4 women in the entire list.

Paris Médical

Oct. 22, 1921, 11, No. 43

- *Eruption on Children's Hands. G. Thibierge and R. Rabut.—p. 309.
 *Minor Ocular Signs of Diabetes. F. Terrien.—p. 312.
 *Hypotensive Action of Epinephrin. J. Girou.—p. 315.
 *Micrococcus Catarrhalis Meningitis. Cot and Robert.—p. 318.
 *Prevention of Measles. G. Blechmann and Geismar.—p. 321.

Spring Eruption on Hands of the Young.—The eruption is papulous and pruriginous, and in all but two of the nine cases reported the children, from 4 to 12 years old, had not left the city. No contact with flowers was known. The cases all developed in May. Some improved under ichthyol, others on talcum powder, others under camphor or sulphur salve. It is liable to be mistaken for scabies. The eruption was on the back of the hands, and in some of the children on the back of the neck also. It did not seem to be contagious.

The Ocular Signs of Diabetes.—Terrien refers to disturbances in refraction and accommodation as minor ocular signs of diabetes. The frequency and the suddenness of their onset may have diagnostic value. Myopia in particular is a frequent complication of constitutional disease, especially syphilis and diabetes. A congenital predisposition is probably the main factor, but the intercurrent disease is the occasional cause, promoting distention while reducing the resisting powers of the tissues.

Epinephrin May Reduce the Blood Pressure.—Girou affirms that our conception of the action of epinephrin needs revision. In more than 100 test subcutaneous injections of 1 mg. epinephrin, given to stimulate the weakening heart, the blood pressure dropped in 80 per cent. The trend to larger doses is more evident every day, although we are still far from Kirckheim's 48 mg. a day. Girou contends that the doses in vogue should be much larger, and in his own practice, both medical and surgical, and in asthma, and with a local anesthetic, he goes beyond the textbook doses. He cites some American publications to sustain his statement that small doses lower and large doses raise the blood pressure. The age of the solution may also cooperate.

Meningitis from Micrococcus Catarrhalis.—Cot and Robert cultivated this micrococcus and an enterococcus from the spinal puncture fluid. The meningitis was mild, but the thirty-second day orchitis, of the mumps type, developed.

Immunization Against Measles.—This is a summary of the experience of Richardson and Connor published in THE JOURNAL, April 12, 1919, p. 1046.

Oct. 29, 1921, 11, No. 44

- *Endocrinology from Psychiatric Standpoint. Laiguel-Lavastine.—p. 325.
 Tuberculous Cysts in Wrist. H. Gougerot.—p. 333.
 *Perforation of Palate from False Teeth. Rouget and Pommereau.—p. 336.
 The Paratyphoid C Bacillus. C. Zoeller.—p. 337.

Bearded Women.—Lavastine remarks that hypertrichosis in women has biologic and psychiatric importance, as he shows by various types described and review of recent literature on the subject. He says that amenorrhea is the rule in bearded women, with few exceptions. In nunneries, the obligation to cut the hair every month seems to have some connection with the gradual loss of menstruation in some of the nuns. Hairs contain arsenic, iodine and phosphorus, and these abound also in the menstrual blood. When menstruation is scanty and these elements are retained in the body, the hypertrichosis might be regarded as a compensating reaction. Besides the sexual, the fetal and the nevus types of hypertrichosis, there is the syndrome characterized by hypertrichosis, adiposis with masculine aspect, and genital disturbances, amenorrhea and virilism. In Mauclair's case, the hypertrichosis disappeared after removal of a suprarenal tumor. In five cases personally observed, the hypertrichosis accompanied various psychopathies, and he emphasizes the distinction between hypertrichosis with tendency to glycosuria and hypertrichosis with tendency to periodic psychoses. His endocrine tests on this group of five bearded women show, he says, that bearded women *gardent le vestibule de l'endocrino-psychiatrie*.

Perforation of Palate from Plate of False Teeth.—The perforation occurred at the point where the suction valve was applied to hold the set of teeth in place by vacuum suction.

Presse Médicale, ParisOct. 26, 1921, **29**, No. 86

- *Surgical Treatment of Goiter in Switzerland. J. C. Bloch and J. Charrier.—p. 853.
Local Anesthesia for Removal of Cancer in Mouth and Pharynx. H. Aboulker.—p. 854.
*Periarterial Sympathectomy. R. Leriche and J. Haour.—p. 856.

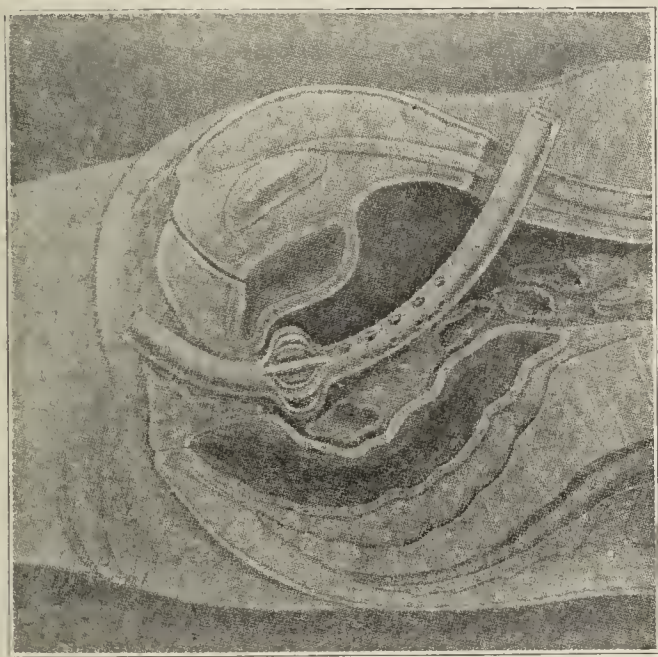
Surgical Treatment of Goiter.—Bloch and Charrier comment on the differences in the technic they noted during a recent trip to Switzerland. The inferior thyroid artery is always ligated first, and in exophthalmic goiter the other side is left intact. As much of the thyroidectomy as possible is done on the one side. If further intervention is required, there are no cicatricial changes on the other side to impede it.

Influence of Periarterial Sympathectomy on Healing of Wounds.—Leriche and Haour expatiate on the remarkable action of periarterial sympathectomy on healing of rebellious ulceration or torpid wounds. A lesion that has been dragging along for months may heal in a week after the sympathectomy. This healing is evidently traceable to the peripheral vasodilation which follows in a few hours below the plane of the operation. The experiments on dogs related confirm that the activation of circulation in the peripheral tissues stimulates the processes of repair.

Oct. 29, 1921, **29**, No. 87

- Treatment of Leprosy. F. de Mello.—p. 861.
*Draining After Abdominal Hysterectomy. M. Dartigues.—p. 861.
Local Organic Apparatus. A. C. Guillaume.—p. 864.
Analogies Between Herpes and Encephalitis. J. Rouillard.—p. 865.

Draining the Peritoneum After Abdominal Hysterectomy.—Dartigues gives eight large illustrations of the technic for abdominal panhysterectomy with a large rubber drain pass-



Self-retaining umbrella drain tube.

ing entirely through, one end emerging from the abdominal incision, the other from the vagina. Besides the numerous openings in the central portion of the drain he has the portion just above the vagina slit lengthwise to form six strips which bulge out as the ends of the drain are pushed together. The bulging out of the six strips forms an elastic collar which holds the drain from slipping down into the vagina, while free drainage proceeds, unhampered by wicks, etc. When this "umbrella drain," as he calls it, is to be removed, traction on the two ends at once stretches the slits. They stretch out and close "the umbrella," restoring the normal diameter to the tube. It can then be easily pulled out through the vagina.

Schweizerische medizinische Wochenschrift, BaselOct. 6, 1921, **51**, No. 40

- Kidney Disease in the Pregnant. Chassot.—p. 913.
*Impending Perforation of Gastric Ulcer. H. Ryser.—p. 923.
Examination in Otolaryngology for Degree. Siebenmann.—p. 926.

Signs of Impending Perforation of a Gastric Ulcer.—Ryser comments on the enormous importance of operating before

the perforation has done much harm. His experience in his own fourteen cases of perforation has shown the constancy of the clinical picture: Extremely violent pains in the stomach, sometimes accompanied with bleeding in the stomach, and not influenced by bed rest and dieting, had preceded the perforation by five, seven, eight and twelve days in four of his cases. These rebellious pains warn of impending perforation. A further warning was given in one case by localized tenderness in the epigastrium. The operation revealed that this corresponded to a small patch of peritonitis as infectious material had passed through the thin stomach wall, weakened at the point of the impending perforation. The warning pains are due, he thinks, to the ulcer eating down into the depths and thus reaching the nerves in the fundus of the ulcer, and to irritation of the peritoneum covering the wall outside. Rebellious pain must not be regarded as a warning of impending perforation unless there is a history pointing to a long established gastric ulcer, and the site and other features of it are known. In the four cases mentioned there had been from four to ten years of ulcer disturbances, and clinical examination had located the ulcer in the pylorus region. In two of the four cases, informed by telephone of the onset of the pains, he recognized the impending perforation and prepared for the operation in time to arrest the perforation or minimize the damage therefrom.

Annali d'Igiene, RomeMay, 1921, **31**, No. 5

- *Arbutin in Testing Cholera Vibriones. M. Pergola.—p. 265.
The Water Supplies of Istria. M. Gioseffi.—p. 272.
*Behavior of Salts on Gelatin. A. Scala.—p. 289.
Water Instead of Alcohol for Staining Sputum. Rigobello.—p. 306.
*Preparing Colloidal Gold for Lange Reaction. N. Pietravalle.—p. 309.

Arbutin in Bacteriology.—Gosio found that tubercle and dysentery bacilli split arbutin in a characteristic way, useful in differentiation, and Pergola here announces that it can serve in the same way for the recognition of cholera vibriones. Strains that do not modify the arbutin are certainly not of the cholera-producing type, nor those that attack it very actively. The true cholera strains split arbutin, but only slowly and with scant energy.

Behavior of Salts with Gelatin.—Among Scala's conclusions from his research is that the anions and cations of the salts, acting on colloids, rinse out separately. This with other facts observed testifies that the union of the salts with the colloids is a true chemical combination, and that these combinations behave, in respect to water, according to the new properties acquired.

Preparing Colloidal Gold.—Pietravalle has simplified the technic for the colloidal gold used in the Lange test, and states that he was constantly successful with his new method in obtaining a good suspension. He added to 100 c.c. of distilled water 1 c.c. of a 1 per cent. solution of gold chlorid and 1 c.c. of 2 per cent. solution of potassium carbonate. This was heated over a flame and, as it began to boil, he added 1 c.c. of a 0.5 per cent. solution of glucose and continued the boiling. The fluid in about a minute turns violet and in a few seconds the tint becomes a brilliant purple, and it is then removed from the flame.

Archivio Italiano di Chirurgia, BolognaOctober, 1921, **4**, No. 1

- *Tuberculous Granuloma Obstructing Pylorus. G. Lusena.—p. 1.
*Blocking the Splanchnic Nerves. G. Rodi.—p. 32.
*Visceral Ptosis. G. Parlavecchio.—p. 43.
Solitary Lipoma on Scalp. N. Novaro.—p. 55.
*Cystic Lymphangioma. A. Kraus.—p. 63.
*Hydatid Cyst in Tibia. A. Lesi.—p. 86.

Tuberculous Granuloma Obstructing Pylorus.—Lusena reports a case in a woman of 55, treated by gastro-enterostomy. He summarizes 9 cases of the ulcerative type of a tuberculous lesion of the pylorus region, and 12 of the infiltration type, and 28 in which the tuberculous lesion was in the form of a tumor. In 17 cases the tuberculous lesion was outside of the stomach and compressed the pylorus from without. This brings to 66 the total of cases of pylorostenosis of tuberculous origin he has found on record in Europe.

Blocking the Splanchnic Nerves.—Rodi has been testing on the cadaver the various technics for blocking the splanchnic nerves and the solar plexus with Kappis' posterior injection. Rodi warns that if the lowest rib is abnormally low and abnormally slanting, Kappis' posterior technic is not applicable. Any abnormal curvature of the spine must also be taken into account.

Visceral Ptosis.—Parlavecchio discusses the diagnosis and treatment of gastro-intestinal and nervous disturbances for which visceral ptosis is responsible. The sagging organ pulls on others, on nerves, on endocrine glands, and induces disturbances of all kinds which may be ascribed to everything but the right cause. The sagging liver, for instance, may twist a little on its axis, and gallstone cholecystitis may be set up in consequence. He has scarcely ever encountered a case of gallstone cholecystitis without ptosis of the liver. Cases diagnosed and treated as neurasthenia are often merely the consequences of ptosis of a kidney or the uterus, promptly curable by fixation of the sagging organ. One young woman threatened with insanity from the effects of right nephrop-tosis was restored to health by a nephropexy, while another refused the operation. It was done finally in the insane asylum, but the psychosis was of too long standing then for a cure to be possible. Among the arguments he presents as to the participation of the sympathetic and endocrine systems in the disturbances from visceral ptosis is the striking analogy between the nervous and psychic disturbances with thyroid disease in persons free from visceral ptosis, and the nervous and psychic disturbances in persons with visceral ptosis but with normal thyroid. In examining for ptosis the subject must stand and breathe deep, as we palpate the viscera, especially the kidneys. The fixation of the organ by suspension imitates Nature's methods best, and the earlier it is done, the better. Besides restoring the organ to its normal place we must seek to restore the nervous and endocrine balance. For this we may have to act on the sympathetic nervous system, either by resection, by stretching the nerve, or by electrolysis or other means to block conduction. The balance in the endocrine system may have to be restored by organotherapy in addition. The main point he emphasizes, however, is to think of the possibility of visceral ptosis and take measures accordingly, instead of wasting precious time on treatments on a mistaken basis.

Cystic Lymphangioma.—Kraus reviews the literature on this subject and reports a case in a 2 year infant. The tumor was in the front and side of the right chest and weighed 1.05 kg. after extirpation. These cystic lymphangiomas are congenital, and their complete removal has given good results.

Hydatid Cyst in the Tibia.—Lesi scraped out the cavity in the upper tibia and applied a large plaster cast, and the surgical recovery was complete in a few months. In the nearly 100 cases on record of echinococcosis in bones, the pelvis, humerus, tibia, vertebrae and femur were affected most frequently, and in the order named. It is among the gravest diseases of the bones. In his case the upper tibia was reduced to a mere shell for three quarters of its circumference and the cavity did not show healthy granulation for nearly three months, and ankylosis of the knee resulted from the inflammation and long immobilization.

Pediatrics, Naples

Oct. 15, 1921, 29, No. 20

Malignant Lymphogranuloma in Boy of Five. F. Lo Presti-Seminario.—p. 921.

*Cystic Degeneration of Spleen in Internal Leishmaniasis. M. Mallardi.—p. 934.

Banti's Disease in Children. A. F. Canelli.—p. 938. Cont'n.

Cysts in Spleen in Internal Leishmaniasis.—The cystic degeneration of the spleen was ascertained by puncture of this organ as the leishmaniasis in the child of 18 months seemed to be growing worse under treatment with antimony and potassium tartrate. Mallardi concluded that the drug had been given too vigorously, and when it was suspended for a time and then resumed in small doses, at longer intervals, complete recovery followed.

Policlinico, Rome

Oct. 24, 1921, 28, No. 43

*Bromoderma. S. Pulvirenti.—p. 1427.

Factitious Dermatitis. G. Marengo.—p. 1432.

Vaccine Therapy and Serotherapy Against the Streptococcus and Staphylococcus. I. Corradi.—p. 1434.

Hunger Syndrome in War Prisoners in Austria. G. de Toni.—p. 1439.

Bromoderma.—The eruption had been noted for eight months, the first appearance following a burn from a hot water bottle. The patient was a woman who for years had been taking potassium bromid for severe epilepsy. The inefficacy of all local measures and the gradual subsidence when the bromid was discontinued and phenobarbital used instead, confirmed the nature of the extensive dermatitis on the leg, while the epilepsy was materially improved at the same time.

Riforma Medica, Naples

Oct. 1, 1921, 37, No. 40

*Composition of Blood in Nephritis and Uremia. G. Poggio.—p. 937.

Primary Cancer in Appendix; Two Cases. S. G. Giardina.—p. 944.

Osteomyelitis of Fibula. M. Valentini.—p. 946.

*Testicle Tissue Promotes Healing of Wounds. E. Aievoli.—p. 947.

The Blood with Kidney Disease.—This comprehensive report covers research on the physicochemical changes manifest in the blood during acute or chronic nephritis, nephrosis from mercuric chlorid poisoning, uremia, and in heart disease with derangement of the circulation in the kidneys. Poggio estimated in each of the total twenty-six cases the carbon dioxid in the blood and alveolar air, and the hydrogen ions in the blood, applying the tests with and without the influence of drugs. The carbon dioxid in blood and alveolar air may aid in differentiating between kidney disturbances from circulatory and from essential functional changes, the findings being normal or above normal in the former.

Testicle Tissue Promotes Healing.—Aievoli recalls that in 1890 he published his success in promoting the healing of torpid and rebellious varicose ulcers and healing of burns by applying thin slices of testicle parenchyma directly to the lesion. The excellent result was constant. He remarks that at that time endocrinology was in a nebulous phase, and this work of his was almost the first solid fact obtained. He used the testicles of rabbits and guinea-pigs, cats, dogs and sheep. Others recently have called attention to the efficacy of testicle pulp in promoting the healing of wounds.

Rivista di Clinica Pediatrica, Florence

July 26, 1921, 19, No. 5

*Dyspepsia in Artificially Fed Infants. D. Veronese.—p. 257.

Do Not Dilute Milk Too Much. F. Silvestri.—p. 268.

*Indicanuria in Children's Diseases. T. Nigro.—p. 278.

*Gonococcus Infection in Children. L. Frassi.—p. 290.

Dyspepsia in Artificially Fed Infants.—Veronese explains that when, as in his district (Padua), cow's milk is exceptionally poor in fats, and such milk is diluted according to textbook directions, the infants do not get enough nourishment. The digestive disturbances are part of the clinical picture of inadequate feeding and oversupply of water.

Indicanuria in Children.—Nigro has simplified Strauss' test for indican in the urine, as he explains, and commends this technic as convenient for children. He gives the findings in eleven cases of measles.

Gonococcus Infection in Children.—Frassi reports some cases which confirm that gonococcus infection is a general rather than a local process, and that vaccine therapy is an aid in the differential diagnosis as well as in curing the infection. In nine cases in little girls, with or without complications, the vaccine alone was used, and complete recovery is recorded for each. From four to eleven injections were made; the subsidence of the vaginal secretion is more rapid than under any other treatment. This is a special advantage as it reduces the danger of contagion of the eyes and of others. It also prevents the passage into the chronic stage which is particularly liable in the small and hymen-blocked child vagina. He has not been able to find any instance on record of complications developing after vaccine therapy. A stock vaccine was used.

Rivista Critica di Clinica Medica, Florence

Sept. 15, 1921, 22, No. 26

*Epilepsy plus Polyclonia. N. Niccolai.—p. 301. Begun No. 25, p. 289.

Polyclonia Plus Epilepsy.—Niccolai reports from Venice the case of a previously apparently healthy girl of 16 who, after a fright from an aviator's bomb, developed epileptic seizures. In the course of two or three years this was supplemented by clonic spasms in the intervals, and mental derangement. The clinical picture was thus the typical one described by Unverricht in 1891 as he first saw it in five children in one family with an alcoholic father. Niccolai compares with his the similar cases on record. It seems probable that according as the morbid stimulus acts suddenly and violently on the predisposed area in the cortex, or slowly and insidiously, epileptic seizures or clonic spasms develop. That it is true epilepsy, however, is demonstrated by the character of the progressive mental impairment.

Anales de la Facultad de Medicina de Lima

March-April, 1921, 4, No. 20

*Ernesto Odriozola. H. Valdizan.—p. 90. Idem. J. F. Valcga.—p. 106.

*Fatty Degeneration of the Heart. E. Odriozola.—p. 108.

*Grave Carrion's Disease. E. Odriozola.—p. 121.

Allen's Method in Treatment of Diabetes. Idem.—p. 132.

Odriozola's Life Work.—This memorial number of the *Anales* lists 227 articles from the pen of the late professor of clinical medicine at Lima, and reproduces chapters from two of his larger works that were published in French.

Archivos Españoles de Pediatría, Madrid

August, 1921, 5, No. 8

*Treatment of Tuberculous Peritonitis. M. Vázquez Lefort.—p. 449. Conc'n No. 9, p. 513.

*Pituitary Dwarf Growth. G. Marañón and J. Solanilla.—p. 467.

Tuberculous Peritonitis in Children.—Vázquez emphasizes the necessity for getting rid of the ascites, but he lays equal stress on the necessity for doing this only by the natural emunctories, not by puncture. The exudate contains antibodies, and we must not drain these away by puncture, but divert the fluid by purgatives and diuretics. In differentiating a tuberculous exudate, he relies on the Rivalta test and on the higher agglutinating power of the fluid in comparison to the blood. A high agglutinating power indicates a better prognosis. The Rivalta reaction is the opaline streak, like a spiral of tobacco smoke, that forms when a drop of the ascitic fluid is dropped into 50 c.c. of water containing one drop of a 0.5 per cent. solution of acetic acid or 8 to 10 drops of white vinegar. If mechanical disturbances compel paracentesis, injection of air may have a curative influence. In one boy, the ascites kept returning after a laparotomy, and after aspirating 21 liters and then 16 liters, he injected air and there was no return of the exudate. Injection of a medicated fluid seldom has more than transient effect; better results have been realized occasionally with injection of 4 to 6 liters of boiled water at a temperature of 40 to 45 C. (104 to 113 F.), although this is not constantly effectual. It might be well to combine paracentesis with injection of water, and conclude with injection of air.

Pituitary Origin of Dwarfism.—Marañón and Solanilla present evidence that in all cases of true dwarf lack of growth, the anomaly is the result of deficient functioning of the anterior lobe of the hypophysis cerebri. In a case described the boy of 15 measured 1.24 m. and weighed 32 kg. and radiography showed the sella turcica abnormally small and flat. The case can be classed as an instance of the pituitary adiposogenital syndrome plus pituitary dwarfism.

Revista de la Asoc. Méd. Argentina, Buenos Aires

August, 1921, 35, No. 202

Susceptibility to Toxins of Suprarenalectomized Rats. II. J. T. Lewis.—p. 529.

*Colloidal Reactions in Spinal Fluid. S. Mazza, C. Mey and Flario Niño.—p. 532. Idem. A. Sordelli and F. Renella.—p. 535.

*Calcium in Blood of Different Species. P. Mazzocco.—p. 539.

*Calcium in Blood of the Pregnant. Id. and R. Bustos Morón.—p. 552.

*Principles for Treatment of Diabetes. H. Salomon.—p. 561.

Pathogenesis of Epilepsy. Nerio Rojas.—p. 572.

*Deep Roentgenotherapy of Tumors. R. Espinola.—p. 585.

*Spontaneous Perforation of Gallbladder. A. G. Gallo.—p. 600.

*Duodenal Diverticula. R. Novaro and A. Galindez.—p. 607.

*Functioning of Gastro-Enterostomy. A. Gutiérrez.—p. 620.

Ombredanne's Method for Grave Hypospadias. R. A. Rivarola.—p. 634.

*Bacteriologic Tests of Drinking Water. J. M. Mesa.—p. 639.

*Committee Report on Regulation of Prostitution.—p. 646.

Suture of Cornea in Cataract Operation. F. Iribarren.—p. 699.

Molluscum Contagiosum of Eyelid. P. Satanowsky.—p. 707.

*Bilateral Cataract from Lightning Stroke. A. Tiscornia.—p. 720.

Colloidal Reactions in Cerebrospinal Fluid.—Sordelli and Renella applied to 140 different cerebrospinal fluids seven different parallel colloidal reaction tests. This experience confirms their diagnostic value, especially of the Lange technic, but a positive reaction is not conclusive as, although these tests are the most sensitive, they are not the most specific.

Calcium in the Blood of Different Species.—Mazzocco describes a simplified method for determining the calcium content of the blood, and tabulates the findings with it in man and in dogs, cats, rabbits, rats, fowls, goats, sheep and cattle. They show that the calcium content of the blood corpuscles and of the plasma is the same for the same species, and about the same in the plasma or serum of the same animal. The average for men was 7.15 mg. per hundred c.c. of whole blood; 9.34 for the plasma and 1.23 for the corpuscles. The average for the whole blood in rats was 6.77; in rabbits, 8.43; in guinea-pigs, 6.02, and in cattle, 6.43.

Calcium in the Blood of the Pregnant.—The figures corresponding to those in the preceding abstract are tabulated from fifty-six women, most of them pregnant. The range in the whole blood was from 7.80 to 9.26, the lower figures being in the pregnant or after delivery, confirming the decalcifying influence of gestation. No connection between the vomiting, albuminuria or gastralgia of pregnancy and the calcium content of the blood could be detected.

Treatment of Diabetes.—Salomon says that he does "not agree with the Americans. . . . The starvation treatment is excellent for the diabetes, but not for the diabetic. We should not cut down calories below the amount compatible with good nourishment and strength. As a rule, about 35 calories per kilogram is the proper average." He thinks that the fear of the dangers from acetone is exaggerated. When the urine is free from sugar, he asserts, there is no danger from even considerable amounts of acetone, aside from very exceptional cases. In this case all the sugar that is derived from the albumin molecule, on a fat and albumin diet, must be utilized or otherwise glucose would be eliminated. The danger begins when both sugar and acetone are being eliminated in large amounts. But even under these conditions he has often kept such patients for years on a strict fat and albumin diet when tests of different foods proved that this diet gave the best results in respect to the elimination of glucose and the general condition. He does not follow this plan except with diabetics who have good stomachs, and he proceeds very slowly to this diet, keeping the balance with bicarbonate, and supervising the acidosis, ready to interpose courses of carbohydrates from time to time as seems necessary.

Deep Roentgen-Ray Treatment of Tumors.—A similar article by Espinola was published in these columns, Nov. 5, 1921, p. 1531.

Spontaneous Perforation of the Gallbladder.—Gallo has had two operative cases of this kind and two of bile peritonitis, the bile oozing through the intact walls of the gallbladder. The success of treatment of perforation depends on the degree of intoxication, and this is dependent on whether the bile is septic or not, and on the delay before the operation. In a case described, a large calculus in the gallbladder, with projecting points, lay opposite the perforation near the neck.

Duodenal Diverticulum.—In the two cases described, the gastric or duodenal ulcer and sagging of the stomach and pylorus had exaggerated the intraduodenal pressure, and a concomitant inflammatory process and general weakening of the wall of the duodenum had cooperated in the production of the diverticulum. It was not congenital.

Gastro-Enterostomy Functioning.—Gutiérrez says that the clinician, the surgeon and the radiologist must combine to study the cause for the closure of the gastro-enterostomy opening in certain cases. This will often show that the chyme

passes out through both the pylorus and the new opening, or predominantly through the pylorus. To prevent this he ligates the pylorus with catgut. This closes it only temporarily, but long enough for the new opening to become accustomed to its task, as the entire contents of the stomach have to pass through it from the first. If the closure of the pylorus is to be permanent, he advocates pylorogastrectomy from the start. The temporary ligation of the pylorus arrests the dynamic physiologic propulsion of the chyme, and it then obeys the laws of gravity and passes out through the new opening.

Bacteriologic Examination of Water.—Mesa extols the advantages of Besson's method for testing drinking water as simple and dependable. He uses a 40 per thousand solution of peptone to which lactose and neutral red are added. The gas formation is estimated by means of an inverted hemolysis tube in the test tube containing the culture medium. The presence of colon bacilli is indicated by the change in tint, the fluorescence, and the production of gas in twenty-four hours.

Regulation of Prostitution.—This is a long committee report on measures to arrest the spread of venereal disease.

Bilateral Cataract from Lightning Stroke.—Tiscornia's patient was a girl of 13 who had been rendered unconscious by lightning coming down the chimney, but there had been no burns or other disturbance except congestion in the eyes and eyelids and photophobia for about two months. A year later cataract began to develop, and he removed it from both eyes by the end of the fourth year. He compares with this case twenty-nine he has found on record in thirty-four publications on electric cataract in thirty-six years, but lightning was responsible in only ten of them.

Revista Médica del Uruguay, Montevideo

September, 1921, 24, No. 9

*Posttyphoid Aphasia. J. Bonaba.—p. 400.

*Ecthyma Simulating Syphilid. J. May.—p. 409.

*Angioneurotic Edema. C. Nario.—p. 413.

*Fibromas and Pregnancy. E. Pouey.—p. 417.

Double Empyema in Child. F. Rodríguez Gómez.—p. 424.

Chronic Deforming Rheumatism. J. Servetti Larraya.—p. 429.

Posttyphoid Aphasia.—In the first of the two cases reported by Bonaba the inability to speak may have been from mutism, but in the other child the aphasia was unmistakable. This child also responded to the Wassermann test. The first child, a boy of 7, regained speech the forty-fifth day of the typhoid; the other not until three and a half months. Landouzy encountered sixteen cases and Dieuzaidi has compiled thirty-seven.

Case of Ecthyma.—The features of May's case of a streptococcus dermatitis deceptively resembled an ulcerative syphilid except for the negative Wassermann reaction. After dragging along for several months under various measures, a prompt cure followed the use of an autogenous vaccine.

Multiple Angioneurotic Edema.—Nario's patient has been having these attacks for nearly fifteen years. Pain is the main symptom. It begins in the precordial region and slowly spreads to the right, and persists almost unbearable for twelve or eighteen hours. It is followed by extreme depression, requiring caffeine, camphor or other stimulants. The woman can tell a few hours beforehand the onset of an attack. They occur less often and are milder in warm weather. Fleeting edema at various points testified to the angioneurotic nature of the process, the pain being evidently the result of edema in the internal organs, causing the erratic visceralgias in the intensely vagotonic state. No benefit was derived from organotherapy, and he warned the family of the possibility of edema of the brain and of the glottis. Later, an attack of sudden symptoms resembling those of grave uremia yielded promptly to venesection and lumbar puncture, realizing his prognosis.

Fibromas and Pregnancy.—Pouey is convinced that sterility is sometimes due to the influence of a myoma in the uterus. In two of the six cases he reports myomectomy was followed by conception. In one case the large fibroma had not prevented ten normal pregnancies, the fibroma growing smaller with advancing years.

Semana Médica, Buenos Aires

Sept. 15, 1921, 28, No. 37

*Ovarian Dermoid Cysts. A. Chueco.—p. 339.

*Effect of Suprarenal Insufficiency. F. L. Soler.—p. 361.

*Fluorids Check Growth. L. Goldemberg.—p. 363.

Dermoid Ovarian Cysts.—Chueco's experience with 5 cases has convinced him of the superior advantages of the vaginal route for removal of a dermoid cyst in an ovary. An exact diagnosis is indispensable not only of the cyst but of the condition of the surrounding organs, as adhesions binding down the uterus, etc., would impede if not prevent a successful operation. His 5 cases are described in full with eight illustrations. In one case the woman was at term with her second child, and the large tumor prevented delivery. On the assumption of a hydatid cyst, the tumor was punctured through the posterior vagina, releasing a large amount of thick sebaceous fluid, after which delivery proceeded normally. Three months and a half later the uterus was separated from the bladder through an anterior colpotomy. The right ovary was found enlarged and cystic, but free from dermoid features, and after ignipuncture it was returned to the abdominal cavity. The other ovary was then clamped and removed, and recovery was smooth except for a hematoma. The pedicle had evidently not been ligated tight enough, but this was easily drained. In all the 5 cases the tumor was as large as the head of a fetus at term. In one case the uterus was in retroversion, friable and adherent, and panhysterectomy was found necessary. The outcome was perfect in all the cases. A number of technical points are emphasized, especially the necessity for the tumor being "reducible and exteriorizable." This is usually the rule with these pedunculated dermoid cysts. Circumstances in the individual case determine whether access shall be through the anterior or posterior vagina or both. Local or spinal anesthesia suffices unless the vagina is exceptionally narrow. He does not think it necessary to ligate the vessels in the vaginal wall as there is no hyperemia of inflammation, but he regards Sommer's hysterolabe as indispensable for the operation.

Total Suprarenal Insufficiency.—Soler's research on dogs shows that the toxic effects of removal of both suprarenals seem to be of a sleep-inducing nature. The dogs survived for about thirteen hours and the brain cortex seemed to feel the effect most. Instead of the autocurazation which others have reported, he found an automorphinization.

Checking of Growth by Sodium Fluorid.—Goldemberg relates that the research recently described by T. Sollmann and his co-workers confirms in every respect the results of his own research, published a year and a half ago, demonstrating the checking of the growth of rabbits and young rats by small repeated doses of sodium fluorid. In 1917 he had called attention to the influence of the fluorids in checking or inhibiting oxidations and nutrition in general. This may have some bearing on endemic goiter, he suggests in conclusion.

Siglo Médico, Madrid

Aug. 6, 1921, 68, No. 3530

*Integral Autoserotherapy. E. Escomel.—p. 741.

Influenza in 1918. R. Nevado.—p. 749.

Integral Autoserotherapy.—Escomel's endorsement of injection of the patient's own blood serum was reviewed, May 14, 1921, p. 1375, when published elsewhere.

Aug. 13, 1921, 68, No. 3531

The Last Epidemic of Influenza. Alvarez Sierra.—p. 765.

*Simple Means for Production of Vacuum. F. Muñoz Urra.—p. 766.

Ethical Insanity. Fernández-Victorio y Cociña.—p. 768. Conc'n. p. 798.

Device to Induce Vacuum.—Muñoz Urra heats a small metal cylinder containing 10 gm. of water, with an outlet tube. When the water is boiling well, the cylinder is dropped into cold water. The condensation of the steam as it cools in the cylinder produces a vacuum, and this vacuum can be utilized for extraction of cataract by the Barraquer method, or for any similar purpose.

Archiv für Verdauungs-Krankheiten, Berlin

September, 1921, 28, No. 3-4

- *Chronic Pancreatitis. L. R. Grote and H. Strauss.—p. 123.
- *Duodenal Ulcer. G. Singer.—p. 131.
- New Intestinal Tube. M. Einhorn (New York).—p. 147.
- *Mastication and Gastric Secretion. L. v. Friedrich.—p. 153.
- *Intestinal Fermentation Dyspepsia. T. Stenström.—p. 208.
- *Stricture and Pernicious Anemia. E. Meulengracht.—p. 216.
- Roentgenologic Diagnosis of Gastric Polyp. F. Gassmann.—p. 226.
- Determination of Acidity of Stomach Content. Christiansen.—p. 231.

Chronic Pancreatitis.—Intestinal dyspepsia of several years' standing may have been responsible for the chronic pancreatitis in the woman of 43. Or it might be traced to tonsillitis, as in a few cases of pancreas diabetes published by Hirschfeld. The stools showed a total lack of lipase, while starch digestion proceeded normally and the woman did not lose in weight, although she was nourished only by the carbohydrates in her mixed diet. Alimentary glycosuria did not occur till late, but phlorizin glycosuria was three or four times above normal. This symptom could be inhibited with thymus extract, as also in some other cases observed by Grote and Strauss.

False Duodenal Ulcer.—Singer has been impressed with the large proportion of cases presenting the clinical picture of duodenal ulcer when in reality stomach and duodenum are sound, and the disturbances are the result of inflammation or atrophy of the nerves innervating the region, or the result of toxic action from a tuberculous process somewhere in the body, or lead poisoning or other source of toxin production. He gives the details of some typical cases in each of these categories. In one he diagnosed during life the vagus neurosis and pylorospasm causing the typical clinical picture of duodenal ulcer, and necropsy revealed neuritic atrophy of both vagi, the stomach and duodenum intact. In this and in 3 similar cases there was pulmonary tuberculosis. The duodenal or gastric symptoms predominate although they are only secondary to the irritation of the vagi from the tuberculosis. This may be merely from direct pressure on the vagus by a tuberculous gland. Notwithstanding the clinical and radiologic symptoms of ulcer, all the disturbances are explainable by spasmophilia, induced by irritation of the vagus system from latent or masked pulmonary tuberculosis, deranged circulation from heart disease, etc. An operation reveals little if anything abnormal in stomach or duodenum while even a minor operation may speed up an underlying tuberculous disease. In 5 cases there were multiple ulcers in the digestive tract with cancer or tuberculosis of lung or meninges; in others, sepsis or burns were the primary factor. Anatomic changes are usually found in the vagus in these cases; they are not mere functional neuroses. This has dampened his enthusiasm for operative treatment of duodenal ulcer. As mentioned above, in 4 of his 50 operative cases, the duodenum and stomach were found intact. In the 30 duodenal ulcer cases, free from complications, only 42.1 per cent. were permanently cured by the palliative operation; over 26 per cent. died and there was recurrence in 18.4 per cent. and peptic ulcers in 13.2 per cent. On the other hand, of the 11 patients treated by resection, one died, but the others were all permanently cured. With bleeding from an erosion, radical surgical measures are the only ones to be considered, but under other conditions the indications vary from case to case. This communication opened the discussion on duodenal ulcer at the recent German conference of specialists on diseases of digestion and metabolism.

Influence of Mastication on Gastric Secretion.—This article won for Friedrich the Boas prize this year. It fills fifty-two pages, twenty of them being devoted to tabulated details of the tests and the findings in the stomach content after regulated mastication of different substances. They show that mastication induces secretion in the stomach by reflex action in from five to seven minutes, if all is normal. The duration of the mastication does not seem to affect this, so that exaggerated mastication is of no benefit to the organism. With subacidity, it is possible to obtain gastric juice approximating normal in composition and amount, when the food is thoroughly masticated. The conclusion is evident that with hypacidity it is better to order food that will call for considerable mastication, instead of food such as is usually

ordered to spare the stomach. With hyperacidity and hypersecretion, on the other hand, the reverse should be the rule, ordering food that requires no mastication, as the reflex secretion with a tendency to hyperacidity is much more pronounced than in the healthy and with subacidity. He found incidentally that the articles of food that displayed the greatest action in inducing secretion of hydrochloric acid were in their order, meat, bread, eggs and condiments. Those that promoted gastric secretion as a whole, were bread and butter, meat and bread. Chewing a mouthful and then expelling it often increases gastric secretion. This was most pronounced when sugar was chewed for this sham feeding test. This *kombinationskauschinmahlzeit*, as he calls it, will be found useful to obtain pure gastric juice, to distinguish between hyperacidity and hypersecretion, and to test whether the stomach is capable of secreting active gastric juice.

Fermentation Dyspepsia.—The severe intestinal fermentation and diarrhea developed in the young man after a gastroenterostomy.

Intestinal Stricture and Pernicious Anemia.—Meulengracht adds another to the five cases on record in which pernicious anemia accompanied a benign stricture of the bowel. These cases support the theory of the intestinal origin of cryptogenetic pernicious anemia.

Deutsche medizinische Wochenschrift, Berlin

Sept. 22, 1921, 47, No. 38

- Facial Paralysis as Sequel of Epidemic Encephalitis. Müller.—p. 1119.
- Histopathology of Syphilitic Adenitis. E. Zurbelle.—p. 1122.
- Renal Glycosuria as Early Sign of Pregnancy. L. Nürnberger.—p. 1124.
- Clinical Classification of Pulmonary Tuberculosis According to the Fundamental Anatomic Processes. H. Ulrici.—p. 1126.
- Roentgen Control of Healing Lung Tuberculosis. Liebermeister.—p. 1128.
- Effect of Eating Between Meals on Gastric Motility. Czepa.—p. 1129.
- Case of Gangrene of Intestine and Penis from Angiospastic Neurosis. Wieting.—p. 1129.
- Subtotal Resection of the Scapula. K. Philippsberg.—p. 1130.
- Plastic Surgery of the Urethra. H. Riese.—p. 1131.
- Plastic Operation on Eye Socket. G. v. Takáts.—p. 1132.
- Present Methods of Testing Gastric Function. L. R. Grote.—p. 1133.
- Obstetric Hints for Practitioner. Rissmann.—p. 1135.

Sept. 29, 1921, 47, No. 39

- The Therapeutic Problem in Malignant Tumors. Blumenthal.—p. 1151.
- Biologic Questions in Connection with Irradiation of Malignant Tumors. L. Halberstaedter.—p. 1154.
- The Distribution of Roentgen-Ray Energy Throughout the Human Body. F. Dessauer.—p. 1155.
- Constitutional Biologic Abnormalities in Tuberculosis. Borchardt.—p. 1159.
- Clinical Classification of Pulmonary Tuberculosis. A. Mayer.—p. 1160.
- Hypophysis Extract as Heart Tonic. A. Pohl.—p. 1162.
- Clinical Aspects of Tumors of Pancreas. K. Kleinschmidt.—p. 1162.
- *Narcolepsy During Pregnancy. H. Nevermann.—p. 1164.
- Treatment of Purulent Effusion in Pneumothorax. Fraenkel.—p. 1165.
- Present State of Knowledge of High Blood Pressure. Rosin.—p. 1165.
- Surgical Hints for Practitioners. I. G. Ledderhose.—p. 1167.

Narcolepsy During Pregnancy.—Nevermann reports a case of narcolepsy in a pregnant patient. That narcolepsy is a distinct disease, he says, is now generally recognized. The etiology is still a matter of controversy. Guleke regards narcolepsy as resting on a neurasthenic basis; Klieneberger and Stöcker think a psychopathic constitution is responsible. Others contend that it is due to a neurosis with a degenerative basis, or disturbance of endocrine function; more particularly of the hypophysis, or a vasomotor disturbance, possibly relaxation of the sympathetic. In Nevermann's case, the narcoleptic symptoms had their onset during the seventh month of pregnancy. For three days and nights the patient could scarcely sleep; after that she would fall asleep at all times during the day, whether she was working in the kitchen, employed at other housework, sewing, sitting in the street car or when reading. Often she suddenly fell asleep during a conversation; in a short time she would awake, usually with a start, and continue the conversation where she left off. Sometimes she would fall asleep when walking. All attempts to combat her sleepiness with stimulants, sedatives and organ extracts proved futile. The patient was well nourished and had no organic disease. As she approached term, the attacks became less frequent and of shorter duration. At the end of the eighth month they had about ceased, and by the close of the ninth month they had stopped altogether. In observations made in this case, Nevermann finds support for the view that narcolepsy, or at least narcolepsy

associated with pregnancy, has no basis in a psychopathic constitution or in a neurasthenic diathesis and probably not in a neurosis, but is rather caused by a disturbance in the functioning of the endocrine glands, there being no evidence to indicate which glands might be affected.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1921, 166, No. 5-6

- *Distal Bifurcation of Femur. M. Budde.—p. 285.
- *Bone Pegs in Stumps. J. Fränkel.—p. 301.
- *Resection of Semilunar Bone. Sonntag.—p. 319.
- Pylolithotomy Versus Nephrolithotomy. K. Scheyer.—p. 334.
- *Treatment of Vertebral Tuberculosis. Vorschütz.—p. 359.
- *Tuberculous Stricture of Intestine. A. Schüppel.—p. 375.
- Apparatus for Applying Extension to Hand Bones. Seemann.—p. 402.
- *Treatment of Actinomycosis. A. Prikul.—p. 414.

Bifurcation of Lower End of Femur.—Budde reports this rare anomaly in a family in which the father and three children had this malformation of the knee. It throws light on the development of the tibia, as he explains, the femur being normal except for the bifurcation. He has found eighty-one cases of this bifurcation on record.

Pegs in Amputation Stumps.—Fränkel has succeeded in artificially providing projecting knobs and pegs in amputation stumps which furnish support for prostheses and transmit power to them. In his first case he cut two rods from the radius, after amputating the lower half of the forearm. These rods he inserted perpendicularly in the stump, the ends projecting on each side to just below the skin. This principle has been applied successfully to stumps of all kinds, and the roentgenograms show the success and advantages of the method. One man has three of these rods traversing the bone above and below the elbow, and the implanted rods show no signs of disintegration. He ascribes their persisting vitality to the constant functional use made of them by the traction from the artificial limb. The longest interval since has been seventeen months. The artificial exostosis in some was made to slant upward to allow a firmer hold.

Dislocation of Semilunar Bone.—The isolated volar dislocation of the semilunar bone was cured by its removal. The clinical picture is vague and puzzling, but roentgenoscopy clears it up.

Treatment of Vertebral Tuberculosis.—Vorschütz urgently advocates the Albee technic for tuberculosis of the spine, and especially in its early phase. He has applied it in twenty-eight cases, and insists that the better immobilization which is realized by the implant aids materially in hastening the healing process.

Stenosis of the Tuberculous Intestine.—The stricture may be organic or spastic from the irritation from the lesion. Schüppel describes a number of cases of each type. In one case of spastic ileus from a tuberculous process in the small intestine, a laparotomy two years later confirmed the complete cure. In another case, the reflex spastic phenomena were in the stomach, and the diagnosis was misled. Also with stenosis from tuberculosis of the jejunum—the eighth case on record—roentgenoscopy proved misleading.

Roentgen-Ray Treatment of Actinomycosis.—Prikul did not give potassium iodid in the case described but trusted exclusively to roentgenotherapy, and the results were almost perfect. The large lesion covered one side of the face, from the orbit down on the neck, and the fistulas were curetted and a few incisions made to provide better drainage. Otherwise the treatment was pure roentgenotherapy. This induces leukocytosis and leukocytolysis, and to this he attributes the cure.

Medizinische Klinik, Berlin

Sept. 18, 1921, 17, No. 38

- *Meteorism as Aid in Diagnosis. C. Bayer.—p. 1133.
- *Mechanical Artificial Respiration. Bruus and H. Schmidt.—p. 1136.
- *Gastro-Intestinal Symptoms with Diabetes Insipidus. H. Gorke and E. Deloch.—p. 1140.
- *Clearing the Air Passages in Asphyxia Neonatorum. F. Klee.—p. 1142.
- *Exophthalmic Goiter and Fibrinous Bronchitis. H. Weber.—p. 1143.
- *Influence of Calcium on Tetany. K. Ochsenius.—p. 1144.
- Injury by Too Small Doses of Roentgen Rays. F. Pordes.—p. 1146.
- Swine Erysipelas in Man. F. Walleczek.—p. 1146.
- *Suspension Stability of Erythrocytes in Pulmonary Tuberculosis. A. Frisch and W. Starlinger.—p. 1147. Cont'n No. 39, p. 1177.
- Ear Disease from Practitioner's Standpoint. Grahe.—p. 1149. Cont'n.

Meteorism in Diagnosis.—Bayer discusses the interpretation of the bulging of the abdomen at different points as evidence of local processes within.

Action on Circulation and Lung of Apparatus for Artificial Respiration.—The measures for artificial respiration have always aimed to supply the utmost possible ventilation of the lungs, but Bruus and Schmidt declare that the promoting of the circulation is equally important. At all events, nothing should be done to hamper the already depressed circulation, whatever method of resuscitation is applied. With the Brat pulmotor, the conditions are exactly the reverse of the physiologic; the venous blood is driven into and held at the periphery. The aspiration that follows is not able to correct this upset in the circulation. The aim should be to imitate physiologic conditions, as in the Silvester method of respiration. An apparatus devised by a Swedish physician automatically carries out the Silvester movements of the arms and chest. Their charts showing circulation, etc., while this apparatus was being applied, confirm its approximately physiologic working. It promotes instead of working counter to the natural circulation, like the pulmotor.

Gastro-Intestinal Disturbances with Diabetes Insipidus.—Gorke and Deloch theorize to explain the gastric hyperacidity and spastic constipation found in three cases of diabetes insipidus. Marked improvement followed pituitary treatment.

Removal of Aspirated Masses from Air Passages of the New-Born.—Klee advises to use a catheter made with a glass ball to collect the masses as they are sucked out of the child's trachea. The left forefinger is introduced first, the tip of the finger closing the entrance to the esophagus. The catheter is held like a pen in the right hand. Thus no time is wasted, as too often happens.

Fibrinous Bronchitis with Exophthalmic Goiter.—The fibrinous bronchitis developed in the woman of 40 at the same time as the exophthalmic goiter, after an attack of influenza. As the exophthalmic goiter gradually improved, the bronchitis subsided with it. Weber sees more than a casual coincidence in this, citing Curschmann's two cases in which asthma accompanied exophthalmic goiter in the same way; he was inclined to regard the asthma as the primary manifestation. Weber's case is thus a new instance of an endocrine neurogenous bronchial affection in vagotonia. Curschmann's success in treating his two cases on an endocrine basis suggests possible benefit from treatment along these lines in cases of fibrinous bronchitis. At least we should seek for evidences of endocrine upset, and guide treatment accordingly.

Influence of Calcium on Electric Overexcitability in Tetany.—A breast fed infant had a convulsion and the electric responses indicated tetany. Under cod liver oil and phosphorus there were no further convulsions but the electric responses became exaggerated. Then calcium was given in addition, and the electric responses promptly veered to normal.

Suspension Stability of the Erythrocytes in Pulmonary Tuberculosis.—This communication from Ortner's service at Vienna ascribes prognostic importance to the speed with which the red corpuscles settle, as this is determined by the fibrinogen content of the blood at the moment. This fibrinogen content is determined by the number of cells undergoing disintegration. The suspension stability therefore is a more delicate index of the activity of a tuberculous process than even the temperature.

Monatsschrift f. Geb. u. Gynäkologie, Berlin

August, 1921, 55, No. 2-3

- Anatomy and Physiology of the Placenta. F. d'Erchia.—p. 65.
- *Experiences with Eclampsia. E. Essen-Möller (Lund).—p. 84.
- *Treatment of Septic Abortion. W. Offermann.—p. 99.
- Peritonitic Bands Preventing Delivery. E. Schroeder.—p. 103.
- Case of Missed Labor. Idem.—p. 103.
- Rupture of Symphysis During Delivery. Idem.—p. 103.
- Experiences with the Kjelland Forceps. K. Riediger.—p. 113.
- Ectopic Decidua. F. Unterberger.—p. 116.
- Treatment of Rectal plus Genital Prolapse. Halban.—p. 122.
- Hypertrophy of Portio Vaginalis in New-Born Infant. Herfarth.—p. 125.

Puerperal Erysipelas of Mamma; Two Cases. J. Ratung.—p. 129.
Recent Literature on Eclampsia with Chronic Nephritis. M. Schmidt-mann.—p. 132.
Medical Impressions of Brazil and Argentina. A. Dührssen.—p. 153.

Eclampsia.—Essen-Möller analyzes his 75 cases of, what he calls eclampsia, and 105 cases of actual eclampsia. This analysis has convinced him that cesarean section is not so advisable in these cases as he used to believe. The anesthesia, danger of aspiration pneumonia, to say nothing of the operation itself, outweigh the chances of benefit from it, although he is still convinced that evacuation of the uterus is the important measure. It may be possible to accomplish this by other means. By emptying the uterus we may be able to ward off impending convulsions. In his operative cases the mortality was from 13.6 to 17.6 per cent. in the different years. In the 12 fatal operative cases, the condition in 6 rendered recovery impossible; in 3 the operation was postponed too long, and in the 3 others he regards the operation as responsible for the fatality, for the reasons previously specified. All the women recovered in the 75 eclampsia cases; in 11 the child was delivered spontaneously.

Septic Abortion.—Offermann states that it is now the rule in Winter's service to give quinin, pituitary extract or other oxytocic to promote evacuation of the uterus in cases of febrile abortion, and then wait. Not until five days after the fever has declined, and the streptococci have disappeared from the vaginal secretions, is any attempt made to clear out the uterus. This plan is deviated from only when sudden menacing hemorrhage compels more active measures. In the cases thus treated there were no complications and no mortality. The total material includes seventy-four cases, and he groups them by the more or less active measures applied.

Münchener medizinische Wochenschrift, Munich

Sept. 2, 1921, 68, No. 35

Psychophysical Constitutional Types. W. Jaensch.—p. 1101.
External Migration of Ovum in Man and Animals. H. Baur.—p. 1103.
Observations on the Notch Following the Auricular Peak in the Electrocardiogram of Isolated Mammalian Heart. E. Boden.—p. 1104.
The So-Called Vestibular Stroke. G. Trautmann.—p. 1106.
Pathogenesis of Carcinoma and the Carcinoma Dose. L. Seitz.—p. 1107.
Roentgen Therapy of Scleroderma. G. Hammer.—p. 1109.
Bactericidal Effect of Leukocytes on Streptococcus Erysipelatis. L. Bogendorfer.—p. 1110.
Prognosis of Striatum Symptoms in Encephalitis. Genzel.—p. 1111.
Nocturnal Cramps in the Leg, and Their Prevention. Marwedel.—p. 1112.
Treatment of Bilateral Pleural Empyema. W. Jehn.—p. 1114.
Ligation of Ileocolic Vein in Appendicitis. Braeunig.—p. 1115.
*Anhidrosis Following Toxic Dermatitis. W. Patzschke and R. Plaut.—p. 1117.
Filaria Loa in Eyelid for Nine Years. M. Baumann.—p. 1118.
Normal Breast Milk Stool. O. Heller.—p. 1118.
Secondary Vaccinal Lesion on Tonsil. W. Hedrich.—p. 1119.
Is Friedmann's Tuberculosis Treatment Specific? Leschmann.—p. 1119.

Suppression of Sweating After Toxic Dermatitis.—The toxic dermatitis developed after working on and wearing furs that had been treated with naphthalin. The functioning of the sweat glands was completely abolished thereafter, the young woman developing high fever at work, at the theater, and in dancing, and once she attempted suicide in her despair. This generalized anhidrosis was stationary for a year, and then daily treatment to stimulate the sweat glands was begun. After subcutaneous injection of 0.006, 0.003 or 0.001 gm. of pilocarpin, she was given an arc light bath for forty minutes. Under this combined treatment improvement was rapidly realized and has persisted to date. These minute doses of pilocarpin had no effect on the normal.

Wiener klinische Wochenschrift, Vienna

Sept. 15, 1921, 34, No. 37

Bacteriophagic Action on Dysentery and Colon Bacilli. O. Bail.—p. 447.
Surgical Treatment of Pulmonary Tuberculosis. A. Frisch.—p. 449.
*Roentgen Irradiation Following Gastro-Enterostomy. R. Lenk.—p. 451.
Nomenclature of Obstetric Version. P. Klaar.—p. 452.

Roentgen Irradiation for Functional Disturbances Following Gastro-Enterostomy.—Lenk states that of nineteen cases of poor functioning and pain following anastomosis, in thirteen cases the symptoms were relieved by roentgen irradiation. Spasm at the site of the anastomosis possibly interferes with the functioning of the artificial opening. This spasm can be relieved by roentgen irradiation. He also suggests that

postoperative irradiation may be found to be a good prophylactic measure to prevent the formation of a peptic jejunal ulcer.

Zeitschrift für klinische Medizin, Berlin

1921, 91, No. 3-6

*Metabolism and Blood Picture Under Artificial Heliotherapy. H. Koenigsfeld.—p. 159.
*Tests of the Vagus in Vagotonia. E. Mosler and G. Werlich.—p. 190.
*Symptomatic Hemorrhagic Diathesis. F. Henke.—p. 198.
*Significance of Changes in Arneth Count. H. W. Wollenberg.—p. 236.
*Blood Platelets from Erythrocyte Standpoint. B. Schilsky.—p. 256.
*Asthma and Pulmonary Tuberculosis. W. Lueg.—p. 287.
*Spontaneous Rhythm of the Arteries. H. Full.—p. 290.
Etiology of Bacillary Dysentery. H. Braun.—p. 304.
Nonspecific Immunotherapy of Staphylococcoses. Müller.—p. 315.

Metabolism and Blood Picture Under Artificial Heliotherapy.—Koenigsfeld reports experiments on himself and others during courses of exposures of the entire body to the light from two large quartz lamps. The exposure was from four to sixty minutes long as the subject lay on a sofa, first supine and then prone. The intervals were from two to five days and the tabulated metabolic findings show that the total metabolism, especially that of protein, was stimulated by the influence of the rays. This explains the preliminary loss of weight, followed by an increase. The effect is thus like that of muscular exercise. The normal blood picture does not seem to be modified, but abnormal conditions tend to be corrected. In one case of pernicious anemia after Weil's disease, recovery followed a course of quartz light treatment. When the aim is to restore lost weight, he advises daily exposures; probably ten or fifteen minutes at a time is enough. Even this seems to be enough to arouse the appetite.

Tests for Vagotonia.—Mosler and Werlich warn that the oculocardiac reflex and similar physical tests of the excitability of the vegetative system must not be relied on too implicitly. They give the results of application of four of these tests, including the Czermak pressure test, respiratory arrhythmia, and Erben's test, to 50 patients with neurasthenia, exophthalmic goiter, peptic ulcer, spastic colitis, asthma or other manifestations of vagotonia. Positive responses were obtained in the majority, but by no means in all. Only in one case were all the tests positive; in some they were contradictory, and 14 responded negatively to all four tests, and 13 to all but one test.

Symptomatic Hemorrhagic Diathesis.—Henke refers to spontaneous hemorrhages occurring in the course of malaria, scurvy or intolerance to quinin. In five malaria cases the hemorrhages proved fatal, but two others terminated in recovery. The blood in all these cases was thin and watery and the bleeding time was abnormally long. He demonstrated that the blood platelets had been destroyed by the toxic influences from the malaria parasites, and he is inclined to regard this loss of the platelets as the main factor in the hemorrhagic diathesis in such cases, and in leishmaniasis, variola, and other diseases or conditions accompanied by spontaneous hemorrhages.

Clinical Significance of Changes in Arneth Count.—Wollenberg has been comparing the shifting in the Arneth classification from day to day with the course of the disease in a number of various conditions. The differential leukocyte count and the Giemsa stain reveal the changes and the experiences related confirm the importance of this as an element for the prognosis. It is most instructive when a continuous curve is charted. This reveals how the bone marrow is fulfilling its task.

The Blood Platelets from Erythrocyte Standpoint.—Schilsky's research in His' service at the Charité has converted him to Schilling's view that the blood platelet is the modified nucleus of the erythrocyte. He explains how all the facts observed harmonize with this conception. In the dark-field microscope, the platelets can be seen emerging from the erythrocytes. Schilling's premise that the normoblast nucleus develops into a platelet nucleus has not been demonstrated as yet, but it has been amply demonstrated that the platelets cling to or are found inside the erythrocytes. Accepting this theory of the platelet nature, the ratio of platelets to erythrocytes is an index of erythrocyte production. In the anaphylactic process, the erythrocytes in the blood stream are

damaged, and the platelets are cast out and destroyed apart from them. This occurs in anaphylactoid purpura, acute infectious diseases, and after injection of tuberculin. In these conditions the ratio between platelets and erythrocytes throws no light on the production of erythrocytes that is taking place.

Relations Between Asthma and Pulmonary Tuberculosis.—Lueg reports three cases in which asthma developing late in life seemed to rouse to an active course previously latent tuberculous disease of the lung.

Spontaneous Rhythm of the Arteries.—Full's ingenious method for estimating the contractions of the arteries has apparently established that there is in the body an automatic mechanism which induces slow rise in the blood pressure and then a slow fall. This spontaneous rise in blood pressure is accompanied with a constant rhythmic interchange of fluid between the blood vessels and the lymph spaces.

Zentralblatt für Chirurgie, Leipzig

Sept. 3, 1921, 48, No. 35

Technic of Local Anesthesia in Operations on the Neck. D. Kulenkampff.—p. 1262.

Conduction Anesthesia in Abdominal Operations. L. Drüner.—p. 1265.
Diagnostic Value for Surgery of Velocity of Precipitation of Blood Corpuscles. W. Löhr.—p. 1267.

Infection from Chronic Cases of Dysentery. E. Mathias and H. Hauke.—p. 1270.

Bone Implant in Tuberculosis of Hip and Spine. Schmidt.—p. 1271.
"Sacral Anesthesia in Difficult Cystoscopy." Goldenberg.—p. 1273.

Sept. 10, 1921, 48, No. 36

*Prevention of Recurrence in Cancer of Breast. H. Schloffer.—p. 1310.

*Genesis of Arm Paralysis in New-Born. S. Weil.—p. 1312.

*Heredity in Congenital Luxation of Hip Joint. Roch.—p. 1314.

Pathologic Changes in Peripheral Nerves. Teuscher.—p. 1316.

"Surgical Treatment of Furunculosis of Axilla." Bockenheimer.—p. 1317.

Prevention of Local Recurrence in Cancer of the Breast.—Schloffer emphasizes that every surgeon who operates on cancer of the breast should face the reality that in the case of plainly operable cancer of the breast he must bear the blame for most recurrences, since they are usually due to inadequate excision of tissue. He holds that for many surgeons the possibility of securing a prima intentio, by completely closing the wound, constitutes a temptation unduly to restrict the amount of tissue excised. In his opinion, the illustrations of operations show, for the most part, skin incisions that would not suffice for even the incipient stages of cancer. He thinks that the old requirement that an excision shall be of such an extent that a complete closing of the wound by suture shall no longer be possible is fully justified; for it seems to him entirely unlikely that cases in which a modest incision and tight suturing of the wound would be allowable will be discovered in time for such operation. In the case of small tumors that do not adhere to the skin a gap from 3 to 4 cm. wide should be left at the site of tumor; in more advanced cases, a hand's breadth, or, in certain instances, a much greater skin defect.

Investigations on the Genesis of Arm Paralysis in the New-Born.—Weil discusses the results of his experiments, which, he thinks, support the contention that some of the plexus injuries of the arm that appear to be birth accidents may be, in reality, of intra-uterine origin, having been produced by unusual, cramped positions of the arm.

Rôle of Heredity in the Etiology of Congenital Luxation of Hip Joint.—Roch found that out of 67,429 patients who had been admitted to the two hospitals whose records he examined there were, during a ten year period, 189 cases (0.28 per cent.) of congenital luxation of the hip joint. There was abundant evidence of a hereditary tendency. Recessive characteristics were especially noticeable.

Zentralblatt für Gynäkologie, Leipzig

Aug. 27, 1921, 45, No. 34

Experiences with Treatment of Puerperal Fever. Bauereisen.—p. 1205.

Trials of Intravenous Antiseptics. H. Becker.—p. 1218.

Turpentine in Treatment of Disorders of the Adnexa. Seelmann.—p. 1221.

Trypaflavin Intravenously in Gonorrhea in Women. W. Haupt.—p. 1225.

*Posture for Protection of Perineum. C. Abernethy.—p. 1231.

Objections to Left Lateral Posture for Protection of Perineum.—Abernethy reports six cases of asphyxia in infants, four of which proved fatal either during the protection of the perineum or immediately after delivery. He aims to prove that the lateral position does not permit careful observation of the fetal heart sounds, this being especially true in the first cephalic presentation. The statistics of hospitals show that the number of children born in marked asphyxia, unnoticed before birth, totals about 1 per cent., and he maintains that the percentage would be much lower if the women were in the dorsal position instead of the lateral while the attention is focused on protecting the perineum. The mortality of children dying from asphyxia not diagnosed during protection of the perineum equals 0.2 per cent.

Zentralblatt für innere Medizin, Leipzig

Sept. 3, 1921, 42, No. 35

Microscopic Behavior of Capillaries in Roentgen Erythema is Gage of Individual Sensitiveness to the Roentgen Rays. O. David.—p. 697.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 17, 1921, 2, No. 12

Embryologic Study of Lacrimal Passages. J. van der Hoeve.—p. 1410.

*Protein Therapy in Ophthalmology. L. Bierens de Haan.—p. 1421.

Potter-Bucky Diaphragm in Roentgenology. F. G. de Wilde.—p. 1430.

Stability of the Erythrocytes. W. Weck.—p. 1433.

Leukemia and Pregnancy. R. J. T. Meurer.—p. 1440.

Protein Therapy in Ophthalmology.—De Haan comments on the favorable reports that are being constantly published on the effect of parenteral injection of milk in various eye affections. He says, however, that we must try to find some substance that will give the same good results without the disagreeable by-effects sometimes noted with milk. These are a very rapid softening up of a corneal abscess and its perforation; also an abscess forming at the point of injection. Some other point than a gluteal muscle might be preferable for the injection. With tuberculosis, scrofula and typhoid, there is liable to be a focal reaction; it may accelerate a cure or may entail a cavity. With typhoid, an apical catarrhal process has been speeded up, and scrofulous children have been known to have fever for weeks after the parenteral injection. Heart and respiratory disturbances have also been noted and anaphylactic shock. With the status lymphaticus and asthenia the injections are liable to cause more disturbance than under other conditions. From 5 to 10 c.c. of milk is the dose employed for adults. The febrile reaction begins in four hours and reaches its height by the eighth or tenth. The higher the reaction, the greater the beneficial effect, as a general rule.

Hospitalstidende, Copenhagen

Sept. 21, 1921, 64, No. 38

Extrapyramidal Syndromes. A. Wimmer.—p. 593. Conc'n.

Sept. 28, 1921, 64, No. 39

*Blue Sclerotics with Fragile Bones. O. Blegvad and H. Haxthausen.—p. 609.

Roentgenology at Copenhagen Hospital. E. Collin.—p. 616. Conc'n
No. 41, p. 646.

Oct. 5, 1921, 64, No. 40

Silversalvarsan. H. Boas.—p. 625. Conc'n No. 41, p. 641.

Oct. 19, 1921, 64, No. 42

Surface Tension as Factor in Bactericidal Property. T. Hansen.—p. 657. Conc'n No. 43.

Blue Sclerotics with Fragile Bones.—Blegvad and Haxthausen have compiled from the records a number of families in which 76 of the 156 members had blue sclerotics, and 24 of the 52 who had their bones examined displayed a tendency to spontaneous fracture. The hereditary appearance of these anomalies shows that they form a dominant according to Mendel's laws. Deafness is also common in these families. They describe another family of the kind, the first to be reported in Denmark. The blue sclerotics were noted in three generations in 10 of the 23 members, and all those affected, except the grandparent, had fragile bones. The member of the family examined in detail was a young woman, and she presented in addition zonular cataract, and a peculiar skin affection consisting in patches of atrophy of the skin. She had had nine fractures from very slight traumas.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 25

CHICAGO, ILLINOIS

DECEMBER 17, 1921

OLD AND NEW KNOWLEDGE OF IMMUNITY*

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Our understanding and conceptions of disease in general have been influenced greatly by the results of the study of the phenomena of immunity, and it will be of interest to look back on the development of our knowledge of immunity particularly from that point of view.

The history of immunology may be divided conveniently into two periods, the premicrobic, from remote times to about 1880, and the microbic or modern period, from 1880 and down to our day.

That certain infections and intoxications may confer immunity was observed early, and efforts seem to have been made long ago to use this fundamental principle for preventive as well as curative purposes. It is said that, long before the Christian era, African peoples let snakes bite children in order to protect them against bites by venomous snakes; furthermore, that victims of snake bites were given the poison glands of snakes to eat, a procedure that may have had its basis in conceptions of an active immunization more or less analogous to the general ideas underlying our vaccine treatment. Mithridates VI, king of Pontus, is said to have made himself immune against poisons of all kinds by the constant use of what was regarded as antidotes; and the universal antidote ascribed to him and called mithridate, a form of which survived for centuries as the theriac of the pharmacies, contained among its many ingredients viper flesh, because viper venom was used as an arrow poison, and duck blood, because the duck was resistant to poisons. We have here a further example of an effort to secure protective immunity according to the principles of active as well as passive immunization.

That an attack of smallpox leaves the patient safe from further attack was no doubt observed very early also, because centuries ago the Chinese and other Eastern peoples inserted smallpox matter into the nostril in order to provoke a milder attack of smallpox than the natural, but with the same protection for the future. This is the real basal experiment in protective inoculation against infectious disease, and it prepared the way for other efforts in this direction. Later the Turks, from whom Lady Montague in the beginning of the eighteenth century learned of inoculation of smallpox, inserted the smallpox matter under the skin

on the point of a sharp needle, also in order to produce a mild attack and thus render the subject proof against the disease.

In the meantime, Sydenham, the founder of modern nosography, had established by clinical observation the great principle that diseases differ in course and symptoms as well as in modes of spreading, thus taking up again the thread, long dropped, that leads back to Greek medicine. He described smallpox in masterly fashion, separated measles and scarlet fever from other eruptive diseases, whooping cough from influenza and noted that in all acute diseases and in most chronic, there is something peculiar, "something divine," that never can be learned by examination of cadavers. Sydenham recognized in quinin a specific remedy for malaria, and as a natural consequence of his conception of diseases as separate entities he fully expected that other specific remedies would be found; he had no doubt that the creator had made specifics for all the most important diseases.

The clearest and also one of the earliest general statements that the immunity characteristic of acute infectious diseases is specific was made by Thomas Fuller in 1739: "The chickenpox can never breed smallpox, nor the smallpox the measles, nor they the chickenpox, any more than a hen can breed a duck, a wolf a sheep, or a thistle a fig, and therefore one sort cannot be preservative against any other sort."

By this time the idea of protective inoculation was in the air. In 1758, Home in Edinburgh inoculated measles "to render this disease more mild and safe, in the same way the Turcks have taught us to mitigate smallpox," but his results were indecisive. The idea that immunity against pest could be secured by attenuated pest poison was expressed clearly by Weszpremi in Hungary and Somoilowitz in Russia, both of whom attempted inoculations against pest. In 1796, Erasmus Darwin, the grandfather of Charles Darwin, wrote: "No one could do an act more beneficial to society, or glorious to himself, than by teaching humanity how to inoculate this fatal disease; and thus deprive it of its malignity. Matter might be taken from the ulcers in the throat, which would probably convey the contagion. Or warm water might be put on the eruption, and scraped off again by the edge of a lancet. These experiments could be attended with no danger and should be tried for the public benefit, and the honor of medical science."

Of course, the outstanding and culminating event in the premicrobic period is the experimental demonstration by Jenner in 1796 of truth in the statement by the dairy maid: "I cannot take smallpox, for I had the cowpox." A harmless yet wonderfully effective way of preventing smallpox had been found.

* Abstract of the Noble Wiley Jones Lectures, June, 1920, University of Oregon Medical School, Portland, Ore.

THE PERIOD BETWEEN JENNER AND PASTEUR

While no new discoveries of fundamental significance occurred until about eighty years later, when Pasteur showed that chicken cholera and anthrax may be prevented by the injection of the attenuated bacteria that cause these diseases, respectively, and that hydrophobia may be prevented by the injection of the attenuated virus even after the receipt of the infection, these years were by no means sterile in ideas or observations bearing on immunity.

In the first place, Jenner and a little later Bryce made beautiful and convincing demonstrations of the fact that smallpox and cowpox immunity is associated with a definite change in the way in which the body reacts to the specific smallpox virus. Jenner, in 1798, after inoculation of smallpox matter in a woman who had had cowpox thirty-one years before, observed that "an efflorescence of a palish, red color soon appeared about the parts where the matter was inserted, and spread itself rather extensively, but died away in a few days without producing any variolous symptoms." Jenner then comments as follows: "It is remarkable that variolous matter, when the system is disposed to reject it, should excite inflammation in the part to which it is applied more speedily than when it produces smallpox. Indeed, it becomes almost a criterion by which we can determine whether the infection will be received or not. It seems as if a change which endures through life has been produced in the action or disposition to action in the vessels of the skin; and it is remarkable, too, that when this change has been effected by the smallpox or the cowpox, the disposition to sudden cuticular inflammation is the same on the application of variolous matter." This, as far as I know the first, description of the specific change in reactivity that accompanies immunity, although printed in Jenner's *Inquiry into the Causes and Effects of the Variolae Vaccinae* etc., remained wholly unnoticed until long after Pirquet, in 1902, independently rediscovered the phenomenon and gave to the condition the name of allergy. In passing I may mention that Bryce, a few years after Jenner, clearly described the more rapid evolution of the skin changes on revaccination of the recently vaccinated. Bryce accepted this increased activity as proof that the primary vaccination had taken. Bryce's observation also passed unnoticed and had no influence on the investigations of immunity. Even today, many physicians are not aware of the fact that an early immediate reaction on revaccination indicates the persistence of a degree of immunity.

In the period between Jenner and Pasteur there were also interesting foreshadowings of our chemotherapy and vaccine treatment.

Infectious diseases were regarded by some as the result of poisons for which complete antidotes harmless to patients should be found; by others, infectious diseases were regarded as caused by minute living things, and it was urged that substances be found to destroy the microbes without in any way harming the patient. Indeed, Eisenmann developed a complete program with all the experimental details necessary to carry out the investigations to find such substances.

About 1830 there was a revival of the sort of treatment illustrated by that of venomous bites with serpent flesh and poison glands, with extension to infections and other diseases. This is the isopathy of Lux. Extract of smallpox matter, variolin, was given by mouth in smallpox; of cancer, cancroin, in cancer; of

diseased liver, hepatin, in liver diseases, etc., including foot-sweat in sweating of the feet. In fact, it was believed that the best results were obtained when autogenous remedies of this sort were used. Isopathy is now forgotten completely, and such no doubt will be the fate of much of the crude so-called autovaccines of our day. Both were based on the old notion, variously expressed, that certain diseases bring with them the elements essential for their cure.

DEVELOPMENT OF NOSOGRAPHY IN THE EARLY PART OF THE NINETEENTH CENTURY

Remarkable as the insight into the laws of immunity and the significance of certain immune phenomena, illustrated in the foregoing, certainly appears to have been, it is true, nevertheless, that facts and considerations relating to immunity probably did not exercise as much influence as one might expect they would have on the growth and general acceptance of the idea of the individuality of diseases and on the recognition of disease entities.

At this point let me recall the rapid development of scientific nosography in the earlier part of the nineteenth century. In the first place, Bichat separated organ diseases into the diseases of the distinct structures composing the organs. Then Laënnec, the father of auscultation, by comparison and correlation of the signs and symptoms observed in life with the results of careful examination after death, gave us a series of new morbid entities that we regard as classical, his greatest achievement being his recognition as an entity of tuberculosis in its various forms. Louis and Bretonneau independently by similar methods identified typhoid fever, and Bretonneau did this service for diphtheria also. In Dublin, Graves, Stokes and others described "new" diseases to which their names still are attached, and the same is true of Addison, Bright and Hodgkin in London.

Bretonneau especially was impressed by the specificity of disease. It is the specificity of the inflammation, he said, that determines the duration and gravity of most of the pyrexias, but the particular element, that mysterious *quid divinum* of Sydenham that separates one disease from another and determines the peculiar course of each, escapes observation.

But in Germany the conception of specificity of diseases and its consequences encountered strong opposition, especially from Wunderlich and Virchow, who ridiculed Sydenham's ideas about individual diseases and specific treatment. Fallacies arose, notably Virchow's doctrine of the duality of tuberculosis, the confusion in regard to croup and diphtheria, and Hebra's identification on anatomic grounds of variola and varicella. Certainly the last error would have been avoided, had attention centered on the specificity of the immunity in these two diseases.

Bretonneau's great pupil Trousseau upheld with remarkable insight the nosographic method, and stated that diseases owe their special characteristics, not to the quantity, but to the quality of the morbid agent to which the body responds with specific phenomena. Whenever a definite disease is discovered, the search for its cause, the effort to trace the relations of the phenomena can begin.

And now a wonderful light centered itself on the very heart of the problem by Pasteur's overthrow of the theory of spontaneous generation and the discoveries of the most frequent specific factors in disease, namely, the minute infectious agents.

THE MODERN PERIOD IN IMMUNOLOGY

The microbic or modern period in immunology begins with the memorable demonstrations by Pasteur that specific immunity may be produced by the injection of the demonstrated agents of infectious diseases, even if artificially attenuated or changed so as to be fully harmless. That Pasteur regarded this work as an effort at further progress on the road first pointed out by Jenner is indicated by the fact that he called his procedures vaccinations, and the materials injected vaccines.

The advent of microbiology and Pasteur's immunization with known infectious agents made possible the experimental and comparative study of the mechanisms of infection, of the cure of infection, and of natural and acquired immunity that now was undertaken. It was recognized that all the fundamental problems in infectious etiology are not solved by the discovery of the specific agent, essential as that step must be; it still remains to explain how normal function and structure are disturbed by the entrance of the infecting agent, and how recovery and subsequent immunity are brought about.

We know now that there are two chief forms of immunity: (1) the antitoxic, of which diphtheria and tetanus furnish the best examples, and which depends, at least in the acquired and induced forms, on the neutralization of toxins by specific antitoxins, and (2) the antimicrobial, which seems more complex and is associated with phagocytosis and intracellular destruction of microbes as well as extracellular destruction or lysis. Analysis has revealed that these various effects depend on the presence in the body of substances with limited and specific affinities—antitoxins, opsonins, immune bodies or amboceptors—that are produced by the cells as the body becomes immunized, and furthermore, that associated with more or less well marked immune states are conditions and substances that produce various other specific reactions, such as agglutination, precipitation, complement fixation and cutaneous reactions, all being so-called immune reactions or antigen-antibody reactions, many of which have been put to practical service in diagnostic tests now in daily use everywhere.

It was soon found also that immune reactions are not limited to infectious agents and their products, but may be set in motion by a great variety of protein substances, whether primarily toxic or practically harmless, if introduced into the interior of the body as such (uncloven). Serum disease, specific laking of red corpuscles, specific precipitation and complement fixation, reactions that can detect the particular kind of minute traces of proteins otherwise unidentifiable, as well as the phenomena of anaphylaxis and allergy, are all examples of the wonderful capacity of the animal body to react in diverse but always specific manners against foreign protein substances. Indeed, immunity against infection may be regarded as merely a special instance of the power of the body by special mechanisms to rid itself of harmful foreign proteins. Curative and preventive serum treatment, antitoxic and antimicrobial; protective inoculations of all kinds; vaccine treatment; and all the specifically diagnostic serum reactions rest on this power of the body. And it is particularly interesting that the means essential for cure supplied by the infection itself, notions of the existence of which arose so long ago, is the faculty of the infectious agent to stimulate the cells of the body to produce specific antibodies, a faculty shared with

foreign proteins in general, all such proteins being described from this point of view by the term antigens.

An individual once thoroughly influenced by the entrance into the body of an antigen, whether infectious and hence living, at least at the time of entrance, or noninfectious, becomes changed and may remain so even after all trace of the antigen has disappeared. This change may manifest itself in various ways: (1) Free antibodies, such as agglutinins, antitoxins and others, may continue in excess in the blood, and we obtain then positive agglutination test, negative Schick test, etc., as the case may be. Or (2) the change may manifest itself especially in an increased rate of antibody production on reentrance of the same antigen. In this case the wavelike course described by the newly formed antibodies as they accumulate in the blood may reach the crest in three or four days, or sooner, whereas in an individual not previously influenced by this particular antigenic protein, the wave would reach its highest point only after a longer time, usually in from eight to twelve days. In both these cases there would be more or less immunity; the corresponding infectious agent or toxin, if introduced in not too large amounts, might be destroyed or neutralized so promptly that no symptoms would have time to develop. (3) In other cases, on reintroduction of the antigen, there might be more or less extensive acute reactions, sometimes of great violence, more commonly of moderate severity or largely local. I have in mind now certain phenomena that are familiar to us under the terms of allergy, anaphylaxis, sensitization and hypersensitiveness. We have learned in the course of recent years that various noninfectious proteins may cause diseases in human beings under these conditions. (4) Finally, I would point out that, in the immune, reinfections may run a more or less atypical or modified course. Of this influence of immunization, varioloid is perhaps the most striking example; but gonococcal and typhoid reinfections also present peculiarities, and in tuberculosis the effect of early infection on the course of reinfection later is one of the large problems. In syphilis the precise effect of varying grades of immunization of the body by the presence of the spirochete on the course of the disease is not yet open to investigation on account of technical difficulties, but undoubtedly this is a field that some day will yield interesting and valuable results.

The noninfectious human diseases that are caused by the entrance of antigenic substances and in which we have good reasons to believe that antigen-antibody reactions play an important part, with the possibility that other mechanisms not yet understood also come into play, include serum disease, hay-fever, certain forms of asthma, some skin manifestations, and the so-called food idiosyncrasies. In these conditions an abnormal sensitization, a relatively incomplete immunity, is regarded as an essential factor, although in many instances the manner in which the allergic or hypersensitive state developed may remain altogether obscure. As in many cases of this kind definite hereditary tendencies are present, the condition being also frequently an abnormal reactivity to several different substances—multiple sensitization—it may concern hereditary constitutional peculiarities, the exact nature of which seems obscure and complex. The fact that hereditary anomalies of reactivity, of protein digestion and absorption may exist is not of itself any more remarkable than many other constitutional anomalies.

That foreign proteins easily may pass unchanged from the digestive tract into the blood in infants is indicated by the results of the studies in regard to the appearance of egg-white in the urine after being fed to the newborn. In a recent series of observations in which I was interested, egg-white was found in the urine by the precipitin test in a considerable number of cases. In its passage through the body in this way the foreign protein may leave behind an altered state by virtue of its stimulation of the centers for antibody formation.

In the further study of the diseases in which noninfectious proteins seem to be the exciting agents, the use of antigen-antibody reactions in vivo and in vitro will continue to be of great value on account of their specificity. Fuller said of infectious diseases that "the attack of one sort cannot be preservative against any other sort," and in the enlarged immunology of the present it is a cardinal principle that a particular antigen will induce the body to form antibodies anew that act only on that particular antigen. As most of the antigens concerned in disease are mixtures of many antigenic substances, the corresponding antigen-antibody reactions on superficial consideration may appear less specific than they actually are. No doubt, immunologic specificity depends on chemical structure—in other words, it is a chemical specificity; but we are still so ignorant of what actually happens in the immune reactions that we hardly dare to think of them merely as reactions of ordinary structural chemistry.

SPECIFIC ETIOLOGY

The establishment of microbic etiology settled for all time that there are specific diseases due to specific causes. The pioneer nosographers, Sydenham, Bretonneau, Trousseau, were right—they had seen the truth. The *quid divinum* of Sydenham that gives to a disease its peculiar course, combination of symptoms, and lesions now assumed a tangible form in the case of many of the most common diseases, and clarity took the place of vagueness and speculation in the conception of disease. A thorough revision of the ideas and knowledge about the diseases in the infectious group began. The tuberculosis processes were reunited under one cause; diphtheria was clearly defined and subjected to specific treatment; the typhoidal and dysenteric diseases were differentiated; and eventually syphilis and the so-called parasymphilitic diseases were gathered into one etiologic unit subject to the same therapy, not to mention many other diseases subjected to a similar clarification. Specific etiology provided a solid and reliable basis for the development of scientific nosography and of specific treatment, and in this development immunologic methods and principles are of special value, because by their aid it is possible to trace the relations of microbic varieties to particular infections and their treatment more minutely and more accurately than in any other way now open. This is due to the specificity of the antigen-antibody reactions of which I have spoken.

These reactions, detecting, as no other means can detect, differences in the constituent proteins, have revealed differences within important bacterial groups not suspected on account of the apparently basic relationships indicated by the morphologic, cultural and other characteristics. As results of the increasing differentiation of infectious bacteria in which immunology is playing the chief part, we now know that epidemic meningitis may be associated with different

strains of meningococci, each requiring a special antiserum; that the pneumococci long looked on as homogeneous consist of four main groups or types that are regarded as immunologically distinct and of different significance from the pathogenic and epidemic points of view; that typhoid fever formerly included several diseases caused by different bacteria of the same general group; and that other bacteria, such as the gonococcus, the diphtheria bacillus and the influenza bacillus also appear to fall into more or less well defined antigenic groups, the influenza group including at least two wholly distinct nosologic types, *B. pertussis* and *B. influenzae*.

THE GROUP OF STREPTOCOCCI

Perhaps a slightly more extended discussion of the streptococci from this point of view may be of interest.

This is probably the largest group of pathogenic bacteria; at any rate no other group seems capable of such varied types of activity. Streptococci are the cause of erysipelas, and the principal cause of puerperal fever, local infections and septicemia; in chronic diseases they invade the body and are found in the interior of at least one third of all bodies after death; acute articular rheumatism may be a streptococcus disease, and chronic forms of joint and other infections associated with foci in the tonsils and about the teeth are attributed mostly to streptococci, which are prominent also in many acute infectious diseases, notably smallpox, scarlet fever, measles, epidemic poliomyelitis, diphtheria and influenza; and the view that some of these diseases are caused by streptococci still must be reckoned with. Finally, streptococci may appear as the cause of epidemic infections, principally milk-borne, as in the case of epidemic sore throat, or principally contactual, as in the bronchopneumonia of measles and influenza.

The problem is: Is one pathogenic streptococcus responsible for all these diverse infections, or are we dealing with a group of distinct organisms?

If we look back on the history of streptococci, we find that from 1881, when they were discovered by Ogston and by Rosenbach, to about 1903 they were regarded as practically the same; at any rate, no fixed varieties were established. In 1903, the distinction into hemolytic and nonhemolytic was first made, a division that now is generally accepted, having been found to correspond to differences in pathogenic as well as immune reactions.

The next question is, Are there distinct kinds of hemolytic and nonhemolytic streptococci?

Nonhemolytic streptococci are being found with such frequency in rheumatism, in certain forms of endocarditis, in measles, in epidemic poliomyelitis, in rubella, in influenza, in chorea, and probably also in epidemic (lethargic) encephalitis, that they might be regarded either as secondary invaders or possibly as primary causative agents. While they are not separable into clean-cut subgroups by cultural, morphologic, biochemical characteristics or pathogenic effects in animals, their immune reactions show that there are distinct varieties. In epidemic poliomyelitis, green-producing nonhemolytic streptococci that give specific immune reactions are present regularly in the central nervous system, and, according to Rosenow, treatment with specific antiserum against such cocci appears to give so favorable a result that, taking all the facts into consideration, they may be looked on either as the cause of the disease or as secondary invaders of such importance as to determine the outcome. And in measles and in

rubella, nonhemolytic streptococci with specific immune properties have been found by Ruth Tunncliffe to occur in the blood and elsewhere so early and so constantly that, if not primary agents, they are secondary invaders that enter the body in the very earliest stages of the diseases. Certainly the malignant endocarditis of slow course caused by nonhemolytic streptococci gives the impression of a distinct entity, and the streptococci in question should be studied with special reference to their specific nature.

Enough has been said to indicate definitely that whatever the actual relations of these nonhemolytic streptococci may be to diseases in which they occur, the group certainly is not homogeneous but consists of a number of varieties that offer attractive and important problems for investigation in which the methods of immunology will be of special value.

From the relations of hemolytic streptococci to the tonsils—their constant occurrence in the crypts and the reduction in their prevalence in the throat after tonsillectomy—the tonsils may be regarded as the great center for the growth and dissemination of what I would call endogenous streptococci, which we are prone to look on as always ready to take advantage of every opportunity to invade the body and develop virulence. The hemolytic streptococci in epidemic sore throat, in bronchopneumonia, in scarlet fever, and in other acute infections are, generally speaking, similar to the endogenous, being rather more virulent for rabbits.

Now how do such epidemic strains arise? Are they endogenous organisms that have broken away from the restraints imposed on them in health, or are they exogenous strains with distinct pathogenic properties? There seemed to be no prompt means of solving this problem until recently, when it was found that there are distinct immunologic groups among the hemolytic streptococci and that the hemolytic streptococci of scarlet fever and of erysipelas are both specific and separable from each other and from other hemolytic streptococci by immune reactions (Tunncliffe). In other words, definite members of this group of streptococci have become connected more closely with well defined human diseases than ever before.

That the hemolytic group of streptococci also is heterogeneous and contains not only merely opportunistic pathogenic agents, but very likely primary agents of specific diseases as well, opens wide the doors for advances in the epidemiology, nosography, diagnosis and treatment of streptococcus infections. Perhaps a return to strictly monovalent forms of serum treatment may yield better results than the cruder methods in vogue. In any event, I trust I have made it clear that by virtue of the specific relations between proteins and their antibodies which are the essence of immunity, results of significant promise are being obtained in the field of streptococcus infections, results that may "enlarge the history of disease and improve the art of physic."

Infant Deaths and Syphilis.—Syphilis is an important cause of infant death as well as of miscarriage and stillbirth. The essential factors in preventing syphilis among children are the discovery and proper treatment of adult carriers of the disease. Of course it is important to treat children who are infected; but since it is the infected adult and not the infected child who spreads syphilis, it is especially important that the infected adult be treated in order to prevent further spread of the disease.—M. Knowlton, *Pub. Health Rep.* 36:2305 (Sept. 23) 1921.

OSTEOMYELITIS OF THE PELVIC BONES *

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MINNEAPOLIS

The writing of this article was prompted, first, by the apparent paucity of the literature in regard to the subject (there exist comparatively few case reports) and, secondly, by the impression that is gained, by perusal of the literature, that the prognosis of this disease in the regions in question is extremely grave and often likely to be fatal. Bergman¹ compiled from the literature thirty-five cases of osteomyelitis of the pelvis and thus summarized them: healed, 11; died, 18; unknown, 6. He adds one case report of his own in which a radical operation was performed with good results.

The six cases reported here were observed since the close of the World War. There are, in addition, two cases which are now under observation for chronic osteomyelitis (not reported in this series). It would therefore seem that the disease is not as rare as is generally supposed.

Five of the six cases here reported occurred in children, which may account for the favorable prognosis. They all reacted promptly to proper surgical procedure (wide opening, liberal drainage and removal of sequestrums). Where the amount of bone involvement was not great, healing was prompt. In all of the cases, roentgen-ray findings were positive and of great diagnostic aid.

Etiologically, *Staphylococcus pyogenes-aureus* was found present at the time of operation in all of these cases. Three cases presented the history of trauma, while the other three presented the classical initial focus elsewhere.

The onset was sudden in four cases, and accompanied by chill and high temperature. In two cases, the onset was insidious. (Cases 5 and 6).

Of the cases here reported, three were of the ilium, two of the ischium, and one of the pubis. In only one case was there later joint involvement (hip joint, Case 3). All of the cases presented a definite leukocytosis (from 12,000 to 20,000).

OSTEOMYELITIS OF THE ILIUM

In the three cases of iliac affection, the pain complained of was in the hip and leg of the affected side. There was never any pain in the region of the iliac fossa, from which, in each instance, the pus was recovered.

The diagnosis of osteomyelitis of the ilium was made in these cases by the history, the character of the pain, and the definite roentgen-ray findings. The roentgenogram in these cases of iliac disease was characteristic. A mottled, moth-eaten appearance of the affected portion of the ilium was present in each case. On operation, there were two characteristic findings: (a) The pus was always found on the visceral side of the iliac bone, displacing the peritoneum. There was, in two cases, a very small amount of pus. It was therefore necessary in each case to trephine the ilium in several places before the pus could be reached.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Bergman: Resection of Ilium for Acute Osteomyelitis, *Centralbl. f. klin. Chir.*

(b) The amount of sequestration was small in each case, corresponding not at all to the amount of disease involvement as shown by the roentgen ray. In each case, liberal drainage and counterdrainage were established, and all three patients left the hospital cured. The conclusion to be drawn is that in osteomyelitis of the ilium, we shall very probably find the pus on the inner (visceral) side of the bone, and we must not hesitate to trephine in various places until we find the pus. This is a procedure which demands some, but not an undue, amount of care and skill.

REPORT OF CASES

CASE 1.—J. F., a boy, aged 6, had been injured four weeks previously in falling from a swing. Three or four days later he became very sick. There was pain in the right hip and leg, and temperature as high as 103 F. At the time of examination, the temperature was 101 F. Tenderness was noted over the right ilium and a slight swelling, but no fluctuation (edema?). There was no limitation of motion to right hip. The roentgenogram revealed characteristic mottling of the outer flare of the ilium. An operation was performed four weeks after onset. About 2 or 3 c.c. of pus was found within the pelvic cavity. Liberal drainage was established, and a small sequestrum was removed. The leukocyte count was 20,000.

CASE 2.—M. I., a girl, aged 6, had had influenza six months previously. She had been weak ever since. Six weeks previously, she had fallen downstairs and injured the left hip. Two days later she had a high temperature, and complained of severe pain in the left hip. No swelling or redness was noted but there was extreme tenderness in this region. The fever rose to 104 F. a few days after onset, then gradually went down to 101. The pain continued, being located chiefly in the left hip and leg. When the patient commenced to walk there was considerable limp and pain in the hip. There was considerable swelling around the left hip, especially in the gluteal region. Roentgen-ray examination revealed a distinctly mottled appearance of the left ilium (sequestration?). There was tenderness behind the anterior-superior spine over the wing of the ilium. The leukocyte count was 16,000. Six weeks after onset, an incision was made about 2 inches behind the anterior superior spine. The ilium was reached by means of blunt dissection. Some roughening and necrotic bone was found, but no pus. Thereupon, the bone was trephined, and a small amount of pus (1 or 2 c.c.) was found in the pelvic cavity, together with a fairly good-sized sequestrum. A drainage tube was inserted. Prompt healing followed.

CASE 3.—E. P., a girl, aged 13½, was taken sick about one month previously, with chill and high temperature (104.5 F.). The onset was sudden. The patient was very sick for three days. Following this, the temperature went down somewhat, remaining about 101 or 102 F. The child had gradually lost in weight. She complained of pain in the right hip and down the right leg. There was some swelling of the entire gluteal region; also swelling in the right iliac fossa, which was somewhat fluctuating. The temperature was 100 F.; the leukocyte count, 15,000. The roentgenogram revealed characteristic mottling and extensive involvement of the ilium. On operation, it was necessary to trephine the ilium in order to reach the pus, which was present in large amount. A small sequestrum was removed. There was considerable roughened bone. Numerous cigaret drains were inserted. About one month later, the hip joint became involved, with another rise of temperature, necessitating arthrotomy at the hip joint. Following this, recovery was uninterrupted.

OSTEOMYELITIS OF THE ISCHIUM

Both of these patients were seen in the chronic stage of the disease. In one case there was a discharging sinus near the anus. One of them was diagnosed osteomyelitis of the upper end of the femur. The roentgenograms in both cases were distinctive, showing considerable destruction of the ischium and some

sequestration. This roentgen-ray finding, combined with the general history of the case, made diagnosis easy. Operation in each case was performed with the patient in the lithotomy position. An incision was made directly over the ischium, the soft parts being separated by blunt dissection, and in each case a sequestrum of considerable size was removed. In one case (Case 4), healing was prompt, while in the other (Case 5) there still exists drainage.

CASE 4.—A. N., a boy, aged 13, had four months previously complained of pain in the left leg. He was unable to get out of bed for six weeks. His temperature rose rapidly to 104 F., and there was continued intense pain in the left leg. After six weeks, the patient was allowed to get up and go about, although his temperature never went down to normal. On examination, the patient complained of pain in the left leg. He was unable to use the leg properly. There existed marked swelling about the left hip and thigh immediately below the hip joint. Atrophy of thigh and leg was noted. When viewed from behind, the entire gluteal region was markedly swollen and enlarged, about one and a half to two times its normal size. Fluctuation could not be made out. Flexion at the hip joint was considerably interfered with. All of the motions were normal.

The roentgenogram revealed considerable destruction of the ischium and sequestration. The leukocyte count was 15,000. On operation, an incision about 4 inches long was made over the body of the ischium. After the ischium was exposed, considerable necrotic bone was removed, also some pus. Prompt healing followed drainage.

CASE 5 (seen at the University of Minnesota Hospital).—H. J., a boy, aged 11, about one year previously had had the right leg amputated for osteomyelitis of the tibia. Four months after this amputation, a sinus appeared near the anus on the left side. There had been no preliminary pain or discomfort. This sinus had been discharging ever since. Considerable tenderness was noted over the left ischium, and some swelling. There was a discharging sinus, from which came a small amount of pus. An undue amount of walking caused pain in the left leg. The leukocyte count was 12,000. The roentgenogram revealed considerable bone destruction of left ischium and some sequestration. On operating, a fairly good-sized sequestrum was removed. Since the operation, the patient's general health has improved, although the discharge has not ceased.

OSTEOMYELITIS OF THE PUBIS

Only one case was seen. This was secondary to a pus infection elsewhere. No particular discomfort was experienced, excepting marked tenderness over the pubis. The roentgen-ray findings, combined with the clinical findings, determined the diagnosis.

CASE 6 (seen in consultation with Dr. Chowning).—A. P., a woman, aged 35, whose family history was negative, had had purulent discharge from the navel nine years ago. This sometimes stopped, only to return. On examination, April 23, 1921, there was considerable tenderness in the region of the umbilicus. The roentgen-ray examination revealed some bone destruction of the os pubis, on the right side. May 15, an exploratory abdominal incision revealed the pelvic organs. The intestines were free from tuberculous lesions. The line of adhesions extending from the lower end of the incision to the navel, probably indicated the cause of the purulent discharge of the navel. The incision extended out over the pelvis down to the bone. Operation by chisel and curet revealed about 1¼ inches of dead bone on the anterior surface of the pubis, with much softening and detritus below the surface of the bone. The cavity was curetted out about 1½ inches in length, and the width of a finger. It was then packed with iodine gauze, which was changed every other day for a week, and afterward with a wick saturated with compound solution of cresol. The wound closed on the sixteenth day, and the patient was discharged from the hospital on the eighteenth day.

Pillsbury Building.

THE THIRD YEAR IN INFANTILE PARALYSIS*

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In this paper will be analyzed 180 consecutive cases of poliomyelitis which occurred in 1916, since which time the patients have been under continued care in the clinic of the Harvard Infantile Paralysis Commission. Their cases have been analyzed with regard to the effect of treatment on the disease, and to the existence of any general laws governing either the recovery rate of different muscular groups or the behavior of the disease as a whole.

The patients are reexamined once in four months, the examinations including every available muscle group of both arms, both legs, back, neck, and abdomen. The degree of existing power is classified, and the muscles are grouped according to their voluntary power as follows: (1) normal; (2) good, when the muscle performs full function, and takes some resistance; (3) fair, when the whole arc of motion is performed, but very little resistance is required to overcome the movement; (4) poor, when there is some motion, but when complete motion cannot be accomplished against gravity; (5) trace, when there is muscular contraction but no motion in response to voluntary effort, and (6) gone, when there is no response in the muscle to voluntary contraction.

At the clinics, exercises are prescribed which are to be carried out at home, or they are given at the central clinic as the case may be. Operations are ordered when necessary, and apparatus is provided and supervised.

There are two phases of the report: (1) the general progress of the cases available for observation, through the whole three years, and (2) the behavior of the cases in the third year.

% OF GAIN IN 3 YEARS

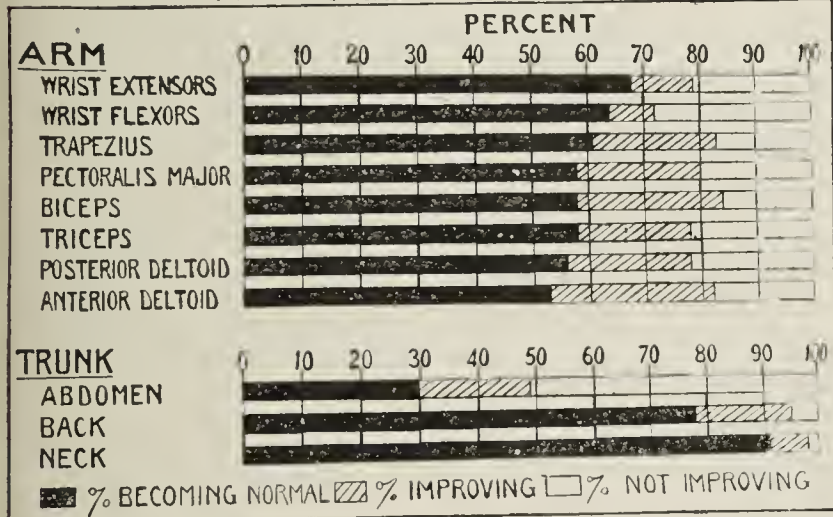


Chart 1.—Percentage of gain in three years.

I. PROGRESS FOR THE WHOLE THREE YEARS

The 180 cases represent those patients coming, in 1916, who were old enough for a thorough examination, and of whom we possess continuous records up to the end of the third year. Therefore, they are not selected cases. The average age at onset was between 3 and 4 years; and, on the whole, the cases in this group were of the severer type, because the patients with milder cases were less regular in their attendance

at the clinic than were these, and many of them had been discharged.

Forty-five patients showed paralysis of the arms at the time of the first examination, and 175, paralysis of one or both legs. The abdomen was affected in 63.5 per cent., the back in 41.5 per cent., and the muscles of the neck in 25.5 per cent.

At the time of admission to the clinic, 15 per cent. of the children were too young to walk, and 37 per cent. of the others could not walk, making a total of more than 50 per cent. who did not walk at the time of admis-

% OF GAIN IN 3 YEARS

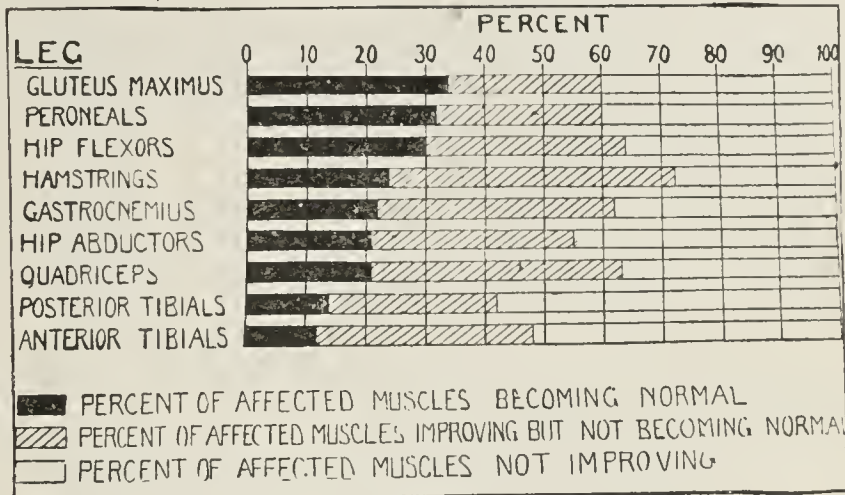


Chart 2.—Percentage of gain in three years.

sion. At the present time, all can walk; two, however, walk only a little. One of these has three times as much power as when he came, but has a complicating heart trouble, and the other one is in poor general condition, with tuberculosis. As the important factor in the treatment is the preservation and restoration of ultimate function, these figures show that with the modern treatment of poliomyelitis inability to walk would be a very infrequent and extraordinary result of infantile paralysis, and practically always preventable, except in cases of very severe paralysis of both arms and both legs.

The muscles in different parts of the body were studied separately, as the recovery rate appeared to differ greatly. Estimates on which statements are made are based on the power of the muscles in voluntary contraction as estimated in the examinations, and graded into the six classes to which reference has already been made. To pass from one grade to the next higher was counted as improvement: to drop a grade was counted as loss. Improved function in walking is not taken account of in this study, which is confined entirely to nonweight-bearing muscular strength.

The muscles of the back and neck improved most noticeably; and nearly all affected neck muscles returned to normal during the three years. More than 75 per cent. of all back muscles returned to normal; but the situation in the abdomen demands attention, as the outlook for improvement under treatment is less favorable than anywhere else in the body, except for certain muscles in the lower leg, which will be alluded to later. Only one half of the cases of abdominal paralysis showed improvement, and less than one third returned to normal. Considering how common this paralysis is; how frequently it is overlooked; how difficult it is to provide anything but strong exercises for these muscles, and how undesirable is permanent abdominal paralysis, these figures are important. It may be men-

* From the Harvard Infantile Paralysis Commission.

tioned incidentally, however, that complete abdominal paralysis in women is not an obstacle to child-bearing, certain adult patients of this type in my personal knowledge having been delivered of healthy children without difficulty.

The muscles in other parts of the body showed definite rates of improvement which must be taken into account in formulating the prognosis. This is shown by the charts. In the trunk muscles, Chart 1 shows the very unfavorable situation with regard to abdominal paralysis, and the very favorable situation with regard to paralysis of the neck.

In the arm, it will be seen that the average of improvement is much higher than in the leg, but gradually diminishes from the wrist to the shoulder, the least improvement occurring in the deltoid muscle, which in this analysis is separated into two parts, the anterior and the posterior part of the muscle.

The probability of the leg's becoming normal is about one-half that of the arm. The muscles vary greatly in their individual outlook, and the prospect of improvement, even in the most favorable muscles, falls below that prospect in the arm.

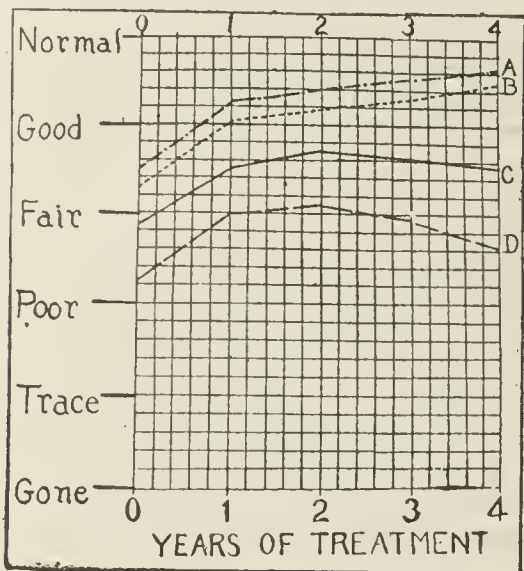


Chart 3.—Progress of the average affected muscles of the arms and legs in four years: A, lower arm; B, upper arm; C, upper leg, and D, lower leg.

muscle in the body, and the posterior tibial presents nearly as poor an outlook. The comparative immunity of the peroneals and the much more favorable outlook for their recovery than exists in any other muscle below the knee is striking, and accounts for the frequency of valgus deformity in the late stages of the disease.

To summarize what has been said, all muscles show a tendency to improvement under treatment by muscle training and restricted walking, when analyzed from the beginning of the disease to the end of the second year. Many become normal; the best outlook is in the muscles of the back and neck; next it is in the muscles of the upper extremity, and the outlook in the abdominal muscles is worse than anywhere in the trunk and upper extremity. In the lower extremity, the whole outlook for improvement is very much worse, and, in general, diminishes from the hip to the foot. The generalization suggested by these figures is that the disease is known to be, in general, not only more frequent, but, on the whole, more severe, even from the outset, in the lower extremities than in the upper; and the chart dealing with the leg suggests that, on the whole, improvement or recovery is least, and improvement slowest, in those muscles which have the greatest amount of body weight to sustain in walking. The

bad outlook in the abdominal muscles suggests that the continued stretching of the abdominal muscles is a most unfavorable factor.

II. THE BEHAVIOR OF THE MUSCLES IN THE THIRD YEAR

At the end of the second year, we come to a more or less stationary period, when spontaneous improvement has largely ceased, and when the outlook for further

TABLE 1.—PROGRESS DURING THIRD YEAR IN PARALYSIS OF ARM

	Number	Per Cent.
Arms affected	35	100
Arms showing gain.....	13	37
Arms stationary	16	45
Arms showing loss.....	6	18
<i>Analysis of Loss:</i>		
Deformity	4	66
Overuse	1	17
Poor care	1	17

improvement under treatment is less favorable. In addition to this, the parents of patients have become tired of the routine necessitated by intensive treatment and have become lax in treatment. Deformities are becoming established, it is impossible in most cases to restrict activity to the proper limit, and one would expect on general considerations that progress at this time would be less favorable.

We pass now to a strict consideration of paralysis in the third year in patients under treatment. Chart 3 shows a most striking situation and indicates the progress of muscles affected during three years in the cases under consideration, with records of the fourth year added when available.

It will be seen in the chart at the outset the curve (A) of improvement for the lower arm begins higher than any of the other curves, rises rapidly through the first year, and then continues improvement up to the end of the fourth year. Improvement in the upper arm (B) is practically parallel to this, on a somewhat lower level. The upper leg chart (C) shows a distinctly lower level than either of the arm curves at the outset and throughout, but it is parallel to them up to the end of the second year. The lower leg (D) starts at a still lower level, is nearly parallel to the others in the first two years, but falls more sharply in the third and fourth year, falling even more than does the upper leg.

TABLE 2.—PROGRESS DURING THIRD YEAR IN PARALYSIS OF UPPER LEG

	Number	Per Cent.
Legs affected	252	100
Legs showing gain.....	49	20
Legs, stationary	127	50
Legs showing loss.....	76	30
<i>Analysis of Loss:</i>		
Deformity	33	44
Overuse	16	21
Poor care	3	4
Unexplained	4	6
Examinations vitiated by recent operations.....	20	25

In view of the fact that cases of paralysis of the upper and lower leg showed, on the average, a falling off in power in the third year, an intensive study of all cases was made to ascertain the causes of this falling off.

Of thirty-five arms still affected at the beginning of the third year, the behavior was: Eighteen per cent. showed a loss; 45 per cent. showed neither gain nor loss, and 37 per cent. showed a gain. The causes of the loss of power in the six cases constituting the 18

per cent. were: increasing deformity in the hand or shoulder in four cases, poor care at home in one case, and overuse in starting to walk on crutches in one case.

In the upper leg, in 252 cases, seventy-six, or 30 per cent., showed loss under treatment in the third year; 50 per cent. showed neither gain nor loss during this period, and 20 per cent. showed a gain. In analyzing the causes of loss in these cases, hip deformity was responsible for 38 per cent., deformity in the foot for 6 per cent., operations for 25 per cent., overfatigue in walking before the third year for 8 per cent., overfatigue in starting to walk 13 per cent., cases dropped from the clinic 4 per cent., and unexplained 6 per cent.

In classifying operations as a cause of loss, it is evident that, following operation, weakness will be evident in the muscles of the limb operated on, and, although a large proportion of these patients regained or increased their muscle power after the close of the third year, and nearly all improved in function, it is evident that the readjustment immediately following operation will show temporarily in a muscle examination technically as a loss, so that operation in any series of cases investigated in this way will show, in the months following operation, a change of function which must be classified

TABLE 3.—PROGRESS DURING THIRD YEAR IN PARALYSIS OF LOWER LEG

	Number	Per Cent.
Legs affected	259	100
Legs showing gain	46	18
Legs, stationary	87	33
Legs showing loss	126	49
<i>Analysis of Loss:</i>		
Deformity	79	63
Equinus	4	
Calcaneus	1	
Valgus	13	
Varus	1	
Equinovalgus	24	
Calcaneovalgus	19	
Equinovarus	8	
Calcaneovarus	2	
Cavus	7	
Overuse	3	2
Poor care	2	2
Unexplained	3	2
Examinations vitiated by recent operations	39	31

as a loss. The operative results obtained in the commission's clinic are most satisfactory from a functional point of view and will be considered in a separate communication later.

The most interesting question of all relates to the behavior of the lower leg in the third year of treatment. Of 259 lower legs affected, 49 per cent., or one half, showed loss as defined by the examination of individual muscles in the third year; 33 per cent. were stationary, and 18 per cent. showed a gain. Increasing deformity was responsible for 63 per cent. of the loss, and was distributed as indicated in Table 3. It is interesting to notice in the table that of the seventy-nine cases of deformity, fifty-six of them showed an element of valgus, which is a comment on the tendency of the peroneal muscles toward gain in power. The loss in power was associated with operations in 31 per cent.; and many of these operations were astragalectomy, which, of course, resulted in an obliteration of mobility and muscular power in the ankle. The same consideration with regard to operations in the lower leg pertains, as in those mentioned, to the upper. Poor care was responsible for the loss in 2 per cent., it was unexplained in 2 per cent., and in 2 per cent. it was due to starting to walk.

The question of deformity is of much practical importance and interest. Although deformity is, in the

majority of cases, preventable, it is not so in all. In a case of paralysis of the tibial muscle with strong peroneals, in the end, the foot will almost invariably be drawn into a position of valgus no matter what care we may give to it. With complete paralysis of the gastrocnemius and the persistence of the posterior tibial and the peroneals, a cavus or calcaneocavus is almost inevitable, while the paralysis of the peroneals and the continued pull of a strong anterior tibial will, in the end, generally result in a varus, so that in a certain number of these cases it is fair to assume that the deformity is inevitable. In a certain number of these cases, deformity was undoubtedly unnecessary and resulted from the fact that these cases were distributed over a large state; that the parents were, in a good many cases, careless; that apparatus got out of order, and directions were not faithfully carried out. In other cases, increasing deformity has been recognized and operation advised; but the parents have deferred operation.

Whatever the cause of the deformity as it was studied in the third year, an analysis was made to see in which direction the loss of power occurred and why it occurred. Sixty-one per cent. of the patients showed loss in both the contracted and stretched muscles; 29 per cent. showed loss in the stretched muscles and not in contracted ones, and 10 per cent. showed loss in contracted muscles only. Putting these groups together, it is of interest to note that 90 per cent. lost power in the stretched muscles, and 70 per cent. in the contracted muscles. In addition, therefore, to any unsightliness and impaired function caused by deformity itself, it is evident that there is a serious danger, especially to the stretched muscles, in allowing deformity to persist, and that the greater loss of power in deformity occurs in the stretched muscles.

CONCLUSIONS

The conclusions that may be drawn from this brief summary of a very large field are that infantile paralysis, affecting the upper extremity, is milder and more amenable to improvement and cure than that affecting the lower extremity. Muscles in the upper extremity, under the treatment described, improve continuously for four years, the improvement being most rapid in the first year, and in the lower extremity, improvement is also most rapid in the first year; but after the third year, there is a tendency toward a slight loss of muscular power, especially marked in the lower leg, under the best conditions of intensive treatment that can be afforded in a public clinic where the object of treatment is the prevention of deformity and the avoidance of fatigue, and where muscular reeducation is pursued throughout. The chief cause of this loss is deformity and deformity occurring in the lower leg.

The following causes tend to make recovery in the lower leg less favorable than elsewhere in the body, except in the abdominal muscles: (1) a tendency of the paralysis to be more severe from the start; (2) the frequent occurrence of deformity, and (3) the fact that in weight-bearing the greatest amount of strain is thrown on the muscles of the lower leg. The outlook in the tibials is particularly poor; and the more favorable condition in the peroneals explains the predominance of valgus deformity. Operation may temporarily diminish muscular power, and improved function occurs before the improvement in muscular power shown by a technical examination.

The lesson to be learned is that deformity is to be prevented by every means in our power, that the evidence shows that early weight-bearing is detrimental to weakened muscles, and that the keynote to treatment consists in the prevention of the stretching of paralyzed muscles and contraction of their opponents, the avoidance of fatigue in walking, and the preservation of a normal muscular balance between opposing groups so far as possible. With this closer analysis of the potential power of individual muscles to improve and the general laws formulated with regard to the behavior of individual muscles, it would seem that operation in a good many cases might be performed with benefit earlier than is now often done, and that one was safe in formulating the statement that deformity, stretching, and fatigue are the three worst enemies of good ultimate function in poliomyelitis.

234 Marlborough Street.

THE LOCAL AND GENERAL SERUM TREATMENT OF CUTANEOUS ANTHRAX*

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Various methods of treating anthrax have been employed for many years. Almost all the local measures in common use possess, however, too many disadvantages to be considered locally effective, and they are all without claim to a specific effect once an anthrax septicemia has developed. Many of them even have the danger of increasing the liability of this grave complication supervening.

The most desirable method of treatment is one which fulfills certain points. Thus, it should (1) be applicable to all forms and locations of the disease; (2) have the lowest mortality rate; (3) be as specific as possible; (4) entail no danger of generalizing the local disease; (5) produce the least amount of scarring and deformity; (6) possess a minimum of pain, and (7) entail the shortest absence from employment.

The thermocautery has been used and is still very often used either alone or in conjunction with other measures. It is an extremely painful procedure, and when the lesion is extensive, especially on the face or neck, it leads to hideous scarring and deformity. It destroys rather indiscriminately both dead and living tissues and, unless applied thoroughly, it may seal off from free drainage tissue which is still infective, and thus lead to generalization of the malady.

Chemical caustics, such as chlorinated lime, nitric acid, zinc chlorid, phenol (carbolic acid), mercuric chlorid and potassium hydroxid have also been used. These caustics are very painful and some produce pronounced scarring; they are, moreover, not in the least certain, and whatever slight specific action they have is exerted too superficially to be effective. Bacilli have been shown to persist for many days in an anthrax wound despite energetic cauterization. The tendency of some of them to produce acute inflamma-

tory changes in the kidney, and even poisoning, must not be forgotten.

Surgical intervention comprises two forms: incision and excision.

Incision has fallen into disrepute in treating anthrax and justly so, for it is not only contraindicated but is actually dangerous. The operation breaks down the barrier zone to the infection which Nature has so carefully constructed, and it opens wide the blood and lymphatic channels of absorption at the same time failing to remove the infected focus. As a result, increased local involvement and grave danger of a septicemia originating are to be expected.

Excision has been the most commonly used method of treatment. It has been so often combined with serum or cautery that it is difficult to tell to which the results are mostly attributable. Excision, despite certain advantages over incision and thermo or chemical cautery, has certain outstanding limitations and disadvantages. In anthrax of the face or neck, it is objectionable from the esthetic point of view; and in any location, if the lesion is large, an extensive surface is left devoid of skin, requiring subsequent skin grafting to prevent scar formation. The pain of the operation and possible hemorrhages are also factors. Probably the most frequent source of danger is the difficulty of accurately defining the area to be excised, especially when the edema and induration are marked, as microscopic sections have at times shown bacilli far beyond the limits of the pustule in the edematous zones. To excise less than the entire area is to subject the patient to the pain and discomfort of the operation without a compensatory result in the way of a certain cure. On the contrary, Nature's barrier zone may be broken down and the blood and lymphatic channels opened, increasing the danger locally and generally of disseminating the malady. Since anthrax in man is primarily a local disease, any treatment which tends in the least to generalize the infection is scarcely to be looked on as a proper therapy.

Certain other means of treatment have been recommended locally, such as wet dressings and pulverization with antiseptics, the injection of antiseptic solutions of various kinds into the lesion, etc.; but such measures can only be considered palliative and secondary to a more specific method. Likewise, symptomatic treatment and rest, while useful adjuncts to any treatment, must be considered as palliative at best. Schwartz¹ collected statistics that are interesting in this connection: Of ten patients given symptomatic treatment and rest, nine died.

Various means of treatment supposedly more or less specific for the disease have been advised. Among these the most prominent are powdered ipecac paste, extract of *Bacillus pyocyaneus*, arsphenamin, and normal beef serum.

A few favorable statistics have been reported with ipecac and extract of *Bacillus pyocyaneus*, but their value has not been established and it is very questionable whether they have the least efficacy in the severer forms of the disease. Arsphenamin has experimentally been found of value by several investigators, and Becker² has reported a recovery in a septicemic human case. The results are encouraging, but the treatment is in its experimental stage. Recently, normal beef

* From the Kingston Avenue Hospital Bureau of Hospitals, Department of Health, New York City, Dr. R. J. Wilson, director; Dr. William T. Cannon, resident physician.

1. Schwartz, N.: Diagnosis and Treatment of Anthrax, New York M. J. 107:1171 (June 22) 1918.

2. Becker, C.: Deutsch. Ztschr. f. Chir. 112:265, 1911; quoted by Pied (Footnote 16).

serum has been utilized extensively in South America by Kraus³ and his collaborators, and they report much success with it and low mortality rates. Lignieres⁴ has subsequently contested the value of the treatment, and Kolmer⁵ has been unable to demonstrate that it possesses any protective or curative power in experimental infections in mice or rabbits. Hutyra⁶ has shown that immune anthrax horse serum gives higher protection in test animals than normal serum. Therefore, until it has been proved beyond question that normal beef serum is equivalent in its curative properties to immune serum, the latter should in every case, especially of any severity, be given the preference. Normal beef serum should be used only when it is impossible to obtain anti-anthrax serum.

The mortality rates with all these measures of treatment, with the possible exception of normal beef serum, are higher than those obtained by the use of anthrax serum. Except in isolated instances, the favorable statistics obtained with other methods than that of serum are so few that they cannot be considered as the established outcome, while, on the contrary, there has been accumulated a sufficient amount of statistical matter on immune serum therapy of the disease to place the method on a firmly established basis.

ANTIANTHRAX SERUM

The credit for the original production of this serum is to be given to Marchoux⁷ of France, and Sclavo⁸ of Italy. Marchoux succeeded in immunizing sheep to anthrax by use of attenuated cultures, and then, by hyperimmunization with virulent cultures in increasing doses, obtained a serum possessed of both prophylactic and therapeutic properties in animals. Sclavo, working along similar lines but using larger animals, at first goats and later asses, and immunizing over long periods of time, succeeded in producing a potent serum for use in human cases of the disease. Sobenheim⁹ has subsequently modified the original methods by employing simultaneous inoculation of antianthrax serum and culture, the latter being at first attenuated and later highly virulent. Sobenheim used his method of immunization with complete success in a herd of 2,700 cattle, without any deaths or ill effects attributable to the inoculations, and with the complete disappearance of any further cases of anthrax among them.

Sclavo's serum has been used extensively in Italy and South America, both prophylactically and therapeutically in animals and in the treatment of the disease in man. It has, however, been very little employed in this country, and the reports of cases of human anthrax treated by serum have been, until lately, entirely lacking in the American literature, with the exception of that made by Royer and Holmes. This has no doubt been due to the difficulty of obtaining any immune serum. The more frequent employment of serum in this coun-

try is due to the fact that for a few years the Bureau of Animal Industry in Washington has been making a very potent preparation.

The credit for the perfection of this serum is due to Dr. A. Eichhorn, formerly chief of the bureau, and his collaborators. It was obtained by combined immunization with potent anthrax serum and carefully standardized spore vaccine,¹⁰ and by comparative tests was found to be twice as effective as several of the European preparations. The Bureau of Animal Industry has been furnishing state and city hospitals with the serum on request for several years, but recently has discontinued the practice, as several of the biologic firms are now prepared to furnish such a product.¹¹

A considerable amount of statistical data has been accumulated on the question of serum treatment of anthrax in Europe and South America. The details of the various studies that have been carried out would require more space than can be devoted to it in this article. Attention must, however, be drawn to the results which have been obtained in general with this treatment.

Among the more important statistics are those of Sclavo¹² in Italy, showing a mortality of 6.09 per cent. in 164 cases, as compared to a death rate of 24.16 per cent. in patients not receiving serum in other parts of Italy. In 130 cases observed in Argentine Republic and treated by serum,¹³ the mortality is considered by the investigators as reduced to zero, the few fatal cases being attributed to secondary infection. Legge¹⁴ compiled twelve cases in England treated by serum with three deaths. Royer and Holmes¹⁵ in this country reported fifteen cases of anthrax, four of which were treated by serum alone with one death, and seven by serum and surgical measures also with one death. Schwartz¹ has compiled sixty-eight cases of anthrax occurring in New York State, in forty-nine of which serum was used either alone or in conjunction with the cautery or surgery, with seven deaths. Pied,¹⁶ in 1913, found that up to that date, seven patients with anthrax septicemia had recovered following serum therapy, and two cases in which it was used without success. Bissell,¹⁷ and Graham and Detweiler,¹⁸ each reported a recovery with immune serum in septicemic cases. Legge,¹⁴ in his thorough article, examined the details of all published cases he could find which had been treated by serum. Of a total of sixty-seven cases, fifty-six were treated by serum alone, and eleven by serum and some other treatment with a total death rate of 9. In forty-four of the fifty-six, in which details would allow Legge to draw conclusions, marked improvement had taken place not only in the general symptoms but also in the arrest of the further development of the pustule and in the diminution of the edema

3. Penna, J.; Cruenea, J. B., and Kraus, R.: Normal Beef Serum in the Treatment of Anthrax, *Prensa Med. Argentina* 4: 91 (Aug. 20) 1917; abstr., *J. A. M. A.* 69: 1388 (Oct. 20) 1917; *Prensa Med. Argentina* 4: 455 (April 10) 1918; abstr., *J. A. M. A.* 71: 234 (July 20) 1918.

4. Lignieres, J.: Normal Beef Serum in the Treatment of Anthrax, *Revista de la Asoc. Medica, Argentina* 27: 370 (Sept.) 1917; abstr., *J. A. M. A.* 69: 2076 (Dec. 15) 1917.

5. Kolmer, J. A.; Wanna, D., and Koehler, M.: The Influence of Normal Beef Serum on Anthrax Bacilli, *J. Infect. Dis.* 26: 148, 1920.

6. Hutyra, quoted in communication to the author from Dr. Eichhorn, Aug. 20 and Sept. 14, 1920.

7. Marchoux, E.: Serum anticharbonneux, *Ann. de l'Inst. Pasteur* 9: 800 (Nov.) 1895.

8. Sclavo: Communication au VI Congress de la Société Italienne de médecine interna à Rome, 1895.

9. Sobenheim, G.: Experimentelle Untersuchungen zur Frage der activen und passiven Milzbrandimmunität, *Ztschr. f. Hyg. u. Infektionskr.* 25: 301, 1897; Weiter Untersuchungen über Milzbrandimmunität, *ibid.* 31: 89, 1899.

10. Eichhorn, A.; Berg, W., and Kelser, R.: Immunity Studies on Anthrax Serum, *J. Agric. Res.* 8: 37 (Jan. 8) 1917. Eichhorn, A.: *J. Am. Vet. Med. A.* 48: 669 (March) 1916; The So-Called "New" Anthrax Serum, *J. A. M. A.* 65: 1479 (Oct. 23) 1915.

11. Communication to the author from the acting chief of the Bureau of Animal Industry, Washington, D. C., Sept. 22, 1920.

12. Sclavo: Sullo stato presente della Sieroterapie Anticharbonchiosa, *Revista d'Igiene e di Santa Publica* 14, 1903.

13. Quoted by Raymond Picaud: Contribution a l'étude du traitement du charbon par les methodes nouvelles, Paris thesis, 1906-1907.

14. Legge, T. M.: Milroy Lecture on Industrial Anthrax, *Brit. M. J.* 1: 589 (March 18) 1905.

15. Royer, B. F., and Holmes, B. B.: Fifteen Cases of Anthrax Treated in Municipal Hospital of Philadelphia, with Comments on Treatment, *Pennsylvania M. J.* 37: 937, 1907-1908.

16. Pied, H.: Sur la pustule maligne (à propos de huit cas personnels), *Bull. méd.* 27: 1135 (Dec. 27) 1913.

17. Bissell, T.: Human Anthrax, Report of a Typical Case, *New York M. J.* 106: 110 (July 21) 1917.

18. Graham, R. R., and Detweiler, H. K.: Anthrax: A Case of B. Anthracis Septicemia with Recovery, *J. A. M. A.* 70: 671 (March 9) 1918.

by the third day. The average duration of treatment in these forty-four cases was eight days. No visible scar or only a slight one remained in all cases except two. In seven of the nine fatal cases the patients were in a serious condition with widespread edema when the serum was administered, and in all death occurred within thirty hours, usually in twelve, of the time the first dose of serum was given. Moreover, the doses of serum were small, and often only one injection was made and that subcutaneously. Recoveries with Sclavo's serum have been reported by many observers. In Italy, San Felice, Bastia and many others have reported a number of cases. In England, success has attended the treatment, as shown in several reports, such as those of Legge, Lockwood and Andrews, Stretton, Armour and Herley.

Relatively few failures have occurred with immune serum, and these can almost always be traced to the following reasons: (1) its use too late in the course of the disease (from twelve to thirty-six hours before death); (2) the employment of too small doses (from 20 to 30 c.c.); (3) failure to repeat the injections frequently, in many instances often one dose only being given, and that subcutaneously; (4) use in persons in whom the malady was complicated by chronic disease: advanced myocarditis, nephritis, syphilis, etc.

In most instances serum therapy has been combined with some other method, and has not been relied on alone for the cure. It is my contention that no other local method should be used in conjunction with serum. The objectionable features of most of the common measures of treatment have been briefly commented on in the beginning of the article. In many instances the efficacy of serum may be offset by a radical surgical procedure. It is to be recalled that pathologic studies have shown that anthrax in man is primarily a local disease, and remains as such in a high proportion of cases. The human organism, in contradistinction to animals, is very refractive, although not completely so, to the cutaneous disease, and this is shown by the strongly developed character of the local lesion in man as compared to its poorly developed form in most animals in which the infection is quickly generalized. For this reason, in human cases no measure of therapy should be resorted to which would tend to interfere with this localization of the infecting micro-organism.

In order to obtain a method of local treatment which would not possess the disadvantages of those in use, yet would be locally effective and an additional precaution against the development of an anthrax septicemia, I resorted to the local use of antianthrax serum injected into the lesion itself. Two successful cases treated by this method have been previously reported,¹⁹ and since then six more consecutive patients so treated have recovered. For the local injection, a small Luer or record syringe, 2 or 5 c.c., with a fine needle, is used. The needle is inserted in the indurated border of the pustule and is directed fairly deeply (from 2.5 to 3.5 cm.) into the subcutaneous tissues at the base of the lesion. A total of from 10 to 12 c.c. of the serum is injected, the needle being inserted at two or three points and the serum given so as to circumscribe the pustule. The site of injection is previously iodinated and the operation carried out with a carefully aseptic technic,²⁰ so that a mixed infection shall not be

induced. We have used the injection once or twice in twenty-four hours in mild and moderate cases, while in severe, voluminous lesions they may be made every six to eight hours, and larger quantities given. Symmers²⁰ finds a four hour interval between the injections a desirable one. Commonly from four to six treatments are required in the usual case.

There is a slight degree of increase in the inflammation following the first one or two local treatments, but within two or three days the lesion has usually taken a decided turn for the better, and rapidly dries up, the induration and soft edema subsiding, and the eschar is the only visible remains of the lesion left after one week. The eschar itself spontaneously separates from the underlying tissue during the second or third week, and the wound that remains quickly heals with practically no scarring.

The local use of serum is logical, as it is then supplied in a most concentrated form at the site of the infection. Theoretically, the value of this method of administration is dependent on two factors: (1) The local injection insures that the lymph secretion in the region of the pustule contains a high antibody content. This is especially important in anthrax, as it is to be classed as a massive inflammation, and Flexner has shown that such inflammations receive a diluted and modified lymph secretion. It seems very probable that, when the serum is given by the general circulation alone, the lymph in the immediate region of the pustule does not contain as high a concentration of the specific serum as is desirable. (2) The local inflammatory reaction is of a peculiar type. The serous discharge from the pustule is characteristically poor in leukocytes.²¹ Moreover, the pathologic anatomy shows a strong tendency for segregation of the bacilli in the center of the pustule practically free of leukocytes, the latter being distributed as dense infiltration around the margins of the lesion and in the adjacent cellular tissue.²² Probably a condition of negative chemotaxis exists in the early stage of the infection; and at this time, and throughout the disease in most severe and fatal cases, leukocytic activity is not much in evidence. Since the serum apparently has a marked effect in facilitating phagocytosis, according to the experiments of Marchoux, it is logical to supply it concentrated at the site of the lesion.

It must not be forgotten, however, that the local injection of serum is only a supplementary measure to the general intravenous, intramuscular or subcutaneous administration of the specific agent. The essential aim in administering serum is threefold: (1) to bring about a subsidence of the local lesion; (2) to counteract whatever toxemia may exist, and most important of all, (3) to anticipate and prevent the development of an anthrax septicemia or to control it if it exists when treatment is begun.

I believe that the frequency of the injection, and the amount of serum given, as well as the route of administration, should be in accordance with the severity of the case. In all instances a blood culture should be taken on the first day of treatment, and thereafter whenever symptoms arise which are suggestive of a septicemia.

20. Symmers, D., quoted in *Human Anthrax and Its Treatment*, Weekly Bull. New York Health Dept., Aug. 7, 1920.

21. Boidin, L.: *Recherches experimentales sur les poisons de la bacterie charbonneuse*, Paris thesis, 1905-1906.

22. Straus, I.: *Contribution à l'anatomie pathologique de la pustule maligne*, Ann. de l'Inst. Pasteur, 1888, p. 429.

19. Regan, J. C., and Regan, C.: *Human Anthrax*, Am. J. M. Sc. 157: 782 (June) 1919. Regan, J. C.: *The Local Use of Antianthrax Serum in the Treatment of Anthrax*, J. A. M. A. 72: 1724 (June 14) 1919.

DOSAGE

A tentative plan of dosage for the general administration of antianthrax serum would seem of practical value, and I therefore present an outline giving in conjunction the doses which Dr. Eichhorn has recommended in a recent letter.⁶

A. *In Nonsepticemic Forms*.—1. In mild cases, with little or no constitutional symptoms and a small, well circumscribed lesion with little edema, the serum need not be given more often than every twelve to twenty-four hours, and commonly not more than four injections are required of from 40 to 50 c.c. each (Eichhorn advises ⁶ 50 c.c.). The first one or two injections may be given intravenously, the subsequent intramuscularly and subcutaneously.

2. In moderate cases with a medium sized lesion and moderate degree of edema, with or without definite constitutional symptoms, the serum should be administered by the intravenous route for the first few (three or four) doses every eight to twelve hours in amounts of from 50 to 60 c.c. (Eichhorn, from 50 to 100 c.c.⁶), the subsequent injections being in accordance with the progress of the case, and given intramuscularly or subcutaneously. Commonly not more than six injections would be required.

3. In severe cases with large voluminous lesions and extensive edema, with or without marked constitutional symptoms, the serum should be administered by the intravenous route in fairly large doses, from 80 to 130 c.c. (Eichhorn, from 100 to 200 c.c.⁶) every six to eight hours for five or six or more injections until the disease is controlled, when the intramuscular route may be used, the dosage reduced to from 30 to 40 c.c., and the interval lengthened to twenty-four hours.

B. *In Septicemic Cases*.—The injections should be made every three to six hours intravenously, in doses of from 100 to 200 c.c. (Eichhorn, from 200 to 300 c.c.⁶), and this type of treatment continued until the septicemia is terminated. Arsphenamin may yet prove a useful adjunct in the treatment of these desperately ill patients.

In treating all forms of anthrax it is best to give too much serum than too little, and it is good policy when, during the first few days of treatment, the injections are being made intravenously, to supplement this with subcutaneous or intramuscular injections. Severe serum reactions are altogether exceptional in my experience; chills are encountered, but I know of no instance of severe anaphylactic phenomena. It is wise in all cases to dilute the first few intravenous injections with sterile physiologic sodium chlorid solution, to inject the serum slowly, and to have it at or about body temperature.

RESULTS OF TREATMENT

Anthrax serum fulfils best the points mentioned previously as requisite for an ideal method of therapy for anthrax: It offers the least pain, a minimum of scarring and deformity, it is applicable to all forms and locations of the disease, it is a specific method, and it is a safeguard against generalization of the local infection. It has on an average the lowest mortality rate, and necessitates in most cases the shortest absence from employment.

At the Kingston Avenue Hospital during the last two years, we have treated eight cases of anthrax by the local and general administration of Eichhorn's serum combined with complete rest in bed, with result-

ant recovery of all eight patients. In these patients the acute inflammation of the pustule subsided usually from the second to the sixth day of treatment, the eschar separated spontaneously from the twelfth to the twenty-first day, the wounds healed from the twentieth to the thirty-second day, and patients were well enough to be up and around from the seventh to the twelfth day. No deformity occurred in any instance, no serious complication or sequelae ensued in any case, and the scar that remained after healing was complete was so small as to pass unnoticed except on minute inspection.

Dr. Douglas Symmers²⁰ has adapted the local and general serum therapy of anthrax at Bellevue Hospital, the previous method of combined excision and serum treatment having been abandoned. He reports very satisfactory results in fifteen cases treated by Eichhorn serum, the patients who came under treatment early being speedily cured, recovery taking place in from a week to ten days. The method of administration has been to give 40 c.c. every four hours, and at the same time to inject 10 c.c. of serum around the lesion.

An examination of reported cases of anthrax in New York City²² during recent years, given in the accompanying tabulation, is instructive from the standpoint of treatment.

ANTHRAX IN NEW YORK		
Year	Cases	Deaths
1915.....	13	9
1916.....	4	3
1917.....	16	9
1918.....	15	4
1919.....	14	9
1920 (6 months).....	12	1

Graham,²³ in a recent article, comments on the change in the mortality rate. In 1915, serum was little used and excision was commonly employed. After 1916, serum began to be more and more utilized, but excision and other local treatment was still extensively resorted to. In 1920, serum locally and generally has been more or less uniformly adopted and excision abandoned. Hubbard and Jacobson,²⁴ in their study of thirty-four cases of anthrax occurring in New York City in 1919 and 1920, concluded that the most successful method of therapy seemed to be the local and general administration of antianthrax serum.

CONCLUSIONS

1. The measures of local therapy of malignant pustule that have been in common use for many years possess too many disadvantages to be considered locally effective. These disadvantages include pain, scarring, danger of introducing secondary infection into the lesion, liability of disseminating the infecting micro-organism both locally and into the circulation, prolongation of convalescence, lack of specific action, and high mortality rates.

2. As anthrax in man is primarily a local infection with a decided tendency to remain as such in a high proportion of cases, no method of treatment is warranted which tends to break down the barrier zone of the inflammatory process which Nature has so carefully and characteristically constructed in this disease.

3. Since we have available an extremely potent therapeutic agent in antianthrax serum, these measures

23. Graham, J. R.: Cutaneous Anthrax, New York M. J. **112**:931 (Dec. 11) 1920.
24. Hubbard, T. D., and Jacobson, W.: Investigation of Thirty-Four Cases of Human Anthrax Occurring in New York City During 1919 and 1920, Monthly Bull New York Health Dept. **10**:249 (Nov.) 1920.

should be omitted from the therapy of the disease. The serum should be administered both locally around the lesion and generally into the circulation by the subcutaneous, intramuscular or intravenous routes. The dosage, frequency of injection and route used necessarily depend on the location and severity of the lesions, the presence or absence of an anthrax septicemia and, to a lesser extent, on the degree of the constitutional symptoms. An outline of dosage in the various forms of the disease has been given above.

4. The local injection of serum around the lesion every twelve to twenty-four hours is a most desirable method to replace the local measures until lately in common use. It possesses none of the disadvantages or dangers of the previous methods. On the contrary, it is an additional safeguard against an anthrax septicemia, and appears to exert a very beneficial action in bringing about a rapid subsidence of the malignant pustule itself. The theoretical basis for the method is discussed in the preceding text.

5. There have been eight cases of anthrax successfully treated in the last two years at the Kingston Avenue Hospital by the employment of Eichhorn anti-anthrax serum, given by local injection around the lesion and general injection into the circulation, without any fatalities. The acute inflammation disappeared from the second to the sixth day of treatment, the eschar separated from the twelfth to the twenty-first day, and the wound healed from the twentieth to the thirty-second day. No sequels were noted in any instance, and the scar left was so minute as to pass unnoticed. The acute stage was over within a week.

FOOD INFECTIONS

WITH AN ILLUSTRATIVE OUTBREAK *

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Students of the subject now believe that practically all instances of food infections are due to the bacillus of Gaertner (*B. enteritidis*), which is taken as the type of a group of closely allied organisms. Instances of food "poisoning" caused by *B. enteritidis* are rare in this country; at least very few outbreaks have been described. They occur more frequently on the continent of Europe and occasionally in England.

The symptoms of food infection are essentially those of an acute gastro-intestinal irritation, namely, nausea, vomiting, abdominal pain and diarrhea. The onset is usually sudden. The attack may be ushered in with headache and a chill. The abdominal pain is frequently the first symptom, and may be griping and severe. The diarrhea usually consists of repeated bowel actions, which as a rule are offensive. Later in the attack, the stools become more watery and are frequently of a green color. Faintness, muscular weakness and prostration may be quite marked. Thirst is always present. There is almost always a rise of temperature, usually to about 102 or 103 F. Various nervous manifestations, such as restlessness, muscular twitchings and drowsiness, may occur, but these symptoms are not constant or marked. Oliguria is often present. Herpes

and other skin rashes have been noted. The clinical picture is that of an acute, self-limiting febrile infection.

The severity of the symptoms varies greatly in different outbreaks, and even in the same outbreak. All degrees are encountered, from fulminating cases, fatal within twenty-four hours, to those of slight diarrhea and malaise, insufficient to keep the patient from work. Usually the attack is over in a day or two, with prompt recovery, although occasionally marked prostration may persist. The severity doubtless depends on the virulence of the particular strain of bacilli concerned, the length of time it had to grow upon the incriminated food before consumption, and the temperature of growth. The symptoms vary with the dose, that is, with the number of bacteria ingested with the food. The susceptibility of the individual also plays an important rôle in this, as in other infections. The severity of the symptoms, therefore, may be due to a number of complicating causes, some of which are not understood.

Usually from six to twelve hours elapse between the ingestion of the food and the onset of symptoms, though occasionally the period of incubation is four or less, and it may be seventy-two hours or more. Not only does the incubation period vary in different outbreaks, but in the same outbreak widely different incubation periods have been noted. It is natural to accuse the food vomited as the food responsible for the trouble, but frequently several meals elapse between the ingestion of the infected food and the onset of symptoms. It is a common mistake to accuse the wrong food.

The case fatality rate varies greatly in different outbreaks. In the 112 British outbreaks studied by Savage, there were some 6,190 cases with ninety-four deaths, a case fatality rate of 1.5 per cent.

The age and sex distribution depends entirely on the accidental age and sex distribution of those who eat the infected food.

Most cases occur in the summer time, the disease corresponding in seasonal prevalence to typhoid fever, cholera, dysentery and other intestinal infections. The bacilli responsible for food infection grow in the food before it is eaten, and therefore temperature is a very important factor. The greater multiplication of these bacteria in hot weather also increases the opportunities for transmission of infection through flies and other means. Secondary infections rarely occur. There is the same potential possibility of contact infection as in typhoid fever, but the cases of food infection are for the most part acute and of short duration, so that there is little opportunity for secondary infection. Furthermore, human carriers are very infrequent.

The great majority of outbreaks of food infections are due to meat foods; hence, the frequent use of the term "meat poisoning" in this connection. Of the 112 British outbreaks, in twenty-one the vehicle was a non-flesh food; that is, milk, one; cream, one; ice cream, six; potatoes, two; pineapple jelly, one; peaches, one; rice cooked in fat, one. The remaining ninety were all due to flesh food. The meat of the pig or ox accounts for 68 per cent. of the British and 61 per cent. of the continental outbreaks. The almost complete absence of outbreaks due to the meat of the sheep is striking. The number of cases ascribed to fish is small.

Most outbreaks are due to some form of prepared meat foods, such as brawn, meat pies, sausage and chopped meat. When the nature of the infection is

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considered, it becomes obvious that the more the food is handled and the longer it lies around, the greater the opportunity for it to become contaminated and for the bacteria to grow and multiply.

It cannot be too strongly emphasized that in the vast majority of outbreaks of food infection the food affected is not noticeably altered in either appearance, taste or smell. The prevalent idea that poisonous food must be "tainted" still persists, although long exploded. Bacilli belonging to the Gaertner bacillus group cannot be detected in food or water, any more than the typhoid bacillus, dysentery bacillus or cholera vibrio can be detected with the unaided senses.

In the Ghent outbreak, investigated by van Ermenegem in 1895, a slaughterhouse inspector (a veterinary surgeon) was so certain that the suspected meat (saveloy), in the absence of any abnormal signs, could have no connection with the trouble that he ate two or three pieces of it to demonstrate its harmlessness. He was attacked with severe cholera-like symptoms and died five days later, the Gaertner bacillus being recovered postmortem.

In a few outbreaks, however, minor peculiarities of the food have been noted, such as objectionable flavor, heavy odor, and moist or soft condition. These, however, are rare exceptions and not the rule.

It is not *decomposed* food, but *infected food* that is likely to cause trouble.

Diagnosis of food infection depends on: history of exposure to the suspected food; symptoms suggestive of food poisoning; isolation of the infecting organisms from the suspected food, and also from the blood, urine, feces or viscera of the patient (bacilli belonging to the Gaertner group disappear from the feces in from seven to ten days after the onset of symptoms); specific identification of the causative organism by agglutination tests; demonstration of agglutinins in the blood serum of patients. A positive reaction can be detected six or eight days after the onset of symptoms. Agglutination in comparatively low dilutions is usually accepted as diagnostic, owing to the fact that it is extremely rare to find a positive reaction for *B. enteritidis* or *B. suispestifer* in normal individuals.

It must be quite evident that the term "food poisoning" is not well chosen, so far as infections with Gaertner's bacillus are concerned. This bacillus produces an acute febrile infection, specific in nature. The attacks are usually mild and brief, with complete recovery. The disease, however, in all essential particulars clearly belongs to the group of intestinal infections, including typhoid fever, dysentery and cholera. No one would subscribe to the propriety of calling typhoid fever "food poisoning," even though the typhoid infection was contracted from bacilli contained in contaminated milk or infected water.

GAERTNER'S BACILLUS AND SOURCES OF INFECTION

B. enteritidis is the type of a group of organisms lying midway between the colon bacillus, on the one hand, and the typhoid bacillus, on the other. It is therefore often spoken of as the "intermediate group," the "hog cholera group," the "enteritidis group," the "paratyphoid group," and the "Salmonella group." The classification of the members of this group is quite involved, and there is still a lack of agreement among bacteriologists concerning some of the details.

Gaertner, in 1888, brought forth the first definite evidence which incriminated bacteria as an etiologic factor in food poisoning. At Frankenhäusen, fifty-seven

individuals became ill after eating the flesh of a cow that had been slaughtered on account of enteritis; one case resulted fatally. Gaertner isolated the bacillus from the organs of the cow and also from the spleen of the man who died.

B. enteritidis and its congeners are pathogenic for some of our food animals as well as for man. Cattle suffering during life from puerperal fever, uterine inflammations, navel infection (in calves), septicemia, septic pyemia, diarrhea and local suppurations are likely to furnish meat containing the Gaertner bacillus or closely related bacilli. Such meat has frequently given rise to "meat poisoning." Hence, emergency slaughter (nothschlacht), unless intelligently supervised, furnishes meat that may be a menace. The meat of such animals presents no warning signs of its danger. This fact was well proved by the meat inspector at Ghent, already referred to. The story of this tragedy has become classic.

The meat may come from healthy animals, but become infected after slaughter. This may take place through the hands or instruments of the butcher who has just handled a diseased carcass. There are other possibilities, such as human carriers or fecal contaminations.

Bainbridge states that "infection of meat by human carriers of *B. suispestifer* is unknown." Human carriers of *B. enteritidis* are exceedingly rare. Human carriers of *B. paratyphosus* B are occasionally discovered, but these also are infrequent. In 4,154 specimens of human feces from healthy individuals examined in our laboratory in 1917-1918, not a single carrier of any of these nonlactose fermenters belonging to the enteritidis group was found.

The English observers believe that all cases of food poisoning traced to human carriers are in reality cases of paratyphoid fever; but the Germans, who do not differentiate between *B. paratyphosus* B and *B. suispestifer*, hold that the latter organism also occurs in normal, healthy human intestines, and may thus become a source of food infection. Such instances must be exceedingly rare in the United States, for in our studies of the subject we have found only the outbreak here recorded in four and one-half years.

The common gray rat and mouse may harbor *B. suispestifer* and possibly *B. enteritidis* as carriers. Zwick and Weichel examined 177 mice and found that twenty-eight were acting as carriers of Gaertner group bacilli. Hence, food may become infected by contamination with rat or mice feces. There is abundant opportunity for such contact in the slaughterhouse, in butcher shops, in refrigerator plants, in transportation and in the home.

Contamination with fecal bacteria is highly improbable as a source of infection, for if it were true, food poisoning would be exceedingly common, so great is the ordinary fecal contamination of our food. During the years 1917-1918, more than 500 samples of food were examined in our laboratory without the discovery of a single pathogenic member of the colon-typhoid group.¹

AN OUTBREAK OF FOOD INFECTION

The outbreak occurred in Washington, D. C., among a number of students of the Georgetown Medical

1. A further discussion of the subject of food poisoning may be found in the chapter on "Food Poisoning" in Nelson's Loose Leaf System of Medicine, from which many of the facts cited above are taken; it is also discussed in Preventive Medicine and Hygiene (Ed. 4) by one of us (M. J. R.).

School. The cases followed a spread eaten at about 6 p. m., May 30, 1921, at a fraternity house, corner of Twentieth and N streets, Northwest.

Twenty-five students partook of this meal, eighteen of whom were made ill.

Three temperature charts of the more severe and typical cases are shown.

The dinner consisted of canned string beans, canned tomato soup, fresh roast pork, mashed potatoes, canned tomatoes, bread pudding and coffee served with evaporated milk.

All of those who ate bread pudding had symptoms, whereas those who did not partake of this food remained free of symptoms. The epidemiologic evidence, therefore, points clearly to the bread pudding. This is the only food eaten in common by those attacked. *B. enteritidis* was isolated from the sample of bread pudding.

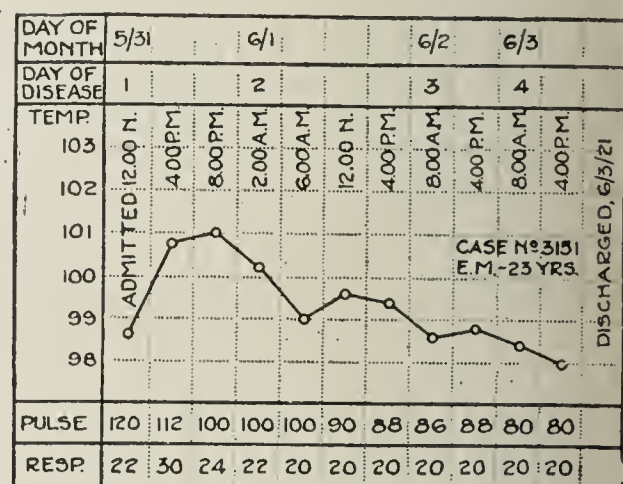
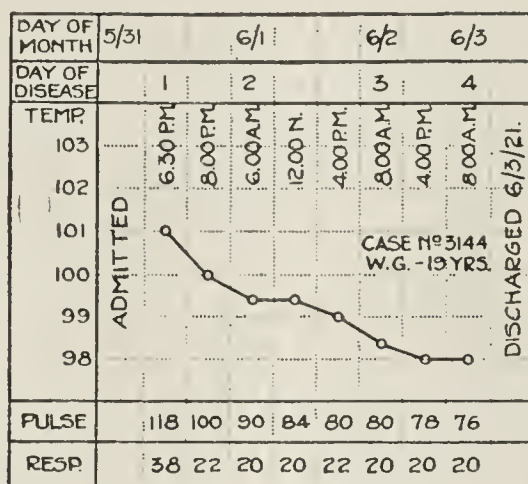
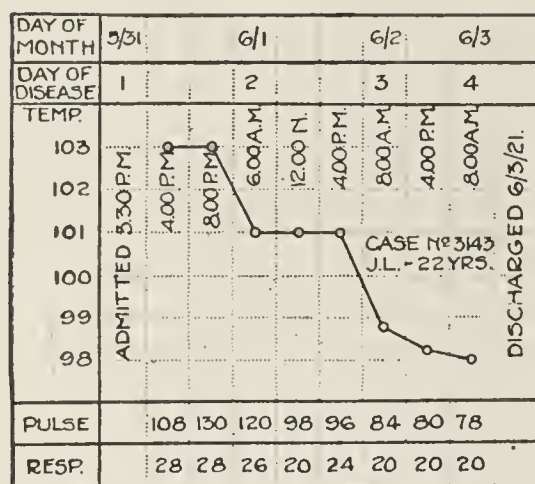
The meal was taken at 6 o'clock, and the symptoms began about 2 or 3 o'clock the following morning. The shortest period of incubation, therefore, was about

twenty-four to forty-eight hours. The convalescence was rapid, leaving no sequelae. Only one case was moderately severe. In this instance the student (E. M.) had, in addition to the fever, numbness in his fingers and contraction of the muscles of the hand. One other student had contractions of the muscles of the face. Both of these were temporary and passed away in a few hours. There were no particular disturbances of vision.

Treatment consisted of washing out the stomach and purgation. The stomach washings were yellowish with no discernible odor. June 2 only five of the boys remained in the hospital, convalescing, with normal temperatures. At this time they had a "washed-out feeling" or sense of fatigue. Recovery in all cases was prompt and uneventful.

A sample of the bread pudding was analyzed by one of us (H. W.) and an organism isolated which proved to be *B. enteritidis* of low virulence.

Two mice were fed with the liquor from the bread pudding, two with the whole bread pudding, and two



Typical temperature charts.

eight or nine hours. Some of the students, however, were not taken ill until the next afternoon, giving a period of incubation of approximately twenty hours.

The symptoms were acute onset and fever (as shown in the temperature charts). Some of the patients had chills. Almost all complained of abdominal pain, for the most part of a colicky or griping character.

AGGLUTINATION REACTIONS OF FOUR STRAINS ISOLATED FROM THE BREAD PUDDING

Strain	Serum of Patient 1 (M.)			Serum 2 (No label)			Serum of Patient 3 (G.)			Control
	1:50	1:100	1:500	1:50	1:100	1:500	1:50	1:100	1:500	
<i>B. coli</i>	—	—	—	—	—	—	±	—	—	—
<i>B. typhosus</i>	—	—	—	—	—	—	—	—	—	—
<i>B. paratyphosus</i> A	—	—	—	—	—	—	—	—	—	—
<i>B. paratyphosus</i> B	—	—	—	—	—	—	±	—	—	—
<i>B. enteritidis</i>	+	+	—	+	+	—	+	+	—	—
Isolated strain III	+	+	—	+	+	—	+	+	—	—
Isolated strain VII	+	+	—	+	+	—	+	+	—	—
Isolated strain XVII.....	+	+	—	+	+	—	+	+	—	—
Isolated strain XIX.....	+	+	—	+	+	—	+	+	—	—

Diarrhea was the common and prevailing symptom, the passages being watery, somewhat offensive, some of them greenish, and passed without tenesmus. The passages numbered from two or three to six or eight or more. Most of the patients had nausea, and some of them vomited several times. There were no other symptoms except those usually seen with fever: the temperature rose to between 102 and 103 F. in most of the cases, but rapidly declined to normal in from

were injected subcutaneously with an emulsion of the bread pudding; all these mice failed to show symptoms. Similar experiments on guinea-pigs likewise gave negative results.

The material was plated on carefully balanced Endo's medium and isolation made of a number of nonlactose fermenters. Four strains of a gram-negative bacillus giving typical fermentation reactions for *B. enteritidis* were obtained. All four strains isolated gave an agglutination reaction in a dilution of 1:1,000 with a specific enteritidis rabbit serum.

Specimens of blood were obtained from three of the students about ten days after the onset of symptoms. The results of agglutination show specific reactions for each of the four strains isolated from the bread pudding and also for a type strain of *B. enteritidis*. No agglutination in dilutions of 1:50 was obtained with *B. typhosus*, *B. paratyphosus* A or *B. coli*.

COMMENT

It is quite clear that the students suffered with an acute infectious fever, having a short period of incubation, sudden onset and temperature from 102 to 103 F. with gastro-intestinal symptoms. It is also quite clear that the food responsible was the bread pudding; in fact, four of the students said that the bread pudding had a "peculiar" taste, and one of them refused to eat it after the first spoonful. Just how the bread pudding became contaminated has not been worked out. It consisted of stale bread, fresh milk, sugar, eggs and cinnamon. It is natural to think

of the milk as the probable carrier of infection for the reason that it has been responsible for such outbreaks in other instances. The milk may have been contaminated in the kitchen; furthermore, the bread pudding was made about 9 o'clock in the morning and stood around the warm kitchen the entire day, giving ample opportunity for bacterial growth.

THE CORRECTION OF CONGENITAL CLEFT PALATE AND HARELIP

SURGICAL PRINCIPLES INVOLVED *

FREDERICK B. MOOREHEAD, M.D.
CHICAGO

The surgical treatment of congenital cleft of the hard palate, extending through the ridge, associated with harelip, should be undertaken at the earliest age consistent with the child's physical condition. In normal cases of development, this is from six to ten weeks after birth. The first and one of the major problems

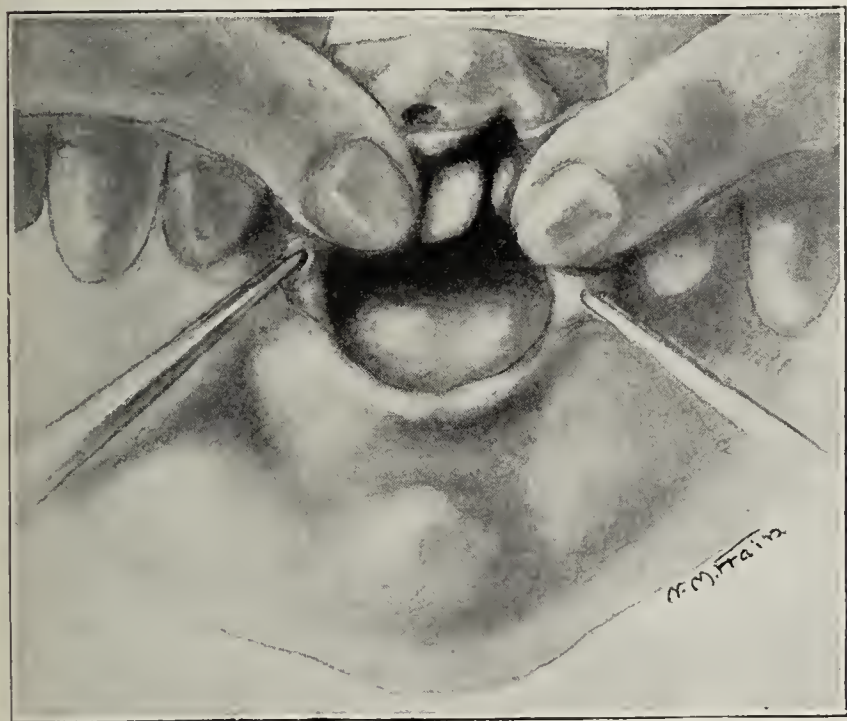


Fig. 1.—Process of molding bones to reduce deformity of arch and nose.

is that of feeding. Every cleft palate and harelip baby is first of all a medical case. The pediatrician has much to do with end-results. A diet formula suited to the individual case insures reasonable development and a tested diet after operation. However long the time, it is a primary problem.

While it is true that these babies show marked general improvement following operation, treatment should not be undertaken until the child is in good condition, and shows a reasonable increase in weight. Feeding may be carried on with the spoon or medicine dropper of suitable size. The nipple should not be used at all. In other words, the special diet suited to the individual case and the method of feeding should be established before operation. With the diet formula and feeding method established, the patient is insured against any uncertainty or experimentation after operation. The nipple should not be used following closure of the hard palate and lip. The function of sucking exerts sufficient pressure to cause a certain amount of bone separation,

and with it the characteristic low, flat, broad nostril is produced. Any postoperative change in the bone is reflected in the nostril.

Immediately after operation, the patient is again the direct charge of the pediatrician. The care of the

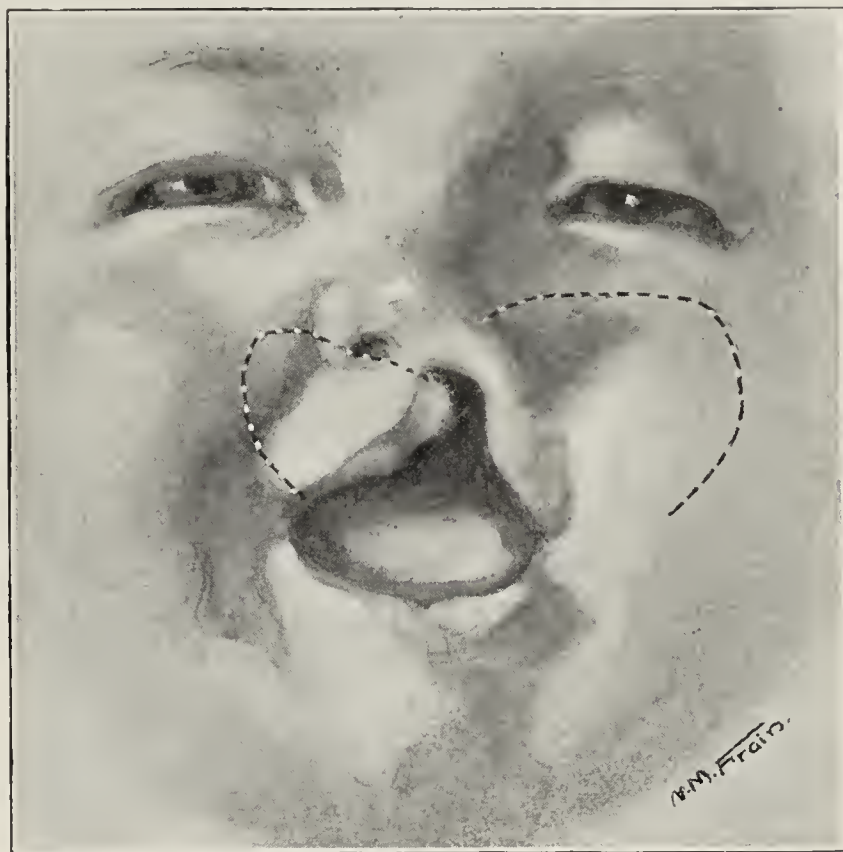


Fig. 2.—Dissections, to relieve tension and permit molding, illustrated by dotted line.

wound is a minor incident, and is most satisfactorily handled by the open method. The usual dressing supported by adhesive strips interferes with wound repair, rather than contributes to it. Secretions from the nose, together with the liquid food, keep the dressing constantly wet. A dry wound is always preferable to a moist wound, apart from the danger of infection.

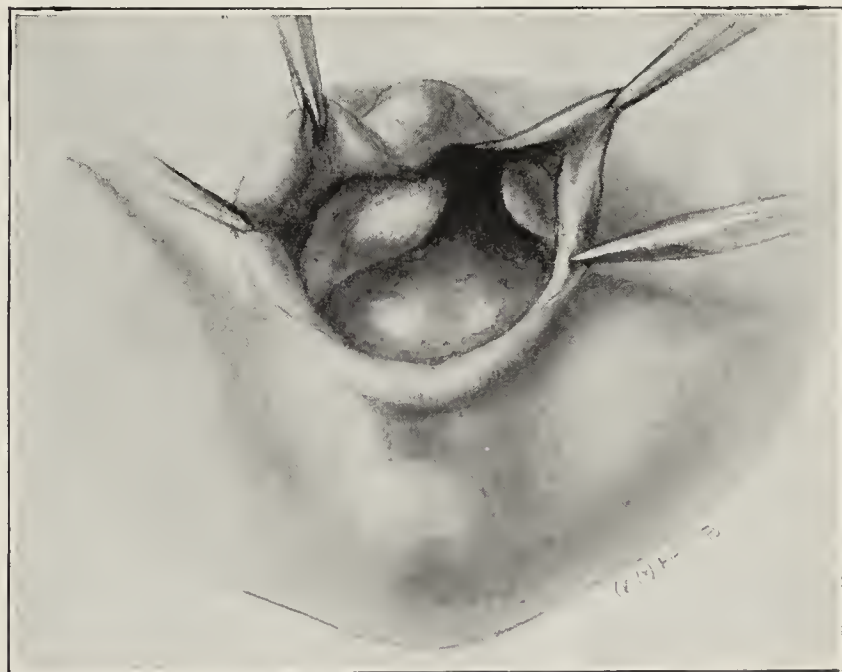


Fig. 3.—Direct view of dissection.

Tension should be relieved by proper and adequate flap preparation, and not by postoperative or even preoperative dressings or devices. Freedom from irritation is paramount, particularly in children. Adhesive strips are constant irritants, and do not solve any problem in the premises. The wound should be carefully

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

cleansed once or twice daily, sponged with 50 per cent. alcohol, and dusted with Thiersch powder. This detail may be discontinued with the disappearance of blood and wound secretion. On the third day the removal of

keeps the blood out of the throat, reduces the amount swallowed, and takes precedence over sponging both in point of time and in irritation of the tissues. With the assistance of a skilled anesthetist, the operative period is materially reduced.

While these matters have nothing to do with the operative result from the point of technic, they contribute in a primary way in safeguarding the life of the child and insuring speedy wound repair.

The operative treatment presents a threefold problem—the jaw, the nose and the lip—all three being involved in the deformity. No one of the three can be treated as independent of the others. Unless a successful bony orientation is obtained, the arch, the nose and the lip will be defective. In point of importance the sequence is an obvious one: arch, nose, lip.

1. *Arch.*—The first step is complete anatomic restoration, which is accomplished by immediate molding (Fig. 1). The lip and cheeks are dissected from the bone (Fig. 2) to a point permitting proper shaping of nose and lip without tension (Fig. 3). A single wire suture is used to transfix the bones (Fig. 4). If

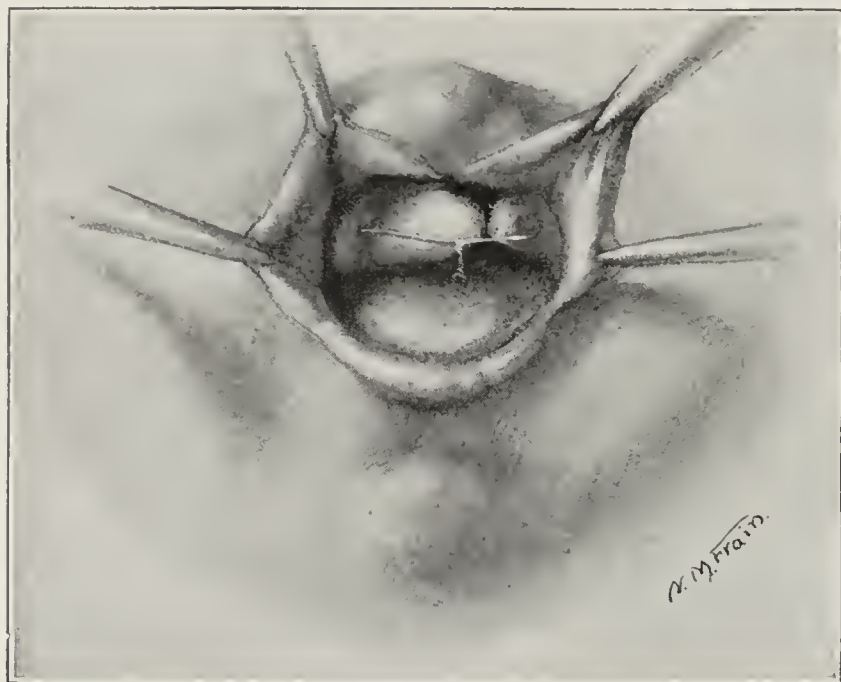


Fig. 4.—Wire suture transfixing bone.

sutures should be begun, one or two at a time, leaving strategic sutures till the last—seven or eight days after operation.

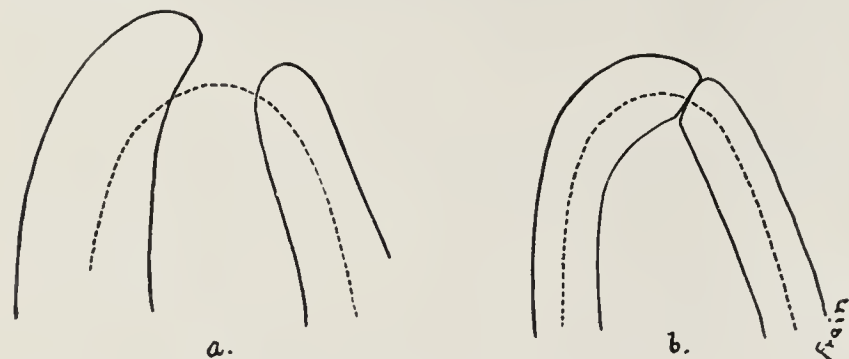


Fig. 5.—Relation between upper and lower arches (a) before and (b) after correction. Dotted line represents lower arch.



Fig. 6.—Transverse incisions for closure of simple form of single harelip.

The second problem is the anesthetic, which is of first importance. A well regulated electric vaporizer and aspirator is preferred. Once asleep, the child needs little ether if given continuously. The aspirator

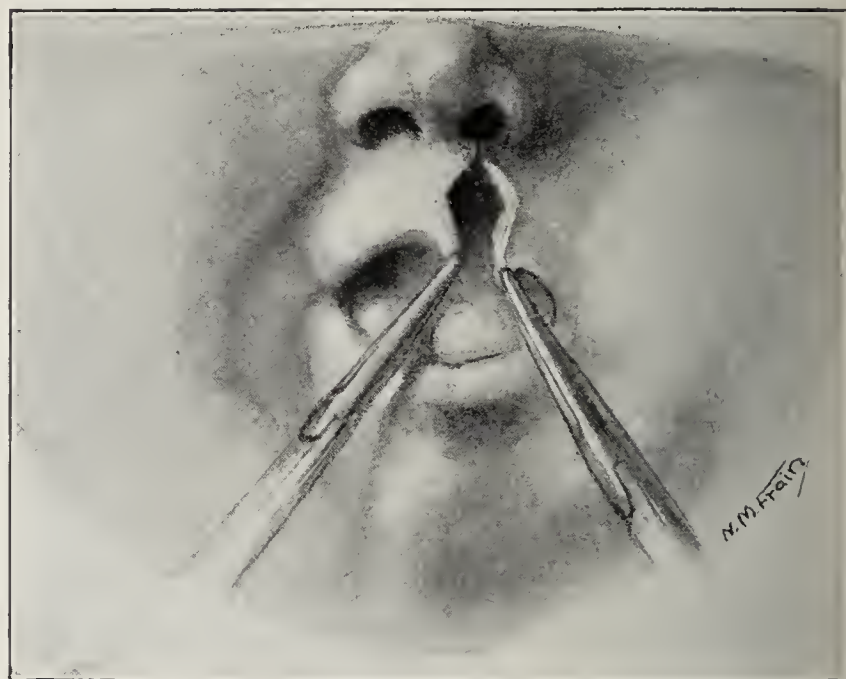


Fig. 7.—Lip held in position for closure.

placed properly and carefully, the wire does not damage or interfere with the development of the teeth. The bones are molded with a threefold purpose in view: (a) to close the bony cleft; (b) to restore proper relationship between upper and lower arches, and (c) to bring the nose into the median line of the face. When the tip of the nose has been brought into the median line the septum will be straight, and the nasal passages equal, if the molding is limited to the long segment. By bringing the two jaws together before the cleft is closed, it will be noted that the occlusal relationship of the short segment is practically normal; that the deviation is confined to the anterior two thirds of the long segment (Fig. 5). It follows,

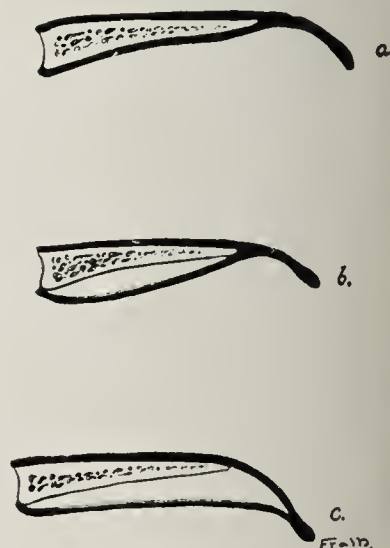


Fig. 8.—a, hard and soft tissues of palate; b, mucoperiosteal dissection; c, method of splitting soft palate to avoid dividing nasal aponeurosis.

therefore, that the molding of the anterior two thirds of the long segment will bring the two arches into normal occlusion; will reduce the nasal deviation, and close the upper arch.



Fig. 9.—Appearance of patient before and after operation. This and the succeeding illustrations exemplify (a) bony correction of arch and nose; (b) shaping of nostril, and (c) proper closure of lip. It will be noted that the series illustrates the several types of unilateral cleft.

The occlusal relation is further proved when the deciduous teeth erupt. The linguobuccal relations have been normal in our cases, without disturbing the posterior jaw. It is interesting to note the occlusal relations in bony clefts extending only to the anterior ridge. One often sees a wide cleft in an adult extending to the anterior ridge, with normal occlusion of bicuspid and molars.

Occlusal defects are due, therefore, to clefts extending through the anterior ridge, and the deformity is measured by the malposition of the anterior two thirds



Fig. 10.—Patient before and after operation.

of the long segment. When the long segment is reduced, the cleft is closed; the upper arch properly related to the lower arch; the nose placed in the median line, and the deviation of the septum corrected. Only when such reduction has been made is a normal nose or lip possible.

2. *Nose*.—The correction of the nasal deformity is coincident with the correction of the bony arch (Fig. 6). The one is contingent on the other. Unless the bony nose is completely reduced, it is not possible properly to shape the defective nostril. Bone reduction is basic, and, when accomplished, the nostril is not a difficult problem. To secure a well shaped nostril it is only necessary to carry the dissection back far enough to permit of satisfactory molding without tension.

The defective nostril is naturally fashioned after the good one.

3. *Lip*.—The lip problem (Fig. 7) is half solved in the steps preceding. The two necessary final points are proper length and relation of skin and mucosa.

The low, flat, broad nostril following operation is caused by several factors:

1. Incomplete reduction of the long segment.
2. Depression of the short segment.
3. Incomplete or imperfect preparation of soft tissues in shaping nose and lip.
4. Use of a nipple following the operation.
5. Sucking of the thumb or finger, or the use of a "pacifier."

The second step is more or less elective in point of age. I prefer to wait till the twelfth or fifteenth month. In closing the soft palate, the ordinary rules of plastic surgery are followed: flaps with adequate circulation which can be united without undue tension. To relieve tension, division of the nasal mucosa at the posterior border of the bony palate is generally practiced. This is a serious error, and is, I believe, the



Fig. 11.—Patient before and after operation.

most frequent cause of nonunion. The tissues at this point should be split and not divided. Splitting the palate, as indicated in Figure 8, relieves all tension and preserves the blood supply.

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ABSTRACT OF DISCUSSION

DR. V. P. BLAIR, St. Louis: I prefer to operate during the first twenty-four hours of life, and I have never seen a child shocked at that period. It is almost impossible to shock an animal at that age. The point of not feeding the child with a nipple before it is operated on is an interesting one. My own conclusion is that the nasal deformity depends almost entirely on the relationship in which the posterior ala is placed, and the result depends on whether there is no cleft in the alveolar process or a wide cleft. If a lip cleft without alveolar or palate cleft is not corrected, the nose will grow over to the other side, the lower end of the septum will point

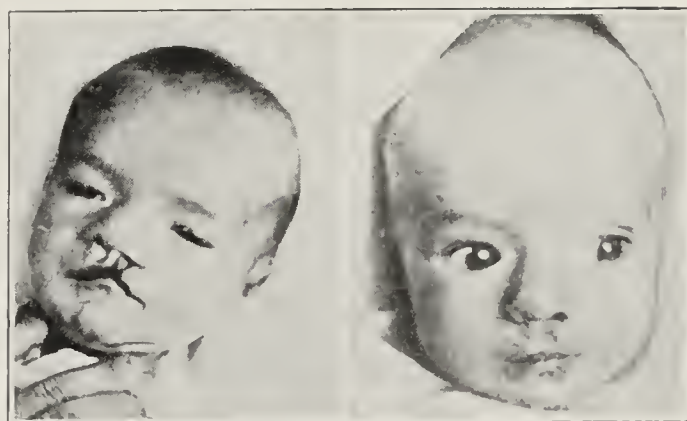


Fig. 12.—Patient before and after operation.

the same way, and the septum will deviate to the side of the cleft. I agree that one may have a sinking of the supports of the alveolus on the opposite side from the cleft which may persist regardless of how carefully the bony parts are adjusted. There have been many varieties of the flap opera-

tion for cleft palate, and it is only fair to the early operators to acknowledge what they have accomplished. Of all the operations that have been devised, I believe the original von Langerbeck operation to be the most important. This operation with its lateral incisions and its complete cutting off of the palate aponeurosis can be done without cutting either the nerve or the descending palatine artery. Whether or not the distal palate and the levator palatine are cut is entirely a matter of choice of the operator.

DR. TRUMAN W. BROPHY, Chicago: One thing brought out emphatically in this paper is the fact that the treatment



Fig. 13.—Patient before and after operation.

of cleft palate must begin with bone surgery. I have invented two appliances which are used to assist infants in feeding. The first is an infant velum which the mother may hold in her fingers, so the child can get the milk from the breast. The second is a velum attached to a bottle nipple. Dr. Moorehead has emphasized the importance of bringing the bones together and uniting them so as to place the nose in the middle of the face and constructing a normal arch. The bones must be moved together before the nose can be brought into its normal position. Attempts to operate on the lip, disregarding the separated bones, will leave a deformity that will remain to the end of life. If the anterior portion of an infant's cleft palate be moved into proximity by the traction of the orbicularis oris muscle following the closure of a harelip, the tuberosities move abnormally apart, the malar



Fig. 14.—Patient before and after operation.

processes of the maxillary bones acting as pivots. The effect on the soft palate is to produce, when united, a tenseness like a drumhead, which can be overcome only by loosening the soft parts laterally above, and posteriorly. It has been my practice never to put anything on the lip after operation. If the lip is exposed it is much easier to keep it clean. It has taken about thirty-five years to establish the practice of bone surgery first in the treatment of complete congenital cleft palate. The principle has won out and surgeons are doing it everywhere. I made a statement many years ago that the upper jaw in a complete cleft of the palate was as much broader than the lower as the distance between the borders of the cleft. I can show you a number of cases with incomplete cleft where the bone tissue was sufficient to completely close the palate if the bones had been approximated in early

infancy. The congenital absence of the hard and soft palate rarely occurs. I have five patients now under my care for whom the premaxillary bones were excised. These bones are essential to correct facial contour, to a normal dental arch, and to normal features.

DR. W. L. SHEARER, Omaha: I wish also to emphasize the importance of placing the two halves of the maxillary bone in apposition and carrying the long half over far enough so that the deformity or depression of the affected nostril may be subsequently corrected. Bone surgery, where there is a cleft, either single or double, involving the anterior ridge of the hard palate, is the foundation on which the subsequent operations rest. One would not think of building a house without first making a good foundation.

THE NASAL RELATION OF HARELIP OPERATIONS *

GEORGE V. I. BROWN, M.D.

MILWAUKEE

All who have seen these cases are familiar with the characteristic deformities that are associated with harelip. These in a general way may be, as they usually have been, described as deflections of the cartilaginous nasal structures in a direction away from the side of the fissure in single harelip cases, with a corresponding flat, spread out appearance of the alar cartilages and an enlarged naris on the affected side; and in double harelip cases, especially when there are associated palate fissures also, the projection forward of the premaxilla with thickening and elongation of the nasal septum and vomer, and a flattened appearance of the alar cartilages on both sides.

The correction of these combined defects, as a matter of course, has been one of the objects of all corrective surgical operative treatment of these cases, quite as much as the suturing of the lip fissure and the correction of the outline of the prolabial border.

Nevertheless, if the best operative results are to be obtained in the treatment of harelip, there must be more specific recognition of the separate anatomic divisions of each of the parts of which the outline has been altered through the developmental failure that caused the original congenital defect, or the mechanical and physiologic influences which are directly related to disarranged functional activities from and even before the very hour of birth, and later to neglect or misplacement at the time of operation.

Each of the anatomic subdivisions of the nasal, labial and surrounding facial structures is subject to the unnatural conditions involved. Often this effect is quite unevenly distributed, so that growth at one point may be retarded, while adjacent tissue is unnaturally stimulated to enlargement. It is therefore safe to conclude that in most cases the cosmetic result of a cheiloplasty for harelip correction will be in more or less exact proportion to the degree in which the associated nasal defects may have been overcome by the operation.

In natural sequence it also follows that the key to the door of surgical operative improvement, in cases in which early imperfect operations have left their hideous marks on these individuals, lies in the readjustment of disarranged functional activities by careful replacement in order that there may be continued advance toward

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

improvement, instead of a tendency for the disfigurement to increase. This usually involves the removal of redundant tissue and the addition of tissue by transplants, if necessary, to round out the defective features and thus to overcome the evidences of insufficient growth.

CHARACTERISTIC DEFORMITIES OF HARELIP CASES

In cases of harelip with wide third degree fissures and complete cleft of the hard and soft palates, there are the following associated defects. The premaxilla is attached to one side of the palate, and the dividing line of the fissure is usually at the premaxillary suture on the affected side.

The effect of this, as development proceeds, is to cause the premaxillary portion of the jaw to project forward and to be drawn to one side in a direction away from the side of the fissure. The degree of this deformity is to some extent commensurate with the width of the fissure. In some of these cases the nasal septum and vomer are attached to the palatal process of the superior maxillary at the anterior portion, and under these circumstances the nasal septum becomes spread out with a bulging toward the side of the fissure until it may almost seem that Nature has been making an effort to bridge the palate fissure, although, of course, it is the attachment on one side and the lack of counterpressure on the affected side to counteract the atmospheric pressure of respiratory effort that is probably responsible for this alteration in the nasal septal form.

In other cases of the same type of lip and palate fissure, there seems to be an almost complete absence of nasal septal growth, and the bulging of the nasal septum is not so apparent. The continuation of the deflection of the structures of the nasal septum, the vomer and the premaxilla are apparent in alteration of the form of the philtrum of the lip, and the columna of the nose, which are correspondingly turned away from the affected side. The alar cartilages on the side of the fissure are spread out and flattened. Occasionally this is so marked that the convexity of the natural outline of the nostril is reversed, so that there is a concavity instead of the usual rounded, outward curve. All of the cartilaginous structures of the triangular tip of the nose are also bent away from the side of the fissure, and the nasal vestibule at its anterior portion is so flattened that the sides are in contact.

The turbinal bodies of the wide open naris are usually flattened and enlarged. The lateral cartilages also are deformed. There is absence of the floor of the naris on the affected side, while the outline of the naris on the opposite side is altered by the deflection of the cartilaginous nasal structures toward the unaffected side.

In double harelip and cleft palate cases, the fissures extend completely through the hard palate and usually bifurcate in front to follow the probable line of the premaxillary sutures on each side. The premaxillary structures thus deprived of fixation to their rightful articulating surfaces are drawn forward and upward by the anterior attachments to the nose and upper lip. The nasal septum and the vomer become thickened and elongate, thus dividing the palatal fissure until it has the appearance of two fissures.

The alae on both sides are flattened and spread out, and the columna of the nose foreshortened or almost totally undeveloped, so that the philtrum of the upper

lip in some cases appears to be like a continuation of the cartilages of the nose—so much so that if the deformity remains uncorrected until after the eruption of the incisor teeth, these have the appearance of growing out from the end of the nose. The lesser degrees of fissure of the lip and palate have correspondingly less associated deformities, but even the slightest of these has some trace of tendency to the characteristic defects. When only the lip is affected or if fissure exists, it is at least no more than a slight division through the alveolar ridge; the palate not being cleft, there is the same deflection and projection as described for third degree single and double fissured cases, but the asymmetry is not so marked.

The somewhat rare central cleft through lip and palate is sometimes only an almost complete absence of the premaxilla which gives this appearance, but occasionally the fissure extends directly through the central intermaxillary suture, and in these cases the defect is also continued through the nose so that there is a decided depression between the lateral cartilages at the tip of the nose, caused, no doubt, by the arrested development of the cartilaginous septum, which should extend between these cartilages.

TWO GENERAL DIVISIONS OF THE REQUIREMENTS FOR SURGICAL CORRECTION

It is at once apparent to one who studies these cases that there are two elements to be considered in attempting their correction:

1. Arrest of development, which has created the deformity and the deformed appearance of otherwise normal structures through malposition.

2. Perverted growth, evidenced by increase or decrease in the size of the parts influenced by malposition and the consequent alteration of functional activities. For example, the exposed lower border of the nasal septum and the vomer in double cleft palate and harelip cases of third degree is often almost as thick as a little finger instead of a narrow dividing line, as in normal cases, while the columna of the nose is sometimes so shortened as barely to be distinguishable from the lip and nose to which it is attached.

It therefore follows that surgical correction must contemplate not only the readjustment of the parts to their rightful positions, but also the restoration of functional activities in such a manner as to give hope for continued constructive growth improvement. Inevitably there will be a tendency to progressive increase of the defect when this is not properly accomplished, or when there has been misplacement of parts in an endeavor to supply tissue to close the fissure by the use of other, though perhaps adjacent, anatomic structures or the destruction by reflection or excision of tissues that appear to be redundant, but which are really needed for proper corrective purposes when growth readjustment may have taken place. This is exemplified in the deplorable results of complete excision of the projecting premaxilla to permit closing the lip fissure, or the removal of all or part of the philtrum of the lip and uniting the sides of the lip fissure borders in the central line, or freshening the prolabial borders of the philtrum of the lip and attaching thereto flaps from borders of the outside segments of the lip, resulting, as this treatment so often does, in the long inward drawn upper lip, with a puckering string effect during laughter, which tends steadily to increase the defective appearance of the mouth.

It seems to be necessary to outline the foregoing elementary principles in order that the effects of failure to harmonize these influences or their operative violation as indicated by the accompanying illustrations of clinical examples of such cases may be fully understood.

ENUMERATION OF SOME OF THE CHIEF PRECAUTIONS TO BE EXERCISED IN PERFORMING FIRST OPERATIONS FOR HARELIP

Briefly stated, the most notable of the vitally necessary operative considerations for first treatment may be thus enumerated:

The so-called very simple cases of first degree lip fissures without cleft of the soft palate are often the



Fig. 1.—Child with single harelip with palate intact, before and after operation as described in text.

most difficult because of the greater degree of accuracy required in adjustment of the prolabial border at the junction of skin and mucous membrane, the length of the lip at the lower border of the prolabial outline, preservation of the cosmetic effect of the outward roll of the lip border, and the correction of the size of the outward opening of the naris on the affected side which may be required in slight degree, although the naris is not directly included in the defect. The reason for this extreme care is that in cases of wide open third degree fissures the altered relation of the cartilaginous and bony parts continues to improve for some time after operation, and in this way slight operative imperfections may become less noticeable, whereas the fixed relation of the fully developed jaw when only the lip is involved makes such compensatory readjustment impossible.

Avoid Making Lip too Long.—Under no circumstances should the lip be made too long. If absolute accuracy is impossible through unusual width of fissure or because the amount of available tissue is too scant or the nose too much deflected or for some other reason, then the lip should be left a little short until such time as subsequent growth may give sufficient surface of lip tissue to permit suitable lengthening. Figure 2 is an example of this principle. When the lip is too long, the defect has a tendency to increase as time goes on, and its symmetrical shortening becomes a matter of considerable difficulty in many cases.

Care Necessary in Suturing Fissure Along the Floor of the Nose.—It is often difficult to determine just how far back the tissues along the floor of the nose should be closed by suturing in the line of the fissure. If done at the time of the first closure of the lip fissure, there is danger of giving a straight up and down appearance which looks like an elongated lip owing to the obliteration or at least the absence of the ridge

where the nasolabial outline of the lower border of the external naris has been effaced, and this defect is particularly hard to overcome when further correction is required. On the other hand, if not sutured sufficiently high up, the drawing apart of the walls along the floor of the naris will be likely to cause an unsightly opening. Not infrequently, the intranasal sutures should be placed at a subsequent operation after the lip wound has closed and when the final adjustment of the parts will favor greater accuracy than is practicable when the lip fissure is first closed.

Straightening the Nasal Septum.—The deflection of the nasal septum due to the attachment of its lower border to the deformed premaxilla requires immediate attention when harelip cheiloplasty is performed, because the persistence of the defect, with its usual tendency to increase as later growth takes place, will materially increase the irregularity of the nasal and oral outlines. Careful judgment is often required to decide whether the attachment of the divided lip muscles and the consequent corrective influences of associated muscular activity will be sufficient to produce the necessary straightening effect as time goes on, or if radical operation to straighten this bent nasal dividing wall will be required to give the desired cosmetic effect.

Combination of Splint to Straighten Nasal Septum and Tension Suture.—My own rule of practice in all third degree cases, as previously described in my book and in other articles, is to place a metal splint against the nasal septum on the opposite side from the fissure. This is attached to a silkworm-gut suture that is carried across below the naris and out through the skin surface on the affected side at a point just below the outer angle of the ala, and secured by a metal button placed over



Fig. 2.—Result of a lip's being made too long, with a puckering string effect through being too tight at the prolabial outline; before and after reconstruction.

adhesive plaster laid on the skin. The flattened alar cartilages are thus rounded up, the divided parts held in close contact, and tension relieved in a very considerable degree. At the same time, it quite naturally brings the nasal septum into better alinement. When the fissure is unusually wide, the suture tension alone may not be sufficient to give the necessary septal correction. It is then advisable to free the lower border of the septum along the line of its maxillary attachment by raising the lip and carrying a knife through the septum straight backward in a line parallel with the plane of the floor of the naris far enough to give the necessary liberation to permit the desired straightening effect when drawn under the tension of the splint suture.

Retraction of the Premaxilla.—In forcing the projecting premaxilla into better alinement at the time of operation, great care should be exercised not to injure the developing tooth germs contained therein. Destruction of any unerupted dental organs means more or less permanent injury to the symmetrical growth of the parts; their displacement causes teeth to erupt in unusual situations such as the nose, central portion of the palate and other situations which prevent the formation of the natural outlines of the lip and jaw. This is especially true when the premaxilla is bent back into the anterior part of the palate, as so often occurs when double harelip operations are performed. In these cases both nose and mouth are deformed and only long, patient treatment can restore the horizontally placed



Fig. 3.—Evidence from a patient in infancy, at 2½ and at 17 years of age, proving that correct approximation in infancy leads to continued improvement in appearance of both nose and lip as growth progresses.

incisors from the palate to their proper situations in the alveolar ridge with corresponding restoration of nasal and labial outlines. Care must be taken not to make the naris too small. If it is impracticable to make its size and outline quite perfect, then it should be remembered that a large naris may be made smaller quite easily, but a naris that is too small is not so easily corrected.

CORRECTION OF DEFECTS FROM PREVIOUS OPERATIONS

The defective results of early harelip operations are so great in their variety that it would be useless to attempt a complete classification; but, judged from a corrective point of view, they may be clinically grouped into four general divisions with certain important subdivisions of each:

1. Those cases in which necessary parts are missing and which require replacement either by grafting or by the aid of artificial substitutes to give the desired restoration.
2. Unsightly conditions caused by increased growth which require the removal of redundant tissue for their cosmetic improvement.
3. Scars and deformities of outline that may be satisfactorily corrected by excision of the scar tissue, and proper approximation of the ill formed surfaces.
4. Misplaced structures that require readjustment.

Any or all of the foregoing defects may be present in a single case.

Lip too Long.—The shortening of an elongated indrawn upper lip, such as is shown in Figure 2, is a rather more difficult operative procedure than might be expected.

With pencil and paper and all favorable conditions to one who is not an artist, it is not easy to draw an exactly perfect outline of a complete upper lip border from one end of the mouth to the other, and the diffi-

culties are immeasurably increased when the instrument is a knife and the surface an elastic tissue, unequally toughened by old scars, that retracts on incision and therefore becomes at once a disconcerting factor, as the form of the incision is immediately disarranged as the knife is drawn through. Add to this the fact that the slightest inequality which might make the lip uneven could give a most disastrously unsightly result, and also the uncertainty of the effect of muscular activity when smiling, and otherwise changing the cosmetic effect of the expression of the mouth, and the necessity for cautious procedure becomes apparent.

The best results in my cases have been secured by the excision of tissue just above the prolabial border so that no perceptible scar will be apparent, because the line of union will be where there is always a distinctive demarcation at the junction of skin and mucous membrane.

The incision is made to slant obliquely from the skin surface downward toward the mucous membrane in order to thicken the lip as the prolabium is drawn up over the deeper tissues where approximation is accomplished. The natural outward roll is thus restored. After several months an additional correction can be made in the same manner and still greater perfection secured. In this way, by cautious procedure, the danger of unevenness or cutting away too much may be avoided and a satisfactory labial expression secured.

Philtrum of Lip Destroyed.—When absence of the philtrum with exposure of the lower border of the nasal septum (as in Figure 4) results from previous harelip or cleft palate operations, it is usually complicated by the loss of more or less of the underlying structures



Fig. 4.—Case in which the column of the nose and the premaxillary bone structures were destroyed at early infancy operation for harelip and cleft palate, before and after correction as described in text.

that support the lip. The operations that were responsible not infrequently destroyed, totally or partially, the premaxilla, or the lateral divisions of the fissured palate have been compressed to such an extent that muscular action has become so disarranged that it draws the lip downward and inward, and the difficulties of correction are thus correspondingly increased.

As the exposed border of the cartilaginous nasal septum does not offer a well vascularized surface for the attachment of tissue that may be placed over it to form a substitute for the lost column, support must be given for a considerable time in order to prevent the disastrous effect of the antagonistic muscles. This can be done very satisfactorily by having a vulcanite support for the lip attached to a plate fitted to the mouth and

extending up under the upper lip as far as may be necessary to hold the lip upward and outward. This should be prepared and ready to insert as soon as the sutures are removed in order to obviate the stretching under tension as the lip sags when the muscles drag downward unless held up. Usually advantage can be taken of the unusual length of the upper lip by making an incision just below the nose, curved downward to follow the outline of the naris on each side, with an intervening extension forward which can be carried up from the lip after free dissection, to be attached to the nasal cartilage, thus serving the double purpose of supplying the lost column to the nose and shortening the upper lip.

Philtrum of the Lip Misplaced.—The unnecessary transfer of a portion of the philtrum of the lip, in order to supply what seems to be a necessary addition to the column of the nose at early operation, invariably results in injury to both without improving the appearance of the defect. In infancy, tissues look much the same; but, as individuals grow older, the discrepancy becomes very marked if tissues are misplaced.

Although the tip of the nose may seem to be quite flattened and pulled down when the lip fissures are closed without immediate lengthening of the column structures, this defect invariably corrects itself by forced growth through the resilience of the nasal cartilages, and in time a well formed nose may be expected without permanent injury to the lip. In cases such as are shown in Figure 5, restoration of the parts to their normal situation should be accomplished as nearly as possible, and any remaining portion of lip tissue that it may be inadvisable to

move from the region of the nasal column should be shaped and disguised by operative steps to improve the cosmetic appearance if possible.

Enlarged, Widespread Nasal Cartilage.—Large, fleshy looking noses are not uncommon results of early wrong treatment. In these cases the lateral cartilages are enlarged and spread apart, and there is a tendency to droop on one or both sides of the tip of the nose, especially when there is a dipping down of the central lower part of the column on one side which has become unduly thickened and distorted. In almost all of these cases the anterior border of the nasal septum does not keep pace with the increase of the deformed condition of the lateral cartilages and their cellular tissue attachments. This results in a groove through the center of the tip of the nose and a general asymmetrical nasal appearance which is often very disfiguring. Much improvement in the appearance of these noses may be made by freshening the intranasal walls of the vestibula at the anterior portion of the nose and removing a sufficient amount of redundant cartilage to give the necessary regular outline and the required narrow appearance to the nose. The parts are kept in contact with a through and through suture

secured by adhesive plaster on the skin, overlaid by metal buttons and retained long enough to prevent spreading out by the natural resilience of the liberated cartilages. The results in these cases are sometimes very gratifying.

Deflection Without Compensatory Enlargement of the Nasal Cartilages.—Deflection of the tip of the nose, if it continues after there has been the utmost correction of the lip and the alae and cannot be overcome by further tissue excision, should be straightened by inserting a rib cartilage graft. This may be done through an incision on the inside of the nose to avoid external scar.

Plastic Operative Improvement of Old Scars.—The removal of scars and the readjustment of lip fissures involve simple plastic surgical procedures, and deserve at this time only the suggestion that the operator must constantly keep in mind the fact that on his ability to restore correct muscular action by careful coaptation will depend not only the appearance of the lip but also the future form of surrounding structures and therefore facial expression.

The Nasal Results of Harelip Operation as a Factor in the Speech Results of Cleft Palate Cases.—Much might be said with regard to the influences of the effect of the proper or improper treatment of intranasal structures or the influence of the result of extranasal treatment in harelip operations as affecting the ultimate speech results in cleft palate cases. Undoubtedly this factor can hardly be overestimated in its speech relation.



Fig. 5.—Infant with double harelip and cleft palate before and after operation, showing tendency to improvement in the nasal form when the prolabium is properly adjusted in harelip operation as described in the text.

SUMMARY

1. The success of the surgical treatment of harelip cases depends on the accuracy with which normal anatomic and physiologic conditions may be restored thereby.

2. Under no circumstances should natural anatomic relations be disturbed in an effort to close lip fissures by transposing tissues or destroying underlying bone structure.

3. Step operations are preferable whenever it is necessary to foster the development of insufficient tissue in order to make possible greater perfection later on.

4. The improvement of unsightly results from previous operative treatment requires not only the excision of unsightly scars and corrective improvement in approximation, but also reconstructive alteration by removing redundant tissue and the insertion of grafts or artificial substitutes to give symmetrical outlines when important parts have been destroyed.

Scope of Mental Hygiene.—In the broadest sense mental hygiene touches everything that affects the mind of man—it is as broad as life itself; but specifically it means measures for the mental health of the individual. *Mental health means not merely freedom from mental disease; it means a sound and active personality with powers of self-control and adaptation.—M. C. Jarrett, *Hosp. Social Service* 36:361 (May) 1921.

PLASTIC SURGERY OF THE LIP*

VARAZTAD H. KAZANJIAN, D.M.D., M.D.
BOSTON

The war is over and little of the surgical work connected with it remains to be done, so that I have some hesitancy in presenting a paper and cases based largely on war experiences. However, since there were presented problems far more difficult and complicated than those usually encountered in civilian practice, and since they were presented in so great a number, there was afforded unusual opportunity for selecting methods from the great mass of work done through many years by civilian plastic surgeons; the success of which could be observed in a large number of cases. We can, therefore, hope that we may be able to apply to our civilian plastic work a better selection of operations, based on a comparison of the methods and modifications thereof demonstrated as possible in the war.

into the deep tissues causing extensive distortion. These scars, besides being a serious handicap to maximum cosmetic results, jeopardize the success of an otherwise good operation, limiting to a large extent, as they do, the blood supply to the affected parts and forcing the surgeon to change the plan of operation from a simple procedure to a more complicated one. It is, therefore, often necessary to excise the scar to have healthy tissue approximated, and then wait for healing before the main operation is attempted. The presence of such tissue must be taken into consideration in planning an operation, for it is obvious that successful transposition of living tissue requires ample blood supply.

My next point I cannot too strongly emphasize—the utter futility of attempting the reconstruction of the soft tissues until either the underlying supporting structures have been put into proper relation with each other and with the face as a whole, or else adequate mechanical appliances accurately reproducing the lost bony tissue have been substituted. Where there is loss



Fig. 1 (Case 1).—Extensive laceration and destruction of middle part of upper lip.

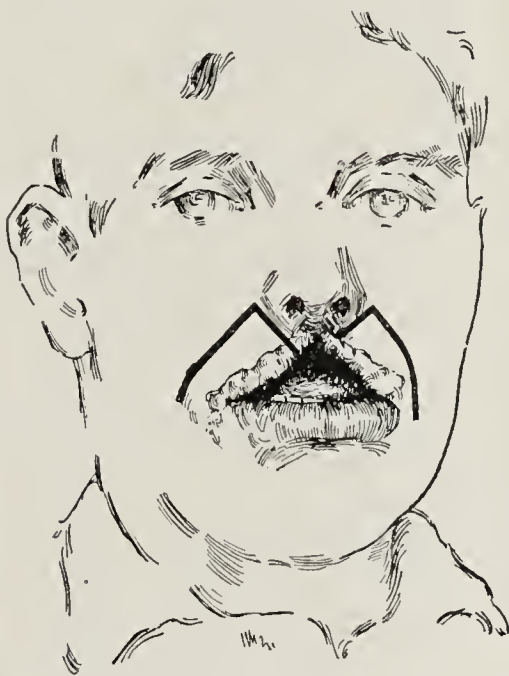


Fig. 2 (Case 1).—Line of incision for flaps in type of cases in which there is considerable loss of tissue in the vicinity of the median line of the lip.



Fig. 3 (Case 1).—Final appearance of patient shown in Figure 1 and operated on according to the diagram in Figure 2.

To cover in the time allotted the entire field of plastic reconstruction of the face or even one of its features would be impossible; therefore, it is my intention to limit this paper to operations of the lip, and that only in a very general way.

First, a word about sepsis. As you know, wounds of the face involving the mouth and nasal cavities are invariably infected. From the point of view of scar formation the earlier an injury can be sutured after its reception the better it would seem that the results ought to be; but it is my experience that, whereas the closing of simple tears or lacerations not involving bony injury and the preliminary suturing of radiating wounds is often helpful, no serious plastic operation ought to be attempted before sepsis is controlled and the maximum vascularity of the tissues involved is obtained.

After sepsis has been controlled there will be, in cases of gross laceration, radiating scars extending

of bony structure, neither adequate functional nor successful cosmetic results can be attained from plastic operations alone.

Inadequate foresight in plastic work invariably brings endless difficulties and mediocre results. One must have in mind from the first the desired results to be obtained and the probable steps necessary for their accomplishment, whether it can be obtained in one or a series of operations. All preliminary operations should lead up to and favor the main procedure. This preliminary mapping out should be based on a most careful study of many points. The following are the chief to be observed:

1. How large is the actual amount of tissue lost?
2. How great and in what direction is the existing tissue distorted?
3. From what direction and how adequate is the blood supply to the tissues which can be utilized in the operation?
4. How much elasticity does the tissue to be used possess?
5. What are the normal proportions of the lips to each other and to the general expression of the face?

* Read before the Section on Stomatology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

6. From where and what shape and size should the flaps be taken?

The answer to the first of these problems must be determined on the merits of the individual case, but certain generalizations can be made on the selection of flaps to be used to supply the missing tissue.

In any plastic work, two possible fields for supplying tissue present themselves. They may be taken from the immediate vicinity of the gap to be filled or from more distant parts, from which they can be transferred directly or indirectly to the desired location. In most operations of the lip, the former course commends itself and is more generally used. The simplicity of this procedure favors it. There is usually an adequate supply of available tissue and, most important of all, the texture of the lost part is more nearly preserved.

In determining the size and shape of the flap to be used, account must be taken of the extent of the gap,



Fig. 4.—Case of considerable destruction of the middle part of the lower lip. The reconstruction of the lip is done with two sets of flaps. The upper rectangular flap includes the entire thickness of the lip, both skin and mucous membrane. The lower flap includes only the skin and is intended to support the lip and prevent downward contraction.

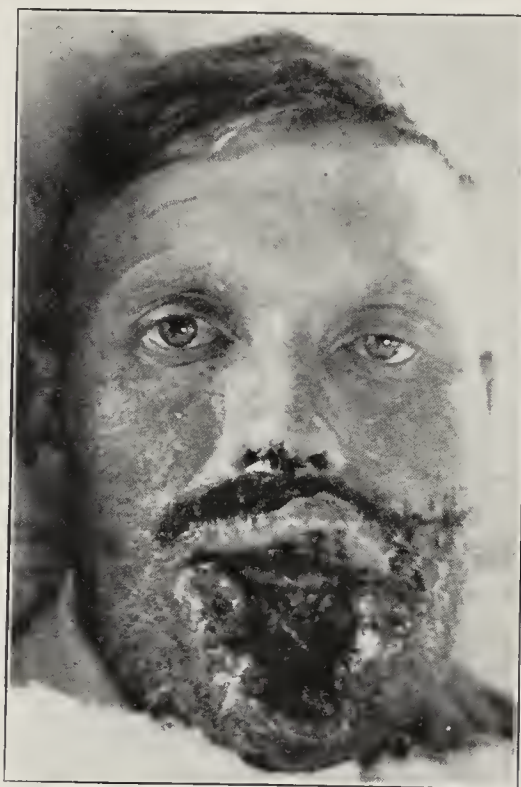


Fig. 5.—Destruction of greater portion of lower lip and part of chin, with extensive comminution of the mandible.



Fig. 6 (Case 2).—Later condition of patient, just before plastic operation.

and allowance made for the subsequent contraction of the tissues. If there is loss of mucous membrane, this should always be included in the flap.

The method of choice in most cases is to take flaps from the immediate proximity. There is a great temptation to approximate the borders of the wound instead of making flaps, but results do not justify this method for more than slight injuries. Where this is done, the resulting tenseness of the lip makes it entirely disproportionate to the other, thus destroying the general outline of the mouth and distorting the angles. On the other hand, the transposition of flaps makes available a greater amount of tissue, thus avoiding these difficulties.

While no definite classification of injuries to the lip can be made here, for purposes of clearness the following division into groups is helpful: (1) moderate loss of tissue in the vicinity of the median line of either the upper or lower lip; (2) injuries with extensive unilateral destruction; (3) injuries with extensive bilateral destruction, and (4) deformities at the corners of the mouth.

LOSS OF TISSUE NEAR MEDIAN LINE

The loss of tissue at the middle of the upper lip leaves the borders of the remaining parts moderately free (Fig. 1). This gradually contracts upward, leaving, finally, a triangular gap with more or less uniform amount of tissue on either side, characteristic of this sort of lesion. For the correction of such deformities, one finds many types of operations advocated. They all look good in print, and the beginner is often in doubt as to the choice of procedure. There were a good many opportunities for me to try various methods advocated. I soon found, however, that for an uncomplicated case of this type the most simple and satisfactory one is to take quadrilateral flaps from each side of the gap, each one including the remaining portion of the lip, and such other tissues as are needed from the immediate neighborhood (Fig. 2). This is similar to Brun's operation, varying, however, in that the pedicle is slightly narrower and the outer angle at the apex

is more acute to allow for a greater circumference on the outer border of the turn and to make possible an easier approximation of the edges of the resulting gap made by the transposition of the flap. A careful measurement is necessary for the proper size of the flap. Excessive width is preferable to scrimping, for after contraction has taken place the lip can, if necessary, be narrowed to the desired dimensions.

CASE 1.—Private S. was wounded Sept. 8, 1916, and admitted to the hospital, September 11 (Fig. 1). The middle portion of the upper lip was lacerated, and there was some loss of soft tissue. The upper jaw was destroyed from the right cuspid to the left molar region, with free opening to the antrum. October 6, the useless fragments of bone in the area of injury were removed, and a vulcanite splint was constructed to mold the soft tissues, prevent adhesions, and to support the upper lip and cheek. October 30, the upper lip was reconstructed by two rectangular flaps from the immediate proximity of the gap, close to the alae of the nose, as shown in Figure 2. By a second operation the lower border of the lip was trimmed, which shortened the lip to the right proportion. March 5, the patient was supplied with an upper denture of sufficient bulk and proper fulness to hold the natural contour of the soft parts. The appearance at the time of evacuation to England is shown in Figure 3.

In the lower lip a similar injury is encountered. Here, also, the same type of operation can often be used, but in this case there is usually greater contraction than in the upper. All flaps tend to draw back to their original position unless a strong enough force is exerted to prevent it. This is an inherent characteristic of animal tissue. In the upper lip, after the flaps are brought down the position of the base of the nose gives a means of firm support, but those of the lower lip have no such anchorage. In order to eliminate the necessity for further operations to overcome resulting contraction, supporting flaps can be made to cover the raw area formed by the transference of the primary flaps (Fig. 4).

CASE 2.—Private M., wounded, July 30, 1917, and admitted to the hospital, Aug. 1, 1917, had received wounds on both shoulders and the lower part of the face. The face wound was found extensive enough to destroy the greater part of the lower lip. There was also considerable destruction and comminution of the lower jaw. On the left side of the upper lip there

tissue to make a good restoration. The newly made lip will be tense, while the opposing one will be bagged out and entirely disproportionate to its mate. This is a result often seen after harelip operations.

This serious difficulty may be overcome by reversing the process on the side of the missing tissue, the flap being taken from the opposite lip (Fig. 8). By this method adequate tissue can be secured, while at the same time the uninjured lip is made small enough to harmonize with the other.

When this method of procedure is used, a secondary operation is necessary for correction of the corner of the mouth where the flap is turned from the opposing jaw.

EXTENSIVE BILATERAL DESTRUCTION

Occasionally we have a condition in which there is destruction of the whole lip, often including some of the neighboring tissues. The problem in this case is a complicated one, but I have been able to treat a number of cases quite satisfactorily by taking flaps from the sides of the opposing lip, as illustrated in Figure 9.

This method supplies plenty of tissue, the obvious



Fig. 7 (Case 2).—Final condition of patient.

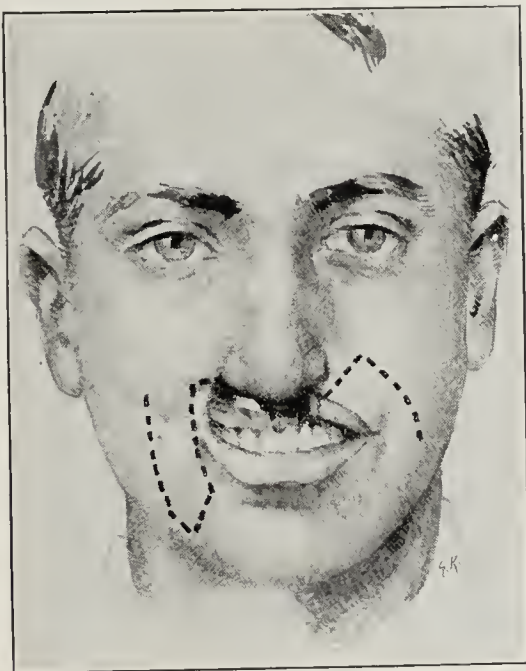


Fig. 8.—Unilateral destruction of the upper lip. In this case one flap was taken from the remaining portion of the upper lip, and the other from the opposite side of the lower lip.



Fig. 9.—Case of complete destruction of the lower lip. Flaps were taken as shown above.

was extensive laceration of the soft tissue (Fig. 5).

The plastic operation for the reconstruction of the lip was postponed until November 14, three and one-half months after the infliction of the wound. By this time the sepsis had disappeared and the tissues were quite vascular (Fig. 6).

The incisions for the flaps were carried along the same lines as those described above, except that, owing to radiating scar lines, slight modifications were made to preserve the vascularity of all the parts of the flap. In this case I failed to supply supporting skin flaps underneath, and a slight depression in the median line resulted. This, however, was corrected by a secondary operation which consisted in making a horizontal incision entirely through the thickness of the lip and transforming it into a vertical one by sutures (Fig. 7).

INJURIES WITH EXTENSIVE UNILATERAL DESTRUCTION

Quite frequently one finds that the destruction of the lip is unilateral so that while on one side the entire lip is destroyed, there is on the other side a good amount of the original lip tissue present (Fig. 8). It is obvious that if one follows the same procedure here as in the foregoing cases, there will not be a sufficient amount of

objection being that the transposition of so much tissue from another locality results in some alteration of the contour of the face. This deformity is more marked when the flaps are taken from the cheek close to the alae of the nose to supply tissue for the lower lip than when the conditions are reversed. The bilateral nature of the operation, however, minimizes the effect of this disturbance of the normal contour of the face.

CASE 3.—Private T. was wounded, Oct. 2, 1916, and admitted to the hospital, October 6. My experience with this case was both interesting and instructive. As seen in Figure 10, the entire lower lip was shot away, and the mandible so comminuted as practically to obliterate the chin.

By the use of appliances assembling the bony fragments, the contour of the mandible was eventually restored (Fig. 11). In an attempt to build a lower lip over this, I first took flaps from the lower part of the face, but soon realized that although this furnished fulness to the chin, the supply of tissue was inadequate to restore the lip. Accordingly, flaps were eventually taken from each side of the upper lip (Fig. 9), with the result shown in Figure 12. It is to be noted that this procedure caused no tension of the upper lip.

CORRECTION OF DEFORMITIES AT THE CORNERS
OF THE MOUTH

Careful reconstruction of the corners of the mouth is essential for a thoroughly adequate cosmetic result, for any asymmetry at this point invariably changes the whole expression of a patient's face. Loss of tissue here produces extensive scar formation, the mouth is longer at one end than at the other, and the mobility of the injured corner is so seriously interfered with as to change materially the whole character of the face.

Mere joining of the ends of the two lips falls short of what can and should be accomplished. By excising all scar tissue, joining the corners of the red border together, and then filling in the space left by the excision with supporting flaps from either above or below, or both, all tension can be relieved at the corner and its drawing out of line, which can come so readily from contraction of the tissues, avoided.

cate tissue easily torn, and its blood supply is less generous than that of the skin.

As a method of last resort, where insufficient lining is obtainable, the skin of the neck may be reversed and brought up underneath; or a skin graft made.

While every case of plastic reconstruction must be executed on its own merits, various procedures must be attempted in extreme cases. The methods outlined will only serve to act as a guide, admitting that modification should be made to suit each individual case.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BROWN AND KAZANJIAN

DR. V. P. BLAIR, St. Louis: There is enough tissue in almost all cases of harelip to make a perfect repair. The poor results will depend on the manner in which the nose is



Fig. 10 (Case 3).—Patient suffering from complete destruction of lower lip and chin, and extensive comminution and partial destruction of the mandible.

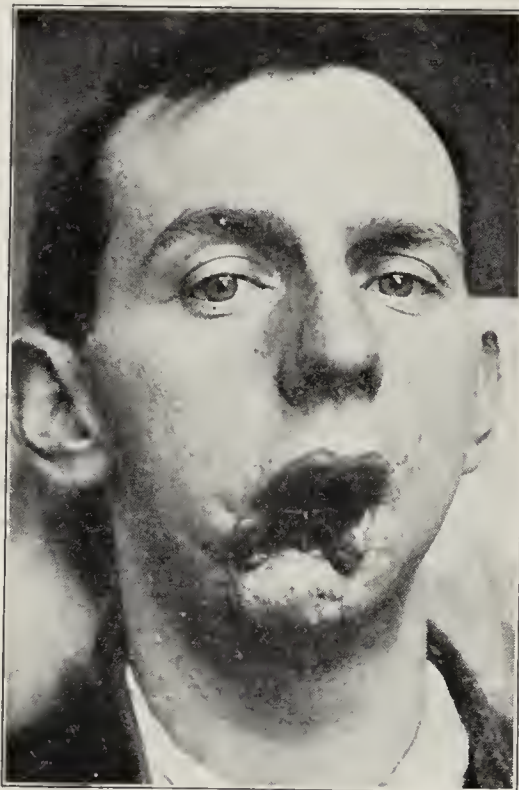


Fig. 11 (Case 3).—Later appearance of patient.

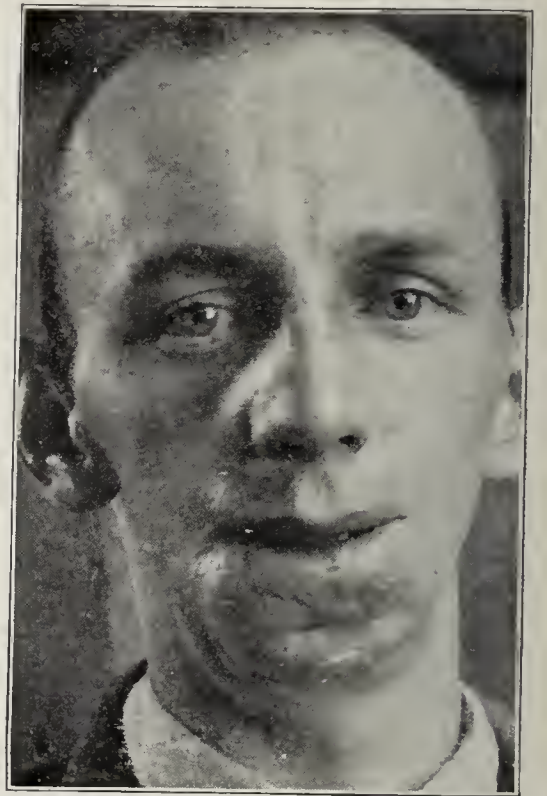


Fig. 12 (Case 3).—Final condition of patient. The lip tissue was supplied mainly by flaps from each side of the upper lip similar to Figure 9.

CASE 4.—Private P. illustrates a case of this kind (Fig. 13). Extensive scar tissue at the corner of the mouth had drawn it badly out of line. Operation consisted in excision of the scar tissue about the corner of the mouth, transposition of a flap, and shortening the upper lip by a V excision at the corner (Fig. 14). Tension on the lower lip was relieved by a horizontal incision across the mucous membrane inside the lip. The result is illustrated by Figure 15.

COMMENT

Deformities of the lips involving loss of tissue almost invariably are accompanied by loss of mucous membrane. The inner lining of the lips, as well as the red border, must always be restored, for, lacking this, distortion within the mouth will mar otherwise good results without. To accomplish this, the method of choice is, of course, to carry the mucous lining of the cheek along with the skin and underlying tissues of the flap. Where this is not possible, reconstruction of this tissue can be made entirely with the mouth, for there is an adequate supply, and the elasticity of the tissue makes repair easier than that of the skin. Care must be exercised, however, for mucous membrane is deli-

adjusted. No matter how perfect the bone adjustment, the soft tissues will determine the ultimate result, and furthermore, the ensemble depends on the relationship of the columella to the point at which the ala is joined to the cheek.

DR. M. I. SCHAMBERG, New York City: The conservation of tissue in the congenital cases is the principal thing, just as in war surgery. There are many ways of reaching the same destination. One man prefers one route, and another prefers one that is very much different. Much damage has been done by men who do not thoroughly understand the principles of correcting these deformities. A great deal of good can be done by not hastily trying to repair the normal appearance. The maxillary tissues often adjust themselves wonderfully well. I want to emphasize the fact that in the past we learned too much about the technique of the different operators that resulted in absolute failure. A great many men throughout the country have been discouraged in their palate work on this account. A great many men have followed the principles laid down by various operators and their cases have been failures. The question of the second, third, fourth and fifth operations that are necessary should be more forcibly brought out by the men who are doing the greatest amount of this work. We all know the difficulties that confront them.

DR. A. J. OCHSNER, Chicago: The work shown is valuable because it shows that you must know what you are about when you begin. All these operations must be planned thoroughly, and in these cases the surgeons have exhibited excellent judgment and artistic sense. Most of this plastic work must be mechanical and artistic. If the surgeon does not possess these qualities, his result will not be satisfactory. The plastic surgeon must be an artist, because one who is not cannot produce artistic results.

DR. FERRIS SMITH, Grand Rapids, Mich.: The problem confronting Dr. Kazanjian is entirely different from the one confronting the men dealing with congenital harelip. I know a great deal about Dr. Kazanjian's work as we were in the same hospital during the war and I saw a great deal of his work. The prosthetic work done by him was one of the classics of the war and represents a principle which ought to be followed very carefully in the repair of this type of case in civil life. Two different schools were represented in the restoration of these cases during the war: First there were surgeons who believed that a wound should be left open for free drainage, permitting it to heal up, then the scar removed and the defect repaired by purely plastic work. Second, there were men who believed in primary repair with free drainage. It seems to me that the last men were right.

introducing too hard a substance, or introducing sutures under tension. In the soft parts I use clamps and make an accurate measurement on both sides with calipers. I make an incision perpendicular to the plane of the face which makes accurate approximation possible. I believe it is quite as important to approximate the tissue on the under surface of the lip as it is to approximate the skin on the outer surface. Failure to do that results in adhesions between the under surface of the lip and the maxillary bone with resulting stiff lip.

DR. J. R. EASTMAN, Indianapolis: I wonder if Dr. Kazanjian has made use of a very simple and useful expedient which was advocated by Dr. Emil Beck to close the defects in the skin after a displacement of the skin for flap purposes, or after destruction of the skin by accident. Dr. Beck suggested the placing of strips of adhesive plaster along the margin of the defect, going clear around the periphery. I have made use of this plan many times and I am sure that one can cover the defect in this way very rapidly. One can by this method avoid the use of the Thiersch graft in many instances where otherwise it would be necessary to use it. The effect is due to the fact that epidermization is hastened by the adhesive straps holding down the exuberant granulations and making the edge perfectly level so that the

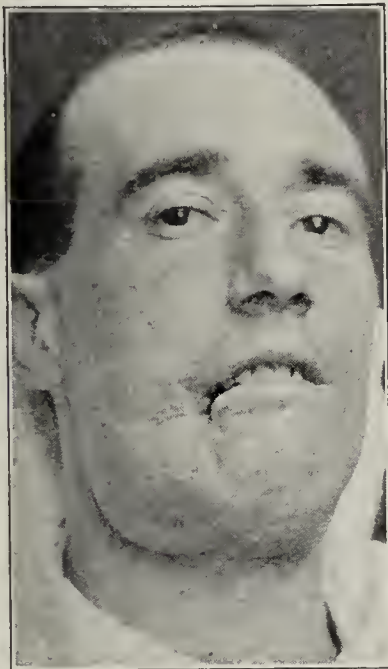


Fig. 13 (Case 4).—Deformity of corner of lip due to considerable laceration and the loss of tissue.

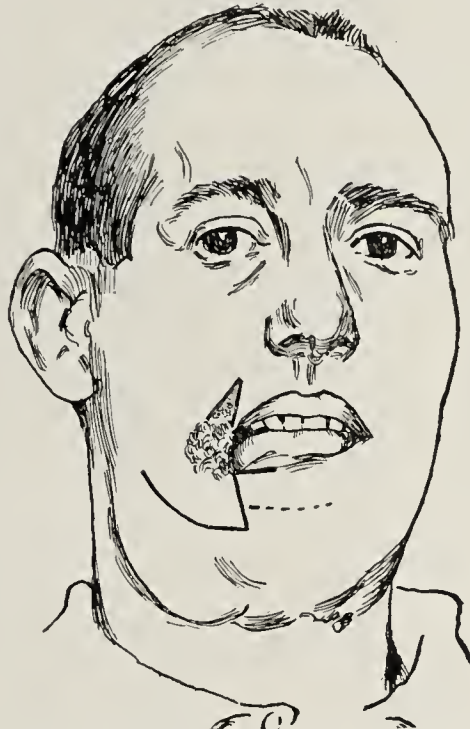


Fig. 14 (Case 4).—Diagram showing correction. The scar tissues and a triangular piece from the side of the upper lip were excised; the lower lip was loosened, and the ends of the upper and lower lips were brought together in their proper position. The remaining raw surface was covered by a flap taken from below.



Fig. 15 (Case 4).—Final condition of patient.

In the early days of the war the cases that were left open had the greater defects. The results in the cases of primary suture were much more pleasing. The cases which were repaired by simple plastic method without the use of an external prosthesis suffered from scar contraction. Dr. Brown's paper requires special discussion. The principles involved are well recognized. The choice of a flap, whether ascending or descending, depends on the blood supply, etc. In the case of male patients the flap should be the ascending one so that the hair grows down to form a mustache thus covering the scars that may be unsightly.

DR. W. E. LADD, Boston: We have found in restoring the lip in order to get a good nostril it is necessary to restore the alveolar lines assuming that this is a single type of harelip with a complete cleft palate, as I understand Dr. Brown, he pays very little attention to bringing the premaxillary bones into line before doing the plastic work on the soft parts. In my experience unless the alveolar line is restored it pulls the nostril backward on the affected side. It has been my practice to restore the alveolar line at the time, or preliminary to doing the operation on the soft parts, and it has seemed that this is essential. I think he has brought out a very important point: that the premaxilla should never be destroyed. That can easily be done by

back into alignment the displaced premaxillary bone or that repair of the lip will tend to correct inequalities and irregularities in the alveolar process. I do not understand why any one lays stress on an operative step to draw back an anteriorly displaced half of the alveolar process or the displaced premaxillary bone, because repair of the lip will accomplish that. If by repairing the lip you put such tension on it as to make a deformity I think it is much better to go back afterward and make the final adjustment of the lip than to use a chisel or any sort of an instrument to bring the premaxillary bones into alignment. I like to use silver wire to draw the alae into position because silver wire is not only aseptic and antiseptic but also activates cell growth. I like also the silverized gauze and silverized catgut of Rovsing. I believe silver wire favors tissue regeneration not so much by inhibition of bacterial growth as by stimulation of cell growth.

DR. V. H. KAZANJIAN, Boston: I have not tried the simple yet ingenious method mentioned by Dr. Eastman of applying adhesive plaster about the wounds to stimulate epithelial tissue growth but it seems very easy. If it has the effect of hastening healing and minimizes scar formation, I think it is

epithelium can grow out and fill in the defect as in the strapping of ulcers. I do not think that anything is more sure than that the repair of a lip will pull

worth trying. Dr. Ferris Smith discussed the question of primary suture. I purposely avoided discussing that point in my paper except just to mention it. As he correctly said, there were two schools, one that believed that the wound should be closed immediately, and the other that it should be kept open and sutured after sepsis has disappeared. We know that wounds of the limb or of other parts of the body may be sutured very early, or sometimes kept open for a few days and sutured later after excising lacerated surfaces. That hastens period of healing, but in the mouth or on the face we have a different problem. First of all we have a wound that almost always involves comminution of the bone. Second, we cannot isolate and make it relatively aseptic, therefore I do not think it advisable to suture the wound immediately after injury unless the wound is a simple tear or laceration which does not involve the bony tissue. In most cases where there is a comparatively slight comminution of bone and a great amount of laceration of the tissue but no destruction, one can suture that wound within fifteen days after injury, provided adequate drainage is left to prevent collection of pus. Where we have a definite destruction of tissue I do not see what is gained by suturing or approximating radiating borders preparatory to final operation.

DR. G. V. I. BROWN, Milwaukee: Dr. Blair has spoken of the floor of the nose and the shaping of the alae, and he is undoubtedly right in emphasizing these influences. I try to make every incision just as simple and direct as I can make it. I want just as few angles in a skin incision as possible. The skin border approximations in these cases you saw here were adjusted under a magnifying glass and the sutures were 2,000 fine linen covered with petrolatum. If there are no angles in the line of the approximated surfaces a very nice approximation can be made, but every angle makes it more difficult to make a perfect approximation, not because the parts will not meet in a straight line because they will, but for the reason that there is usually a little surplus tissue that has to be disposed of in one way or another because if not properly cared for there is likely to be an imperfection or at least not a smooth surface. I believe in very wide dissection in order to readjust the ala of the nose. Recently I have found it possible to avoid a wide open incision. I pass a tenotomy knife through under the ala, and with a very wide sweep of the knife, free the tissues and in this manner free enough of the lining of the nose to permit me to bring the parts up to proper form. Dr. Ochsner's ideas as he has expressed them today with regard to the character of this work are very useful for our guidance. Dr. Smith spoke about the difference in cases. That is very true, and yet they are all governed by the same principles. The large war wounds are, of course, quite different in many respects from congenital defects or from strictly developmental defects. One of the things that I have been interested in, as evidenced in Dr. Kazanjian's work, has been that he has fought for the use of nearby tissue. He has not, so far as I know, gone very often to the arm or the leg or some distant part for his flap. He has had the ingenuity to find tissue near by that could be utilized for the necessary repair in nearly every instance. Dr. Eastman spoke of the alveolar ridge being out of place, and he is quite right in this statement. If it were merely a question of the alveolar ridge being out of place it would not matter so much, but other alveolar structures are also out of place when you endeavor to change the posterior portion of the bone to conform to present needs in performing a staphylorrhaphy. If the lip muscles are malposed, when the lip fissure is closed the associated parts will not continue to improve in appearance for they will be out of alignment. But if the right muscular alinement has been made, the muscles will draw the parts back into better positions because they will be in right relation to other parts. If I knew a good way to unite the maxillary bones with safety at this time I would certainly do it, but up to this date I am convinced it cannot be done without harm to future symmetrical development. I have never seen a perfect operative result where this has been done. When I have tried this method the face has always looked flat because the features were out of normal relation to each other.

AN ADULT LIVING CASE OF TOTAL PHOCOMELIA *

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SIAM

AND

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While engaged in the work of rural sanitation of the U. S. Public Health Service in Northeastern Kentucky in the summer of 1917, we came upon a man, aged 29, whose extremities were remarkably abbreviated. As we were soon ordered to another station, time was given for only a fragmentary investigation. In this both the subject and his mother were of the

greatest help in the sensible manner in which they furnished information. Later, roentgenograms were secured through the kindness of Dr. M. V. Ziegler of the United States Public Health Service, and Dr. A. R. Quigley of Maysville, Ky. In the preparation of the article, considerable help was given by Drs. A. S. Warthin and Carl V. Weller of the department of pathology of the University of Michigan, and by Dr. R. E. McCotter of the department of anatomy. Reference work was done in the university library.

The malformation seen in this subject evidently falls into the class to which Geoffroy St. Hilaire gave the name phocomelia, from the resemblance of the limbs to those of seals. Strictly speaking, in true phocomelia hands and feet are united directly to the trunk without intermedi-

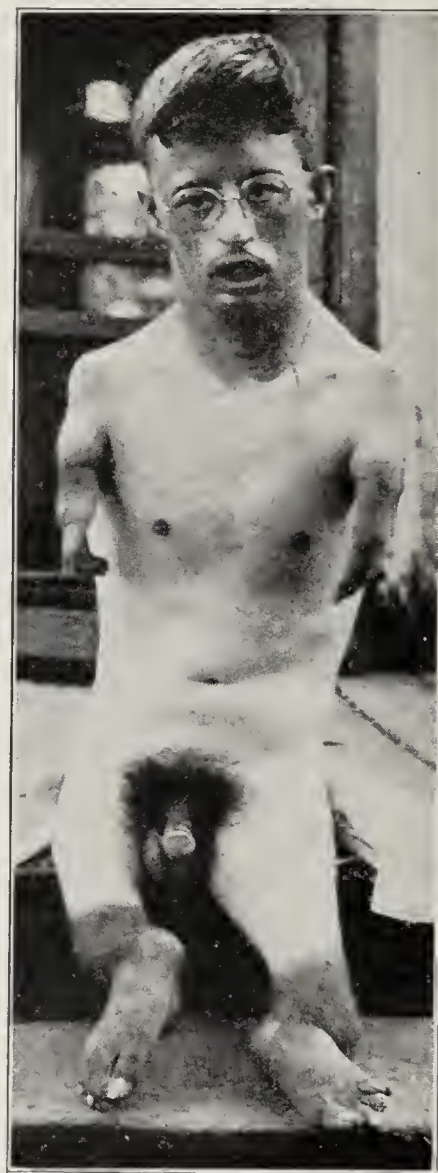


Fig. 1.—Adult phocomelus.

ate segments. Just how closely this case fits the definition will be brought out in the anatomic description, gross as well as roentgenographic. The subjoined report also contains some notes on the subject's personal life, with observations on the frequency of occurrence and on the possible causes of such a monstrosity.

REPORT OF CASE

Gross Description.—Grover Cleveland B—— was about 37½ inches (0.95 meter) tall when standing on the condyles of the femurs. His weight was stated to be about 52 pounds (23.5 kg.); at the time of our visit it was increasing. The head was 18½ inches (47 cm.) in circumference. In general it seemed normal, except for a rather high arched palate, and a mouth-breathing habit which can be detected in Figure 1. The nose was not examined; the tonsils were normal. The

* From the Pathological Laboratory of the University of Michigan.

right clavicle was broken in 1916. The trunk was fairly normal, though reduced in dimensions. Some lateral curvature of the spine, with concavity to the right, was noticeable, especially from the rear. The heart was normal to palpation. The abdomen was strangely rigid and tense throughout. The external genitals were normal, the left testicle being slightly larger. He had had nocturnal emissions since about the age of 13. The foreskin was absent, since birth, the mother stated, as was the case with her two other monster children.

The arms were alike, the left being slightly longer and larger. From shoulder to tip of finger measured 8 inches (20 cm.). The three fingers of each hand (the thumb and the little finger were absent from both) were from $1\frac{7}{8}$ to 2 inches (47 to 50 mm.) in length. Some movement was possible at the joints, with the greatest amount at the shoulders. The exact structure of the arms and shoulders could not be determined by palpation. The legs were in general similar, yet they presented some variations. The left was much larger; this difference was probably associated with the scoliosis and the inequality evident in the lower abdomen and pelvis. There was free movement of both limbs at the hips. The only other movable joint was best seen in the right leg, at the first break below the hip. There some anteroposterior swinging was possible. The feet were misshapen, though largely normal; they were from 6 to $6\frac{1}{2}$ inches (15.24 to 16.50 cm.) long. The toes were normal, except for the syndactylism between the fourth and fifth on each foot.

Roentgenograms.—The roentgenograms first taken were flat plates. Later endeavor was made to secure stereoscopic roentgenograms; but the departure of the Public Health Service force from the county prevented this. The three here reproduced present several features that will not permit of definite interpretation. But with the aid of Dr. R. E. McCotter, the following conclusions have been worked out:

Figure 2 is of the right shoulder, taken apparently from in front with the focus on the posterior rib lines. The three median metacarpals are present, with the corresponding proximal phalanges. The carpus is represented by one bone in



Fig. 2.—Right shoulder: bones of arm and forearm absent.

the proximal row, probably the lunate, and by two in the distal, the capitate and hamate or unciform. From the size, position and length of the two longer bones at the top of the plate, pointing upward and to the left, it would appear that the clavicle is in two fragments. This conclusion is supported by the history of a fracture. That this was oblique is shown by the tapering in thickness of the free end of the proximal

fragment. This medial segment has been lifted up by the sternocleidomastoid muscle. The distal segment, which shows the characteristic broadening of the clavicle at its scapular end, is pulled in and up by the trapezius, opposed only by a poorly developed pectoralis minor.



Fig. 3.—Left leg: tibia and fibula absent, the tarsal bones articulating with the femur.

The other two bony masses of the shoulder are more difficult to interpret. The lower, seemingly articulating with the carpus, is a bone of considerable density and strength, or possibly a thin bone photographed on edge. It is roughly in the shape of a bow, with knobbed ends, and a broad spine or projection on its upper and convex surface. The distal end seems more anterior and in focus. The other bone, above and medial to the preceding one, is thinner and flatter. It is roughly pentagonal, with a projection from its superior median angle. Both masses are roughly dorsolateral to the trunk. From this position, and from the fact that they bear no resemblance to the bones of the arm or forearm or any subdivision thereof, we conclude that they are probably portions of the scapula.

Figure 3 is a picture of the left leg, taken from the posterior side. The long bone or femur shows a prominent protuberance jutting out from the position normally occupied by the internal condyle. Since there is no line of fusion between this protuberance and the shaft, we believe that it is an exostosis. The lateral condyle is enlarged, and the intercondylar fossa is displaced medially. There is no suggestion of a tibia or a fibula. The tarsus seemingly shows the presence of first, second and third cuneiforms, cuboid, navicular, calcaneus—all of the normal bones except the talus. The five metatarsals are shown in order, with the edges of the proximal phalanges appearing in the cut.

Figure 4 is a similar picture of the right leg, taken posteriorly. This femur shows clearly the intimate connection of the exostosis of the medial condyle with the body of the bone. The light streak in the large bone of the tarsus does not, we believe, suggest a partially fused tibia and fibula.

There are no markings indicating the bones of the leg. As nearly as can be determined, only the bones of the tarsus, with the exception of the talus, are present.

Personal Notes.—Grover had spent only two or three months at nearby country schools, with little teaching at home. He did not want to learn out of books. Either he could not concentrate, or he did not wish to do so; at any rate no one thought it necessary that he should. He can barely read, and is able to write his name only with difficulty. He votes in every election. Before going to the polls he has the names of the candidates read to him, and usually knows before leaving home for whom he is going to vote. Judges mark the ballot for him as for any illiterate voter. Most children like him, after getting over their initial fear of something strange. At the time of our visit he was talking with a younger brother and a neighbor boy, both about 13 years old. When the roentgenogram was to be made, he was found at a nearby "camp meeting." He is not quarrelsome, but is quite good natured. Roughly, his intelligence would be classed as approximately that of a boy of 12.

Cleve, as he is also called, takes care of himself fairly well. He waddles about on his condyles, getting up and down steps without difficulty. In 1917 his increase in weight was making it more difficult for him to get about. We saw him climb into a chair, with the aid of a nearby table; his arms helped him about as much as do the fins of trained seals. He washes and feeds himself. He shaves with a safety razor weekly; the photograph gives a suggestion of the black growth present at the time. In dressing he gets on his trousers by himself, but has to be helped with his shirt.

Family History.—No other abnormal births are to be found in the numerous B— family in the neighborhood, nor have any occurred in the family of Mrs. B—. It is worth noting that the father and mother were double first cousins. Therefore, instead of the normal number of eight great grandparents, Grover Cleveland had only four. His father, who was a man of ordinary health, died in 1912 of paralysis following "typhoid." Mrs. B— was born in 1866 and married in 1885. She bore eight children, five normal and three monstrous. All but the fifth were nine months babies. Her progeny consisted of: April 30, 1886, a boy, normally shaped, living; June 16, 1888, Grover Cleveland; June 5, 1890, a boy, normal, living; March 24, 1893, a girl, normal, living; 1895, a stillbirth, anatomically exactly like G. C. B., but an eight months child; June 17, 1897, a boy, like G. C. B., with the addition of a harelip; when 2 years old, he died of pneumonia, following measles; July 19, 1900, a girl, normal, living; Jan. 11, 1904, a boy, normal—a bright chap whom we saw.

COMMENT

The recurrence of this condition makes it very interesting. Meckel¹ quotes Flachsland's account of a woman who in three years bore three children without

lower arms or legs, but with normal hands and feet. There are frequent instances in which a solitary monster appears among normal children, or when a normal child is followed by a series of malformations. But so thorough a mixture of normal and abnormal as we have here is rare indeed.

PHOCOMELIA

In his classic Treatise on Teratology, Geoffroy St. Hilaire² divided malformations of the extremities into three classes: (1) phocomelia, the condition in which hands and feet insert directly on the trunk, without intermediate segments; (2) hemimelia, in which arm and leg are normal, but the digits are either absent or imperfect, and (3) ectromelia, in which the limb is either almost absent or entirely so. These defects may be present in only one limb, in two, in three or in all four. As St. Hilaire points out, lines cannot be drawn sharply. The great variety of abnormal forms makes them shade gradually from one group into another. We can only place each in the class where it most nearly fits.

It is evident that, strictly speaking, our subject is not a total phocomelus, since both femurs are present and well developed. But since there is little evidence of the presence of any humerus, radius, ulna, tibia or fibula, we believe that he most nearly fits into this class. The lack of a talus is merely incidental. It is worth noting that Weencke³ reports the similar absence of this bone in a phocomelus of one leg.

The literature of teratology fails to reveal a single recorded instance of perfect phocomelia of all four limbs. Cases of such an abnormality of one member alone are

common enough, though strangely, St. Hilaire (1836) stated that he knew of no authentic instance. Complete double phocomelia of either arms or legs (there is no case we can find recorded of one arm and one leg being affected together) is also relatively frequent. But very rarely do we find the malformation affecting all four limbs, and none in which the long bones are entirely absent.

The most famous instance, quoted wherever disturbances of development of the extremities are discussed, is that of Marco Catozzo, or "Pepin," who died in Paris in 1800 at the age of 62. His skeleton and a cast are preserved in the Musée Dupuytren at Paris.



Fig. 4.—Right leg: tibia and fibula absent; tarsal bones articulating with femur.

1. Meckel, J. F.: Handbuch der path. Anat., Leipzig, 1812, pp. 15, 748.

2. St. Hilaire, Geoffroy: Traité de tératologie, Paris 2: 206-215, 1836.
3. Weencke, R.: Chondrodystrophie als Ursache der Phokomelie, München, 1907.

Socin⁴ has a full description gained from Dumeril and a study of the skeleton. The scapula is imperfect. There is no upper or lower arm, though Dumeril mentions a long bone between hand and shoulder. This also appears in Hirst's⁵ illustration of the skeleton. In the legs each femur is small, but has a well formed head and suggestions of the trochanters. There is a short, curved bone which may be a tibia. Hands and feet are normal. Catozzo was quite a clever man, traveling over Europe on foot or on horseback, and speaking and writing four languages.

The "Baerenweib," much discussed by German writers, was more normal anatomically. Alice Vance was a mulatto born in Texas in 1874, and later living in Berlin. The best descriptions are those of Daffner⁶ and Klaussner.⁷ Her radii and ulnae were about 6 cm. in length; the tibiae were represented by condyles alone, and no fibula was present. Her mother had been similarly formed, but a sister and Alice's one child were normal. When on all fours the woman was a striking specimen of a "Baerenweib," and was evidently a side show feature.

Orgler⁸ reports a similar case of a man, aged 65, whose lower arm was only 13 cm. in length. Each hand lacked a thumb, and the carpus seemingly lacked the greater multangular. Between the femur and the tarsus was only a bit of a shadow. The man had fourteen sound sisters.

St. Hilaire classes phocomelia as a viable monstrosity, but for some reason many of the subjects reported were born dead, or did not long survive. Socin's case, reported in detail, is that of a child who died seventeen days after birth, of congenital syphilis. The scapulae were rudimentary. Only two small bones stood between each shoulder and the carpus. The latter part was cartilaginous, indefinitely divided. There were four metacarpals and four phalanges. Below, the scrotum and part of the bony pelvis were lacking, with no trace of the upper or lower leg. There were no other cases in this family.

Hirst shows a photograph of a three toed fetus which apparently lacked lower leg and any arm at all. The hands seemingly were attached directly to the shoulder. McDougall's case also apparently lacked thigh and upper arms. From this state on more and more instances are found of lesser degrees of this monstrosity. Undoubtedly other instances have occurred. Many have not been reported; and perhaps some others are recorded in journals to which we do not have access.

CAUSES OF PHOCOMELIA

Why should the distal portion of the limb—the hand or the foot—proceed to perfect development, and the proximal and middle segments fail to do so? One school of German authorities for a long time dwelt on the ideas of fetal rickets or chondrodystrophy. But it is evident that these would explain only imperfect bones, not their absence. Furthermore, these terms are only those of processes. What are the fundamental forces back of them? Possible causes for such a viable malformation as phocomelia may be grouped as: (1) extrinsic: (a) trauma; (b) amniotic bands; (c) uterine

compression, general or local; (d) maternal toxins, and (2) intrinsic.

We must conclude that in such cases as we have here the cause for the monstrosity is intrinsic. It may be the result of the action of some toxin on maternal or paternal germ cells. It may be the influence of consanguinity making itself felt at the rearrangement of the chromosomes. It may be due to some altogether unknown influence. But whatever the force may be, it seems imperative that it act, not on the developing embryo, but on the germ plasm of its ancestors.

CULTIVATION OF RICKETTSIA-LIKE BODIES IN TYPHUS FEVER *

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In previous publications from this laboratory,¹ the isolation of an anaerobic gram-positive bacillus from the blood in typhus fever was reported, together with considerable serologic and experimental evidence, which tended to support the view that this organism played an important causative rôle in the disease. The mass of evidence adduced by Plotz, Olitsky and Baehr, and especially the cultivation of the Plotz organism by Olitsky, Denzer and Husk from typhus infected lice, lent confirmation to the opinion that the organism bore an important relationship to typhus fever. Because of the usual lack of virulence of the Plotz bacillus, which prevented the completion of cross immunity experiments, and because of the newer investigations of da Rocha-Lima² and Prowazek, the subject was again taken up at the first opportunity of obtaining material from cases of epidemic typhus fever.

Da Rocha-Lima and others recorded the constant finding of minute bodies in the stomach wall of typhus infected lice, to which the name *Rickettsia prowazeki* was given. The nature of these bodies, whether protozoan or bacterial, is still undetermined; and, in view of the fact that no one has as yet succeeded in cultivating them outside the body, a comparison with the Plotz organism has been impossible. The differences observed were chiefly tinctorial.

The present observations were undertaken in January, 1921, using additional bacteriologic methods. The opportunity to make observations on the European epidemic disease in newly arrived immigrants was afforded us by Dr. Cofer, then health officer of the Port of New York, and by Dr. J. Holt Harris, in charge of the Quarantine Station.

With the methods subsequently to be described, we have succeeded in recovering from the blood of typhus fever patients minute bodies which are morphologically and tinctorially similar to *Rickettsia prowazeki*. Subsequently, these bodies were also cultivated from the blood, brain and kidneys of guinea-pigs, reacting to

* From the Department of Pathology, Mount Sinai Hospital.

* Work done under the tenure of a George Blumenthal, Jr., fellowship in pathology, assisted by a grant from a special research fund.

1. Plotz, Harry: The Etiology of Typhus Fever (and of Brill's Disease), *J. A. M. A.* **62**: 1556 (May 16) 1914. Plotz, Olitsky and Baehr: *J. Infect. Dis.* **17**: 1, 1915. Olitsky, Denzer and Husk: *Ibid.* **19**: 811 (Dec.) 1916. Denzer and Olitsky: *Ibid.* **20**: 99 (Jan.) 1917. Baehr and Plotz: *Ibid.* **20**: 201 (Feb.) 1917. Baehr: *Ibid.* **21**: 21 (July), 132 (Aug.) 1917.

2. Da Rocha-Lima: *Arch. f. Schiffs- u. Tropen-Hyg.* **20**: 17, 1916.

4. Socin, Hélène: La morphologie de la phocomélie, *Arch. exper. méd. et d'anat. path.*, 1917, No. 5, pp. 485-533.

5. Hirst, B. C.: A Phocomelic Monster, *Univ. M. Mag.* **2**: 374, 1889.

6. Daffner, F.: Das Baerenweib, *München. med. Wchnschr.*, 1889, No. 25.

7. Klaussner: Missbildungen der menschlichen Gliedmassen, *Wiesbaden*, 1900, pp. 67 ff.

8. Orgler: Demonstration der Radiogramme eines Falles von Phocomelie, *Deutsche Med. Wchnschr.* **26**: 293, 1900.

the inoculation of blood from typhus fever patients suffering with the endemic (Brill's disease) or epidemic form of the disease.

Through the kindness of Dr. S. B. Wolbach, similar studies were carried out on a strain of typhus virus originally obtained in Poland and kept alive by means of numerous successive passages through animals. The same Rickettsia-like bodies were isolated from the blood, brain and kidneys of guinea-pigs suffering from the experimental disease induced by this Polish virus.

Lastly, the organisms have been repeatedly recovered from the blood, brain and kidneys of guinea-pigs in which the disease had been produced by a previous intraperitoneal inoculation of culture material.

METHODS

Blood Cultures.—Deep tubes, 1.25 by 20 cm. (Noguchi), containing 10 c.c. of a rich ascitic fluid and a fragment of sterile kidney from normal rabbits or guinea-pigs were inoculated with a few drops to 2 c.c. of infectious typhus whole or citrated blood. Following the addition of 0.5 c.c. of 20 per cent. dextrose or 2 per cent. dextrose bouillon, the tubes were sealed with sterile petrolatum. Strict anaerobiosis or a graded oxygen tension was thereby created. The hydrogen ion concentration of the ascitic fluid was adjusted to from 7 to 7.4, when necessary, by titration with tenth-normal hydrochloric acid or normal sodium or potassium dihydrogen phosphate.

Subinoculations were made from various levels of the culture medium, most often from the dependent portion. In making transplants, 0.2 c.c. of culture material was transferred to tubes prepared as in initial cultures and previously incubated to insure sterility. All cultures were incubated at 37.5 C. or at from 22 to 26 C. (room temperature).

The use of larger tubes (1.75 by 28 cm.) or 50 c.c. Florence flasks has been of service when greater quantities of blood (3 c.c. or more) were cultivated. Correspondingly larger fragments of sterile kidney were employed. In several instances an attempt was made to overcome the phagocytic action of the leukocytes by the use of various leukocytotoxic agents such as saponin, distilled water or *Streptococcus hemolyticus* leukocidin.

Brain Cultures.—Blocks of infectious guinea-pig brain, removed under the strictest aseptic precautions immediately after exsanguination, were added to tubes (1.5 by 20 cm.), with or without the previous addition of fresh normal kidney; each block comprised approximately one sixth of the brain. Ascitic fluid, 2 per cent. dextrose bouillon or 20 per cent. dextrose was then added and the column of mediums layered with petrolatum. Some of the tubes so prepared were reserved for subcultivating. After from six to eight days, the brain was crushed with a sterile pipet and the tube reincubated before the transplants were made. The remainder of the inoculated tubes were incubated for varying periods, and the tissue was then removed for microscopic examination.

Kidney Cultures.—Kidneys of guinea-pigs, removed by the lumbar route after exsanguination of the animals, were bisected and tubed. Except for the omission of fragments of normal kidneys, the tubes were then completed as with the brain cultures.

Control Cultures.—With the same technic, identical studies were carried out on the blood, brain and kidneys of normal control guinea-pigs and on the blood of individuals suffering from other febrile diseases. The bodies herein described were never encountered in any of the control tubes.

Gross Appearance of the Cultures.—A significant feature of the growth is the absence of any marked alteration in the culture medium. The dextrose is not fermented and the medium not acidified. Marked clouding, precipitation or gas formation is always due to a contaminating organism, either alone or in symbiosis with the bodies under consideration. In positive cultures on fluid mediums, there appears after five days a slight haziness throughout the major part of the tube, most marked in the dependent portion. A fine granular sediment is sometimes deposited. The faint diffuse haziness

was found to be due to the fact that the organisms are held in suspension; there is no marked tendency for them to settle out, owing to their low specific gravity. For the same reason, prolonged high speed centrifugalization fails to throw them down entirely.

Much more clouding takes place in the brain cultures, owing to the disintegration of the tissue. In the kidney cultures, the tissue becomes blanched, coincidental with slight diffusion of hemoglobin into the medium. Aside from this, no changes are noted.

The organism has now been grown on artificial culture medium for seven successive generations without animal passage.

Morphology.—Dark field studies are unsatisfactory with this organism. Smears prepared from different levels of the culture, but mainly from the dependent portions, were air-dried and fixed with methyl or absolute alcohol. Suitable staining can be obtained only by prolonged contact with dilute untreated Giemsa solution. The bodies do not stain readily with Loeffler's methylene blue, polychrome methylene blue, dilute carbolfuchsin or rose bengal. They do not retain the stain with Gram's method.

With the Giemsa stain, the organisms appear mostly as minute, chromatophilic, ruby red, coccobacillary bodies, comparable in size to a small Pfeiffer bacillus. Even when the bodies are stained intensely, their outlines are rather blurred. In smears from fluid cultures, they are discrete, arranged singly and in diploid forms, with practically no tendency to clumping. Fluid cultures present mostly the short elliptic forms. In tissue cultures, the bodies may assume a bipolar appearance, owing to their diploid arrangement. While there is some variation in size among the various strains, there is no marked pleomorphism in a given culture; nor does the age of the culture have any marked influence, as a rule, on the morphology.

Larger coccoid ringlet forms, with paler hyaline centers, have sometimes been encountered. Occasionally, there has been observed a grouping of smaller bacillary forms in a spherical arrangement, apparently lying in a paler matrix—an appearance not unlike a sporulating body in a developmental cycle.

Filtrability.—None of the bodies in the culture will pass through a Berkefeld filter N or W, or the corresponding Mandler filter.

Pathogenicity.—The intraperitoneal inoculation into guinea-pigs of one or more cubic centimeters of culture material results, after an incubation period of six or more days, in a febrile reaction, which usually lasts from five to ten days. The length of the incubation period, as well as the temperature curve, resembles the disease produced in guinea-pigs by the intraperitoneal inoculation of infectious typhus blood. Guinea-pigs injected with the blood of these animals drawn at the onset of the febrile reaction also develop a similar disease. Such a culture virus has now been passed in guinea-pigs through six successive transmissions.

Persistence of Virulence in Cultures.—The fourth cultural generation was still pathogenic for animals up to twelve weeks after the original infectious blood had been obtained from the body. As has been repeatedly ascertained, typhus blood at incubator temperature ordinarily loses its virulence within six days. Cultures also grow and retain their virulence at room temperature.

Amount of Original Infectious Blood Present in Inoculated Culture Material.—It is estimated that when 1 c.c. of a fourth generation culture was injected into a guinea-pig, it contained about 0.00000016 c.c. of the original typhus blood—less than one millionth of a cubic centimeter. Numerous reliable investigators have repeatedly demonstrated that very much greater quantities of typhus blood are ordinarily necessary in order to infect the guinea-pig—often one or more cubic centimeters.

Action of Saponin on Cultures.—The presence of saponin in cultures completely inhibited growth and destroyed the virulence of the culture material.

Pathology of Animals Infected with Cultures.—**Brain Lesions:** Animals inoculated with culture material and killed during the febrile reaction, and animals dying of the

disease thus produced, showed no gross changes in the viscera, except some swelling of the spleen and enlargement of the malpighian bodies. On microscopic examination, focal lesions were found in the brain which were identical with those regularly present in the brains of typhus fever patients and of animals infected with the disease. Similar focal lesions were found in the brains of guinea-pigs in which the febrile disease had been produced by the intraperitoneal injection of blood or brain derived from culture virus animals—a guinea-pig series in which the original reaction was produced with culture material.

Presence of Similar Bodies in Tissues.—In some of the brain and of the kidney cultures, the tissues were not crushed, but were removed after varying periods of incubation (from three to ten days). These fragments of brain or kidney were then fixed in Zenker's fluid, sectioned in paraffin and stained with Giemsa stain. Microscopic examination of the tissues removed after five to seven days' incubation regularly revealed large numbers of these bodies intracellular in the walls of small blood vessels. There was also well marked parallelism between the numerical frequency of the bodies in the supernatant fluid of these cultures and their numbers in the brain or kidney tissue. In other words, after from five to seven days' incubation, the bodies were found with ease in the sections, and simultaneous with their numerical increase in the tissue, they appeared in large numbers in the supernatant fluid of the cultures. Thereafter, they continued to increase in numbers in both sites up to the tenth day of incubation.

Immunity.—In known typhus immune guinea-pigs, injection of these organisms failed to produce any rise in temperature. Cultures similarly and simultaneously injected into normal control guinea-pigs produced typical temperature curves after the characteristic period of incubation. The blood of animals during the febrile reaction caused by these bodies failed to produce any rise of temperature in known typhus immune guinea-pigs—although typical temperature curves were produced in normal control animals.

A study of the reverse condition—as to whether the febrile disease produced in guinea-pigs by the inoculation of culture material in turn confers an immunity to typhus fever virus—is in progress. Sufficient experiments on which to base a conclusion have been delayed by an intercurrent laboratory epidemic.

RELATION OF THESE BODIES TO THE PLOTZ ORGANISM

The bodies cultivated by these methods differ in morphology from the bacillus of Plotz in that they are even more minute, of slightly hazy outline, and do not assume polymorphous involution forms. With Giemsa stain, the bodies always take a ruby red color, they are not stained by Gram's method, and are stainable with ordinary anilin dyes only with considerable difficulty. In very early blood cultures and under certain environmental conditions, the Plotz bacillus may also be decolorized by Gram's method, and it may then occasionally stain red with Giemsa stain; but even under these circumstances it is easily stained with the common anilin dyes.

Differences of more importance are the variations in cultural characteristics. It has thus far been impossible to grow the bodies on a solid medium, such as Veillon's ascitic fluid glucose agar, a medium on which the bacillus of Plotz grows readily. Attempts at conversion of one form into the other by cultural means have been unsuccessful. Furthermore, in a glucose ascitic fluid medium, no acid is formed, although the Plotz organism under similar conditions rapidly produces an intense acidification. Lastly, in contrast to the numerical infrequency with which the Plotz bacillus was encountered in Veillon blood cultures, it is significant that, with the technic described, the bodies could be consistently recovered from a few drops of blood.

We therefore conclude that the bodies which we have cultured are quite different from the Plotz organism; but what rôle the Plotz bacillus plays in the disease and what relationship, if any, it bears to these bodies is still to be ascertained and will be the subject of further investigation. This study seems especially desirable in view of the fact that Olitsky, Denzer and Husk cultivated the Plotz bacillus from typhus infected lice.

RELATIONSHIP TO RICKETTSIA

Concerning the question as to the identity of the bodies with Rickettsia prowazeki, no definite decision is as yet permissible. Morphologically and tinctorially, the two bodies are probably indistinguishable. The best evidence is the presence of these bodies intracellular in the walls of vessels in the brain and other tissues, sites in which Rickettsia are found, and their increase in numbers at these sites when the tissues are incubated in appropriate culture mediums.

NATURE OF THE BODIES

Whether the bodies are of bacterial or of protozoan nature we have not as yet been able to decide. They usually present a more or less coccobacillary appearance. Their resistance to staining with the ordinary anilin dyes would indicate, however, that we are dealing with an unusual type of organism. The red coloration with Giemsa stain is similarly suggestive, but probably less important. The action of saponin in inhibiting the growth of cultures and destroying their virulence would suggest the possibility of a protozoan nature. The evidence at our disposal is as yet insufficient for a definite opinion.

The detailed protocols of the work on which the above observations are based will be included in subsequent publications.

Clinical Notes, Suggestions, and New Instruments

A NEW SIGN FOR THE DIAGNOSIS OF PERICARDITIS WITH EFFUSION IN CHILDREN *

SIDNEY V. HAAS, M.D., NEW YORK

The presence or the signs of a preexisting pericarditis is found in about 4 per cent. of children coming to necropsy. When it is remembered that many patients recover, leaving no trace of the disease, the frequency of this condition in childhood may be appreciated. Pericarditis with effusion is extremely difficult of diagnosis after the fluid has collected, the condition being usually mistaken for cardiac dilatation or hypertrophy.

The roentgen ray has been of material assistance in reducing the number of errors. It is only in very recent times, however, that a roentgenologist would make a diagnosis of pericardial effusion in the absence of an obliterated cardiohepatic angle, although it is now generally known that, roentgenologically, obliteration of this angle is uncommon.

The physical signs of pericarditis with effusion almost parallel the physical signs of cardiac dilatation, the obliteration of the cardiohepatic angle on percussion in the former being an important differential point.

There is usually small difficulty in cases observed from the outset in which typical pericardial friction sounds disappear under observation, with obscuration of heart sounds, the area of cardiac dullness increasing meanwhile from day to day. But when the effusion already exists, a correct diagnosis is most difficult. Any method of examination which can increase

* In the few cases among adults in which this sign was tried, it has been found present.

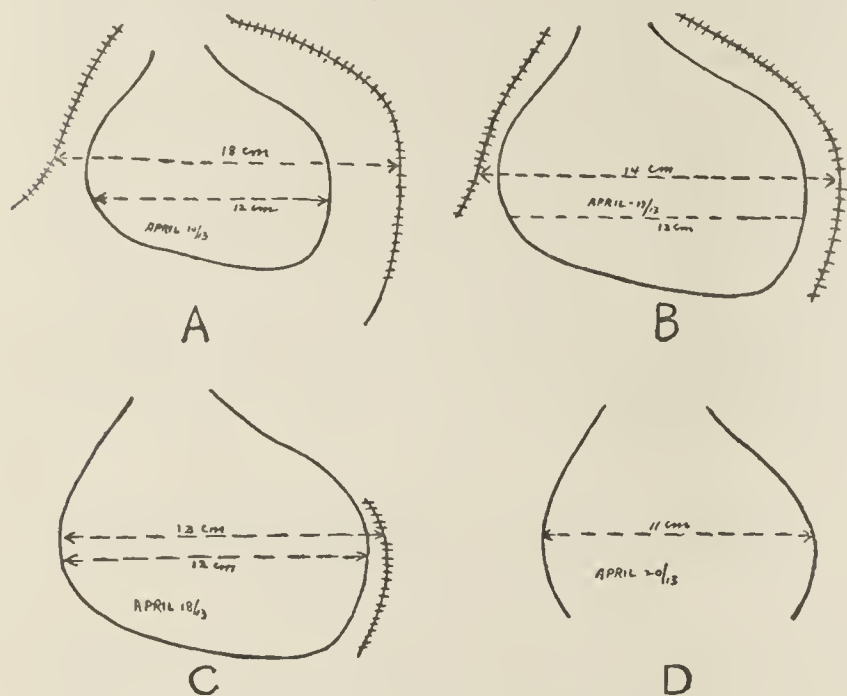
the frequency of a correct diagnosis is therefore much to be desired.

The sign here described was first observed by me more than ten years ago, and since then has repeatedly proved to be reliable. It consists of two lines of dulness to be found in the cardiac area; an outer line to the right and left of the cardiac area, obtained by the lightest possible direct percussion, as usually practiced, which for purposes of description will be referred to as the pericardiac lines, and an inner line roughly paralleling these but obtained by auscultatory percussion or stroking, which will be referred to as the cardiac line.

DESCRIPTION OF METHOD

1. The cardiac dulness is outlined in the usual manner, the lightest possible stroke being used, percussion being made from the periphery toward the heart. This line is marked out on the chest wall with pencil. Two lines are thus obtained, one at the left, the other at the right of the cardiac area (the pericardiac lines).

2. The bell of the stethoscope is then placed against the chest wall at approximately the center of this area, and light stroking or tapping with the tip of a finger or pencil from the periphery toward the stethoscope will reveal a second line within the first lines, roughly paralleling these, differing, however, in this, that they form a figure roughly heart shaped (the cardiac line).



A, April 14: cardiac and pericardiac lines at height of effusion as they appeared on the chest wall; B, April 17: no change in cardiac lines, whereas pericardiac lines are contracted 4 cm.; C, April 18: no change in cardiac lines; pericardiac line found only at left border 1 cm. out; D, April 20: no double line.

Repetition of this procedure usually shows a change in the outer lines from day to day in the direction either of extension or of contraction, whereas the inner lines remain more or less constant. There are several disturbing factors, the most important being the persistence of a double line at the left border of the heart in some cases, or the existence of such a line when pericardial effusion can be excluded. The only explanation thus far offered is that the exterior line in this instance represents the lateral aspect of the heart, the interior line the anterior aspect. When a double line is found only at the left border, the sign is void and has no diagnostic value. Whether the interior, or cardiac, line represents the exact size of the heart or only that portion uncovered by the lungs is uncertain. It would seem, however, to represent that portion of the heart uncovered or only thinly covered by the effusion or lung. I am well aware that auscultatory percussion, as practiced and lauded by such advocates of the method as Bianchi, Bisch and Auprecht, is considered absolutely unreliable by many, notably Grote, who asserts that a double contour is readily obtainable in outlining the heart. When it is possible to obtain this double contour on the right as well as on the left borders, the diagnosis of pericarditis with effusion is justifiable. I have never seen a case susceptible

of adequate proof in which such an effusion did not exist. It has never been present when pericarditis could be ruled out.

CRITERIA

The following criteria are offered in support of the value of this sign:

1. Fluoroscopic examination, which shows the cardiac shadow approximating the interior line.
2. The entire shadow approximating the pericardiac line.
3. Very little change in the interior, or cardiac, line as the patient improves, whereas the exterior, or pericardiac, line changes very rapidly until finally the exterior and interior lines coincide.
4. As the effusion subsides, greater distinctness of the cardiac sounds at the points where they might be expected to be heard if the cardiac line was a true one.
5. Withdrawal of effused fluid by aspiration.
6. In well marked cases, change in direction and relationship of the lines on change in posture.
7. Postmortem examination.
8. The usual classical symptoms of the disease.

USE OF THE SIGN

The accompanying semidiagrammatic illustrations demonstrate approximately the lines referred to at different stages of the disease. The measurements are those taken from a case.

Since use was made of this sign, pericarditis with effusion has become a very frequent condition in the pediatric service of Lebanon Hospital, and dependence is placed on it by those members of the staff familiar with it.

This study was carried out with but scant recourse to postmortem examination, since most cases terminated in recovery, and among those who died necropsy was permitted only in a few.

This method of examination has proved to be of the greatest value in the diagnosis of pericarditis with effusion, a condition often overlooked, and it is to be hoped that further study may be undertaken by others, with larger opportunities for postmortem examination, that its final status may be determined.

666 West End Avenue.

SUGGESTION FOR THE AVOIDANCE OF THE WASSERMANN-FAST STATE IN THE TREATMENT OF CHRONIC SYPHILIS

ARCHIBALD McNEIL, M.D., NEW YORK

Ever since a permanently negative Wassermann test has been considered a necessary requisite before a case of syphilis can be considered as cured, the status of the "Wassermann-fast" case has caused no little doubt and anxiety. The following statements, which refer to old cases of syphilis, deal with the early detection of the development of the Wassermann-fast state, its probable cause and significance, and the means of its prevention.

By using a modification of the usual technic of the routine Wassermann test, it is possible to measure in number of complement-binding units the power of any positive serum to bind complement and to demonstrate the effect any drug may have on this power. Briefly, the modification of technic consists in a very exact method of standardizing the complement and in the use of serial dilutions of the serum to be tested so that the result of each dilution differs from that of the preceding by just one plus. By this means it is possible to make a series of titrations of the same serum, using different hemolytic systems, with practically uniform results. The full description of the modification by which the number of complement-binding units in a serum may be determined has been published elsewhere¹; the clinical details showing the value of the titrated Wassermann test in the treatment of chronic as well as acute cases of syphilis are reserved for future publication.

When the number of complement-binding units in the serum of a patient remains stationary under intensive treatment or

1. McNeil, Archibald: J. Lab. & Clin. Med., November, 1921, p. 109.

is increased, it would seem safe to conclude that the spirochetes have become immune to the drug or drugs that are being administered; the patient, in other words, is "Wassermann-fast" and will remain so until the treatment is changed to a more effective one. The serum of such a patient may have a complement-binding power equivalent to forty or more plus, which means that if the serum is diluted ten or more times with salt solution, the routine Wassermann test still gives a ++++ reaction. While the treatment continues effective, the serum of such a patient will give a more or less rapid decrease in the number of complement-binding units; but as soon as the spirochetes become immune to the treatment, the number of complement-binding units for a while may remain practically stationary, and if the treatment is continued, the number of units may increase to almost the same extent as if no treatment whatever was given. When the treatment is changed, however, the spirochetes may again be attacked, and the number of complement-binding units usually show a decrease after each treatment until the spirochetes, according to the theory, again become immune to the drug that is being given.

Up to the present time my experience indicates that when the complement-binding units of the serum show no further decrease after three successive treatments, the case is "Wassermann-fast" so far as that form of treatment is concerned. It seems, furthermore, that a prolonged treatment with any single drug or combination of drugs is likely to result eventually in the establishment of this resistant state, thus causing injury to the patient and a serious loss of time in effective treatment. As the number of therapeutic agents that affect the spirochetes are few, it would seem wiser to administer only one at a time so that when the spirochetes become immune to one it may be replaced by another drug to which they are not immune. This enables the physician to wage a constant warfare on spirochetes and adds greatly to the possibilities of curing the patient.

18 East Forty-First Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

POTASSIUM MERCURIC IODIDE.—Potassii Hydrargyri Iodidum.—A complex salt, K_2HgI_4 , formed by the interaction of one molecule of mercuric iodide with two molecules of potassium iodide and containing about 25.5 per cent. of mercury.

Actions and Uses.—Potassium Mercuric Iodide is used for the same purposes as mercuric iodide, over which it has some advantages because of its solubility. As a germicide it is effective as it does not coagulate albumin; however, there seems to be no work to show how much the activity is decreased when an excess of potassium iodide is present. In comparison with mercuric chloride it is claimed to have a greater safety factor: Weight for weight, potassium mercuric iodide is about one half as toxic as mercuric chloride according to animal experiments; in proportion to the mercury content, however, potassium mercuric iodide and mercuric chloride possess about the same toxicity.

Externally, potassium mercuric iodide is used for skin disinfection, irrigations, disinfection of instruments, and of excreta and discharges.

Dosage.—As a germicide it is used in concentrations of 1:100 to 1:10,000. For irrigation of wounds, it is desirable to render the solution isotonic by addition of 0.9 per cent. sodium chloride. Solutions of potassium mercuric iodide may be prepared:

(1) By dissolving 1 part by weight of mercuric iodide and 1 part by weight of potassium iodide in a small amount of water and then diluting to proper strength; such a solution

will contain about 20 per cent. excess of potassium iodide, sufficient to prevent precipitation of mercuric iodide from dilute solutions of the complex salt. (1 Gm. mercuric iodide is equivalent to 1.7 Gm. potassium mercuric iodide.)

(2) By dissolving potassium mercuric iodide in water containing potassium iodide. Solutions made from potassium mercuric iodide alone have a tendency to decompose with precipitation of mercuric iodide; hence it is necessary to have present an excess of potassium iodide equivalent to about 20 per cent. by weight of the amount of potassium mercuric iodide used.

Potassium mercuric iodide occurs as yellow crystals, deliquescent in air. It is soluble in alcohol and in potassium iodide solution. It yields a clear solution with one part of water. When the solution is diluted with much water, mercuric iodide precipitates slowly; but if one fifth of its weight of potassium iodide is previously added to the salt or its concentrated solution, no mercuric iodide separates on its dilution. Its aqueous solution is slightly alkaline to litmus. When the salt is heated in a test tube to the point of fusion, it becomes red, but on cooling again assumes a yellow color; at higher temperatures, there is volatilization of mercuric iodide.

Treat about 0.2 Gm. of potassium mercuric iodide with 1 Cc. of water, add 1 Cc. of chloroform and 0.5 Cc. of ferric chloride solution; the chloroform shows the characteristic color of iodine. Treat about 0.1 Gm. of the salt with 2 Cc. of sodium hydroxide solution, and add a few drops of formaldehyde solution; a black precipitate of metallic mercury is produced.

Potassium mercuric iodide loses not more than 4 per cent. of its weight when dried in a hot air oven at 120 C. for four hours.

Transfer about 1.5 Gm. of potassium mercuric iodide, accurately weighed, to a 100 Cc. volumetric flask, and dissolve in 1.5 Cc. of water, then dilute to 100 Cc. Pipette immediately 10 Cc. of the solution into a glass stoppered 250 Cc. bottle, add 35 Cc. of hydrochloric acid and 5 Cc. of chloroform. Titrate the solution with tenth normal potassium iodate (10.701 Gm. in 1,000 Cc.), stoppering the bottle and shaking the contents well after each addition. The reaction is carried on until the iodine which was first liberated disappears, and the chloroform shows no pink color. The iodine content, calculated to the dry salt, is not less than 63.4 per cent. nor more than 65.5 per cent.

Dissolve about 2.5 Gm. of potassium mercuric iodide, accurately weighed, in about 10 Cc. of water, and add sufficient potassium iodide solution to prevent precipitation of mercuric iodide. Introduce the solution and washings into a cathode cup, previously weighed with its metallic mercury, and add 10 Cc. of sodium hydroxide solution, 20 per cent. Pass through the solution an electric current, gradually increasing the current so that at the end of eight minutes it will be 2 to 3 amperes and 7 to 10 volts, stirring the solution by rotating the anode about 500 revolutions per minute. After forty minutes, wash with distilled water, with the aid of a siphon and without interrupting the current until the current drops to zero. Remove the cathode cup and allow it to stand with 20 Cc. of acetic acid solution, 3 per cent., until bubbles cease to be evolved. Wash the mercury with water, and then alcohol; remove most of the excess alcohol by filter paper, then dry in a desiccator over potassium hydroxide sticks and a beaker of mercury. The increase in the weight in the cathode cup represents the amount of mercury present in the quantity of the salt taken. The mercury content of potassium mercuric iodide, calculated to the dry salt, is not less than 25.0 per cent., nor more than 26.0 per cent.

Mercury and Potassium Iodide-P. W. R.—A brand of potassium mercuric iodide-N. N. R.

Manufactured by Powers-Weightman-Rosengarten Company, Philadelphia. No U. S. patent or trademark.

DIPHTHERIA ANTITOXIN-TOXIN MIXTURE (See New and Nonofficial Remedies, 1921, p. 282).

E. R. Squibb & Sons, New York.

Diphtheria Toxin-Antitoxin Mixture-Squibb.—Each cubic centimeter of the mixture represents 3 L+ doses of diphtheria toxin and three units of diphtheria antitoxin. The mixture is tested until 5 Cc., when injected into guinea-pigs weighing about 300 gm., will cause paralysis in from twelve to twenty days, whereas 1 Cc., when injected into several guinea-pigs, does not cause acute death. It is marketed in packages of three 1 Cc. ampules, representing one complete immunizing treatment; also in packages of thirty 1 Cc. ampules, representing ten complete treatments.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1921, p. 323).

E. R. Squibb & Sons, New York.

Diphtheria Immunity Test (Schick Test)-Squibb.—Marketed in packages of one vial, containing diphtheria toxin sufficient for ten tests, accompanied by a vial of the required amount of sterile diluent; also in packages of one vial containing diphtheria toxin sufficient for 100 tests, accompanied by a vial of the required amount of sterile diluent.

CYPRESS OIL (See New and Nonofficial Remedies, 1921, p. 95).

Oil of Cypress-Schimmel and Co.—A brand of cypress oil-N. N. R.

Manufactured by Schimmel and Co., Miltitz, near Leipzig, Germany (Fritzsche Bros., New York, distributor). No U. S. patent or trademark.

BISMUTH TRIBROMPHENATE (See New and Nonofficial Remedies, 1921, p. 71).

Xeroform-S. and G.—A brand of bismuth tribromphenate-N. N. R.

Marketed by Schering and Glatz, Inc., New York. No U. S. patent or trademark.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address : : : "Medic, Chicago"

Subscription price : : : : : Six dollars per annum in advance

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SATURDAY, DECEMBER 17, 1921

A remittance slip for subscriptions and fellowship dues for 1922 is enclosed in this issue of THE JOURNAL. This plan, which has now been in effect for several years, means a large saving to the Association in postage and clerical work. Fellows and subscribers who desire to aid should fill out the slip promptly and return at once with check or money order. Similar slips will be found in the January issues of the special journals published by the Association.

SHALL THE CALORIES BE FORGOTTEN?

During the World War, at a time when the food supply of every nation presented many pressing problems closely involving the welfare of its people, and when it became quite customary to speak in terms of millions of calories of foodstuffs as well as millions of rounds of munitions, an American humorist said: "After all, we eat food and not calories!" This facetious remark was widely quoted and doubtless provoked a variety of trains of thought in the minds of the different persons who heard it. The world was undergoing a great experiment in nutrition on a scale never before witnessed. While thrones were tottering and kingdoms were being obliterated, millions of persons were being compelled to change their customary diets and to subsist on a greatly decreased food intake. The rations continued to be reduced from month to month until the allotted daily quota per person in Austria, for example, fell from 1,800 calories to 1,000 calories, and finally even to 800 food fuel units. At this time supplementary food was purchasable only with the greatest difficulty and at extreme prices if at all—and yet people continued to live. There were reports that some of the sick, notably diabetic patients and victims of certain gastro-intestinal disorders, were improving in health. Little wonder, then, that thoughtful persons should ask whether the nutrition standards of the physiologists since the days when Voit preached the doctrine of 3,000 calories a day for the average man were false. Had the civilized world been enjoying an orgy of food during the past generation? Had peace and prosperity

induced a "luxus consumption" of nutriment? Was the headliner correct when he announced that "calories have killed more persons than has disease"?

The world-wide experiment has progressed to a stage at which it is already possible to evaluate some of the results and to determine whether the slogan of a return to the simple life should include an appeal for a reform of conventional standards of nutrition. A survey of the nutritional customs of the diverse nations of the earth leads to the conclusion that, despite the wide variations in climate and in economic and agricultural conditions under which they exist, they nevertheless manifest a surprising similarity in consumption of the fundamental nutrients. It is difficult to escape the conviction that mankind seeks food in appropriate amounts in response to a well-defined instinct which Rubner once designated as "Nahrungstrieb." Statistics demonstrate that, where some freedom of choice exists, the daily intake of the "average" man, whether he be a native of England, Japan, Russia, France, Germany, Italy or America, approximates 2,700 calories. Nutritional surveys have demonstrated that in times of plenty, at least, the data of food intake are almost identical in the case of inhabitants of Rome and Helsingfors, of Boston and Berlin.

Some one will naturally inquire: Does not enforced decrease in food consumption increase the availability of the less abundant ration? Numerous investigations in the Central Empires have shown that this is not the case. There is no evidence for an adjustment of the alimentary tract of man to secure a better utilization of war-time dietaries, many of which were uncomfortably abundant in cellulose and similar indigestible components. The war has not converted man into a successful herbivorous animal; on the contrary, according to many medical reports, the enforced intake of bulky plant products caused much gastro-intestinal distress. Nor did increased mastication enhance the availability of the nutrients. The laws of the conservation of matter and energy have remained unchanged. A noteworthy reduction in food intake has been followed by a compensatory loss of body tissues and by reduction in working efficiency. *Ex nihilo nihil fit!* Hence Professor Durig has recently reminded an audience of physicians in Vienna that the accepted standards of nutrition should not be abandoned; for every experience of the last few years points to their wisdom. The customary food habits of the world represent an optimum which we must not juggle. The experiences of the war, Durig said, have taught clearly that departure from these norms leads to undernutrition and its consequences, from which neither enhanced digestion nor mastication nor any panacea can furnish protection. The same story is echoed throughout Europe.

In these comments there is a lesson which looks to the future. The nutritive needs—the caloric require-

ments—of children have not usually been appropriately recognized in the past. It is now beyond dispute that during adolescence the needs of children of both sexes may exceed by nearly 1,000 calories a day for each person the requirements of the adult man or woman of moderate activity.¹ At the age of 1 year the average caloric requirement approximates 100 calories per kilogram ($2\frac{1}{5}$ pounds), falling to about 80 calories at the age of 6 and continuing at this value until the tenth year. There it remains until growth is complete, when the adult standard of about 44 calories per kilogram suffices. Holt and Fales² have also found that the average amount of protein taken in the usual mixed diet by more than 100 healthy children ranged from 44 gm. ($1\frac{1}{2}$ ounces) daily in the second year to 130 gm. ($4\frac{1}{2}$ ounces) daily in the fifteenth year. The latter figure exceeds the average adult need, and obviously should do so, since adults require protein for maintenance only. The amount of protein per kilogram of body weight taken by these children averaged about 4 gm. ($61\frac{3}{4}$ grains) at 1 year, diminished to about 2.6 gm. (40 grains) at 6 years, and remained at about this value until the end of growth. So long as we preach the doctrine of *mens sana in corpore sano*, we must not skimp the food allowance of the coming generation. History now in the making is teaching what underfeeding may result in.

FACTORS IN WOUND HEALING

The healing of wounds after injury involves the regeneration of certain tissues. In this process there is a resumption of the proliferation of cells. It requires little argument to indicate the importance of knowing what factors are concerned in the regeneration processes, for they involve the facility with which repair may go on in the organism and the speed with which the healing can be accomplished. Any study of the cicatrization of wounds is, therefore, something more than the consideration of a mere academic question. Carrel³ has pointed out that the resumption of cell proliferation in wounded tissues may be attributed, as Welch⁴ suggested long ago, to the removal of resistance to growth, in consequence of the defect resulting from loss of tissues. In other words, he writes, "the removal of the products of growth, that is, of a portion of the tissues, immediately reinaugurates the growth process, just as the removal of the products of a balanced chemical reaction at equilibrium immediately reinitiates the forward reaction." This means that regeneration, being a direct consequence of the injury, is started by forces within the organism.

This is not the only hypothesis, however, which will account for wound repair. It is equally conceivable and logical that external factors may promote or initiate the cicatrization phenomena. On this view the cells would be directly stimulated to growth and multiplication by forces outside the organism, acting on tissues deprived by injury of their natural protection. In experimental investigation of the problem at the Rockefeller Institute for Medical Research, Carrel has tested the first hypothesis by watching the progress of repair in wounds protected against all external irritation. He found that as long as the wounds were protected by a connective tissue dressing against mechanical, chemical and bacterial irritations, no evidence of cicatrization was found. Admitting uncertainty whether cicatrization could be prevented for an indefinite period, Carrel believes there is no doubt that the mechanism of regeneration is not set in motion at the usual time, when all external irritations are suppressed. It appears, he adds, that, under ordinary conditions, cicatrization is not initiated by an internal factor.

On the other hand, the local application of certain irritants, such as turpentine, or the presence of bacteria tends to reduce the initial delay in wound repair—the latent period of regeneration. We are reminded that a small wound will begin to cicatrize sooner if slightly infected, as practically always happens, than if it were thoroughly protected by a nonirritating dressing. Perhaps Carrel is correct in believing that the mechanism of regeneration has become adapted to the ordinary conditions of life where infection or irritation of wounds is likely to occur. In any event, he is presumably justified in the conclusion that regeneration apparently is initiated, not by internal, but by external factors.

THE EFFECTS OF UNDERNOURISHMENT

Graham Lusk¹ has recently painted a vivid picture of the effects of undernourishment on the people of the central powers during the period of blockade. As he says, most of the food difficulties occurred in middle class families, among such persons as teachers, business people and pensioners, who could not demand and receive the enormous pay of common laborers. It is to be recognized, however, that the laborers need more food than those of sedentary occupation, and the first result of insufficient diet, according to Rubner, is a decrease in the efficiency of labor. Nevertheless, the people of less vigorous occupation show also marked effects, and the usual muscular activity necessary to maintain health is avoided because of a sensation of fatigue. Those who have been in undernourished communities recognize the situation especially by the fact that the children do not care to play, but are as inac-

1. Holt, L. E., and Fales, Helen L.: The Food Requirements of Children, I, The Total Caloric Requirements, Am. J. Dis. Child. **21**: 1 (Jan.) 1921.

2. Holt, L. E., and Fales, Helen L.: The Food Requirements of Children, II, The Protein Requirement, Am. J. Dis. Child. **22**: 371 (Oct.) 1921.

3. Carrel, Alexis: Cicatrization of Wounds, XII, Factors Initiating Regeneration, J. Exper. Med. **34**: 425 (Nov.) 1921.

4. Welch, W. H.: Science **5**: 813, 1897.

1. Lusk, Graham: The Physiological Effects of Undernutrition. Phys. Rev. **1**: 523, 1921.

tive as elderly rheumatics; the chief reward of the relief workers is the sight of the children resuming their play after a few days of adequate diet. Even mental activity shows a corresponding depression. Lusk says: "The love of accomplishment, the power of performance, the note of personal initiative are absent, which impulses under ordinary conditions increase the assimilation of food and favor muscular energy. As the mind becomes depressed, muscular movements become slow and listless. It is related that a distinguished mathematician of Leipzig, in order to conserve his food requirement, remained in bed most of the day, doing his intellectual work while in bed." Zuntz and Loewy, who for years have been among the leading German students of nutrition, had the opportunity to follow their own metabolism from its prewar figures through the steps of emaciation until they had lost, respectively, 13 and 22 per cent. of their weight.

The recent hectic period of study of nutrition, with particular reference to the vitamins, has not limited itself to consideration of human beings, or even of animal organisms, but even unicellular forms have had their nourishment needs carefully considered. It has been found that yeasts and bacteria need their vitamins as much as any one else; and although they may be able to get along with simple food supplies of limited variety, yet there are certain conditions that must be met, or a famine district arises in the bacterial community. It is interesting to learn that bacteria subjected to protracted undernourishment behave in quite the same way as German professors or Russian children. Braun² has studied this subject at length, and tells us that proteus bacilli grown on a medium defective in nutrition also show a disinclination to wander over the surface of the medium, or to swim about in the hanging drop, and shortly they are seen to have lost their organs of locomotion, the flagella, as being the least vital part of their structure. As new generations of bacilli grow under famine conditions they are seen to be smaller and smaller, stunted forms more like cocci than like the well formed proteus bacillus. With the reduction in the size of each organism the ratio of surface to mass becomes increased, and so each individual becomes more capable of securing under competition adequate food from the impoverished rations. This recalls the statement of Gibbon and Ferguson that the children of Vienna between 2 and 3 years of age were 26.5 per cent. under normal average weight and 13.6 per cent. under the normal average height. Braun found that his emaciated bacilli, if grown for thirty generations on a starvation ration and then transferred to an adequate diet, continued for some time to produce stunted forms without flagella, only gradually returning to the normal proteus structure. It is fortunate that the war famine did not last for thirty generations. Even the Thirty Years' War did not produce a race of

dwarfs, and we may hope that the effects of the three years of short rations in Europe will not produce permanent changes in the stature of the population.

Current Comment

QUESTIONNAIRE ON ALCOHOL AS A THERAPEUTIC AGENT

Up to the time of going to press more than 30,000 of the 54,200 questionnaires on the use of alcohol have been returned. The returns now cover all the states, in many of which there have been 60 to 70 per cent. of response. As may be conceived, checking and analyzing these replies involve a large amount of work by a considerable number of people. The interest of the medical profession aroused by the questionnaire is perhaps greater than that excited by any question on which the medical profession has been asked to act in recent years. Numerous lay periodicals have commented on the matter and await announcement of the result. The feeling of many physicians on this question is evidenced by their extensive comments on the questionnaire; this has to some extent complicated and delayed the tabulation. The material is of great economic importance not only to the medical profession but to the country at large.

STAMPING OUT TRACHOMA IN SOUTHERN ILLINOIS

The present tendency in the public health field is to utilize and coordinate existing agencies rather than create new and independent ones. A practical demonstration of this method has recently been made through the efforts of the Illinois Society for the Prevention of Blindness. It has been known for at least two generations that there is an unusual amount of trachoma in southern Illinois. The wide distribution of the disease has heretofore discouraged any organized efforts to control it. A definite program participated in by a number of state wide organizations, such as the state departments of public welfare and public health, the medical department of the state university, and the Red Cross, provided the necessary personnel for intensive work in five counties. In each county, the plans were first presented to the local organizations, including the county medical society, the city, township, and county church and school authorities, the business men and women's clubs, Rotary clubs, local branches of the Y. M. C. A. and Salvation Army, and the local Red Cross chapters. Twenty thousand schoolchildren in fifty schools in twenty-five towns were examined. Two per cent., or approximately 400, were found to have trachoma. These children were referred to their local physicians for treatment. In case the county medical society so desired, clinics, either diagnostic or remedial, were established. Medical and operative care and follow-up work were arranged for in a large number of cases, before blindness had resulted. The report, recently issued, shows that trachoma is as widespread in the country districts as in the towns, that it is as prevalent

2. Braun, H.: Ueber die Wirkung der Unternahrung auf Bakterien, Ztschr. f. allg. Phys. 19:1, 1921.

among the natives as among immigrants, and that it existed before the influx of foreign born people to the Illinois coal fields began. The cost of this disease to the public has been enormous. In one county, one eleventh of the entire tax income of the county was expended in pensions to the blind, and 60 per cent. of such blindness was due to trachoma. The report is a demonstration of what can be done by coordinating existing agencies for the practical control of preventable diseases.

RÁZÍ (RHAZES), THE GREAT PERSIAN PHYSICIAN

In his Fitzpatrick Lectures at the College of Physicians in London, Edward G. Browne,¹ professor of Arabic in the University of Cambridge, presents interestingly what is known about Rázi, better known to us as Rhazes, the name given him by medieval Latinists. He was the greatest and most original of the moslem physicians and, although the chronology of his life is uncertain, his death being placed by some in the beginning of the tenth century, while others associate him with a ruler who reigned from A. D. 949 to 982, the number of seemingly trustworthy details about him that have come down to us is remarkable. He was born at Ray, one of the most ancient Persian cities, and in his early life he was interested first in music and later in philosophy before he took up medicine. He was chief physician to the hospital at Ray, and attended regularly with his pupils and their pupils, the latter acting as clinical clerks. Later he became physician-in-chief to the hospital in Bagdad, in regard to the foundation of which he was consulted. Asked to select the most suitable site, he caused pieces of meat to be hung up in different parts of the city, and chose for the site that part where signs of decomposition of the meat developed most slowly. All accounts appear to agree that toward the end of his life he became blind from cataract and refused operation because he did not wish to see any more of a world of which he was tired. One story gives the cause of the cataract as a blow on the head by a wealthy patron who became enraged at Rázi's refusal to make gold for him; but the cause is ascribed also to eating too many beans, of which he was very fond. No less than 113 major and twenty-eight minor medical writings are credited to Rázi, most of them now lost. His best known work is the monograph on smallpox and measles, first translated from Arabic into Latin in 1565 and into English (Sydenham Society) in 1848. This pioneer contribution to our knowledge of infectious diseases will ever be an ornament to Arabian medical literature, and "shows us Rhazes as a conscientious practitioner, almost free from dogmatic prejudices, following in the footsteps of Hippocrates." Another monograph on stone in the bladder and kidney has been published in the original with a French translation, and German translations have been made of other tracts by Rázi, notably his entertaining discussion of the success of charlatans and quacks in securing a degree of popularity often denied properly qualified physicians. Of Rázi's general works on medicine, Brown emphasizes especially the Hawi, which was compiled after his death by his pupils from unfinished notes and papers. These works, in which

his power as a clinical observer stands forth, constitute "the most repaying field to which the Arabic scholar interested in medicine can devote himself." In certain Arabic collections of anecdotes occur accounts of some of Rázi's celebrated and sensational cases, in some of which his skill as a psychotherapist is illustrated. Ibn Abi Usaybiá in his "Classes of Physicians," compiled in 1245 and published in Cairo in 1882, says of Rázi:

There are many accounts and various valuable observations by ar-Rázi as to what he achieved by his skill in the art of medicine, his unique attainments in the healing of the sick, his deduction of their condition through his skill in prognosis, and the information which he gave as to their symptoms and treatment, unto the like of which but few physicians have attained. He has many narratives of what fell within his experience in these and like matters, which are contained in many of his works.

BACTERIOLOGY OF THE ADENOIDS

Since adenoids and tonsils are now being removed surgically in numerous cases, the full significance—the assumed possibilities and the actual consequences—of such a procedure must be seriously considered. Most of the evidence now offered in justification of the procedure is statistical in character; yet every thoughtful investigator must realize how many variables enter into the judgments thus formed and on what uncertain basis the deductions may often rest. Heretofore the tonsils and the pharynx in general have received most of the consideration devoted to the bacteriology of the upper respiratory passages. Recently, however, a group of investigators at the University of Illinois College of Medicine devoted their attention to the adenoids.¹ Cultures were taken from the excised adenoids to determine more definitely the flora of the nasopharynx. Pathogenic bacteria were found in every specimen. Of the more important organisms, hemolytic streptococci occurred in 61 per cent., pneumococci in 65 per cent., *B. influenzae* in 40.9 per cent., and *B. diphtheriae* in 12 per cent. Other streptococci, diphtheroids, staphylococci, gram-negative cocci, *B. mucosus-capsulatus* and *B. fusiformis* were encountered. The depths between the folds and bottoms of the cryptlike structures of the adenoids harbored hemolytic streptococci, pneumococci and *B. influenzae* in larger numbers than the epithelial surface or the nasopharyngeal swabs. The adenoids, then, like the tonsils, are to be regarded as common foci harboring dangerous micro-organisms. Although removal of the tonsils and adenoids evidently reduces the number of bacteria in the nasopharynx, according to the data of the Chicago bacteriologists it does not cause their disappearance. Examination of normal children revealed the same groups of micro-organisms in a considerable percentage; from which it may be concluded that they are a part of the usual flora of the nasopharynx—sources from which secondary infection may arise in the course of primary acute respiratory diseases and of chronic debilitating conditions.

1. Pilot, Isadore: The Bacteriology of the Adenoids, Proc. Inst. Med. Chicago 3:195, 1921. Pilot, Isadore, and Pearlman, S. J.: Bacteriologic Studies of the Upper Respiratory Passages, I, Hemolytic Streptococci of the Adenoids, J. Infect. Dis. 29:47 (July) 1921; II, The Pneumococci and Non-Hemolytic Streptococci of the Adenoids and Tonsils, ibid., p. 51; III, The Influenza Bacilli (Pfeiffer) of the Adenoids and Tonsils, ibid., p. 55. Meyer, J.; Pilot, Isadore, and Pearlman, S. J.: IV, The Incidence of Pneumococci, Hemolytic Streptococci and Influenza Bacilli (Pfeiffer) in the Nasopharynx of Tonsillectomized and Non-Tonsillectomized Children, ibid., p. 59. Pilot, Isadore: V, The Diphtheria Bacilli and Diphtheroids of the Adenoids and Tonsils, ibid., p. 62.

1. Browne, E. G.: Arabian Medicine, 1921.

Association News

CONFERENCE OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

(Continued from page 1899)

Third Meeting—Saturday Morning, November 12

The Maine Medical Association's Plan for Coordinating Health Activities in the State Association

DR. B. L. BRYANT, Bangor, Maine: In Maine we have a well organized state board of health, which has for its work an appropriation of about \$100,000 annually. There is a full-time secretary with a salary of \$4,500 a year. Next to that we have what we call the Public Health Association, which comprises all people in the state of Maine. It has at the head of it a secretary with a salary of \$6,000 a year. We have in the state practically a thousand men who are eligible for membership in the state association. We have in the state association about 800 men who pay into the association approximately \$3,000 a year. The salary of the secretary is \$100.

In the matter of legislation we are almost negligible. If we go before the legislature we are considered as looking for something for the medical profession rather than in the interest of the people.

The first thing to take up is the matter of coordination and of getting together the state association so that it will amount to something and be of some use to the state. This year we decided that we must get closer to the people of the state of Maine and be more closely identified with public health work in public health interests. We decided to carry out two forms of activity, one to increase the membership and to make the association really worth while and give a man dollar for dollar for what he puts in, and second, take up the health problems of the state. To bring the men together we took up medical defense, and this year we have taken up the matter of liability insurance. We have a good medical defense committee. We succeeded in making satisfactory arrangements so that an insurance company agreed to place 500 or more policies at a very attractive rate. In accordance with this plan, the state association is in a position to offer to each member an opportunity to save about \$16 a year on his liability insurance. This makes it worth while for men to come in on a financial basis. In addition, to help the state association, no man can get that liability insurance unless he is a member of the Maine Medical Association. If he does not pay dues, he loses liability insurance as well as membership in the association. We hope in this way to be able to bring into the association all the other eligible physicians we have in the state.

The next proposition is how to reach the people to get the state association in control, in an advisory capacity, on our health boards. As we looked over the matter we found that all health laws were put upon the statute books of the state by two of our own association members. We found them at the head of these organizations, and the idea occurred to us. Why not have a committee on public relations and put on it men active in the association? So, acting on that basis, we appointed a committee on public relations. We separated the legislative committee and made it into two committees, one on public relations and the ordinary legislative committee. On the first committee we placed the health commissioner, who is a member of the state association, the councilors who wrote the statutes of the state board of health, the president of the public health association, the editor of the journal, and the secretary of the Maine Medical Association. The teaching of medical subjects was submitted to the advisory board for advice and counsel. As a result, the program which we are putting out for the public health association includes a number of public health clinics which are to be presided over and run by the state association. A number of clinics will be given each year in the various hospitals of the state. We have held one, which was a great success, and we have a number of men from out of town.

This year, on the cancer committee we made two committees one, run by the Maine Medical Association, so that we get the name of our association circulated freely all over the state. In this way we shall get in touch with and have supervision of the medical activities of the cancer association.

In the matter of so-called community centers, we contemplate having a hospital in each community. In the eastern part of the state we have a Class A hospital. We have a large laboratory which is presided over by a medical director. We have a first class training school for nurses, and our idea is that as we are able to cooperate and coordinate all the small hospitals in the eastern part of the state we shall have control of hospital needs. We are now training technicians for these smaller hospitals.

DISCUSSION

DR. HOLMAN TAYLOR, Fort Worth, Texas (Chairman): Dr. Bryant's remarks will be discussed along with the other subjects on the program for this morning: a symposium on constituent state medical association activities. 1. The feasibility of full-time state secretaries: (a) reciprocal financial relationship between the American Medical Association and the state organizations; (b) the possibility of grouping states into districts to secure effective cooperation in legislative work, etc. 2. Field work in cooperation with the American Medical Association: (a) the councilor's place in the organization; (b) study courses in district and county societies.

In presenting this subject permit me to say that in my state the most telling work we have done has been in the solution of our financial problems. I do not know how many state associations have satisfactory arrangements for controlling their finances. We solved our financial problems early when we added Chapter VI to our by-laws, entitled "Board of Trustees." We had a hard time in adding that chapter because there were certain of those in the association who believed in a bolshevistic rather than democratic rule. However, we had the pleasure of seeing this opposition dwindle each year, so that we have been able to carry on our work more satisfactorily.

DR. OLIN WEST, Nashville, Tenn.: There has to be a public health organization, and it must be a state organization. It is just as essential that the department of health in any state shall have state authority behind it as it is that the supreme court or any other court shall have authority. There is no reason, however, why the public health department should not have the guidance and the leadership of the medical profession in that state except one, and that is the medical profession refuses to accept that leadership and neglects its obligations with respect to it. We must look the facts squarely in the face and take an inventory of ourselves and get back where we belong and meet naturally and rightfully the obligations we assumed when we became physicians. There has not been any information we have needed about medical organization that we did not get or could not get freely from the American Medical Association from its early organization down to the present time. The American Medical Association can serve the state associations just as it is serving them by compiling all possible information in the interest of the medical profession.

The operation and cooperation of the medical advertising bureau is one of the most splendid helps to state journals we have. If it were not for that bureau we would have to give up our state journal.

DR. ARTHUR T. McCORMACK, Louisville, Ky.: The discussion opened by Dr. Bryant is pregnant with possibilities. On it depends to a tremendous degree the proper solution of the future of American medicine. The trouble in the past has been that we have failed to realize our opportunities, and to accept our responsibilities. Our task is to get each one of the doctors activated, and just as soon as he becomes active in society work, we will have made progress and achieved success.

DR. GEORGE E. DE SCHWEINITZ, Philadelphia: I cannot tell you how inspiring this conference has been to me. If I live long enough to take my duties as President of the American Medical Association, I shall try not to disappoint my friends and colleagues who are present on this occasion. I ask you not to say, so far as my duties are concerned, "Let George

do it," but say rather, "Let George do his duty, but we will back him in his effort whenever we feel it is necessary." (Applause.)

DR. CHARLES W. RICHARDSON, Washington, D. C.: As a specialist, I have long since recognized the importance in undergraduate work of teaching men only that which will be serviceable to them as general practitioners. When my classes are organized, at my first lecture, I distinctly inform them that I am not teaching for the purpose of making specialists but for the purpose of making useful those things in special lines that every practitioner ought to know. I tell them that if they want to go into specialism, it is their place to find out after their graduation what particular specialty they feel inclined to follow. I tell them that the poorest specialist I know is the hand picked specialist who becomes a specialist in his undergraduate work. He has the narrowest mind that medicine can produce, and I do not intend to develop that sort of men in my work. The clinical work is entirely in confirmation of that idea. I tell them that the best all around man in medicine is a man of the Osler type.

DR. D. E. SULLIVAN, Concord, N. H.: I should like to submit one thing as a matter of record. In our state association, our committee on hospitals reported in a resolution that no hospital should be recognized unless it has a certain number of beds, and that no nurse should be recognized as a registered nurse unless she has been trained in a hospital possessing a definite number of beds. That resolution was tabled. This subject has assumed such importance that recently through the public press Dr. Mayo called attention to it, and it seems to me that it is an apt subject for this conference to consider.

DR. ARTHUR T. McCORMACK, Louisville, Ky.: I move that the attention of the editor of THE JOURNAL and the resident trustee be directed to the remarks of Dr. Richardson, and that a request be made for a series of editorials presenting these ideals to the teaching members of the profession and to the specialists.

Seconded and carried.

DR. GEORGE H. SIMMONS, Chicago, General Manager of the Association, was called on to make a few remarks. He said: Fellow workers in organization: This gathering of the executive officers of state associations is one of the greatest movements ever started for doing what we all feel we ought to do—to cooperate with you and to have you cooperate with us. This meeting has been exceptionally satisfactory to me because we have had constructive rather than destructive criticisms. Destructive criticisms are easily made, while constructive criticisms are sometimes difficult to make, but they always tend to build up. I am sure your visit here has helped us in the central office materially. Your discussions have stimulated the Board of Trustees to realize more than ever their responsibility. I am sure also that each one of you will go back home filled with enthusiasm and increased interest in your work and will be willing to make even greater sacrifices than you have already done.

The following preamble and resolutions, drafted by Dr. Holman Taylor, Texas, by unanimous vote were directed to be entered on the minutes of the conference:

WHEREAS, The now concluding Conference of Secretaries of Constituent State Medical Associations, held at the instance of the Board of Trustees of the American Medical Association and at the expense of the American Medical Association, has proved highly beneficial and most interesting, the free and frank discussion of the problems confronting the American Medical and constituent associations having been illuminating to all parties, and for that reason tending to coordination, therefore be it

Resolved, That the Conference extend to the Board of Trustees and the responsible officials of the American Medical Association the fullest measure of appreciation of the opportunities offered by the Conference, of which it is felt that full advantage has been taken; and be it further

Resolved, That the members of the Conference, individually and collectively, pledge to the Trustees of the American Medical Association and the executive officers thereof the fullest measure of cooperation in furthering the plans announced tentatively to the Conference, and relating to the welfare of the medical profession as a whole and the public it serves, and be it still further

Resolved, That the leadership of the Trustees, and the executive officers of the Association, is approved and appreciated.

Treatment of Late Syphilis.—The aim of treatment in late syphilis is to carry the infected individual through the fullness of his years, with maximum attainable efficiency and minimum danger to his contacts and to the social order.—J. H. Stokes, *Arch. Dermat. & Syph.* 4:779 (Dec.) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital News.—Fire destroyed the hospital at Greenville about midnight, December 1. It is reported that one patient is dead and two are missing.

Formation of Negro Tuberculosis Branch.—In cooperation with the Alabama Tuberculosis Association there has been formed the Negro Tuberculosis Association of Alabama, with Dr. Pierce L. Moton, president of the Tuskegee Institute, as its first director, to take care of negro tuberculosis victims in Alabama. The headquarters will be in Tuskegee, and the work will be supplemental to the field work already being done under the auspices of the Tuskegee Institute. The tuberculosis work will be financed by the Christmas seals to be sold only to negroes.

CALIFORNIA

Campaign Against Tuberculosis at Tonopah Mines.—A campaign against tuberculosis among miners at Tonopah has been launched by the leading mining companies operating in the vicinity.

Physicians Convicted.—The state board of pharmacy reports the following physicians prosecuted during the last fiscal year: Dr. David Bell, Los Angeles, arrested for prescribing, not in good faith, and fined \$100; Dr. Lawrence T. Keegan, San Diego, fined \$20 for maintaining a pharmacy without being licensed; Dr. Lawrence S. Bartlett, San Francisco, arrested for prescribing heroin for an addict and not reporting same, sentenced to six months in jail, which sentence was suspended for one year; Dr. Charles E. Brown, Fresno, fined \$100 for furnishing morphin without a prescription; Dr. Charles S. Meredith, San Gabriel, fined \$100 or sentenced to 100 days in jail for prescribing morphin not in good faith, sentence suspended.

Hospital News.—A new sixteen room pavilion consisting of open air sleeping porches and dressing rooms will be constructed at once at the California Sanatorium at Belmont. The estimated cost is \$10,437. The contracts have been placed.—Ground has been broken for the new unit of the Seaside Hospital. The addition will be ready for use in five months, and will accommodate between fifty and sixty patients, giving the hospital a capacity of 165.—The contracts have been placed for the immediate construction of an addition to be known as the physiotherapy department of the Woodland Sanatorium.—After more than a year of work devoted to the preparation of detailed plans and the raising of funds, contracts for the addition to the Pasadena Hospital have been awarded.—Casa Del Mar, in southern California, has been purchased for \$100,000, and will be converted into a hospital. With new buildings and bungalows to cost an additional \$50,000, the hospital will accommodate 100 patients.

ILLINOIS

Hospital News.—Dr. George A. Zeller, Alton, who was head of the institution for fifteen years, after an absence of eight years, has been made managing officer of the Peoria State Hospital. Dr. Ralph A. Goodner retired from the management, November 15.

Physician Fined for Liquor Prescriptions.—It is reported that Dr. Roscoe C. McCormick, Wauconda, pleaded guilty in the Lake County court to the charge of illegally prescribing intoxicating liquors without first having made a medical examination of the patient, and was fined \$100 and costs.

Chicago

Institute of Medicine Elects.—At the annual meeting of the Institute of Medicine the following officers were elected: president, Frank Billings; vice president, Thomas J. Watkins. The following officers were reelected: chairman of the board of governors, Ludvig Hektoen; secretary, Ernest E. Irons; treasurer, Joseph A. Capps.

Personal.—Dr. Benjamin Barker Beeson, Chicago, has been elected a corresponding member of the French Dermatological Society.—Dr. Emanuel Friend was struck by an auto-

mobile at Sixty-Third Street and the Illinois Central track, December 3. The injuries include a broken collar bone, fractured ribs and lacerated scalp.

INDIANA

Hospital News.—The Allen County commissioners have decided to issue bonds in the sum of \$140,000 to be used in constructing buildings and making improvements at the Irene Byron Tuberculosis Hospital, Fort Wayne.

Personal.—Dr. Charles Wardell Stiles, Washington, D. C., gave three lectures before the class in hygiene and public health in the medical department of Indiana University, Indianapolis, last week. A dinner was given for Dr. Stiles by the local medical society. Dr. Richard A. Poole, ex-coroner of Marion County, has been appointed superintendent of the City Hospital, Indianapolis.

IOWA

Physician Granted Stay of Sixty Days.—Dr. Walter A. Matthey, Davenport, who was fined \$1,000 and sentenced to serve a term of one year and a day in the federal prison at Fort Leavenworth, to begin December 3, has been granted a stay of sixty days in the execution of the order by the U. S. Circuit Court of Appeals. This delay has been granted in order that the case may be appealed to the U. S. Supreme Court.

KANSAS

Hospital News.—St. Barnabas Hospital, Salina, will be closed, following the resignation of the Sisters of Consolation from the management of the institution.

Physician Convicted.—It is reported that Dr. William A. Nixon, charged with first degree murder in connection with the killing of Arthur Banta, Great Bend, has been convicted.

MASSACHUSETTS

Cutter Lectures on Preventive Medicine.—Dr. Clemens Pirquet, professor of pediatrics, University of Vienna, will deliver two Cutter lectures on preventive medicine at the Medical School of Harvard University, Boston, December 21 and 22.

Personal.—Dr. Richard C. Cabot, professor of medicine, Harvard Medical School, Boston, delivered the sixth of a series of lectures being given under the auspices of the Lowell Institute, November 28. His subject was "Self-Deception and Self-Knowledge; Roots of Veracity."

State Association of Assistant Physicians.—The fifty-second annual meeting of the Massachusetts Association of Assistant Physicians of the State Department of Mental Diseases was held under the presidency of Dr. Ralph M. Chambers, Westboro, at the Worcester State Hospital, Worcester, December 7.

Court Ruling on Physicians.—"Mere intellectual power and scientific achievement without uprightness of character may be more harmful than ignorance" was the statement of the supreme court in overruling exceptions of Dr. Arthur A. Lawrence, Boston, who has been requested to appear before the board of registration in medicine and show cause why his certificate should not be revoked for alleged "gross misconduct in the practice of his profession." The court has dismissed his petition to have the board prohibited from requiring his presence. Dr. Lawrence claimed that as he had been a physician many years before the board came into existence, he had acquired vested rights which could not be taken from him unless he were found guilty by a jury of having committed a crime. The court held that the circumstance that the petitioner already had been registered and given a certificate to practice medicine gave him no immunity against future legislation.

MICHIGAN

Institution for Subnormal Persons.—An institution which is designed to house, employ and manage subnormal persons who are too irresponsible to care for themselves and not mentally deficient enough to send to the asylum, is planned for Detroit. It is to be called the Industrial Adjustment Center, and will be in charge of Dr. David R. Clark, psychiatrist for the receiving hospital.

MINNESOTA

County Medical Society Meeting.—At the recent annual meeting of the Clay-Becker County Medical Society, held at Moorhead, the society went on record against recom-

mending wine or beer as medicine. The following officers were elected for the ensuing year: president, Dr. Charles H. Patterson, Barnesville; vice president, Dr. Gilbert L. Gosslee, Moorhead, and secretary-treasurer, Dr. Hallward J. Thornby, Moorhead.

Personal.—Dr. H. C. Jacobæus, Stockholm, Sweden; Dr. G. Gastañeta, Lima, Peru; Dr. S. Meri, Dairen, South Manchuria, and Dr. F. A. Nyulary, Melbourne, Australia, visited the Mayo Foundation and Mayo Clinic, November 14, 15 and 16. Dr. Jacobæus, professor of internal medicine at the Medico-Chirurgical Institute of Stockholm, gave a Mayo Foundation lecture on the use of the thoracoscope, November 14.—Dr. Charles J. Rowan, professor of surgery at the University of Iowa, gave a Mayo Foundation lecture, "Causes of Failure of Operations for Chronic Appendicitis," December 6, in the Assembly Room.

NEBRASKA

Conviction of Physician.—It is reported that Dr. Leslie S. Fields, Omaha, has been convicted for performing an illegal operation on Ruth Ayer, Hayes Center, which resulted in her death.

NEW YORK

Personal.—Dr. Earl W. Fuller, senior assistant physician, Rome State School, for eleven years, resigned to accept an appointment as physician on the New York State Commission for Mental Defectives. Dr. Fuller assumed his new duties, December 1.

Summary of Outpatient Mental Clinics.—Under the direction of the state hospital commission, monthly outpatient clinics have been held in thirty-six communities throughout the state during the last fiscal year. These clinics are conducted for the benefit of paroled patients, discharged patients and others who seek advice concerning their mental condition. During the last fiscal year a total of 13,328 visits were made to these clinics. Of such visits 8,371 were made by paroled patients, 348 by discharged patients and 4,609 by persons who had never been connected with the hospital. The personnel of each clinic is furnished by the state hospital of the particular community.

Tentative Revision of Workmen's Compensation Law.—A joint legislative commission has just completed a tentative recodification and revision of the Workmen's Compensation Law of this state, copies of which will soon be distributed for study and criticism. Public hearings are to be held in New York, Albany and other places during this and next month, and the full revision is to be presented to the legislature early in February. Among numerous amendments are provisions for providing compensation for poisoning by liquids and gases, brass and zinc; also for loss of hearing in the schedule; empowering the department to allow claimants the mileage and fees for witnesses, and increasing the funeral expense allowance by \$50. A new section seeks to protect the injured employee by defining the responsibilities of independent contractors and subcontractors.

New York City

Personal.—Dr. Henry Reiter has been appointed a member of the board of examining surgeons for the Department of the Interior Bureau of Pensions, and has been assigned to duty in New York.

OHIO

Physician Injured.—Dr. George W. Beery, Lancaster, suffered five broken ribs and internal injuries, recently, when his automobile was hit by a street car.

New Officers for County Medical Society.—The Logan County Medical Society, Bellefontaine, has elected Dr. Clyde K. Stratzman as president and Dr. Malcolm L. Pratt, secretary-treasurer, for the year 1922.

Allen County Tuberculosis Clinic.—Drs. Charles S. Rockhill, Cincinnati, and Warren C. Breidenbach, Dayton, volunteered their services as diagnosticians for the Allen County Tuberculosis Clinic, held, December 6-7, at Lima. Patients attending the clinic were referred back to their own physicians, and a report of the examination by the specialist together with his recommendations was submitted to the attending physician.

OREGON

University Hospital Project Abandoned.—The project for a university hospital, at Portland, has been indefinitely postponed in the belief that most of the functions from a teach-

ing standpoint will be fulfilled by the completion of the Multnomah County Hospital. The latter hospital is in process of construction and, it is expected, will be completed about June 1, 1922.

PENNSYLVANIA

Medical Clinic for Jail.—The recent state law having made clinics in jails compulsory, a medical clinic is being established at the Northumberland County Prison, Sunbury.

Plans to Aid Tuberculous Patients.—The Henry Phipps Institute, Philadelphia, in addition to free service at the hospital, to assure early diagnosis in suspected cases of tuberculosis, has announced that the institute will issue a series of bulletins or open letters to the medical profession containing the latest knowledge of the disease. Through an arrangement with the hospital of the Eagleville Sanatorium for Consumptives, there are a few beds available to which cases can be admitted for several days' observation and study. There will be no cost for these services.

Philadelphia

Personal.—Dr. John A. Drew, Chester, was elected a trustee of the State Hospital Association at the meeting held in Harrisburg, December 7. Daniel D. Test, superintendent of the Pennsylvania Hospital, has been elected president of the State Hospital Association.

TENNESSEE

Personal.—Dr. James R. Hudson, Alexandria, has been appointed a member of the Seventh District pension board at Liberty.

Hospital News.—The Methodist Hospital at Memphis has been sold to the government for the treatment of disabled war veterans.

TEXAS

Hospital News.—An army construction hospital will be built at Jefferson Barracks, at a cost of \$2,000,000.—The first step in combating tuberculosis in eighteen states, comprising the territory of the Southern Baptists Convention, was the recent establishment, on a tract of 143 acres at El Paso, of the Southern Baptists Sanatorium. The institution is located on the side of Mount Franklin, at an altitude of 4,500 feet. Dr. H. F. Vermillion is the superintendent. In addition to this tuberculosis sanatorium, the Southern Baptists have seventeen regular hospitals in operation and seven others under course of construction. This hospital property is valued at approximately \$7,000,000.—The contract has been awarded for the construction of the East Texas Hospital for the Insane, at Rusk.

WASHINGTON

Hospital News.—Work will be started at once on the construction of a \$200,000 fireproof hospital at Olympia.

WEST VIRGINIA

Personal.—Dr. Rawley H. Powell, Fairmont, has been appointed by the governor as superintendent of State Hospital No. 3, to succeed Dr. Chesney M. Ramage, who has been head of the hospital for several years and has resigned to resume private practice.

WISCONSIN

State Board Appointments.—The governor has appointed as new members of the board of medical examiners Dr. Minnie M. Hopkins, Oconto; Dr. Jay B. Brewer, Jefferson, and Dr. Robert B. Cunningham, Cadott.

CANADA

Public Health News.—Dr. Charles J. O. Hastings, medical officer of health, Toronto, recently reported that mental surveys were made, by a specialist, of schoolchildren this year to the number of 32,886. Of these, 884 were found to be mentally defective, and 713 were recommended as cases suitable for industrial classes.—By a recent court order by Judge Denton, Toronto, all public health cases—except those laid under the Venereal Diseases Act—will be transferred to a special court for this class of case only.

Free Extension Courses in Universities.—The three provincial universities, Toronto, Western and Queens, are cooperating with the Ontario Medical Association in the latter's plan to further the education of provincial medical

men by means of extension courses, as announced recently. The province has been divided into ten sections, and at a central point in each it has been arranged to hold various courses and give lectures covering a period of six weeks in each year. The plan has taken very well with the physicians of the province, many of them traveling hundreds of miles to attend the lectures. The purpose of these courses is to keep the physician in touch with recent developments in the medical world, as practitioners in outlying districts are unable to leave their communities to attend the universities. The courses are given free.

GENERAL

Field Secretary Appointed for National Committee.—Mr. Lewis H. Carris, Washington, D. C., who for some years has been engaged in vocational education work for the government, has been appointed field secretary of the National Committee for the Prevention of Blindness.

Cumulative Index of Transactions.—The National Tuberculosis Association announces that the cumulative author and title index of the transactions of the association from 1905 to 1920 is now ready for distribution. The index will be sent free to members of the association requesting it, and sold at a low price to nonmembers.

Norwegian Medical Editor Touring United States.—Dr. F. G. Gade, editor of the *Norsk Magazin for Laegevidenskaben*, Christiania, is making a tour of the United States, visiting various medical institutions. Dr. Gade is founder of the Institute for Pathology at Bergen, Norway, some years ago presenting sufficient money for the building and maintenance of this important research institution.

Radiographical Society of North America.—At the annual meeting of the society, held, December 8-9, at Chicago, it was claimed that the two most important accomplishments in the last year were the advance of high voltage roentgen-ray apparatus and the shortening of the wave lengths of the roentgen-ray beams, thus making it possible to treat cancer internally. Dr. Russel D. Carman, Rochester, Minn., was elected president to succeed Dr. Alden Williams.

Proposed Increase of Tax on Medicinal Whisky.—Amendment of the tax law enacted at the last session of Congress to increase the levy on whisky sold for medicinal purposes from \$2.20 to \$6.40 a gallon is being proposed by Representative Green of Iowa, ranking Republican member of the House Ways and Means Committee. The increased estimate of revenue to the government would yield from \$20,000,000 to \$40,000,000 annually.

Medical Brotherhood of Missions.—Dr. John G. Vaughan, medical secretary of the board of foreign missions of the Methodist Episcopal Church, has recently organized in his church a medical brotherhood for missions, for the promotion of more direct and effective cooperation between physicians working in isolation in mission lands and their medical confrères in the United States. The president of this brotherhood is Dr. Irving S. Haynes and the secretary, Dr. Daniel S. Dougherty, both of New York City.

Bill to Give Surplus Medical Supplies to Russia.—With virtually no opposition, the Senate passed the Wadsworth bill authorizing the War Department to turn over its surplus medical supplies to the American relief administration for use in the famine districts of Russia. The measure went to the House, where it was referred to the House Military Committee. This committee promptly reported the bill favorably to the house with an amendment limiting the cost value of the supplies to \$4,000,000. Distribution of these medical supplies would be confined to the Volga basin and Russian Armenia. The House is expected to pass the measure as soon as it is taken up.

Bequests and Donations.—The following bequests and donations have recently been announced:

Medical School of Harvard University, Boston, \$200,000 to establish a fund, the income to be used to investigate the cause and cure of cancer, by the will of Hiram Francis Mills of Hingham, Mass.

Central Maine General Hospital, Lewiston, Me., the bulk of his \$100,000 estate, for the erection of a wing to the hospital, by the will of Charles Horbury of Lewiston.

Presbyterian Hospital, Philadelphia, \$50,000 for a memorial to Joseph and Anna Tomlinson, by the will of Joseph A. Tomlinson.

Lancaster General Hospital, Lancaster, Pa., \$25,000, at the death of his widow, by the will of Harry A. Schroyer.

Jefferson Hospital, Philadelphia, \$5,000 by the will of Anna C. Nice.

Mount Sinai Hospital, New York City, \$5,000; Montefiore Home and the Hebrew Orphan Asylum, each \$2,500, by the will of Mrs. Caroline Bookman.

West Philadelphia Hospital for Women, Philadelphia, \$250, by the will of Mary A. Burkhart.

Call for Conference on Narcotic Drugs.—Representative Julius Kahn, chairman of the House Committee on Military Affairs, has presented a resolution to Congress requesting the delegates to the Conference on the Limitation of Armament to call an international conference for the suppression and regulation of the commerce in drugs. This resolution was referred to the House Foreign Affairs Committee, by which a thorough investigation of the international traffic in habit-forming drugs is to be made. The investigation will be concerned principally with the enormous increase in the underground sale of drugs in the United States, including all the ramifications. The American delegation's special advisory committee on Pacific and Far Eastern questions of the Limitation of Armament Conference, has made a study of the traffic, and the results of this inquiry will be presented to the committee.

Physiotherapy Clinics for Physicians.—A two days' demonstration of physical therapeutics, open to physicians generally, will be held under the auspices of the U. S. Public Health Service. The American Electrotherapeutic Association and the New York Electrotherapeutic Society are arranging a joint midwinter clinical session, to be held December 29 and 30 at U. S. Public Health Service Hospital No. 61, at Fox Hill, Staten Island, N. Y. There will be explanation and demonstration of all physical modalities, and of the results obtained. The opening meeting with papers on "Physiotherapy in General" by Dr. Chris M. Sampson of Staten Island, and Dr. Frank B. Granger of Boston, will be held at the New York Academy of Medicine, Wednesday evening, December 28. All medical men are invited to attend, and programs and admission cards may be obtained from Dr. Richard Kovacs, 223 East Sixty-Eighth Street, New York City, without expense.

Report of Interdepartmental Social Hygiene Board.—The annual report of the United States Interdepartmental Social Hygiene Board claims that seventy-five red light districts have been closed during the past year through the cooperation of the government and the local authorities. The sum of \$2,450,000 has been apportioned among the forty-eight states by the board during the last four years, a similar sum being matched by the states, and these funds have been devoted to free arsphenamin, free treatment centers, informational publicity and repressive measures. Forty institutions, including Harvard University, Columbia, Cornell, Pennsylvania, Leland Stanford, Northwestern, Woman's Medical, Tuskegee, and thirty-three state universities and normal schools are cited as cooperating with the board in training teachers in the hygiene of these special diseases. Scientists, under the leadership of the board, the report avers, are devoting their energies to an organized campaign to better medical methods. The Social Hygiene Board has also been operating a protective service for the military forces of the government.

Appeal for Scientific Literature for Russia.—Prof. L. A. Terasevitch of the University of Moscow, in a recent letter to the Medical School of Harvard University, Boston, stated that among other privations incident to present conditions in Russia men of science have been for the last four years, deprived of the opportunity to follow the scientific literature. They are anxious to keep in touch with the advancement of science in their respective branches so as to be able to join in the work when reconstruction period arrives. Professor Terasevitch, who is particularly interested in questions concerning etiology and prevention of infectious diseases, requests those who may wish to cooperate in rehabilitation of medical sciences in Russia to send all the available literature and particularly reprints of original work on medical subjects to him, at the Moscow Scientific Institute, Sivzeff Vrajeck, 41. Dr. D. H. Dubrowsky, the representative of the Russian Red Cross in America, 47 West Forty-Second Street, New York City, will be glad to forward through the Red Cross all the literature intended for Professor Terasevitch.

Museum of Ophthalmologic and Otolaryngologic Pathology.—A plan has been outlined by the American Academy of Ophthalmology and Oto-Laryngology for the establishment of a museum in cooperation with the Army Medical Museum. The latter institution has agreed to set apart space for the display of specimens and to cooperate by sending reports to donors of specimens together with photographs, both of the gross specimens and of microscopic slides. All ophthalmologists and otolaryngologists are urged to send specimens for this collection. Specimens will be available for study by any reputable physician, and the Army Medical Museum is to prepare a pathologic exhibit for each meeting of the academy. It is suggested that specimens be sent in

wide mouth bottles prepared as follows: First, a layer of cotton is placed in the bottom of the bottle, then the specimen, and then another layer of cotton; this is covered with a 10 per cent. solution of liquor formaldehydi and allowed to stand for twenty-four hours; the excessive fluid is poured off and the bottle is corked tightly and mailed to the section on Ophthalmologic and Oto-Laryngologic Pathology of the Army Medical Museum, Washington, D. C. A clinical record of the case also should be sent. The committee is preparing a file of lantern slides, charts, moving pictures, etc., used in the courses given by the section on instruction of the academy, and this material will be made available to members for teaching purposes. The committee in charge consists of Major George R. Callender, Washington, D. C., and Drs. Harry S. Gradle and Ira Frank, Chicago.

LATIN AMERICA

Treatment of Leprosy in the Philippines.—According to a law adopted by the last Philippine legislature, 500 lepers are receiving special treatment in the Culi6n colony. Two hundred are treated with ethyl esters of chaulmoogra oil, 100 with a formula prepared by Dr. E. Mercado, fifty with sodium gynocardate and fifty with sodium morrhuate.

Infant Welfare Congress in Brazil.—The Third South American Infant Welfare Congress will be held next year in Rio de Janeiro. The committee in charge of arranging for Uruguayan participation in the congress is formed as follows: president, Dr. L. Morquio; first vice president, A. Rurene; second, Dr. J. J. Am6zaga; third, Dr. V. Sicard6 Anaya; secretaries, Drs. D. Regul6s and A. Z. Pujol; members, Dr. R. Schiaffino, E. Fournier and Miss L. Hourticou.

Antinarcotic Laws in Brazil.—A new law has been adopted in Brazil aiming to suppress the abuse of cocain, morphin and alcohol. Hereafter poisons and narcotics can be imported only after a license has been obtained from the National Department of Public Health. Such substances can be sold by druggists only on prescription of a physician or a dentist. A sanatorium is also created for the treatment of intoxications by alcohol or narcotics. Specific provisions are made as to the commitment of alcohol or drug habitu6s. The law was prepared by Dr. Galdino de Siqueira and approved by a commission presided over by the secretary of justice.

Personal.—Dr. Jorge E. Cavelier of Bogota, Colombia, is now in Chicago, taking a postgraduate course in surgery.—Dr. G. Gastan6ta, prominent surgeon of Lima, who has been visiting eastern cities, has left with his family for Peru.—Dr. Juan Portell of Havana, Cuba, and Dr. Pedro del Pino of Argentina, are now in New York on their way to Europe.—Dr. Rub6n Andino Aguilar of Tegucigalpa is now in New York on his way to his country from Europe.—Dr. Ram6n Pardo of Oaxaca, Mexico, is acting as governor during the absence of the governor.—Prof. O. Silva Araujo of the University of Rio de Janeiro recently lectured at Buenos Aires on the prophylaxis of venereal disease, leprosy and cancer in Brazil, with lantern slides and casts.—Dr. C. P. Colistro of the chair of obstetrics and gynecology at the University of Montevideo also lectured recently as interchange professor at Buenos Aires, his topic being "Transfusion of Blood."—Dr. F. Grande Rossi has been appointed professor of tropical pathology at the University of Havana.—The *Repertorio* of Bogota states that Dr. L. Cuervo Marquez has resigned his post as *ministro de gobierno*, and Dr. Arist6bulo Archila has been appointed his successor.—Dr. J. Ortiz has been elected president and Dr. A. Estorino, vice president, of the Sociedad de Estudios Clinicos, recently organized at Matanzas.

FOREIGN

Change of Editor.—Dr. C. Bello Moraes, editor of *A Medicina Contemporanea* of Lisbon, has resigned on account of age and ill health and will be succeeded by the present assistant editor, Antoni6de Azevedo.

National Medical Association of China.—The next conference of the National Medical Association of China will be held in Shanghai, Jan. 30 and 31, 1922. The association has issued a directory of Chinese medical graduates, comprising 1,160 names, with year of graduation, qualifications, present position held and present address.

Resolution Advocating Prophylactic Injection Against Typhoid.—The *Gazette des H6pitaux* relates that the Paris Soci6t6 de P6diatrie recently voted a resolution to the effect that as typhoid is now prevalent in children's hospitals,

preventive vaccination should be organized by the authorities in the dispensaries, and the fact advertised to inform the public.

A Predetermination-of-Sex Expert.—The public health authorities of Saxony have published a notice warning the public against a certain C. L. Marcus who is lecturing throughout the country claiming to be able to teach predetermination of sex at will. Dr. Strassmann of Berlin investigated his claims and announced that they were based on erroneous deductions.

Graduate Courses in Pediatrics in Italy.—Two courses are announced at the children's department of the Policlinico Hospital at Rome. One began Dec. 1, 1921, and the other will begin March 1, 1922. Applications for the course must be in the hands of the rector of the University of Rome before Feb. 25, 1922, with inscription fee and credentials. The professors giving the course are Luzzatti, Modigliano, De Villa, Santangelo, Genoese and Sironi.

Centenary of Pasteur.—Plans are under way in France for the celebration of Pasteur's centenary in 1923. The celebration will chiefly consist in an international exhibition of hygiene and bacteriology which will be held May 1-Oct. 31, 1923, at Strasbourg where Pasteur began his epoch making researches. A monument to Pasteur will be unveiled at the same time. The celebrations are in charge of the University and city of Strasbourg, the Pasteur Institute of Paris and the Pasteur family.

Antirat Measures at Berlin.—The *Münchener medizinische Wochenschrift* relates that November 23 was set apart by the municipal authorities for extermination of rats at Berlin. The owners of all the real estate in the city were ordered under penalty to distribute in appropriate places on their property on that day effectual rat poison to the value of 50 marks. The owners and occupants of the property were given permits to obtain the rat poison. Our exchange adds that England recently held an antirat week.

The Souvenir Volume of Medical Victims of the World War.—A committee has been at work for some time collecting data to publish the "Livre d'Or" as a monument to the French physicians who lost their lives in the World War, and it is now ready for publication. It gives the biography of each, with citations, decorations, etc., and a number of reviews written by the leading authorities on the work of the profession, the achievements in organization, in surgery, etc., a historical retrospect profusely illustrated. The work is for sale for 50 francs to the public, to subscribers for 40 francs. The treasurer of the committee is M. Bongrand, 5 rue de Surène, Paris.

An "Untoward By-Effect" of the Official Quackery Investigation in the Netherlands.—THE JOURNAL described last year the work of the official committee appointed to study objectively and report on the methods employed by unqualified persons in treating the sick. Quacks were invited to practice their methods in some of the hospitals under supervision of the committee, but only a few accepted the invitation. The committee gave them every opportunity but no benefit from the treatment was apparent. One of the quacks who was thus allowed opportunity to apply his method has since been making capital out of the occurrence, impressing the public with the "official sanction" his method had received. The public of course knows nothing of the ultimately absolutely unfavorable verdict of the committee.

The London Fellowship of Medicine and Post-Graduate Medical Association.—The London Fellowship of Medicine and Post-Graduate Medical Association, with the cooperation of various special hospitals, is arranging to hold a series of special courses in general and special subjects during the forthcoming year, and the first of these, a six weeks' post-graduate course in general medicine, will be held from Jan. 9 to Feb. 15, 1922. The course will consist of a morning and afternoon session, and the ground covered will include pulmonary affections, heart disease, disease of the nervous system, fevers, lunacy, etc. The program will be so arranged as to entail a minimum amount of traveling each day. The number attending the course will be limited. Application for further particulars as to syllabus, fees, etc., may be made to the secretary of the Fellowship, 11 Wimpole Street, W. 2, London.

Deaths in Other Countries

Sir George Joseph Hamilton Evatt, major general, R. A. M. C., London, Eng., author of many works on military medical administration, died, November 5, aged 77.—Dr. A. J.

McCymont, Transvaal, South Africa, August 29.—Prof. F. A. Bainbridge, captain, R. A. M. C., London, noted for his works on different types of paratyphoid bacilli.—Dr. Alfred Exner, professor of surgery at the University of Vienna, succumbed to metastasis from cancer of the kidney, aged 47. He had published sixty works on surgical topics.—Dr. A. Gruss of Vienna, a leader in the organization of the profession.—Dr. K. F. Cargø, prominent in medical journalism and historical research in Denmark, honorary member of the Swedish Medical Association, aged 70.—Dr. P. Schmidt, surgeon general of the German navy.—Dr. Armaignac, at one time president of the Bordeaux Medical Society.—Dr. L. Vetere, physician to the Italian Hospital at Buenos Aires.—Dr. Luis Córdova y Bravo of the Sanatorium del Centro Balear, Cuba.—Dr. Roquet Macouzet, formerly professor of pediatrics at the University of Mexico and author of works on children's diseases and hygiene.—Dr. J. de Giacomi, instructor in internal medicine in the University of Berne.—Dr. T. S. V. Petersen, retired in 1909 from the chair of clinical medicine in the Copenhagen medical faculty, aged 82.—Dr. A. T. Sælan, formerly professor of botany at the University of Helsingfors and at the same time medical director of a hospital, aged 86.—Dr. J. F. Brust, chief of the medical service in the Netherlands insurance system.

Government Services

Hospital for Negro Service Men

Secretary Mellon of the Treasury Department has announced that the sum of \$2,500,000 will be expended to provide a hospital for tuberculosis and nervous and mental cases for negro former service men at Tuskegee, Ala. Approval of this expenditure has been completed and the work will begin at once. The plan on which the hospital is to be constructed contemplates its enlargement to 1,000 beds. The institution is to be placed on a site donated to the United States by the board of trustees of the Tuskegee Normal and Industrial Institute. The purchase of certain tracts of ground is included in the appropriation and the provision of a spur of railroad from the Western Railroad of Alabama of approximately 2 miles to the hospital site has already been arranged. Another approval of expenditure made by the Secretary of the Treasury was for the provision of a permanent former soldier hospital for nervous and mental cases at Palo Alto, Calif. The sum to be expended amounts to \$1,400,000. The U. S. Public Health Service is at present operating a hospital on this site with a capacity of 550 beds in temporary buildings. These buildings will be made permanent, and the capacity enlarged to 1,000 beds.

Naval Research Laboratory Nearing Completion

The naval research and experimental laboratory being constructed on the Potomac River at Bellevue, D. C., is rapidly nearing completion. The buildings are substantially completed and ready to receive their equipment. Funds are available for the equipping and fitting out of the buildings, but money for maintenance and operation is yet to be appropriated by Congress. Capt. E. L. Bennett, who has been selected for duty as director of the laboratory, has been ordered detached from the battleship *New York*, and he will report at the Navy Department for duty about the first of the year.

Examination for Public Health Service

Examinations for entrance into the Regular Corps of the U. S. Public Health Service will be held, Jan. 9, 1922, at Washington, D. C., and San Francisco. Candidates must be between 22 and 32 years of age, and graduates of a reputable medical school. They must pass satisfactory oral, written and clinical tests before a board of medical officers. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Requests for information or permission to take this examination should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 14, 1921.

Liability of a City Corporation for Poisoning from Berries in a Public Park

In the House of Lords—the supreme court of this country—an unusual case has been decided. Some children were in the Botanic Gardens, Glasgow, which are open to the public as a park. They went to the playground surrounding the band stand, a part of the gardens known to be frequented by children. At that time the Glasgow corporation, which controls the park, had growing in a small plot immediately adjoining the playground specimen plants of various kinds—wheat, barley, oats and atropa belladonna, which was bearing berries resembling small grapes and very attractive to children. This plot was enclosed by a wooden fence but was open to the public, access being obtained by a gate fastened by a wire loop. The plot was frequented by the public and by students. The gate could easily be opened by a young child. The children picked and ate a few of the berries. They soon afterward became ill, and a boy, aged 7 years, died. His father brought an action against the corporation on the grounds that the death of his son was due to its fault. The corporation submitted that if the facts stated were proved, no jury would be entitled to find that it was responsible for the death of the child, as the circumstances disclosed no fault or breach of duty on its part as owners of the botanic gardens. The judge (Lord Hunter) upheld this plea, but his judgment was reversed on appeal to a higher court, from which a further appeal was now made to the House of Lords.

In giving judgment, the president, Lord Buckmaster, said that it would have been less easy to find the pathway through the difficulties which the case presented had not the road been already traveled by learned judges, who left clear and definite sign posts. Notwithstanding the fact that there was a fence, the ground on which the belladonna grew was open to the public. There was no isolation of the shrub, or any warning of its dangerous character. The appellants must have known that it was probable and indeed practically certain, that children would be tempted and deceived by the appearance of the shrub and would eat of the berries. Did the allegations establish a cause for action by the father to obtain the money reparation which the Scotch law permits? The important facts to be borne in mind were that the children were entitled to go to the spot where the shrub grew, that there was no warning giving parents or those who had custody of children any knowledge of the dangers, and that the danger was known to the appellants. Lord Sumner had laid down that "the presence in a frequented place of some object of attraction tempting a child to meddle where he ought to abstain may well constitute a trap, and in the case of a child too young to be capable of contributory negligence it may impose full liability on the owner or occupier if he ought as a reasonable man to have anticipated the presence of a child and the attractiveness of the peril of the object." Lord Buckmaster could see no difference between the conditions there postulated and those that obtained in the present case. The appeal was therefore dismissed.

The Victor Horsley Memorial Fund

A meeting of the executive committee of the Victor Horsley Memorial Fund has been held. Sir Frederick Mott, the honorary treasurer, stated that \$5,125 had been promised, of which \$4,375 had been paid. The number of subscribers,

exclusive of groups, was 229. The subscription list will close, December 31. The following recommendations from the executive subcommittee were adopted unanimously: (1) That the Victor Horsley Memorial Fund be invested in the names of a board of trustees consisting of the president of the Royal Society, the president of the Royal College of Surgeons of England, the president of the British Medical Association, the senior physician of the National Hospital for the Paralyzed and Epileptic, and the senior surgeon of University College Hospital in virtue of their office, together with Mr. Edward Robinson, son-in-law of Sir Victor Horsley, and Mr. E. J. Domville, one of the honorary secretaries of the fund, the vacancies caused by the resignation or death of either of the two last not to be filled. (2) That the trustees shall triennially appoint a lecturer to deliver a lecture in London, under the title of the Victor Horsley Memorial Lecture. (3) That no limitation be placed on the trustees as to the country or profession from which the lecturers should be appointed, or on the subject of the lecture.

Self-Disinfection in the Prevention of Venereal Disease

In accordance with previous reports to THE JOURNAL, the ministry of health has issued to county borough councils a circular stating that the government has decided that it cannot give official support to self-disinfection as a policy. Nevertheless, twenty-one local councils have on their own behalf adopted the immediate disinfection policy of the Society for the Prevention of Venereal Disease.

Ex-Soldiers in Lunatic Asylums

An aftermath of the war which has exercised some persons considerably is the treatment in ordinary lunatic asylums of men who have become demented by the strain of the war. In the House of Commons, the government was asked whether the treatment allowance on which some 6,000 ex-service men depended was paid on the condition that those men consented to being confined in lunatic asylums, and the allowance was refused in respect of patients being treated and anxious to be treated in certain private institutions approved by the lunacy authority, but to which the stigma associated with lunatic asylums was not attached; whether on Jan. 1, 1919, 2,507 ex-soldiers were confined in lunatic asylums and the number had risen to 4,673, Jan. 1, 1921, and to 6,435, October 27; whether bitter complaints were continually emerging from the men confined, and whether the government would set up a commission to hear complaints. The minister of pensions replied that the lunacy law requires that every person certified as insane shall be sent to an institution approved by the lunacy board, save that, under certain conditions, a single person may be placed in a private house not specifically licensed for the reception of lunatics. Treatment allowances are granted in respect of all certified patients whose insanity is due to war service who are receiving treatment in approved institutions. It was not accurate to suggest that a large number of complaints is received as to the conditions of treatment. On the contrary, the number is small, and on investigation the complaints invariably prove to have been made on unsubstantial grounds, or to be of minor importance. He did not consider that there were any grounds for appointing a commission.

"The Worst Teeth in the World"

In a lecture delivered on "Public Dental Health" at the British Dentists' Hospital, Dr. Harry Campbell said: "We have the worst teeth in the world." He estimated that at least a hundred million teeth had been extracted from people living in this country, while another hundred million had been spontaneously shed and the number of decayed teeth

was about 200,000,000. Diseases of the teeth were for the most part due to faulty dietetic customs and were to that extent preventable. The shedding of teeth in old age was not a senile change. With healthy sockets the teeth, far from loosening with advancing years, became more firmly fixed. The British people had lost the art of mastication. They did not chew; they sucked their food.

PARIS

(From Our Regular Correspondent)

Nov. 18, 1921.

A Strange Defense of "Patent Medicines"

In comparing the warfare waged by the American Medical Association against "patent medicines" and the culpable indulgence manifested in France toward this subject, I recently expressed regret that French medical associations did not wage an equally good fight against this shameful exploitation of the public (*THE JOURNAL*, Oct. 22, 1921, p. 1350). How much more regrettable it is to note that certain medical journals consent to become propagandists of such medicines. A circular letter addressed by the managing editor of the *Languedoc médical* to manufacturers of "patent medicines," with the view to obtaining advertisements from them for his journal, has been forwarded to me, and reads, in part, thus: "This monthly review has a committee on management, composed of numerous practitioners, physicians and druggists of our city and the Mediterranean region, in addition to the eminent professors of our medical faculty. You will not forego the advantages to be derived from the publicity that you may secure through our publication when we inform you that the said committee takes a particular interest in our advertisers." Similarly, an editorial in the *Journal des praticiens* emphasizes one advantage of pharmaceutic specialties often lost sight of. Taxes on such specialties are a tremendous source of revenue to the national treasury. Therefore, "the larger the amount paid by the manufacturers of pharmaceutic products, the lower are the taxes for the taxpayers." The journal concludes: "A double advantage appears, therefore, to result from prescribing these products, which are to be recommended owing to their careful preparation, namely, the certainty of efficacious action, and, furthermore, from a nationalistic point of view, an interest in the annual budget." Let us hope that the interests of the national budget may always coincide with the interests of the patients.

Results of Artificial Pneumothorax in Pulmonary Tuberculosis

In his work on pulmonary tuberculosis, recently published (Masson & Cie, publishers, Paris, 1921), Dr. Léon Bernard, professor in the medical department of the University of Paris, dwells at length on the treatment with artificial pneumothorax. Reviewing the indications for this method, he remarks that they are usually found in the following conditions: unilateral lesions, freedom from pleural adhesions, and the relative gravity of the lesions. As regards the first condition, Bernard holds that it should not be interpreted too strictly. When auscultation, followed by a roentgenographic examination, reveals very small, discrete lesions in the lung opposite the one to be treated, they do not necessarily constitute a contraindication to intervention. It is not solely the extent of the lesion that should be considered, but also its activity. As for the condition of the pleura, we must distinguish (in the presence of adhesions), on the one hand, between small adhesions, few in number, soft and easy to sever, and on the other, multiple, fibrous and firm adhesions. The former are easily severed, if not by the first insufflation, at least very rapidly. With persistence they can be separated. The latter, on the contrary, are resistant and constitute an

insurmountable obstacle, compelling the abandonment of the treatment. They are manifested most frequently at the beginning by the abrupt rise of pressure following the injection of small doses of gas. Under such circumstances we must desist, for, according to Bernard's personal observations, pneumothorax, applied by force, as it were, requiring the breaking up, laceration or at least stretching of adhesions, and causing possibly traumatism of the parenchyma of the pleura, is usually extremely difficult, and, in certain cases, almost impossible. A roentgenographic examination does not furnish any positive evidence, much to the surprise of those who are not aware of the limited value of such examination. It might almost be said that a successful insufflation is the only proof that the pleura is free from adhesions or is at least detached from the lung. It is, therefore, advisable, as a rule, to state, before beginning the operation, that there is no definite assurance that insufflation can be accomplished, for, even in the cases appearing to be most favorable, the lung may not be detachable.

As regards the gravity of the lesions, it was thought at first that pneumothorax should be applied to deep and extensive lesions, with cavities; but the results in such cases are quite mediocre. Besides the general condition, which is usually bad under such circumstances, the lesions are for the most part associated with old pleural adhesions. The lesions that present the best outlook are of the chronic, ulcerocaseous type; but such lesions must be attacked as soon as possible; in fact, as soon as it is discovered that they have developed and have no tendency to heal spontaneously. As a rule, the clinical onset of the disease is still quite recent; we may note fever, emaciation, expectoration of bacilli and ulceration of the parenchyma (rapidly manifest on auscultation by the presence of crepitation). It is with such patients (doomed, usually, to a fatal evolution) that we obtain the most complete and the most satisfactory results. Caseous manifestations occurring, from time to time, in slower types constitute, likewise, an excellent indication.

When we discover patients fulfilling these conditions, it is advisable, before applying the treatment, to keep them under surveillance for a time, to see whether the lesion in process of evolution does not heal spontaneously. If, after a period of observation, it is found that the evolution continues, intervention is indicated, and the chances for the patient's recovery are excellent. Gravity of lesions, as far as indications for a therapeutic pneumothorax are concerned, does not necessarily mean their extent. By "gravity" is meant rather the tendency to progressive and fatal evolution. It is to the class of lesions described that pneumothorax must be applied, but the treatment must be instituted at the onset of the infection, and if applied soon enough, it will check the evolution of the disease, but if applied too late it will have practically no effect.

Among indications for pneumothorax, Bernard includes hemoptysis, but refers only to grave, abundant and intractable hemoptysis, which constitutes a grave danger in itself. It has been said that enteritis constitutes a contraindication to pneumothorax. Bernard does not agree with this opinion, and he has observed cases in which enteritis was not only no obstacle, but was, on the contrary, markedly improved by pneumothorax.

To sum up, Bernard holds that no other therapeutic method offers to tuberculous patients, almost doomed to die, such chances for a complete and final cure or at least a prolongation of life quite un hoped for. But the method requires, on the part of the physician, keen judgment and a certain amount of experience, and, on the part of the patient, steadfast perseverance, in order that he may be a real collaborator of the physician.

MADRID

(From Our Regular Correspondent)

Oct. 20, 1921.

University Autonomy

One of the results of the Moroccan uprising was the fall of the existing cabinet. It was followed by another so-called national government formed by persons belonging to different political parties who had joined together only in order to solve the Moroccan problem. The present minister of public instruction issued a decree granting self-government to Spanish universities without waiting to discuss the matter in parliament. At the Madrid medical school only half of the professors have been elected by competitive examinations. Some important chairs, for instance that of clinical medicine, have been vacant over eight years. Not a month has elapsed as yet from the granting of autonomy, and we have already witnessed a protest from the assistant professors, who emphasize the contempt in which they are held by the professors, who in the statutes suggested by them for the organization of teaching do not mention their assistants, who are the ones really in charge of the work. We have also seen in the newspapers the protest of a professor of clinical surgery in Madrid announcing that he is the only professor who can teach officially the subject of urology in the medical school, and calling attention to the fact that this subject is being taught with excellent facilities and by recognized authorities in the hospitals of San Juan de Dios, General and the Princesa. One of the Madrid schools, that of arts and letters, is already suggesting in its new rules the suppression of daily classes and dividing in two each course in order to collect double fees.

Foreign Physicians in Spain

Not so long ago I stated in one of these letters that the minister of public instruction had limited the practice of medicine, establishing requisites which should be fulfilled by foreign physicians. I mentioned afterward that a more radical minister had forbidden the practice of medicine by physicians graduated from foreign colleges. This measure was originated by the protest of some provincial medical society which wanted to prevent from practicing some French physicians who had grown old practicing medicine precisely in that province. The protest of this medical society was not due to malpractice or professional misbehavior by foreign physicians. It was caused by lack of reciprocity for our physicians in the country from which these physicians came. I foresaw at the time that those foreign physicians would practice after all. What I could never guess is that the present minister, basing himself on a very old law, would grant permission to practice medicine in Spain to all physicians presenting diplomas obtained in foreign universities, recognized by their respective countries. At the time when so many German and Austrian physicians are getting ready to abandon their countries because economic conditions are unbearable, this opening wide of Spanish doors is an unfortunate act that cannot be excused even by diplomatic or international considerations. Before issuing that decree, the minister, rather than granting self-government to universities, could have suppressed medical schools. Foreign colleges will furnish us with more physicians than we actually need.

Appointment of a Physician as Minister of Religion and Justice

A physician who is at the same time a remarkable writer and prominent politician, a former minister of public instruction and afterward head of the commission sent to Chile to represent Spain at the centenary celebration, Dr. José Francos-Rodriguez, has been appointed minister of religion and justice, in the so-called National Ministry. All who

know Francos-Rodriguez feel sure that he will be a great success in his new position. He has already shown his competence, discussing in his speech at the opening of the judicial year the subject of jail hygiene.

BELGIUM

(From Our Regular Correspondent)

LIÉGE, Nov. 7, 1921.

Councils on Discipline

The thirteenth congress of professional medicine revived the question of councils on discipline. In 1910, the congress went on record as approving the following proposal, which emanated from Dr. Dejace: "The sixth congress of professional medicine, without adopting any fixed resolutions with regard to a system of organization, expresses itself in favor of the creation of councils on discipline." But this action remained a dead letter, probably because it was not approved by more than two thirds of the members present at the congress, and also because the opposition from its opponents seemed rather strong, which made a realization of the proposal appear impractical. Since then the social conditions have changed considerably; syndicates have continued to grow in importance; the principle of free choice of a physician is generally admitted, and social insurance seems on the verge of being recognized. The founding of large medical associations has paved the way for the creation of such councils. The medical unions have all provided in their by-laws for repressive measures against physicians guilty of misdemeanors or unworthy conduct. But this repressive action has been without result for the reason that these unions are not in a position to impose penalties that seriously affect the material interests of the guilty.

The repression of abuses must be achieved by the physicians themselves and by them only. The dignity of the medical profession demands that its members be judged by their compeers; only physicians are competent to pass on their faults. They alone will have the necessary firmness to dispose of unworthy members, enough indulgence to excuse momentary weakness, and sufficient fraternal influence to reawaken a sense of moral obligation in those whom a moment of forgetfulness caused to wander from the path of duty. Then again, the subjection of physicians to laws freely enacted by themselves will greatly enhance the prestige of the profession.

The communication presented by Dr. Kaisin recommends that some such body as the Fédération médicale, which is an amalgamation of professional associations, be endowed with the powers of such a tribunal. It would thus become an ideal and complete organism for the defense of medical interests, for it would take charge not only of material interests but also of moral interests, which are, moreover, in the last analysis, the best guarantee of material prosperity. The most valid objection that may be raised is the question of the effectiveness of penalties imposed on delinquents. For example, how would a physician whose name, by a decision of a council on discipline, has been stricken from the list of physicians in good standing, be prevented from practicing medicine if clients should solicit his services? As long as the practice of medicine was still regarded solely as a matter between individuals, the exclusion of a physician from the ranks appeared to be rather illusory. But times have changed; and, as time goes on, professional questions will more and more be taken up and solved by the syndicates, and if, as seems likely, social insurance shall be introduced, it will be a question of establishing the relationship of groups of patients and groups of physicians. The medical unions, in their dealings with the syndicates and the groups of insured, will be able to demand that they accept the

disciplinary decisions and that they agree not to employ physicians who have been excluded from the recognized medical bodies.

This general study of one of the most important questions on the order of the day was greatly appreciated by the congress, which declared in favor of the establishment of councils on discipline.

BERLIN

(From Our Regular Correspondent)

Nov. 18, 1921.

Municipal Tuberculosis Welfare Centers

The city council of Berlin established, October 1, four tuberculosis welfare centers. The task of these centers will be the housing and guidance of all tuberculous persons referred to them by physicians as being in need of care, which includes all those threatened with tuberculosis or suspected of having it. Their problem includes also the providing of proper treatment. The greatest importance will be attached to the rendering of as careful a diagnosis as possible. In order to attain this purpose, the aid of all modern clinical methods of investigation will be called into play. This exact diagnosis will make it possible to make an especially careful selection of patients for tuberculosis rehabilitation centers. Supervision and guidance are also extended to the families of the tuberculous, with especial reference to housing conditions. This service is performed by specially trained nurses—so-called tuberculosis welfare nurses. No treatment is given in the tuberculosis welfare stations.

The Reorganization of Public Health Administration in Berlin

The public health administration of Greater Berlin, which comprises more than 4,000,000 inhabitants, has been undergoing a reorganization, as I mentioned in a previous letter. The plans for reorganization, which were outlined at an earlier date, have been developed in detail during the last few months, so that, according to the announcement of the director of the central bureau of the municipal public health system, as contained in the *Deutsche medizinische Wochenschrift*, the essential features may be summed up thus: The public health system of the city of Berlin is administered by a body presided over by the municipal public health commissioner (Stadtmedizinalrat). The field of endeavor is comprised by the activities of (1) the general public health service; (2) the central public health bureau; (3) infirmaries, health and welfare centers, including hospitals for the insane; (4) infirmaries in the orphan homes; (5) the sick-ward at the municipal employment office; (6) social hygiene; (7) the health center for infants and young children; (8) the health center for cripples, and (9) the rescue work center. The deputation or administrative body is composed of five members of the magistracy, sixteen city aldermen, and six so-called citizen deputies (*Bürgerdeputierte*); that is, citizens who are members of the municipal legislative body only by virtue of their connection with the above-mentioned deputation. Experts from the central public health bureau, the hospitals, etc., may be summoned to take part in the sittings. The deputation appoints committees for the infirmaries, hospitals, homes for the tuberculous, infant welfare and social hygiene. The central public health bureau may be called on by the deputation and the committees to carry out their plans. It deals also with matters pertaining to the work of physicians to the poor, such as the control of prescriptions and food for the sick. It is active also in the supervision of home conditions, home care and vocational guidance. The central public health office is divided into four departments: (1) the

institute of hygiene and bacteriology, with such subdepartments as the disinfection bureau, vaccination bureau, and other general measures for the control of epidemics; (2) the chemical institute; (3) social hygiene, which, aside from social hygiene in particular, deals with the combating of tuberculosis, and the suppression of venereal disease and alcoholism; infant, child and juvenile welfare (from the health side); health culture in the schools, and welfare work among cripples and psychopaths; (4) the medical department, which handles the affairs of the institutions for the insane; of the hospitals, homes for the tuberculous, and the sick-ward in the shelter for the homeless; furthermore, the medical care of the poor. The rescue work center, including the transportation of patients and the central information bureau in regard to beds available in hospitals, is under a special director, who handles also some questions pertaining to welfare work among the war injured and the poor. The office for the general control of prescriptions is in charge of a chief pharmacist. Furthermore, there are employed in the central public health office: five bacteriologists (one being a veterinarian), seven chemists and one botanist. In addition, there are six medical assistants and a large number of women assistants. The two institutes of the central public health office extend their activities to Greater Berlin, as a whole, but the examining laboratories in certain quarters of the city, which were formerly independent (Charlottenburg, Schöneberg, etc.), will continue to function. The local administration of the hospitals in the old municipal communes will also continue. The same is true of the hospitals for the insane located in the various sections of Greater Berlin.

A Monument to Gaffky

Professor Gaffky—a friend of Robert Koch, and his oldest pupil—who for many years was the director of the Berlin Institute for Infectious Diseases has been honored with a monument erected over his grave in Hanover, his native city, by his pupils and friends. The monument bears a plaque with the likeness of Gaffky, on either side of which is emblazoned an Esculapian staff.

Marriages

JAMES ERNEST BAYLIS, Major, M. C., U. S. Army, Baltimore, to Mrs. Mary T. Borger, at East Islip, L. I., November 5.

ARTHUR WASHINGTON BURNHAM, Lebanon, N. H., to Miss Grace Albee Love, at Thompsonville, Conn., November 1.

ROBERT RUPEN JANJIGIAN to DR. JESSIE MARIE PETERSON, both of Norristown, Pa., at Allentown, Pa., September 1.

CHARLES SIDNEY STODDARD, Santa Barbara, Calif., to Mrs. Agnes E. Pease of Long Beach, Calif., October 5.

JAMES WILLIAM MOUNSEY, Spokane, Wash., to Miss Elizabeth Crowley of Rockford, Wash., October 15.

ARNOLD WALTER GANZEL, Cincinnati, to Miss Irene Emma Carter, at Dayton, Ohio, November 25.

ELMER WATERS PIKE, Sudbury, Vt., to Miss Helen S. Crump of Gloversville, N. Y., September 21.

WILLIAM TELL WILDHABER to Miss Louise Beatrice Stoll, both of Beatrice, Neb., October 20.

AUBREY HUMPHREY PEMBER, Janesville, Wis., to Miss Hazel Lucknow of Chicago, October 22.

ARTHUR BUTLER MCGRAW, Detroit, to Miss Leola E. Stewart of New York City, October 12.

LOUIS MORRIS GREENBERG, Sandoval, Ill., to Miss Elizabeth Sach of Chicago, November 6.

LEO HOWARD FLYNN to Miss Isabelle Larson, both of Eau Claire, Wis., recently.

NILS ALBIN KILLBERG to Miss Anna Nelson, both of Chicago, December 3.

Deaths

John Randolph Currens ⊕ Two Rivers, Wis.; Rush Medical College, Chicago, 1878; former president of the State Medical Society of Wisconsin; for eight years member of the state medical board; member of the state central committee; chairman of district draft board during the late war; formerly mayor of Two Rivers for twenty years; founder of the tuberculosis sanatorium at Whitelaw; died, December 1, aged 56.

Isaac Montrose Taylor ⊕ Morganton, N. C.; College of Physicians and Surgeons, New York City, 1882; superintendent, Broadoaks Sanatorium, Morganton, since 1901; president of the board of medical examiners, 1915-1916; member of the American Medico-Psychological Association and the medical advisory board of North Carolina; died, November 26, from heart disease, aged 64.

John Jones Goodwill, Laurel Hill, N. J.; University of Virginia, Charlottesville, 1908; member of the Medical Society of New Jersey, and the West Virginia State Medical Association; major, M. C., U. S. Army, during the late war; medical director of the Hudson County Hospital, Secaucus, N. J., where he died, December 2, from pneumonia, aged 36.

J. Morton Boice ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1904; former clinical assistant to the genito-urinary department at his alma mater; chief of the medical clinic, St. Joseph Hospital; for several years secretary of the Philadelphia County Medical Society; died, December 2, from carcinoma of the bowel, aged 45.

William Henry Murray, Albany, N. Y.; Albany Medical College, 1869; postmaster of Albany since 1914; president of the common council, alderman, and formerly penitentiary, city and county physician; founder and president for thirty years of the Hospital for Incurables; dropped dead at his desk, November 30, from heart disease.

Charles Walter Swan, Branford, Conn.; Medical School of Harvard University, Boston, 1864; practitioner for over fifty years; for many years recording secretary of the Massachusetts Medical Society; served in the M. C., U. S. Navy, during the Civil War; noted botanist; died, December 2, at the home of his daughter, aged 83.

Henry Lee Rothman ⊕ St. Louis; St. Louis University School of Medicine, St. Louis, 1913; assistant surgeon, U. S. Public Health Service; served as lieutenant, M. C., U. S. Army, during the World War; died, November 23, at the U. S. Public Health Service Hospital, St. Louis, from meningitis, aged 32.

Louis E. Newman, St. Louis; Jefferson Medical College, Philadelphia, 1883; member of the Missouri State Medical Association; former president of the St. Louis Medical Society; member of the American Association of Obstetricians and Gynecologists; died, November 18, from paresis, aged 60.

William Ford Arnold ⊕ Washington, D. C.; University of Tennessee College of Medicine, Memphis, 1885; retired surgeon, lieutenant commander, U. S. Navy; died in November, at St. Elizabeth's Hospital, Washington, from paresis, aged 61.

Henry Plato Underhill, Wendell, N. C.; University College of Medicine, Richmond, Va., 1901; member of the Medical Society of the State of North Carolina; died, November 18, at the Mary Elizabeth Hospital, Raleigh, from heart disease, aged 44.

Abraham S. Bienenstock, New York City; New York University Medical College, 1892; formerly attending surgeon, Bellevue Hospital; member of the New York City board of health; died suddenly, November 27, from heart disease, aged 53.

Bernard A. O'Hara ⊕ Waterbury, Conn.; Bellevue Hospital Medical College, New York City, 1882; for more than twenty years U. S. pension examiner for New Haven County; died, November 25, following a long illness, aged 62.

D. Walter Straub, Bethlehem, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1877; member of the consulting board, State Hospital, Rittersville; died, November 29, following an operation, Philadelphia, aged 66.

Elijah W. Lawrence, Newark, N. J.; Eclectic Medical College of Philadelphia, 1863; surgeon in the Civil War; served

with the Chilean army in the war against Spain, 1866-1868; died, November 26, following a long illness, aged 78.

David Gregory Curtis, Chattanooga, Tenn.; Homeopathic Medical College of Missouri, St. Louis, 1860; practitioner over sixty years; naval surgeon in the Civil War; died, November 26, from ptomain poisoning, aged 85.

Charles J. Broyles ⊕ Johnson City, Tenn.; University of Tennessee, College of Medicine, Memphis, 1888; member of the American Academy of Ophthalmology and Otolaryngology; died, November 28, aged 59.

Joseph W. Stoneburner, Leland, Ida.; Eclectic Medical Institute, Cincinnati, 1892; member of the Idaho State Medical Association; died, November 18, from injuries received in an automobile accident, aged 76.

Elizabeth Lillian Radom, Hartford, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1915; was found dead in the road near Fairfield, December 4, presumably from poison, self-administered, aged 29.

Stayner Ellis, Windsor, Ontario, Canada; University of Toronto, 1910; served as major, R. A. M. C., during the World War; died, November 18, at the Harper Hospital, Detroit, from chronic nephritis, aged 37.

George Wakeman Osborn ⊕ Bridgeport, Conn.; College of Physicians and Surgeons, New York City, 1887; city physician; member of the board of health; died, October 25, from bronchopneumonia, aged 61.

John Luther McMillan, Red Springs, N. C.; University of Maryland, Baltimore, 1881; surgeon to the Flora MacDonald College, Red Springs; died at that institution, November 8, from heart disease, aged 66.

George Washington Burns, Whitehall, Ill.; Eclectic Medical Institute, Cincinnati, 1878; member of the Illinois State Medical Society; veteran of the Civil War; died, November 14, from senility, aged 82.

Pierre Colon Morey (formerly Moriarty), Omaha; New York Homeopathic Medical College and Hospital, New York City, 1888; died, November 9, from miliary tuberculosis and peritonitis, aged 55.

Frank G. Wilson, Gastonia, N. C.; University of Maryland, Baltimore, 1896; member of the Medical Society of the State of North Carolina; died, November 13, from cerebral hemorrhage, aged 48.

Nathan Andrew Goddard, Milwaukee; University of Minnesota Medical School, Minneapolis, 1897; was found dead in his room in a hotel at Appleton, December 2, from heart disease, aged 46.

John Freeman Butler, Keene, N. H.; Medical School of Harvard University, Boston, 1854; practitioner for more than sixty-five years; surgeon in the Civil War; died, December 1, aged 91.

Francis D. Buck ⊕ New York City; College of Physicians and Surgeons in the City of New York, 1876; member of the Medical Society of the County of New York; died, December 4, aged 71.

William Everett Sleet, Midway, Ky.; Medical College of Ohio, Cincinnati, 1889; member of the Kentucky State Medical Association; died, November 4, from arteriosclerosis; aged 62.

Thomas Jefferson Milner, Greenville, Texas; Louisville Medical College, Louisville, 1875; Confederate veteran; health officer of Hunt County; died, November 24, from pneumonia, aged 77.

Henry G. Linn, Rushville, Ind.; Pulte Medical College, Cincinnati, 1873; died, November 21, at the Central Indiana Hospital for the Insane, Indianapolis, from bronchopneumonia, aged 72.

Albert Alonzo Beacom, Kecksburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; member of the Medical Society of the State of Pennsylvania; died, November 22, aged 46.

William E. McKivitt, Milwaukee; Barnes Medical College, St. Louis, 1899; member of the State Medical Society of Wisconsin; died, November 1, aged 58.

William D. Steele, Plymouth, Ind.; Indiana Medical College, Indianapolis, 1878; died suddenly, November 24, from heart disease, aged 87.

Jesse Glasco, Alton Pass, Ill. (license, Illinois, 1887); Civil War veteran; died, November 28, aged 81.

Andrew Cornelius Baxter, Elloree, S. C.; Physio-Medical Institute, Cincinnati, 1882; died, November 4, aged 60.

⊕ Indicates "Fellow" of the American Medical Association.

Correspondence

"GROUP PRACTICE; DIAGNOSTIC AND PAY CLINICS"

To the Editor:—I have read with interest the correspondence on group practice and diagnostic and pay clinics. A diagnostic clinic as such should limit itself to cases referred by physicians. However, diagnostic clinics, whether pay or free, are still in an experimental stage, and I think it is somewhat too early to judge whether diagnostic clinics not giving any treatment can be successfully maintained. Observation of several such enterprises gives me conflicting impressions, although on the whole I am inclined to think that diagnostic clinics conducted on a nonprofit-making basis as community enterprises or as outgrowths of well organized hospitals are likely to be permanent features of medicinal practice in this country.

I do not believe, however, that a diagnostic clinic alone goes far enough to meet certain considerable needs of large sections of our population. I believe there is a distinct function for the clinic giving treatment, charging fees approximating the cost of service and paying salaries to its medical staff. The question of such pay clinics giving treatment must to my mind be approached from a double standpoint: first, that of the need of the public or of certain sections of the public, and, second, that of the interests of the medical profession.

From the first standpoint, the needs must be ascertained by an economic study of population, relating the economic facts to the amount of sickness and the cost of medical treatment. Investigations made from the medical standpoint alone do not enable us to reach conclusions on this matter. In New York City, studies of this kind have led me to the conclusion, as I recently stated in a paper before the Academy of Medicine, that about one million persons (out of a population of six million) fall ordinarily into the class requiring care in a charitable dispensary, charging nominal or no fees, a class which can as a rule afford to pay little or nothing for any medical service except in occasional emergencies when a physician is called into the home and paid something. Paid hospital care or systematic medical service at home or office is beyond the means of this group.

I estimate, further, that there are about two million persons who are able to pay for some medical service but cannot meet the expense of prolonged illness or of care by specialists, and who fall into what may be called the pay clinic class. For these persons the establishment of a diagnosis is not sufficient, because they cannot pay for adequate treatment unless the illness is so inconsequential as to require little attention after the diagnosis is established. It is because of the existence of this large class that I believe a pay clinic charging moderate fees and providing treatment (chiefly in the specialties) is needed by the public.

I am convinced that unless this class of service is provided by noncommercial organizations of a high grade, such as hospitals and other institutions maintained for public service, the public need is so great that commercial organizations, some under medical and some under merely business auspices, hiring cheap medical service, will be established.

From the standpoint of the interests of the medical profession, I believe that pay clinics properly conducted on a nonprofit-making basis as enterprises of the community or as outgrowths of well-organized hospitals will be a direct benefit to all physicians of good standing. The salaries paid in such pay clinics will turn over to the profession consider-

able sums which now do not reach the profession at all, being expended chiefly for medicines, appliances and quacks. Numbers of young men of good training will be enabled by such salaries to pursue clinical and scientific work without undue sacrifice while carrying on and developing their practice. Through pay clinics I believe that a very much larger proportion of the medical profession, both in large cities and in smaller places, will be able to give the time to work in clinics and to secure the benefits of the facilities of clinics, both as to laboratories and also in opportunities for co-working and consultation with fellow practitioners.

I feel strongly, as you do, that anything that tends to lower the standing of the profession or to reduce the average physician's income (which is low now, despite large incomes of a few) will be detrimental not only to the profession but also to the entire public.

I should feel it a great misfortune if the failure of the medical profession itself to move forward with sufficient rapidity and farsightedness to meet growing public demands due to changed economic and social conditions, and to changes in medicine itself, should cause the development of enterprises without proper medical support or supervision. It is essential to maintain the professional integrity of medical work and its guidance by professional men of dignity, disinterestedness and consecration to the splendid American medical tradition of public service.

MICHAEL M. DAVIS, JR., New York.

Executive Secretary, Committee on
Dispensary Development

To the Editor:—Apropos of the Cornell fee controversy, I should like to discuss the plan from the point of view of the general practitioner.

When I read the announcement in the *Boston American*, about the great throng that attended the clinic given by the Cornell professors, I was quite perturbed lest Boston should be called on to send her experts to help out the New York men, and thus leave Boston to the mercy of the common doctor.

It is pertinent to ask: From what source does Cornell expect to draw the material for this clinic? Is it from the patients of the general practitioner? If so, is it honest to advertise treatment by professors at a price under the general practitioner's charge? Is it honest for a hospital that has received vast sums of money for the purpose of treating the sick poor to use its plant to compete with the profession in the treatment of those who are able to pay?

The argument that the general practitioner cannot make a diagnosis without the aid of hospital apparatus has been disproved repeatedly. I do not question the fact that in obscure cases the roentgen ray, Wassermann test and bacteriologic examinations are of great service, but all these are open to the profession, most necessary tests being furnished free by the local boards of health.

There is a definite field for the outpatient department of our hospitals: namely, in the treatment of the sick poor. When all classes are treated, the poor are neglected and the others are pauperized.

It is very easy for the profession to bring these people, who seem to have no regard for the rights of the medical man, to their senses. In the long run, the hospital depends on the general practitioner to fill the wards. Let the doctor send his patients to a hospital that respects the doctor, and if he cannot find such a hospital, let him treat his patients at their homes.

CHARLES MALONE, M.D., Jamaica Plain, Mass.

THE VON PIRQUET STANDARD OF NORMAL BODY WEIGHT AS COMPARED WITH OTHER STANDARDS

To the Editor:—In THE JOURNAL, November 12, Dr. William E. Carter gives a valuable summary of the von Pirquet system of nutrition. I desire here to discuss merely one aspect of this paper, the "pelidisi chart" which von Pirquet has adopted in place of height-weight tables in estimating normal body weight.

The pelidisi is based on the second of the two formulas given by Dr. Carter, $\frac{\sqrt[3]{10 \text{ times the weight in grams}}}{\text{Sitting height in centimeters}} = 100$ per cent. A portion of von Pirquet's original chart is reproduced in Table 1 of Dr. Carter's article. In the reproduction of the table, the percentage figures have been misplaced from above the spaces between the columns of weights to a position above the columns at the left of such spaces. Thus, the weights in the 100 per cent. column of Dr. Carter's Table 1 represent a 99.5 per cent. pelidisi; those in his 101 per cent. column represent a 100.5 per cent. pelidisi. Von Pirquet's purpose in calculating intermediate weights rather than weights coming out in even percentages is to make it possible to read off quickly for the weight of a given individual his nearest even pelidisi percentage. Thus, all weights coming between those given in the 100 and 101 per cent. columns of Dr. Carter's table have a pelidisi of 100 to within 0.5 per cent.

Because von Pirquet's chart is based on the equation given above instead of on the equation $\frac{10 \text{ times the weight}}{\text{sitting height}^3} = 100$ per cent. the pelidisi percentages do not correspond with percentages of difference in weight. Thus, a person showing 95 per cent. on the "pelidisi" scale has not a weight 5 per cent. below the weight necessary to give 100 on that scale; he is about 15 per cent. "underweight." One showing 85 on the "pelidisi" scale is about 40 per cent. "underweight"; one showing 108 on the scale is about 25 per cent. over the pelidisi standard weight.

A great disadvantage of a "pelidisi" percentage, which varies with the cube root of the weight, compared with an index which varies directly as the weight, is that it encourages "jacking up" the normal standards, since differences in weight do not appear so great when thus expressed.

A healthy baby is plump; the child normally becomes slender as puberty is approached, and during adolescence he once more "fills out." Dublin has given evidence that the period showing the lowest mortality rate and probably also the lowest morbidity rate practically coincides with the period of greatest physiologic slenderness. This change of build during childhood, due mainly to a relatively rapid growth of the lower extremities and a relatively slow growth of the head, is expressed mathematically most simply by dividing the weight by the cube of the stature. The relative weight thus obtained is an index of bulk relative to stature and is usually lowest as puberty is approached or early in adolescence.

While the weight relative to the cube of stature thus decreases during childhood to a marked degree, the weight relative to cube of sitting height varies far less. This is due to the fact that rapid growth in relative weight of the lower extremities is largely compensated by a relatively slow growth of the head. The relatively constant relation between body weight and cube of sitting height led von Pirquet to select this relation as a standard in studying physical condition in relation to nutrition. By taking the cube root of ten times the body weight and dividing this by the sitting height, he obtained an index which approaches unity (100 per cent.) for healthy young infants. Unfortunately, we lack

extensive statistical data on the sitting height of infants and young children. Such data as are available indicate that the relative sitting height during early infancy averages about two thirds of the stature. If it be taken as 66 per cent. of the stature, we find, according to the statistics on height and weight of infants and children recently compiled by Robert M. Woodbury for the Children's Bureau, that the pelidisi for infants with an average stature of 21 inches (53.3 cm.) irrespective of age, is 99.5 per cent. Infants from 1 to 2 months old, with an average stature of 57 cm., have an average pelidisi of 97.5 per cent.; those between 3 and 4 months old, with a stature of 61.4 cm., a pelidisi of 97.1 per cent.

Further investigation may prove that a 100 per cent. pelidisi is a fair standard for young infants. During childhood, however, the pelidisi decreases so that 100 per cent. ceases to be a fair standard of the normal. This is shown in the data compiled from Quetelet, Weissenberg and West by von Pirquet in his 1916 paper on this subject (*Zeitschrift für Kinderheilkunde* 14). Quetelet's data show a decrease in pelidisi from 98.2 per cent. at 1 year to 90.9 per cent. at 10 years, and then an increase to 97.3 per cent. at 20 years and to 98.1 per cent. from 21 to 25 years. The data from Weissenberg and West show a decrease in the pelidisi from 95 to 96 per cent. at 5 years of age to about 94 at 11 years of age, and then an increase to 95 or 96 per cent. at 20 years of age. Furthermore, the data of West and Weissenberg include the weight of light clothing, which von Pirquet estimated to increase the body weight by about 3 per cent.

Of the more extensive American statistics on weight, height and sitting height of schoolchildren, those of Porter show slightly the highest weight relative to stature. To what extent this may be due to greater weight of clothing we have no means of determining. The weight of shoes appears, however, to be included. If we deduct for indoor clothing weights graded according to stature but corresponding fairly well with the weights found by Carter for the San Francisco children, we find that the "pelidisi" of the 15,686 boys and the 16,197 girls, the sitting heights and weights of whom are tabulated by Porter in age groups, runs for the boys at about 93 from 6 to 14 years of age, but increases to about 95 at from 15 to 18 years of age. For the girls it runs at about 94 to 95 up to 12 years of age; at 13 it jumps to 97, but then it again decreases to 95 at 14, 93 at from 15 to 16, and 94 at 18.

Carter says:

In actual practice the pelidisi of a well nourished normal child is very close to 100 per cent. . . . Thin children run between 88 and 94 per cent. . . . Generally speaking, a child with a pelidisi between 95 and 100 per cent. may be said to be well nourished. An adult, however, with a pelidisi below 100 per cent. is undoubtedly undernourished. . . . In the American Relief Administration's feeding the line is drawn at 94 per cent. If food were plentiful, Pirquet would probably insist that the limit be raised to 98 or 100 per cent.

For the army, the standard accepted measurement for a man 68 inches tall was 141 pounds. Hitchcock gives the average sitting height for college students 173 cm. (68 $\frac{1}{10}$ inches) tall as about 90.8 cm. A 100 per cent. pelidisi for this sitting height is about 74.86 kg. (165 $\frac{3}{10}$ pounds). A weight of 141 pounds is equivalent to about 64 kg. For this the pelidisi is about 95 per cent. The college students tabulated by Hitchcock at this stature had an average weight of 62.1 kg., pelidisi 94. Male students entering the University of Wisconsin have a pelidisi of about 95 per cent. Neither the individuals coming up to the army standard nor the average college student may justly be said to be undernourished.

Sitting height, however, undoubtedly should be taken into account in establishing normal standards of height and weight with which to compare measurements of individuals. If the measurements of a large number of individuals are

arranged in groups centered about a given series of statures, such as a 50 inch stature group and a 51 inch stature group, or a 127 cm. group and a 129 cm. group, it is found that for a given stature group those individuals with a relatively large sitting height as a rule have a greater body weight than those with a relatively small sitting height. If the measurements are arranged according to sitting heights, those individuals at a given sitting height who have relatively long lower extremities are on the average heavier than those with relatively short legs.

For comparing the size of an individual with a standard, a table like von Pirquet's pelidisi table seems to have no advantage over tables based on average measurements in relation to stature and to sitting height. These averages may be of groups of the general population or of groups composed of individuals selected from the standpoint of physical fitness. On the whole, it appears best to base normal tables on averages of very large groups of the general population, and then to compare averages of selected groups with these.

For the period of infancy and childhood up to 6 years of age, we now have the data prepared by Robert M. Woodbury from several hundred thousand of the most carefully measured of the many hundreds of thousands of children examined in various parts of the country under the auspices of the Children's Bureau of the U. S. Department of Labor. These are arranged both under stature groups and age groups, and so as to show the average weight for a given stature at a given age. During infancy tall children of a given age group are relatively light, short children heavy as tested by dividing the weight by the cube of the stature. The relative weight varies inversely as the stature, so that for each age group the body weight divided by the stature forms an approximate constant for that group, according to the equation $\frac{W}{H^3} \times \frac{H}{1} = \frac{W}{H^2} = \text{constant}$. This constant changes from one age group to the next. The $\frac{W}{H^2}$ ratio suggests that differences in stature within a given age group at this period are due largely to differences in relative length of the lower extremities.

Woodbury's data show that after the period of infancy is passed, weight is closely correlated to stature irrespective of age. For early childhood a table showing the average weight for a given stature for each sex suffices as a standard. The statistics compiled by Crum on infancy and early childhood form a valuable supplement to the Woodbury data. They show slightly higher average weights for a given stature, probably because based on measurements of infants and children at health "contests."

There are extensive data on the weight, stature and sitting height of American schoolchildren which may be utilized in compiling standard height-weight tables. The more extensive data have two drawbacks: The weights include clothing, and the averages are for age groups.

The first is the more serious, since few of those who have labored on the statistics of thousands of schoolchildren have taken the pains to make careful estimates of the influence of clothing on weight. Bowditch, the foremost of those who have engaged in collecting statistics of this kind, gave some data which show that for boys preceding puberty the clothes added more than 10 per cent. to body weight.

While it is more satisfactory in the study of relative weight to have statistics arranged according to stature groups rather than according to age groups, Woodbury's tables and a study of other data show that the average weight for a given stature group corresponds closely to the average weight for the average stature of that group. Thus, if at age 10 the average stature is 52 inches and the average

weight is 59½ pounds, 59½ pounds is close to the average weight for children 52 inches tall. Similar relations are true for other measurements, such as sitting height.

Boas compiled and Burk published tables embodying the combined data of three of the largest statistical studies made on the height and weight of schoolchildren in this country: those of Bowditch in Boston, Peckham in Milwaukee, and Porter in St. Louis. These combined tables make at present the best data we have for compiling weight for height tables representing the normal based on averages of schoolchildren of the general population. Emerson has utilized them in his tables, but counts the weights as weight without shoes, whereas the original data were based on weight with shoes. This adds probably more than 2 per cent. to the average weight.

In addition to weight for height tables we should have weight for sitting height tables compiled in a similar manner. Smedley compiled some years ago satisfactory tables based on a study of Chicago schoolchildren, which show stature, sitting height and weight (without shoes) of age groups. These data may be readily utilized for stature group sitting height and weight tables, as may also those of Peckham in Milwaukee, Porter in St. Louis, McDonald in Washington, Boas in Worcester, Mass., and Toronto, Hastings in Omaha, and others. The chief difficulty in all these cases is, as stated above, to make a satisfactory allowance for weight of clothes. Prof. B. T. Baldwin of the University of Iowa has recently published a valuable study of physical growth of children in which American and foreign literature is extensively reviewed.

For the adolescent period and maturity, standard tables should be arranged by age groups subdivided into stature groups, since at these periods average weight is closely correlated both with stature and with age. In the latter part of adolescence and after full growth in stature has been reached within each age group, the relative weight, as in infancy, varies approximately inversely as the stature, so that again $\frac{W}{H^2} = \text{an approximate constant}$. This constant increases from one age group to the next, and within a given age group does not hold true for the extremely tall or extremely short. For the adult, the medico-actuarial tables offer a good basis for standard tables; but their value is lessened by the necessity for making allowance for weight of clothes and for heels of shoes. For young adult males the recent army statistics, when published, will offer invaluable data. For college men and women a considerable number of valuable statistics on height-weight, sitting height and similar data have been published. The data on weights have the great advantage of being weights without clothes. The period for which at present it is most difficult to get satisfactory data is the interesting period of early adolescence. Data from private schools are as a rule based on a relatively limited number of individuals. The data published by Dublin on children from 14 to 16 years of age applying for work certificates in New York have the disadvantage not only of having the weight of clothing included, but also the height of the heels.

Standards based on measurements of large numbers of individuals will in the long run prove more satisfactory than "ideal" standards based on an accidental fact like the fact that the cube root of ten times the weight in grams divided by the sitting height in centimeters in infancy approximates unity.

The best basis for arranging the data is the stature group. For each stature group the average weight, average sitting height and such other data, like chest girth, as may seem of value, should be given. For the period of childhood the average age at which a given stature is reached should be

indicated. The value and interest of all these statistics is greatly increased if the standard deviation is given in connection with the average for each group. This indicates the limits of variation from the average within which a given individual has an even chance of being included. Note should also be made of physiologic variations. Thus, a schoolchild may be nearly an inch shorter at night than early in the morning, weighs more after than before a meal, and more when he goes to bed than when he rises. Racial types must also be considered. Naturally slender individuals are not unhealthy. Lack of attention to factors such as those mentioned has led to many wild statements concerning the extent of malnutrition among schoolchildren. It must always be remembered that about half of the total number of individuals will fall below any standard based on averages. More than half are likely to fall below the average weight of a group because the limit of thinness is so much more restricted than the limit of fatness. One can be more than twice as heavy as the average. There would not be much left of him if he varied as far in the other direction.

C. R. BARDEN, M.D., Madison, Wis.

Dean, University of Wisconsin Medical School.

LUNG ABSCESS FOLLOWING TONSILLECTOMY

To the Editor:—From Jan. 1, 1920, to Nov. 15, 1921, there were 569 tonsillectomies performed in our hospital. The great majority of these operations were done by one operator. These patients were all given ether anesthesia, the so-called forced method being used during the actual operation. The position was that of recumbency on the back. All tonsils were enucleated and not clipped, usually by combined dissection and the snare method. Four patients developed typical pulmonary abscesses: the clinical course, roentgen-ray findings, etc., showed marked involvement, which persisted for weeks, all the patients eventually recovering. One man was operated on in October, 1920, two in April, and one in March, 1921. Forced ether anesthesia is, apparently, insignificant, as the tube extends just inside the lips and does not even approach the pharynx, while the current which comes through is not sufficient to blow feathers about on the table. While there may be something to the factor of aspiration of debris, it seems to me that there is equal force and perhaps more logic to the metastatic theory, especially with our increased knowledge of the selective action of bacteria.

WILLIAM HOWARD LEWIS, M.D., Rome, Ga.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOXICITY OF AMYL ACETATE

To the Editor:—I have had a patient ask me the effects of banana oil fumes (amyl acetate in ether). This man works in an engraving and embossing shop, and the chemical is used as a binder for applying gold leaf. He has an asthma of undetermined cause and is anxious to know whether prolonged exposure to these fumes will work any subtle, permanent harm to him. I would appreciate any information you may give me on this subject.

DOUGLAS MACFARLAN, M.D., Philadelphia.

ANSWER.—The symptoms reported in the literature as due to poisoning by amyl acetate are suffocation, feeling of fullness of the blood vessels of the head, dizziness, severe headache and coughing. The drug is generally quick acting, and chronic symptoms, such as asthma, have not been noted. Salant has studied the toxicity of amyl acetate on various animals. In frogs, injection of amyl acetate in doses of from 4 to 6 c.c. per kilogram of body weight caused paralysis and

coma in from fifteen to thirty minutes. In some cases these doses proved fatal, while larger doses invariably proved fatal. Five cubic centimeters given by mouth to rabbits weighing 1,500 gm. did not cause any symptoms except that death resulted in one instance within twenty-four hours. In dogs the intravenous administration caused a fall in blood pressure of 56 per cent. in twenty-five seconds, with marked slowing of the pulse. It is suggested that the sensitivity of this patient to amyl acetate be tested by the following method: A saturated, aqueous solution of the suspected solvent is prepared in sterile physiologic sodium chlorid solution. The skin of the forearm is scarified in such a manner as just to penetrate the outer layer, care being taken not to draw blood. A few drops of the solution are then rubbed into the tissue. A control with sterile salt solution should be made. If the patient is sensitive to the drug, a distinct urticarial wheal will appear around the site of the inoculation in from five minutes to half an hour. If no reaction occurs, the patient's asthmatic symptoms are probably not caused by amyl acetate, and the cause must be sought elsewhere, as, for example, in the various foods eaten.

USE OF SACCHARIN IN INFANT FEEDING

To the Editor:—Can an infant be given water sweetened with saccharin daily without detriment?

W. S. NORMAN, M.D., Hamburg, Ark.

ANSWER.—Virtually all experimental researches on the toxicology of saccharin have been done on adults and animals; no authoritative researches on infants are available. Saccharin is not a food but a chemical made from coal-tar derivatives. Weight for weight, it has 500 times the sweetening power of sugar.

Herter and Folin (Report 94, U. S. Dept. Agric., 1911) investigated the effect of administering saccharin to adults over a considerable period of time. Herter concluded that if more than 0.3 gm. (4½ grains) is taken daily for months, disturbances of digestion may be induced. A serious distaste for it often developed. The free hydrochloric acid was increased; the reaction of the feces changed from neutral to acid; there was no specific inhibitory influence on the digestive enzymes. He found strong evidence that part of the saccharin is absorbed and reexcreted into the lower bowel. Small doses were found to have no detrimental effect in adults. Folin administered from 0.15 to 1.75 gm. (2½ to 27 grains) of saccharin daily to twelve young adults for five months. He concluded that saccharin is a relatively harmless drug having no definite pharmacologic effects because of the negative character of his results. He states that it is not injurious to the health of normal, sound adults. Blodgett (*M. Rec.* 97:521 [March 27] 1920) has given 5 grains (0.3 gm.) daily over a twenty year period and has observed no clinical ill effects. Burge (*M. Rec.* 94:1071 [Dec. 21] 1918), after experimenting on rabbits, believes that saccharin serves to facilitate oxidation as well as acting as a sweetening agent. Several investigators believe that deleterious effects may result from saccharin administration. Ross (*Brit. M. J.* 2:552, 1915) reports a recent research at the McFadden Laboratory of the Lister Institute showing that saccharin is a powerful auxetic (stimulates cell proliferation). Heitler (*Wien. med. Wchnschr.* 70:1029, 1920) states that saccharin has a depressive action on the cardiovascular system just opposite to sugar. Sugar enhances the heart action, strengthens the pulse, decreases cardiac dulness and increases the blood pressure, and the heart tones are more pronounced. Saccharin weakens the pulse, increases the heart dulness, and lowers the blood pressure. He states that saccharin should not be given to persons with weak hearts or heart disease. Grundfest (*Zentralbl. f. inn. Med.* 42:234, 1921) reports a case of idiosyncrasy to saccharin in an adult, and has occasionally seen patients who complained of anorexia and headache when taking saccharin. In administering saccharin to infants, the safety of the infant depends on: (1) amount given; (2) duration of administration, and (3) extent to which it is used to replace the needed carbohydrates.

It may be stated on the basis of available evidence that saccharin can be administered daily in minimum quantities to most infants without danger of causing detrimental results. Exceptionally, infants have an idiosyncrasy resulting in poisoning. The greatest danger in its continued use is the probability that it may be used to replace needed disaccharids, as it has no food value. The safer method of administering sweetened water would be to use sucrose or lactose, reserving saccharin for cases of fermentative diarrhea and the rarer instances of glycosuria.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

- ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.
- ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
- DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
- HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
- INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.
- MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
- NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.
- NEW YORK: Albany, Buffalo, Syracuse and New York City, Jan. 23-26. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.
- NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.
- OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.
- OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.
- PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.
- PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
- RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.
- SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonsteel.
- UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.
- WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.
- WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.
- WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

A METHOD FOR INCREASING EFFICIENCY WITHIN THE HOSPITAL

FRANKLIN R. NUZUM, M.D.

Medical Director, Santa Barbara Cottage Hospital
SANTA BARBARA, CALIF.

Outside the hospital, many agencies have developed whose aim is the uplift of medicine. But within the hospital there is no special agency or department whose chief duty is the elevation of the plane of medicine practiced in that institution. If hospitals are to keep pace with the demand for better medicine, they must assume responsibility for the patient's progress. They must also assume responsibility for the four functions long attributed to them, namely: (1) the care of the sick; (2) the education of future personnel; (3) research and medical science, and (4) serving the community as the center of all health promotion activities.¹

Up to the present, comparatively few hospitals have made special efforts toward assuming these duties or becoming more than mere nursing institutions. One way in which this plan may be accomplished is here suggested.

There should be established within the hospital an agency whose chief duty is the prosecution of a never ending campaign for better medicine in that institution. For this work the full-time service of a medical man should be procured, who, for want of a better name, may be called the "medical director." His first duty is the organization of laboratories. With these well equipped and manned, he then calls the attention of the visiting staff to the benefit that may accrue to the patient from the proper use of the laboratory facilities.

He effects the proper staff organization with the various subgroups. He brings before them regularly the various medical and surgical problems that arise in the institution. He keeps in touch with the especially ill patients in the house,

and with those in whose cases it is difficult to arrive at a diagnosis. He discusses the situation with the attending man, offers suggestions if possible, and advises further consultation, if indicated. The accomplishment of a smoothly functioning staff with team play developed to a high degree, with its members aiding one another by suggestion and example to obtain from the laboratories and other equipment all the help possible in diagnosis and treatment, would stand out in sharp contrast to the manner in which physicians practice in most hospitals at the present time. The cooperation and spirit of helpfulness which it is possible to establish among members of a staff, especially when one man, such as a medical director, makes it his business to effect such harmony, results in a creation of a postgraduate school in that institution.

Such a staff would eliminate the competitive element of present day medicine within the hospital.² In its place would be substituted the newer ideals of specialization, team play, and thorough, intensive study of individual patients. These ideals are spreading rapidly throughout the country because better service is rendered the public. Such a hospital will gain the confidence of the community and serve as an educational institution in that community—the thing most needed to combat the propaganda of state medicine, social insurance and the numerous quacks.

Another of the difficult problems of the day is that of effecting a plan whereby the newer procedures in the practice of medicine may be taken up more quickly by the practitioner of medicine. Even after an excellent procedure has been worked out in the experimental laboratory, and its application to clinical medicine has been definitely established, there is a lapse of a long period of time, usually of years, before it is adopted by the profession at large. Here is another opportunity afforded the medical director. He has established a library in the hospital and, through a journal club or some similar agency, the literature in a large group of journals is abstracted and discussed at regular intervals by the staff. He suggests that certain of the newer procedures be tried. He provides the equipment, and trains a technician if necessary. The method, thus tested, will soon demonstrate its worth. If it is of no value, it can easily be dropped. If it is of value, that group will profit by its use over a period of several years before they would otherwise have become familiar with it.

The advancement of research and medical science, the third field of endeavor of the medical hospital, has a value so well recognized that it calls for no discussion here. Since most hospitals have not recognized their opportunity in the field of research, they have made no provision for such persons on their staff. This, again, would come under the scope of the medical director.

Two difficulties come to mind in putting into operation this plan of medical director. The first is in selecting the proper man for the position. The success of the undertaking is intimately associated with the character of the man who shall act in such a position. Naturally he must be well trained, broad minded, sympathetic and cooperative, if he is desirous of making the plan a success. A narrow minded, selfish man, be he ever so well qualified personally, would make a failure of the undertaking.

The aim of the medical director is one of help and of services to help the hospital provide adequate equipment for all diagnosis and treatment; to help the individual physician in making use of the equipment for the good of the patient; to help the staff by promoting a spirit of team work among them. In such a position a man has an unlimited field.

The second difficulty attendant on adding a new agent to the hospital staff is the financial question. Two means of

1. Warner, A. R.: Medical Care Is Measure of Hospital's Real Service, *Mod. Hosp.* 16: 325 (April) 1921.

2. Mayo, W. J.: The Medical Profession and the Public, *J. A. M. A.* 76: 921 (April 2) 1921.

financing such a department merit attention. In one instance the fees collected from the laboratory, after the laboratory was reorganized and the attention of the staff had been called to the importance of routine laboratory tests, very nearly bore the expense of the new undertaking. A second method lies in interesting some philanthropic individual who will personally meet the added expense.

CONCLUSION

Hospitals should represent the best in medicine and surgery. Outside the hospital, specialization, group practice and health centers³ are becoming popular because they are an advance in the demand for better medical practice. In order to be progressive, hospitals must meet new conditions as they arise. The time is at hand when a patient entering a hospital should have an assurance that he will receive careful study and adequate treatment. This cannot be done under the regimen of a nursing hospital. It means that hospitals must become medical institutions and that there must be in their organization the same elements of team play and cooperation among the various specialists and men on the staff that obtains in group medicine outside the hospital.

FIRST NATIONAL BOARD EXAMINATION UNDER NEW PLAN

The first examination by the National Board of Medical Examiners under the recently adopted new plan¹ will be held as written examinations in Class A medical schools as follows: Part I, February 15, 16 and 17, inclusive; Part II, February 20 and 21, inclusive. Part I will consist of an examination in anatomy, including histology and embryology; physiology; physiologic chemistry; general pathology; bacteriology; materia medica, and pharmacology. Part II will consist of an examination in medicine, including pediatrics, neuropsychiatry and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene and medical jurisprudence. The board announces that, because of prevailing industrial and financial conditions, reductions in the fee schedule are established as follows: For candidates whose applications are received before June 1, 1922, fees for Parts I and II, \$10 each in addition to the registration fee of \$5, provided the examination in Part I is taken before Sept. 1, 1923; in case of an "incomplete" examination of Part I or II, approved by the board before Sept. 1, 1923, the original fee for the part shall cover the examinations necessary to complete the part if taken within one year; candidates registering before June 1, 1922, will be admitted to the examination in Part III, when eligible, on payment of \$25 for the examination in Part III, in case of such partial payment the certificate of the board being withheld until balance is paid; until Sept. 1, 1923, a candidate entitled to a reexamination in the subjects of Part I or II not involving the whole part will be permitted a reexamination in one subject without extra charge, and the fee for each additional subject will be \$5; if a candidate is entitled to a reexamination in the whole of Part I or II, fee for such reexamination shall be the same as originally charged. Application blanks and circulars of information may be had by writing to the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia.

3. Billings, Frank: *The Future of Private Medical Practice*, J. A. M. A. **76**: 349 (Feb. 5) 1921.

1. The National Board of Medical Examiners, J. A. M. A. **77**: 881 (Sept. 10) 1921.

Efficient Hospital Service.—Good hospital service depends upon brains and effort, brains to develop, organize, and direct the required professional skill and constant effort expended to keep all the hospital working efficiently, and to keep informed at all times as to what efficient work is. A proportional amount of brains and effort should come from the trustees and the superintendent, and it is unfortunate when the medical staff has to do every one else's work as well as its own.—A. R. Warner, *Mod. Hosp.* **17**:177 (Sept.) 1921.

Book Notices

INFLUENZA. An Epidemiologic Study. By Warren T. Vaughan, M.D. The American Journal of Hygiene Monographic Series No. 1. Paper. Price, \$3.25. Pp. 260. Baltimore: American Journal of Hygiene, 1921.

This is a readable, rather extensive treatise including a general epidemiologic survey of influenza as well as a report of the writer's own investigations. Much interesting descriptive material, together with a number of instructive tables and charts, has been brought together. A limited bibliography is appended. Not all the important aspects of the influenza problem, however, have been covered, and some of the topics dealt with are not treated in a thoroughly critical fashion. Many readers will find the general summary of others' investigations more valuable than the author's own contributions to epidemiologic knowledge. The sickness survey which he made in Boston in 1920, covering approximately 10,000 individuals, led to results substantially the same as those obtained by Frost and other workers. The different sex incidence observed, showing a high attack rate in females, agrees with that observed by Frost. So, too, with respect to immunity, the author arrives at the same results as those reached by Frost and others, and concludes that "a previous attack, contracted on an average of from ten to seventeen months before, conferred no protection whatever against a second attack." One somewhat confusing feature of the report is due to the lack of clear separation between the writer's own work and the results of previous investigators. On the whole, however, the treatise will be very useful to students of influenza. There are a number of misspellings of proper names, and, unfortunately, a number of authors cited in the text are given no corresponding reference in the bibliography. An interesting and attractive feature of the monograph is the writer's willingness to inject his own views—in many cases stimulating and instructive—into the discussion.

THE PSYCHOLOGY OF EVERYDAY LIFE. By James Drever, M.A., B.Sc., D.Phil., Combe Lecturer on Psychology in the University of Edinburgh. Cloth. Price, \$2.50 net. Pp. 164. New York: E. P. Dutton & Company, 1921.

Several books on the psychology of everyday life are already available, including the practical book by Swift and the psychanalytic book by Freud and Brill. The present text is more psychologic and less popular than Swift's book, and less medical than Freud's. It is written in a clear, easy, readable style although somewhat advanced over elementary books on psychology. Of particular interest is the chapter on "Remembering and Forgetting," the author accepting Freud's view that slips of the tongue or pen, or slight mistakes of carrying out intended actions, mislaying of objects, and a host of other small errors are symptomatic of interference directly or indirectly on the part of submerged complexes. A final chapter deals with spiritistic phenomena, which the author regards as forms of disassociation pure and simple, and highly improbable. A valuable bibliography of the hundred best books in psychology for the general reader is appended.

MISSSTÄNDE IM ARZNEIMITTELWESEN UND VORSCHLÄGE ZU IHRER BEKÄMPFUNG. Von Dr. Emil Reiss, Privatdozent an der Universität Frankfurt a. M. Paper. Price, 6 marks. Pp. 40. Berlin: Julius Springer, 1921.

Wanted, in Germany: an institute for the examination of new remedies like the one now in existence in North America (the Council on Pharmacy and Chemistry). That is the chief theme of this pamphlet, aimed at the correction of abuses connected with the overproduction of pharmaceuticals. We may spare ourselves the description of these abuses, as they are identical with those that prevailed in this country prior to the organization of the Council, and which unfortunately still continue to exist, though in somewhat less obnoxious and dangerous form. The evil effects of these on the medical profession, the pharmacists, the manufacturers and the public are systematically discussed in turn. The "Institut für Arzneimittelprüfung" should be, in the author's opinion, established by the government; but, owing to the impossibility of accomplishing this in Germany for a long time to come in

view of present financial and political conditions, Reiss welcomes the inauguration of such an institute on private initiative by a committee of the Deutsche Gesellschaft für innere Medizin in connection with the Pharmacologic Institute of Berlin. He suggests the advisability of having two such institutions in the country, so that a manufacturer dissatisfied with the decision of one might appeal to the other. Another remedy proposed by the author is an abrogation or modification of the trade-mark law so that the almost perpetual monopoly that can be enjoyed by any one for the mere exercise of his imagination would be abolished. The present law directly encourages, and makes profitable, frauds of all kinds, as that of introducing substances as new by the mere coining of a new name for them, while it does not even protect the consumer as regards the identity of a product. The owner of a trade-mark may change the product as he pleases, as is known to have occurred in a number of instances. If, on the other hand, the patent law—which in Germany merely protects the process—should be found insufficient protection to an inventor of a new remedy to make investigation worth while, the law might be changed to cover the substance itself (as we have it in this country). Another remedy advocated is improvement in the teaching of prescription writing. Since the introduction of the biologic method in the teaching of pharmacology, prescription writing has become a lost art, and this has encouraged the development of the deplorable excrescences of the pharmaceutical industry of today. If the teacher of pharmacology is purely a theorist, who merely knows the action of drugs upon animals, he should associate with himself a clinical man who can make the subject of prescription writing interesting and profitable to the student. Even though, thanks to the Council on Pharmacy and Chemistry, we are much farther along in this country in the correction of the abuses under discussion, the pamphlet contains a number of suggestions well worthy of attention.

BENIGN STUPORS. A Study of a New Manic-Depressive Reaction Type. By August Hoch, M.D. Cloth. Price, \$2.50. Pp. 284. New York: The Macmillan Company, 1921.

This posthumous monograph, edited by Dr. John T. McCurdy, contains an excellent description and an intelligent analysis of this syndrome of mental medicine. The stupors are defensorial actions; one may say that they are the result of choice by the individual. There is but one way to give a mental history correctly: in diary form and in extenso. There are 100 odd pages of fine print devoted to case histories. The cardinal symptoms of the stupor reaction are paucity of affect, inactivity, negativism and catalepsy. These symptoms can be shown in most cases to be due to ideas of death. The discussion on diagnosis shows the same high plane of assurance as it would if typhoid or syphilis, instead of intangible mental states, were the subjects. There is a concise summary of the stupor reactions, and the book closes with a short discussion of the literature.

A MANUAL OF SURGICAL ANATOMY. By Charles R. Whittaker, F.R.C.S., F.R.S.E., Senior Demonstrator of Anatomy, Surgeons' Hall, Edinburgh. Third edition. Cloth. Price, \$3.50. Pp. 429, with 90 illustrations. New York: William Wood & Co., 1921.

This volume contains material prepared and used in the author's lectures to students. The surgical anatomy of the various regions of the body is discussed according to a definitely outlined plan. Each region is described and the surgical possibilities pointed out in such a way as to visualize them and to hold the attention of the reader. This application in instances may be open to criticism, although the anatomic descriptions show a thorough preparation in that subject. In stating that the free communication between the lymphatics of the pancreas and bile ducts explains why chronic pancreatitis is often a sequel of cholecystitis and cholangitis, the author is assuming as proved only one of several theories of origin, and that one not generally accepted. The old nomenclature is used with a few exceptions. In certain instances the old is used in one place and the new later. Since the Basle anatomic nomenclature has been set as a standard and is being taught in the best medical schools, the old nomenclature should be discontinued. The diagrams and

illustrations are nearly all original and are inserted where most needed. A table of the ossification centers of the epiphyses of the bones, with a brief discussion, is given; unfortunately, the date of beginning ossification is not entered. This knowledge must be available in the interpretation of roentgenograms, and the table should be completed. The volume gives the student that clinical application so necessary for visualizing anatomic details and remembering them from dissections and studies of exhaustive textbooks. To the practitioner it offers a much-needed review of surgical anatomy that will not overburden his time and will hold his interest by taking him back from his clinical experience to the anatomic details.

TASCHENBUCH DER ÖKONOMISCHEN U. RATIONELLEN REZEPTUR. Von A. Frölich, Prof. für Pharmakologie, und R. Wasicky, Prof. für Pharmakognosie. Paper. Pp. 215. Berlin: Urban & Schwarzenberg, 1921.

The deplorable financial condition of the masses of central Europe is reflected by this booklet, which aims to suggest to the physician ways by which he can greatly reduce the expense of medicaments to his patients. Thus, to save the almost prohibitive price of glassware, the physician is advised to prescribe powders instead of solutions, and to have the patient prepare the solution at home. This frequently has other advantages. Ordering tannic acid in powder form and having it dissolved by the patient, as required, overcomes the disadvantage of instability of the tannic acid solution, which has so great a tendency to become moldy. Some of the other rules formulated are: Have the patient prepare his own infusions and decoctions of mildly acting vegetable drugs by writing for "species." Prefer tablets to pills, powders and mixtures. When prescribing in solution, use aqua fontana instead of aqua destillata whenever expedient. Order ammoniacal rather than alcoholic liniments. Use domestic instead of imported drugs. Avoid as much as possible the prescribing of specialties and of trade-mark chemicals. In the "special part," the various therapeutic classes of drugs are briefly reviewed, and the least expensive means of securing drug effects are pointed out. In prescribing for the poor, whom we have with us even in this land of plenty, some of the principles pointed out might well be applied.

Miscellany

PLUMBING INSPECTION

THE JOURNAL has often commented on the inconsistency of the claims advanced for "sanitary plumbing" as an agency in preventing the dissemination of disease. For reasons that are easily understood, money can often be raised more readily for purposes of health protection than for some other purposes. There are consequently frequent attempts made to utilize interest in disease prevention as a means for expenditure which might otherwise meet opposition. A recent movement in this direction is seen in the endeavor of plumbers to assume the title of "Sanitary Engineer."

The whole case has been admirably presented in a recent article in the *Engineering News Record* (87:195, 1921):

"According to a law affecting all cities in New York State, plumbing inspection is included in the duties of the local health authorities. With our present conceptions of public health work, such an idea seems highly fantastic, for the effects of faulty drainage in causing disease are known to be very small indeed. Whatever the original idea, the plumbing codes now generally in effect have but the slightest connection with the activities of a public health unit as now carried on. The plumbing code of Rochester, like the building code, concerns only questions of materials, workmanship and type of fixtures. A plumbing inspector does not attempt to decide whether conditions are sanitary or not. He simply sees that the plumbing system is of an accepted kind, of proper materials and properly installed. This done, he goes away and forgets it until informed that it has broken down in some particular. Then he makes sure, as before, that the necessary repairs are made

in a workmanlike manner. The plumbing inspector requires that a stack be of a given size; the building inspector makes sure that rooms have the floor and window area considered necessary to the health of the occupants. One is as much concerned with the public health as the other. Both are concerned with original construction only, and both should be in the Bureau of Buildings, which has the control of original construction for its object, not in the Bureau of Health, which is charged with the correction of unhealthy conditions.

"It furthermore is not good management to put an inspection service concerned only with materials and workmanship under the inspection of a man trained in medical matters, whose attention is almost wholly taken up with fighting disease. It has resulted, in the case under discussion, in almost complete separation and independence of the inspection service.

"The municipal health bureau is an organization whose purpose is the prevention and control of disease. Its annual appropriations almost always are inadequate, and it is unfair to that body and misleading to the taxpayers to support out of these appropriations, ostensibly for protection of public health, an inspection service concerned with protection of property values far more than with the prevention of disease. This practice is quite general in American cities, and seems to be a survival of the older public policy which puts property interests above human life or health. It is a neat and successful scheme for protecting property values with money the uninformed citizen naturally believes is being spent in controlling disease."

THE UNITED STATES PHARMACOPEIA

Many Deletions from the Tenth Revision

The chairman of the committee on revision of the United States Pharmacopeial Convention has made public a report which includes the following statement:

The Subcommittee on Scope recommends that the following articles official in the U. S. P. IX be not admitted to the U. S. P. X:

Acidum Gallicum	Liquor Sodii Arsenatis
Acidum Hydrobromicum Dilutum	Lithii Bromidus
Acidum Hydrocyanicum Dilutum	Lithii Carbonas
Acidum Hypophosphorosum Dilutum	Lithii Citras
Acidum Nitrohydrochloricum	Maltum
Acidum Nitrohydrochloricum Dilutum	Mangani Dioxidum Praecipitatum
Aethylis Carbamas	Matricaria
Alumini Hydroxidum	Mezereum
Ammonii Iodidum	Morphina
Ammonii Salicylas	Moschus
Ammonii Valcras	Oleoresina Petroselini
Amygdala Dulcis	Oleoresina Pineris
Anisum	Oleoresina Zingiberis
Aqua Rosae	Oleum Cubebae
Aqua Aurantii Florum	Oleum Pimentae
Argenti Oxidum	Oleum Thymi
Arnica	Petroselinum
Aspidosperma	Physostigma
Auri et Sodii Chloridum	Pilocarpus
Bismuthi Betanaphtholis	Piper
Bismuthi et Ammonii Citras	Potassii Hypophosphis
Bismuthi Subsalicylas	Pyrethrum
Bromoforum	Quininae Salicylas
Caffeina Citrata	Sabal
Caffeina Citrata Effervescens	Sanguinaria
Calcii Glycerophosphas	Sarsaparilla
Calcii Hypophosphis	Sassafras
Calcii Sulphidum Crudum	Sinapis Alba
Camphora Monobromata	Sodii Arsenas
Cerii Oxalas	Sodii Arsenas Exsiccatus
Chondrus	Sodii Glycerophosphas
Cimifucuga	Sodii Hypophosphis
Cinchoninae Sulphas	Sodii Perboras
Copaiba	Sodii Phenolsulphonas
Coriandrum	Spartcinae Sulphas
Diacetylmorphina	Spigelia
Diacetylmorphinae Hydrochloridum	Staphisagria
Diastaseum	Strontii Bromidum
Ferri et Quinae Citras	Strontii Iodidum
Fluidextractum Sarsaparillae Compositum	Strychnina
Foeniculum	Sumbul
Frangula	Syrupus Calcii Lactophosphatis
Guaiacum	Syrupus Hypophosphitum
Guarana	Syrupus Sarsaparillae Compositus
Humulus	Taraxacum
Hydrargyri Oxidum Rubrum	Triticum
Hydrastina	Uranii Nitrates
Hydrastinae Hydrochloridum	Veratrina
Lactucarium	Viburnum Prunifolium
	Xanthoxylum
	Zinci Carbonas Praecipitatus
	Zinci Phenolsulphonas
	Zinci Valcras

Medicolegal

Note to Be Paid by Medical Examinations

(*Dobbs et al. v. Johnson (Texas), 230 S. W. R. 1035*)

The Court of Civil Appeals of Texas says that the plaintiffs were the agents for a life insurance company. The defendant was a physician whom they had had appointed medical examiner for the company, and who admitted receiving \$485 in examinations. He took out a policy in the company for \$10,000 life insurance, and for the premium gave the plaintiffs his note for \$285. The note at its close provided: "To be paid by medical examinations." When they sued on the note, it contained credits amounting to \$85. The evidence showed that not enough examinations were made during the first six months after the note was executed to pay it off, and the defendant contended that failure to give him enough examinations in the six months, at the end of which the note became due, automatically discharged his liability on the note. Judgment was rendered that the plaintiffs take nothing by their suit, and that the note be canceled and annulled; but that judgment is reversed by the court of civil appeals, which renders one in favor of the plaintiffs. The court holds that the defendant should be estopped to deny his liability. He obtained full value for the note, and he should not be allowed to profit at the expense of the payees of the note. Where a party to a contract has received and retained the benefits of a substantial performance thereof by the other party, he cannot rescind the contract, but it must be carried out. There was no basis in the evidence on which to found a cancellation of the note. There was no pretense of fraud, accident or mistake, but the cancellation was based on a claim of payment because enough examinations were not furnished the defendant to pay off the note. This could form the basis of no suit, except one for damages, and these were neither alleged nor proved. The consideration for the note was fully paid in the issuance of the \$10,000 policy, and the defendant could not escape payment of the premium after having enjoyed the benefit of the insurance for more than a year. The partial breach of contract, if such breach occurred, would not form the basis for a rescission of the contract, but might justify a suit for damages. In this case, however, the defendant continued the contract after he said it was breached, and such waiver would have the effect of doing away with the effects of a breach.

A Childbirth Case—Error in Referring to Pus

(*Schnetzky v. Zanto (Wis.), 182 N. W. R. 751*)

The Supreme Court of Wisconsin says that, March 5, 1919, while attending the defendant, the plaintiff was employed to take care of the defendant's wife, who was delivered of a child on the same evening. For several days thereafter the plaintiff attended both husband and wife. According to his testimony, he detected symptoms of pneumonia in the wife, March 9, and on the 10th began a course of treatment for such disease, and continued it until the 13th, and treated her for no other ailment during that time. At the defendant's request, on the 11th another physician was called in consultation, who thereafter testified that Mrs. Zanto was suffering from a critical stage of pneumonia; that he made a manual examination of, and found there was no trouble with, the uterus. March 13, the plaintiff was discharged, and a Dr. Berwick was called. When the plaintiff sued the defendant for the medical services which he had rendered to the defendant and his wife, the defendant counterclaimed for damages on account of the plaintiff's alleged negligence in treating Mrs. Zanto. A number of physicians were called by each side as experts. Dr. Berwick testified that at his first visit he found the defendant's wife suffering from septic, or blood poisoning, with a very high temperature caused by such condition; that the source of such trouble was in the uterus; that the condition of the uterus at that time was such that it was dangerous to attempt to clean it out. That at such time, March 13, Mrs. Zanto had no pneumonia, and there

were present no indications that she had recently been so afflicted; that four days afterward the witness flushed and cleared out the uterus; that in the strongly odorous fluid discharge that came at that time, in quantity approximately a pint, he found a portion of the placenta about the size of a pigeon's egg; that the critical condition in which he found Mrs. Zanto was the direct and probable result of the failure to remove such portion of the placenta. He also testified that at the time of such discharge from the uterus there was no pus. Nor was there any testimony in the record which tended to qualify or contradict this statement as to the absence of pus in the discharge. Nevertheless, a hypothetical question was put to one of the medical experts in which was included the finding of such a piece of placenta eleven days after the birth of the child; that the womb gave away blood and pus in amount equal to half a pint; and a temperature that rose from 104 to 106 during the period of five to seventeen days after the birth. Moreover, the existence of pus was made a part of the hypothetical questions by the defendant's counsel in his examination of all the medical experts save one. The plaintiff testified that he did examine the afterbirth and found that it was intact. He was corroborated on both of these points by the midwife in attendance, and as to the fact that he did make some examination of it by the defendant. The trial resulted in a verdict and judgment for the defendant. That judgment is reversed, and the cause remanded for a new trial, because, although Dr. Berwick testified directly that there was no pus in the discharge some eleven days after the birth of the child and in which was found, as he claimed, an overlooked portion of the placenta, yet it was quite apparent that, through a mistake which could easily arise in the trial of such a lawsuit, the court and counsel on both sides seemed to have assumed that there was testimony which would warrant the including as an important feature of the hypothetical question asked of the medical witnesses the existence of pus in such discharge. A consideration of the entire testimony satisfies the supreme court that the reiterated inclusion of and emphasis on this element of pus as being present in the discharge must have influenced the jury in a substantial degree in arriving at the verdict which it rendered. The supreme court is also convinced that the error was of such a nature that it must be declared to have caused a substantial prejudicial error, for which the plaintiff should be granted the relief of a new trial.

Due Process of Law Denied by Vasectomy Statute

(*Williams et al. v. Smith (Ind.)*, 131 N. E. R. 2)

The Supreme Court of Indiana, in affirming a judgment in favor of plaintiff Smith, holds that the trial court was correct in enjoining the defendants from performing, or causing to be performed, the operation of vasectomy on him. The supreme court says that the plaintiff was a prisoner in the Indiana Reformatory, and that the chief physician, board of managers, and two chosen surgeons were proposing to act pursuant to the Indiana statute of 1907, which provides that:

It shall be compulsory for each and every institution in the state, intrusted with the care of confirmed criminals, idiots, rapists and imbeciles, to appoint on its staff, in addition to the regular institutional physician, two skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief surgeon of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers. If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and best. But this operation shall not be performed except in cases that have been pronounced unimprovable.

Wholly aside from the proposition of cruel and unusual punishment, and infliction of pains and penalties by the legislative body through an administrative board, it is very plain that this act is in violation of the fourteenth amendment to the federal constitution in that it denied the plaintiff due process of law. He had no opportunity to cross-examine the experts empowered to decide that this operation should be performed on him. He had no chance to bring experts to show that it should not be performed; nor had he a chance to controvert the scientific question that he was of a class designated in the statute.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.

SOUTHERN MEDICAL ASSOCIATION

Fifteenth Annual Meeting, held at Hot Springs, Ark., Nov. 14-17, 1921

The President, DR. JERE L. CROOK, Jackson, Tenn.,
in the Chair

Early Diagnosis and Treatment of Joint Tuberculosis

DR. JOHN T. O'FERRALL, New Orleans: Sufficient care is not taken in making a diagnosis in the average case of early joint tuberculosis. Not only local treatment but also rigid and long continued constitutional treatment is required, for tuberculous joints over a period not less than two years, especially as regards weight bearing. The promiscuous opening of tuberculous abscesses and haphazard curetting of sinuses is extremely bad surgery. The end-result striven for should not be ankylosis, but a functioning joint.

Roentgen-Ray Study of the Lumbosacral Spine

DR. ARCHER O'REILLY, St. Louis: Abnormalities and variations in the lumbosacral region are very common. In some cases, however, variations in a minor degree are due to distortions, as a result of the position of the patient when the roentgenogram is made. Variations of the lumbosacral spine are not confined to patients with back symptoms, but are also seen in about 50 per cent. of the cases in which back symptoms were absent. It is probable that in these cases the spine is inherently weak, and that eventually backache or strain may develop. Irregularity at the lumbosacral articulation is very common, not only in persons suffering from backache, but also in those who have never had back symptoms, so that the surgeon, in cases of injury, must be very guarded in stating that there has been displacement or fracture as a result of the accident.

Operative Treatment of Certain Fractures (Femur, Humerus and Forearm)

DR. EDWIN W. RYERSON, Chicago: Whitman's method is simple and is followed by a high percentage of good results. It can rightfully be called an operative method, because it involves the actual reduction of the fracture, usually under an anesthetic. The technic should be perfectly understood by general practitioners, for they are the men who take care of most fractured hips. This method is applicable to the great majority of cases of fracture through the neck of the femur (intracapsular type), no matter how old or how fat the patient may be. The union may not be absolutely accurate from an anatomic point of view, but it is almost certain to be excellent from a functional standpoint. Very few fractures will require open operation if they have had competent mechanical treatment, but few communities at present are provided with the requisite appliances and materials for the proper treatment of many of the common and disabling forms of fracture.

Essentials of Successful Leadership for Public Work on a County Basis

DR. S. W. WELCH, Montgomery, Ala.: The primary requirement for successful leadership for public health work on a county basis is native ability to deal with people, supplemented by a medical education and an understanding of the operation of law in human conduct, particularly with relation to rural psychology. A detailed and comprehensive knowledge of scientific phases of the health field seems less essential to the health officer in the early beginnings of health organization than ability to anticipate popular needs and harmonize divergent interests. The extent to which effective supervision by the state board of health may con-

tribute to an uninterrupted yield of results in county health work and to the continued individual growth of professional personnel is dependent on a set of conditions in which problems of organization and administration are inextricably interwoven.

Control of Typhoid in Rural Communities

DR. ALECK P. HARRISON, Austin, Texas: There is a constant source of infection in rural districts, the open-back privy, the open, unprotected wells, the unscreened houses being the chief sources of danger. Typhoid may be controlled and eradicated by educating the people, building sanitary privies, using pumps instead of open wells, screening the houses, properly treating patients and protecting all water, food and milk supplies and, lastly, by rendering a large proportion of the population immune by vaccination.

Soil Pollution, a Public Health Problem of Today

DR. E. L. BISHOP, Nashville, Tenn.: In the selection of a type of privy for community installation in rural districts, attention should be given to two general factors: 1. The soil formation and ground water level. The vertical distance between an area of pollution and ground water is the important one; the horizontal distance is of relatively little importance, except in the case of limestone fissures and other natural or artificial openings. 2. Ability to secure community application of the type selected, taking into account the accessibility of materials, the economic status of the community to be served, and individual willingness to buy the degree of protection decided on.

Fish as an Antimosquito Agency

DR. J. A. LEPRINCE, Memphis, Tenn.: Each county health officer in the malaria belt should make it his business to see that a fish hatchery is established at the county seat, where those who come into town on Saturday afternoons can and will notice it. In some towns a concrete tank can be placed in the court house square, gambusia installed therein, and the attention of the public invited to it by an appropriate sign. Also, owners of permanent stock ponds generally allow us to use their property as hatcheries. In many counties there are permanent ponds near well traveled good roads. These ponds can easily be stocked at small expense, and large signs used to tell the rural public that the county health officer can supply them with gambusia. In many cases the women's clubs, chambers of commerce or similar bodies will gladly help to finance the making and installing of this large advertising sign. If correctly planned, mosquito control measures can be made to be a lever for other classes of rural sanitation that are not yet so readily measured by the public eye. The county superintendents of schools can be interested, and jars of fish kept in each school. Final school examination papers can contain a question or two about gambusia. There should be properly labeled exhibits of gambusia at every county agricultural fair. This exhibit could be used to induce farmers to breed this fish in their stock ponds.

The More Common Causes of Chronic Urinary Obstruction in Male Children

DR. W. A. FRONTZ, Baltimore: Congenital valves of the posterior urethra and spina bifida are the most frequent causes of chronic urinary retention in children. As the internal vesical sphincter and prostatic urethra are frequently widely dilated in both conditions, developmental defects of the lumbar and sacral spine should always be eliminated. The treatment of obstruction from congenital urethral valves is most satisfactory if instituted before the development of serious lesions of the upper urinary tract.

Spina Bifida with Associated Diverticulum of Bladder (Urachus) and Pyonephrosis

DR. JOSEPH H. SMITH, Memphis, Tenn.: My case presented: failure to close of the third, fourth and fifth neural arches of the third, fourth and fifth lumbar vertebrae; some contraction and distortion of the pelvic bones; curvature of the spine over this region; supernumerary or accessory first lumbar rib; meningocele over the sacrolumbar region; marked trabeculation of the bladder in its entirety; distorted left

ureteral orifice and orifice of diverticulum (urachus). The diverticulum extended far up into the right hypogastrium; the contents were approximately 500 c.c.; it formed a large fluctuating tumor when distended. There was also a pyonephrosis of the left kidney, a large pelvis with abrupt termination of the distention downward of the thorium shadow.

Problem of Chronic Infection of Prostate

DR. ABRAHAM NELKEN, New Orleans: It is my opinion that the prostate is involved in 85 per cent. of all cases of gonorrheal urethritis and in about 50 per cent. of all cases of non-specific infection of the urethra.

Postoperative Care in Surgical Conditions of the Kidney

DR. H. W. E. WALTHER, New Orleans: The immediate after-care of the patient as relates to shock deserves careful attention. Keeping the patient quiet, warm, away from drafts, guarding against pain by hypodermic administration of morphin sulphate, pantopon, papaverin or the oral administration of some anodyne, and establishing diuresis by giving water freely either by mouth, by hypodermoclysis, by proctoclysis or by infusion will do much toward restoring the patient. Hemorrhage at operation, which cannot be arrested by hemostatic forceps and ligature, is best controlled by packing. Whether the guaze pack employed should be dry or saturated with one of the thromboplastin preparations still remains a mooted question.

Glucose Tolerance Test in the Obese

DR. JAMES E. PAULLIN, Atlanta, Ga.: We selected for this study twenty-six cases, all showing from 10 to 80 per cent. overweight. Before accepting them we determined as nearly as we could that the kidneys showed no essential damage which would influence the character of the reaction. We detected at least five prediabetics, and two of the five have definitely developed diabetes. The test is of great value in stressing the importance of dietary therapy in these cases.

Food Allegry as a Cause of Abdominal Pain

DR. W. W. DUKE, Kansas City, Mo.: The gastro-intestinal mucosa may become hypersensitive to an article of food with the result that the patient experiences severe abdominal pain, often associated with nausea and vomiting, whenever he eats the food to which he is sensitive. The symptoms of food allergy may simulate somewhat those of a surgical lesion in the abdomen, and an error in diagnosis can be made unless this condition is kept in mind.

Rationale of Digestive Therapy

DR. ERNEST H. GAITHER, Baltimore: Our most encouraging results have been obtained by the use of various combinations of iron, arsenic and strychnin, given in the hypodermic form. My personal experience is not sufficient to venture an opinion as to the efficacy of the intravenous method of drug application. Postoperative digestive cases call for the exercise of the greatest discretion and closest attention, but, as a class, they are the most neglected with which we have to deal. In the hands of certain investigators, lavage of the duodenum and drainage of the gallbladder by the newer methods seem to have been productive of good results, but their value in digestive therapy has not been conclusively established as yet. In true digestive neurosis, when an absence of organic change is proved the best results are obtained by prescribing a well regulated, properly balanced general diet, and psychotherapy with hygienic, dietetic and medicinal principles applied symptomatically.

Newer Methods in the Treatment of Diabetes

DR. ELLIOTT P. JOSLIN, Boston: Improvement in the care of patients with diabetes will come from physicians having them in their own hands. If the duration of diabetes accidentally discovered by insurance companies is twelve years, it lies in the power of every practitioner not only to duplicate their results for similar age periods, but to surpass them. The physician should detect diabetes, not by accident but by design. Thereby treatment can be begun at a still earlier stage.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

November, 1921, 2, No. 5

- *Development of Hymen. F. J. Taussig, St. Louis.—p. 471.
- Hemorrhage from Nonpregnant Uterus in Absence of Neoplasm. W. A. Scott, Toronto, Ont.—p. 479.
- Ovulation and Menstruation as Postoperative Considerations. T. J. Walkins, Chicago.—p. 489.
- Radical Conservatism in Surgical Treatment of Chronic Adnexal Disease. F. C. Holden, New York.—p. 493.
- *Disposition of Uterus Following Salpingectomy Where It Is Desirable to Preserve Menstruation. C. Culbertson, Chicago.—p. 497.
- Torsion of Uterine Adnexa Occurring Before Puberty; Torsion of Normal Adnexa. Report of Case; Review of Literature Since 1900. R. R. Smith and W. J. Butler, Grand Rapids, Mich.—p. 507.
- Management of Abortion from Study of 530 Consecutive Cases. O. A. Gordon, New York.—p. 521.

Development of Hymen.—Picturing a vagina that lies nearer the surface than in lower animals Taussig says the squatting posture must have given rise to contamination with insects and irritating substances from the ground unless Nature had taken some means to offer protection. The usual conception of the labial folds is that they have such a protecting function and it does not seem unreasonable to suppose that the hymen similarly and in a more direct manner served to keep out foreign material from the vagina. Particularly during the first years of life before the labia and their hairy covering are fully developed would such a hymeneal fold serve a definite purpose. According to this view, then, the hymen dates back to the time when the progenitors of the human race squatted on the ground.

Fundectomy After Salpingectomy to Preserve Menstrual Function.—Culbertson maintains that the reduction of the uterus in size by removal of its entire fundus is a ready method of disposing of the organ after salpingectomy when, particularly in young women, it is desirable to preserve menstruation. Fundectomy becomes a logical procedure not only in operating for the cure of infectious processes, but also for simple sterilization, for ectopic pregnancy, ovarian cystomata and like conditions. Its only contraindication from a technical point of view is that of procidentia uteri.

American Journal of Ophthalmology, Chicago

November, 1921, 4, No. 11

- Disciform Keratitis. W. C. Bane and W. M. Bane, Denver.—p. 801.
- Late Traumatic Detachment of Retina. Its Prophylaxis and Importance from Disability Compensation Standpoint. H. Gifford, Omaha.—p. 803.
- Tenotomy and Looping for Surgical Correction of Strabismus. F. O. Schwartz, St. Louis.—p. 806.
- Retinal Angiosclerosis. L. A. Copps, Marshfield, Wis.—p. 810.
- Eye Findings in Brain Injuries. N. M. Black, Milwaukee.—p. 819.
- Causes and Prevention of Blindness. N. B. Harman, London.—p. 824.
- Neighborhood Signs in Pituitary Tumor. J. J. Keegan, Omaha.—p. 835.
- Extraction of Senile Cataract. C. A. Veasey, Spokane, Wash.—p. 846.
- Microphthalmia with Encephalocele. H. I. Begle, Detroit.—p. 850.
- Ophthalmic Herpes Zoster. H. G. Thomas, Oakland, Calif.—p. 853.
- Eye Complications of Variola. J. C. Decker, Sioux City, Ia.—p. 854.
- Toxic Amblyopia from Alcohol and Copenhagen Snuff. E. J. Brown, Minneapolis.—p. 854.
- Paralysis of Convergence; Report of Cases. J. P. Israel, New York.—p. 856.

American Journal of Public Health, Chicago

November, 1921, 11, No. 11

- Use of Centrifuges for Dewatering Sludge. T. C. Hatton.—p. 958.
- *Results of Recently Passed Ordinance Requiring Physical Examination of All Persons Connected with Food Handling in Restaurants, Bakeries, Grocery Stores, Etc. L. B. Gloyne, Kansas City, Kan.—p. 963.
- Abstract of Report of Committee on Accuracy of Certified Causes of Death.—p. 966.
- Need for Special Health Protection of Employed Adolescents. H. H. Mitchell.—p. 973.
- Smallpox Incidence and Measures of Control in American and Canadian Cities, 1919 and 1920. L. K. Frankel.—p. 979.
- Public Health Program of League of Women Voters. V. H. Parker.—p. 992.

- National Child Health Council. C. Dinwiddie.—p. 995.
- Coordination of Public Health Activities. P. K. Brown, San Francisco.—p. 999.
- Sacramento Water Supply. J. R. Snyder.—p. 1004.

Results of Physical Examination of Food Handlers.—Up to the present time, 1,860 persons have been examined by the Kansas City Department of Health and Sanitation. Two hundred and forty-nine have been examined by a family physician. One hundred and twelve persons either left town or quit work as soon as the department started to enforce the ordinance. The vast majority of those who left town and quit work did so because they felt sure that they could not pass the examination. From the results of the examinations it would appear that the hotel and restaurant workers have a greater liability to venereal infection. Another point stressed is that all of the persons examined by family physicians were reported to be in perfect health. The chief service rendered by the ordinance has been the locating of a large number of infectious venereal diseases.

Archives of Dermatology and Syphilology, Chicago

December, 1921, 4, No. 6

- *Treatment of Early Syphilis. C. M. Smith, Boston.—p. 723.
- *Therapeutic Action of Silver Arsphenamin. J. A. Fordyce, New York.—p. 737.
- *Rare Form of Suppurating and Cicatrizing Disease of Scalp. F. Wise and H. J. Parkhurst, New York.—p. 750.
- *Bowen Type of Epithelioma. L. B. Mount, Albany, N. Y.—p. 769.
- *Treatment of Late Syphilis, and of Syphilis in Mother and Child. J. H. Stokes, Rochester, Minn.—p. 778.
- *Crude Coal Tar in Dermatology. C. J. White, Boston.—p. 796.
- Parapsoriasis. E. D. Chipman, San Francisco.—p. 807.
- *Herpes Zoster as Primary Ascending Neuritis. D. W. Montgomery, San Francisco.—p. 812.

Treatment of Early Syphilis.—The minimum of treatment for a case of primary or early secondary syphilis in Smith's opinion should consist of: (1) mercurial dressings to initial lesions; (2) intravenous arsphenamin, 0.1 gm. to 40 pounds body weight, repeated in from three to five days, and then at five day or weekly intervals until six to ten injections have been given; (3) full doses of mercury, preferably by intramuscular injection; if an insoluble salt, fifteen injections should constitute the first course, and (4) frequent examinations of the urine. Following the mercurial injections, an interval of five or six weeks should elapse before checking up with the Wassermann test. If it is positive, the first courses should be repeated. If negative, a vacation of three months is allowed, at the end of which time ten or twelve mercurial injections and from four to six of arsphenamin are given. With a second negative Wassermann reaction, during the following six months from six to eight mercurial injections are given, and during the next year the patient should receive short courses of mercury. An examination of the cerebrospinal fluid should be made early in the disease if possible and certainly before the patient is discharged. Patients with organic disease who acquire syphilis are to be treated with the same or greater consideration than patients showing the same sort of damaged organs of syphilitic origin.

Therapeutic Action of Silver Arsphenamin.—Fordyce reports on 168 cases of syphilis in which he used silver arsphenamin. The cases were distributed as follows: Primary syphilis, four cases; beginning secondary syphilis, ten cases; secondary syphilis with a four-plus Wassermann reaction, thirteen cases; secondary syphilis with eruption and a four-plus Wassermann reaction, thirty-five cases; latent syphilis, twenty-seven cases; tertiary syphilis, nine cases with gummas; neurosyphilis, fifty-six cases. The chief objection to the use of silver arsphenamin is the fear of producing an argyria. To date, more than a million doses of the drug have been given on the continent and about 125,000 doses in this country, and no authentic cases of argyria have been reported. Fordyce regards silver arsphenamin as being a valuable addition to our remedies for syphilis because of its greater freedom from reactions. It is as efficacious as the older remedies in causing cutaneous lesions to disappear, and in certain early cases it was, perhaps, more rapid in its action. The patients in whom negative reactions have been obtained have not as yet had a spinal fluid examination. Positive statements, therefore, cannot be made as to what the percentage of cures will

be ultimately. While some of the continental physicians are giving as high as 0.5 or 0.6 gm. at a dose, until more is known about the drug Fordyce does not favor making the maximum dose at the present time greater than 0.3 gm.

Suppurating and Cicatrizing Disease of Scalp.—Wise and Parkhurst report a case of perifolliculitis capitis abscedens et suffodiens. The disease is a rare one, only three examples being reported in the literature. The clinical appearances in these three cases are almost exactly alike. In its active stages, before atrophy and scarring have taken place, the disease picture differs markedly from that of any other atrophying and destructive disease of the scalp. In its end stages, after complete involution has occurred, the affected areas resemble those seen in folliculitis decalvans, pseudopelade and other similar conditions.

Bowen Type of Epithelioma.—Mount summarizes briefly eleven cases recorded in the literature and cites one personal case.

Treatment of Syphilis.—Only that mode of approach, Stokes says, will leave a significant impress on our future knowledge which envisages the entire disease, employs one or two methods in a large series of cases over a period of many years, records the results, and which, by lifelong observation and periodic complete reexamination, detects impending serious pathologic change, and evaluates in detail and with accuracy the response of parasite and host.

Crude Coal Tar in Skin Diseases.—White is impressed with the efficacy of crude coal tar in certain skin diseases. He uses 5 per cent. incorporated in zinc paste. His formula is as follows: Crude coal tar, 2; zinc oxid, 2; cornstarch, 16; petrolatum, 16. Mix thoroughly the cornstarch and the petrolatum; second, rub together the coal tar and the zinc oxid; third, combine the first product with the second. This method produces a nearly black, perfectly smooth paste, which smells strongly of coal gas and tar. These two injunctions are absolutely essential to success. Proper methods of application and removal of this paste are to be observed. Always cut all involved hair short when possible. Never bandage crude coal tar, pustulation is the result if this injunction is disobeyed. Smear on a medium coating of the paste with a wooden throat stick, and cover over the part with one thickness of old cotton or linen. Thin white cotton gloves may be advantageously substituted when we are treating the feet and ankles; and the footless legs of white cotton stockings may be drawn over the arms or legs of the patient. All of these dressings must be washed and boiled every twenty-four hours. The same crude coal tar should never be allowed to remain on the human skin for more than twelve hours. Every vestige of the previous application must be removed before making the next dressing, and this may be accomplished by means of sterilized gauze, soaked in the oil of sweet almonds or in olive oil.

Herpes Zoster a Primary Ascending Neuritis.—Montgomery believes that the zoster eruption is due to a trophic disturbance following inflammation of a posterior root ganglion, and that this ganglionitis is due to a specific virus, possibly one of the streptococci, which attains the ganglion by way of the skin and the peripheral nerves.

Archives of Neurology and Psychiatry, Chicago

December, 1921, 6, No. 6

*Some Theoretical and Some Practical Aspects of Psychoanalysis. C. K. Mills, Philadelphia.—p. 595.

*Critique of Psychoanalysis. M. Prince, Boston.—p. 610.

*Anatomic Seat of Emotions: A Discussion of James-Lange Theory. C. L. Dana, New York.—p. 634.

Frontal Lobe Pneumonia as Observed in Cyst in Left Frontal Lobe; Marked Remission of Symptoms; Decompression After Thirteen Months; Necropsy. G. A. Moleen, Denver.—p. 640.

Histopathology of Porencephalus. J. H. Globus, New York.—p. 652.

*Artificial Pneumothorax in Treatment of Acute Infections of Meninges. Preliminary Report. E. A. Sharp, Buffalo, N. Y.—p. 669.

Syndrome of Visuopsychic Cortical Area—Based on Stable Hallucinations and Defective Visual Association in Sane Person. H. H. Hoppe, Cincinnati.—p. 674.

Psychoanalysis Waning.—Mills believes psychoanalysis, especially the freudian or sexual variety, is tending toward the discard and in another generation will have lost its hold on the profession and the community.

Criticisms of Psychoanalysis.—Prince maintains that the great majority and general body of freudian doctrines reached by this method of free-association have not only been confirmed by other and more exact methods of research, but have also been contradicted by the results so reached. The failure of the psychoanalytic method is due to the fact that the findings require and depend on too elaborate, intricate, and, however ingenious, debatable interpretations, which themselves depend on debatable theoretical mechanisms and forces, and the method itself is not only inexact and inadequate but open to artefacts of the most subtle kind, particularly in the selection of the data. The conception of the subconscious and the theoretical structure built upon it approaches more nearly a philosophy than a science.

Seat of Emotions.—Dana inclines to the opinion that the James-Lange theory of emotion is true only in part; that is, that the peripheral visceral stimuli are only later and contributing factors to emotion, and that the skeletal muscles and sympathetic system do not play an essential part. He believes that emotion is centrally located and results from the action and interaction of the cortex and thalamus. The bodily sensations which accompany emotion are produced by stimuli from the automatic centers in the brain-stem (acting on heart, blood vessels and glands), but they only cooperate to extend and perhaps intensify the emotion.

Artificial Pneumothorax.—Of sixty-four patients treated by artificial pneumothorax (intraspinal injection of air or oxygen) by Sharp, twenty-eight have died. In the meningococcus meningitis cases only the severe and apparently unfavorable cases were treated by this method. The mortality of 23 per cent. compares very favorably with the statistics of all cases of meningococcus infection in which the antimeningococcus serum is used alone. The mechanical effect of the gas in opening secluded pockets of infection has undoubtedly prevented relapses as none of the patients who have recovered have had a recurrence such as occasionally occurs in other cases. The average amount of oxygen injected has been from 10 to 15 c.c. The technic employed is the ordinary procedure of lumbar puncture with the patient lying on the side. After removal of as much fluid as will flow through the needle, the oxygen is injected by means of a 20 c.c. Luer syringe. The oxygen is injected slowly, using from 5 to 10 c.c. as measured on the syringe. Removal of the syringe allows the gas and fluid to escape in a frothy mixture. Injection of the gas is repeated and the head and shoulders slightly elevated to allow the gas to reach the cerebral ventricles. This results in additional fluid escaping when the syringe is removed.

Archives of Ophthalmology, New Rochelle, N. Y.

November, 1921, 20, No. 6

Treatment of Cataract. H. Smith, London, Eng.—p. 515.

Episcleritis; New Method of Approach. H. L. Sinskey, M. B. Levin and B. Sacks, Baltimore.—p. 526.

Case of Keloid of Cornea. H. D. Lamb, St. Louis.—p. 535.

Lipemia Retinalis. W. F. Hardy, St. Louis.—p. 543.

Action of Mydriatics and Miotics; Their Effects in Hypertension (Glaucoma). C. Koller, New York.—p. 550.

Action of Epinephrin on Glaucomatous Eye. A. Knapp, New York.—p. 556.

Character of Iritis Caused by Focal Infection. W. L. Benedict, Rochester, Minn.—p. 560.

Case of Intermittent Exophthalmos. W. G. M. Byers, Montreal, Can.—p. 569.

Arkansas Medical Society Journal, Little Rock

November, 1921, 17, No. 6

Nonsurgical Treatment of Surgical Tuberculosis. J. D. Southard, Fort Smith.—p. 115.

Skin Lesions of Syphilis. L. Thompson, Hot Springs National Park.—p. 117.

Journal of Experimental Medicine, Baltimore

December, 1921, 34, No. 6

*Studies on Treatment of Human Trypanosomiasis with Tryparsamid (Sodium Salt of N-Phenylglycineamid-p-Arsonic Acid). L. Pearce, New York.—p. 1.

Tryparsamid in Trypanosomiasis.—This study of the action of tryparsamid in human trypanosomiasis concludes a series of chemical and biologic investigations in a particular problem of chemotherapy and thus represents the final step in a

logical method of approach to such a problem. It has been shown that trypanosamid, the sodium salt of N-phenylglycine-amide-*p*-arsonic acid, possesses a marked trypanocidal activity in human trypanosomiasis caused by *Tr. gambiense*. Single doses of from 0.5 to 5.0 gm. produced a peripheral sterilization of lymph glands and blood in an average of from six to twelve hours. The duration of the peripheral sterilization following single doses of 17 to 83 mg. per kilogram ranged from seventeen to fifty-eight days in patients who ultimately showed a return of trypanosomes to the peripheral blood. In a number of patients, however, treated with single doses of 9 to 68 mg. per kilogram, no such relapse was detected during an observation period of from forty to 111 days. The drug is extremely soluble in water and may be administered intramuscularly as well as intravenously. The immediate trypanocidal action after intramuscular administration was as rapid as that following the intravenous route while the duration of peripheral sterilization was appreciably longer. Relatively few repeated doses produced in advanced cases a marked and rapid diminution of the cells of the spinal fluid and were associated with definite improvement of mental and nervous symptoms. The occurrence of visual disturbances in certain advanced cases was the only untoward effect detected during the course of the work, and was apparently related to a too frequent administration of the drug. The condition was transitory in the majority of instances and resumption of treatment was not followed by a recurrence of this symptom. The general beneficial effect of the drug was a noticeable feature of its action in both early and advanced cases as shown by the disappearance of subjective symptoms, by the return of the pulse and temperature to normal limits, by the pronounced improvement of the blood picture, and by well marked gains in weight.

Journal of General Physiology, Baltimore

November, 1921, 4, No. 2

- Nature of Foveal Dark Adaptation. S. Hecht, Woods Hole, Mass.—p. 113.
- Selective Absorption of Potassium by Animal Cells. II. Cause of Potassium Selection as Indicated by Absorption of Rubidium and Cesium. P. H. Mitchell, J. W. Wilson and R. E. Stanton, Providence, R. I.—p. 141.
- Relation of Respiration to Rhythm in Cardiac Ganglion of *Limulus Polyphemus*. W. E. Garrey, New Orleans.—p. 149.
- *Comparative Studies on Respiration. XIX. Preliminary Stage in Progress of Ether Anesthesia. E. P. Smith, Cambridge, Mass.—p. 157.
- Stereotropic Orientation of Tube Feet of Starfish (*Asterias*) and Its Inhibition by Light. A. R. Moore, New Brunswick, N. J.—p. 163.
- Comparative Studies on Respiration. XX. Cause of Partial Recovery. O. L. Iuman, Cambridge, Mass.—p. 171.
- Effect of Hydrogen Ion Concentration on Production of Carbon Dioxide by *Bacillus butyricus* and *Bacillus subtilis*. M. M. Brooks, Washington, D. C.—p. 177.
- Influence of Electrolytes on Solution and Precipitation of Casein and Gelatin. J. Loeb and R. F. Loeb, New York.—p. 187.
- Origin of Potential Differences Responsible for Anomalous Osmosis. J. Loeb, New York.—p. 213.

Effect of Ether on Respiration.—Using concentrations of ether (1, 3.65 and 7.3 per cent.), Smith noted that the first effect of ether is to cause a depression in the rate of respiration. This is followed by a rapid rise above normal, which in turn is succeeded by a fall. With all these concentrations the respiration is ultimately reduced to approximately the same level; the stronger the ether, the less time required to produce this result. Even when the respiration has been reduced below normal, recovery is possible on removal from the ether, and appears to be complete, if sufficient time is allowed. If, however, the rate has been too far depressed, no recovery is possible.

Journal of Immunology, Baltimore

September, 1921, 6, No. 5

- Identity of Antibodies. H. Zinsser, New York.—p. 289.
- *Studies on Acute Respiratory Infections. VIII. Cultural and Serologic Relationship of Hemolytic Streptococci Isolated from Inflammatory Conditions of Respiratory Tract. E. Valentine and L. Mishulow, New York.—p. 301.
- Id. IX. Differences in Character of Hemolytic Action of Streptococci and Relative Value of Various Methods in Demonstrating These Differences. L. Mishulow, New York.—p. 329.
- Id. X. Nature and Value of So-Called Precipitin Reaction as Applied to Serologic Grouping of Streptococci. C. Krumwiede and E. Valentine, New York.—p. 343.

Conglutination Phenomenon. F. Maltaner and E. Johnson, Albany, N. Y.—p. 349.

Complementing Activity of Blood Serum with Relation to Suprarenal Deficiency. E. E. Ecker and J. M. Rogoff, Cleveland, Ohio.—p. 355.

*Hereditary Blood Qualities. Medico-Legal Application of Human Blood Grouping. R. Ottenberg, New York City.—p. 363.

Relationship of Hemolytic Streptococci in Respiratory Tract.—A study made by Valentine and Mishulow of the streptococci of the hemolytic group obtained from inflammations of the respiratory tract shows that these strains fall into many cultural groups and subgroups. A serological study showed so few similarities that the probability of a dominant strain seemed remote. There was no correlation between the grouping and the type of disease. These observations and the relative infrequency of streptococci of the hemolytic group in inflammations of the respiratory tract seem to justify the conclusion that none of the strains isolated were of primary etiologic importance.

Hereditary Blood Qualities.—The work done by von Dungern and Hirschfeld and others on the agglutinogens A and B of red cells is the basis of Ottenberg's paper. The results of these investigations are applied to the question of disputed paternity. If the child's blood is the correct group for the alleged parents, then the child could be their offspring, not that it must of necessity be. But, on the other hand, if the child's group is wrong for the two asserted parents, then one can say with absolute certainty that the child must have a parent other than one of those asserted. The same evidence can be used, either to prove the illegitimacy of the offspring or (circumstances being reversed) to prove the innocence of a correspondent asserted to be the father of a given child. In infants and very young children the test can only be relied on if it shows definite group characteristics, which it does in the majority of cases. The test can be easily done with a few drops of blood obtained from a painless prick with a small needle. Considering this, and the importance of the questions often at issue, it seems as though some legal means could be devised by which the persons concerned could be compelled to allow the examination at the hands of a representative of the court.*

Journal of Industrial Hygiene, Boston

November, 1921, 3, No. 7

- When Are Disabilities of Back Arising Out of Pathologic Conditions Reportable Accidents? R. B. Crain and B. J. Slater, Rochester, N. Y.—p. 197.
- Picric Acid in Industrial Surgery. A. G. Bolduc, Bayonne, N. J.—p. 202.
- Suggestions for Cuspidors in Industrial Plants. H. F. Smyth.—p. 204.
- Spray Infection. S. R. Douglas and L. Hill, London.—p. 206.
- Carbon Monoxide Illuminating Gas, and Benzol: Their Effect on Blood Coagulation Time. H. S. Forbes and L. Hompe.—p. 213.

Journal of Urology, Baltimore

July, 1921, 6, No. 1

- *Squamous Cell Carcinoma of Bladder. F. Hinman and T. E. Gibson, San Francisco.—p. 1.
- Value of Preparation in Kidney Operations. H. G. Bugbee, New York.—p. 51.
- Vagino-vesical and Utero-vesical Fistulae. D. W. MacKenzie, Montreal.—p. 61.
- Postoperative Care of Vesicovaginal Fistulae. A. L. Chute, Boston.—p. 77.
- Changes in Blood Concentration in Experimental Nephritis. F. P. Underhill and B. Greenhouse, New Haven.—p. 83.
- New Advance in Silver Therapy (Colloidal Silver Chloride). R. B. Cobb, Chicago.—p. 91.

Squamous Cell Carcinoma of Bladder.—Hinman and Gibson present the results of a study of heterotopic epidermization, with a review of the literature and report of cases. Only ninety cases have been collected. The etiology of these neoplasms has been variously ascribed to (1) an ascending epidermization, (2) an ectodermal embryonal inclusion in the vesical wall, (3) a carcinomatous degeneration of pre-existing leukoplakia, and (4) leukoplakia malignant in character from the beginning. It seems that no single theory will explain the etiology of these neoplasms in every case. Definite proof in support of these theories appears to be lacking except in those few cases where the growth appears to be the result of malignant degeneration of preexisting leuko-

plakia. Squamous cell carcinoma appears to be the most malignant form of vesical carcinoma. There are two types; the tubular type (epithelioma pavimenteux tubulé) or non-cornifying epithelioma, and the lobular type (epithelioma pavimenteux lobulé ou corné) or cornifying epithelioma. The former is said to be more common type. The latter is generally a malignant ulcer resembling those seen on cutaneous surfaces. Metastases are uncommon, having been reported in only three cases. The cause of death in most cases is attributed to one or more of the following factors: infection, hydronephrosis, and cachexia. Symptoms are not characteristic. The most common prodromal symptom is hematuria. Treatment has been palliative in many cases, and the reports of the operative treatment are too incomplete to determine with certainty the results.

Maine Medical Association Journal, Portland

November, 1921, 12, No. 4

- Obstetric Problems from Standpoint of General Practitioner. F. W. Mann, Houlton.—p. 95.
Diagnosis of Tuberculosis. E. O. Otis.—p. 106.
Cancer Control. J. C. A. Gerster, New York.—p. 110.

Neurological Bulletin, New York

August, 1921, 3, No. 8

- Meningovascular Neurosyphilis. F. Tilney, New York.—p. 271.

New Orleans Medical and Surgical Journal

November, 1921, 74, No. 5

- Tribute to Dr. Pierre Rouanet, Discoverer of Cause of Heart Sounds, at One Time Practitioner in New Orleans. E. Souchon.—p. 314.
Clinico-Philosophic Interpretation of Immuno-Therapy. G. H. Sherman, Detroit.—p. 317.
Diagnostic and Therapeutic Value of Lumbar Puncture in Lethargic Encephalitis. G. H. Hauser, New Orleans.—p. 331.
Eczematoid Dermatitis Due to Ringworm Fungus. R. Hopkins, New Orleans.—p. 336.
Plea for More Careful Examination as Means Leading to More Accurate Diagnosis. J. E. Knighton, Shreveport.—p. 340.
Bronchiectasis. G. S. Bel, New Orleans.—p. 345.
Municipal Refuse Collection and Disposal. H. R. Crohurst, Washington, D. C.—p. 354.
Situs Inversus Viscerum Totalis. L. J. Williams, Baton Rouge.—p. 362.
Cancer Prophylaxis. J. C. Willis, Shreveport.—p. 367.
Some Fractures of Base Treated by Repeated Spinal Punctures. L. B. Crawford, Patterson.—p. 374.
Case of Tetany After Third Partial Thyroidectomy. H. B. Gessner, New Orleans.—p. 382.

New York Medical Journal

Nov. 16, 1921, 114, No. 10

- Galen and His Times. J. Wright, Pleasantville.—p. 557.
Diagnostic Value of Pupillary Symptoms in General Disease. M. L. Foster, New Rochelle.—p. 563.
Ocular Factor in Headache. J. A. Kearney, New York.—p. 565.
Mobilization of Bony Ankylosis of Knee Joint; Arthroplasty. C. Ogilvy, New York.—p. 566.
Treatment of Fracture of Femur. W. H. Irish, New York.—p. 568.
Radium in Surgery. W. S. Schley, New York.—p. 573.
Etiology and Treatment of Hand Infections. C. D. Hill, Jersey City, N. J.—p. 575.
Important Points in Bone Surgery. J. W. Walsh, Brooklyn.—p. 576.
Thoracic Tumor Mistaken for Aneurysm. H. I. Goldstein, Camden, N. J.—p. 578.
Psychotherapy. C. R. Ball, St. Paul.—p. 580.
Organic Conditions Associated with Psychoneuroses. C. B. Covey, Waukesha, Wis.—p. 583.
Acute Diffuse Suppurative Labyrinthitis with Report of Cases. J. Friedman and S. D. Greenfield, New York.—p. 585.
Immunance of Health. J. J. McNulty, New York.—p. 589.
Syphilis. J. H. Stevens, Boston.—p. 592.
Mercurial Therapy of Syphilis. L. G. Hadjopoulos, R. Burbank and L. P. Kyrides, New York.—p. 596.

New York State Journal of Medicine

November, 1921, 21, No. 11

- *Nonspecific Protein Therapy in Arthritis and Infections. Remarks on Nature of Clinical Reaction. D. M. Cowie, Ann Arbor, Mich.—p. 395.
*Dietetic Treatment of Arthritis with Special Relation to Maximum Fat Feeding. F. R. Wright and R. S. Hubbard, Clifton Springs, N. Y.—p. 403.
*Treatment of Arthritis by Drugs. S. W. Lambert, New York.—p. 406.
*Special Treatment of Chronic Arthritis. C. E. Coon, Syracuse, N. Y.—p. 409.
Painless, Nondisseminating Chemical Removal (Zinc Chlorid) of Inoperable Cancer of Breast and Axillary Nodes. C. W. Strobell, New York.—p. 411.
Anthrax in Infants and Children. G. D. Scott, New York.—p. 417.
Endoscopic Excision of Tracheal Web. C. J. Imperatori, New York.—p. 425.

Nonspecific Protein Therapy in Arthritis.—Not until after all foci of infection have been carefully considered should the advisability of using foreign protein therapy be considered, says Cowie. One might argue because of the effect on local infectious foci, as those of the eyes and ears and skin, foreign protein might in itself clear up an infectious focus, but the best practice is to eliminate a known focus first. We learn from the clinic that the acute local processes are benefited most, as well as those parts to which there is a free blood supply. Cowie seldom uses a dose under 500,000,000, and children, as well as adults, have received billion doses. Reactions are usually sharp and include the unpleasant symptoms of nausea, headache, and sometimes vomiting. There has never been an untoward result. Cowie thinks it is perfectly safe to fix the average dose for child or adult at 100,000,000 dead typhoid bacilli and the maximum at 500,000,000. Succeeding doses may have to be increased in certain individuals and in certain types of cases. There may be found a failure of response, and a gradual decrease in the clinical reaction with same dose. On the other hand, a marked clinical reaction may occur with the same size dose and a definite decrease may take place in the blood reaction. Cardiac decompensation, acute cardiac difficulties, and conditions associated with hyperthyroidism should be considered contraindications. It is also thought that intravenous protein injections increase gastro-intestinal peristalsis; hence the importance of careful consideration before employing them in intestinal hemorrhage to increase blood coagulability. If time and clinical observation is of any value in determining this point, Cowie says that years after foreign protein treatment he has not encountered any bad results that could be attributed to the treatment.

Maximum Fat Feeding in Arthritis.—From their studies on the application of a diet containing 80 per cent. of the calories as fat and 10 per cent. as carbohydrate to arthritics Wright and Hubbard considered such a diet a little too high in fat for practical use, but diets containing a slightly lower percentage of fat—say from 70 to 75 per cent.—seem well adapted to the need of the patient. They have fed such diets in a number of instances, and have not found that more than slight traces of the acetone bodies were excreted by any of the patients. In each case the metabolic requirement should be determined, and the response to the diet followed by urine analyses. In this way diets can be fed containing minimal amounts of carbohydrate while maintaining body weight.

Drug Treatment of Arthritis.—The treatment of arthritis, Lambert says, comprises the elimination of all foci of infection by the streptococci and allied pathogenic germs; the overcoming of the growth of those germs in the blood and in the colon; the assisting of the elimination of the toxins of the germ growth; the caring for the painful joints and the alleviating of the general symptoms of the disease, and finally the supporting of the strength of the patient by an appropriate diet which shall not add to the poisons of the disease itself. Drugs are useful for all these therapeutic indications, but there is no specific, and the disease must be attacked by a course of treatment of much detail.

Special Treatment of Chronic Arthritis.—Lack of appreciation of the mechanics of the forces which produce the deformities, Coon says, is a very important and much neglected part of the treatment of arthritis, no matter how one may classify arthritis or treat it, if the disease is progressive, deformities will occur, and early attention may mean better function and more comfort in succeeding years.

Ohio State Medical Journal, Columbus

Nov. 1, 1921, 17, No. 11

- Fractures from a Surgical Standpoint. R. Carothers, Cincinnati.—p. 733.
Medical and Medical Defense Aspects of Fractures. J. E. Tuckerman, Cleveland.—p. 735.
Legal Phases in Relation to Liability for Malpractice with Special Reference to Fractures. L. E. Eastman, Toledo.—p. 739.
Public Health Work in Portage County. R. D. Worden, Ravenna.—p. 745.
Latent Tonsillar and Peritonsillar Abscess. E. G. Galbraith, Toledo.—p. 749.
Chylous Ascites: Report of Four Cases. M. A. Blankenhorn, Cleveland.—p. 751.

- Unexplained Morbidity of Puerperium: Report of Case. A. Rogers, Columbus.—p. 755.
Physical and Psychical Reaction of Child to Its Environment. H. C. King, Lakewood.—p. 758.
Skin Changes Accompanying Certain Constitutional Diseases. J. L. Murray, Toledo.—p. 761.
Future of Medicine as Affected by Ultraspecialization. E. H. Ochsner, Chicago.—p. 764.

Public Health Journal, Toronto

November, 1921, 12, No. 11

- Role of Microscope in Diagnosis of Syphilitic Infection. R. W. Naylor.—p. 481.
Community Nursing at Sulphide. J. Farquharson.—p. 492.
Leprosy in Inverness County. P. S. Campbell.—p. 495.
Syphilis: Its Relation to Infant Mortality and Child Welfare. E. A. Morgan.—p. 500.
Victorian Order of Nurses. Child Who Is "Different." A. Joynes.—p. 507.

Surgery, Gynecology and Obstetrics, Chicago

December, 1921, 33, No. 6

- Technical Points in Abdominal Surgery. J. Schoemaker, Holland.—p. 591.
Fellowship Address. H. J. Stiles, Edinburgh, Scotland.—p. 597.
Old Methods Versus New in Surgical Diagnosis. J. B. Deaver, Philadelphia.—p. 605.
*Massive Hypertrophy of Breast. L. D. Keyser, Rochester, Minn.—p. 607.
*Bacteriology and Pathology of Fallopian Tubes Removed at Operation. A. H. Curtis, Chicago.—p. 621.
*Treatment of Pyelitis. H. L. Kretschmer, Chicago.—p. 632.
Treatment of Peripheral Nerve Injuries. F. J. Tees, Montreal, Can.—p. 641.
Diagnosis of Peripheral Nerve Lesions. F. H. Mackay, Montreal, Can.—p. 646.
*Preoperative Preparation of Patients with Obstructive Jaundice. W. Walters, Rochester, Minn.—p. 651.
Blood Vessel Suture. J. M. Neff, Chicago.—p. 657.
Diagnosis and Surgical Treatment of Tumors in Front of Spinal Cord. C. A. Elsberg, New York.—p. 670.
Surgery of South China. J. O. Thomson, Canton, China.—p. 674.
Case of Diverticulum of Ascending Colon. R. O'Callaghan, Calgary, Alberta.—p. 679.
*Disconnecting Gastro-Enterostomy Stomata. Clinical and Experimental Study. R. C. Webb, Minneapolis.—p. 681.
Mycetoma. H. L. D. Kirkham, Houston, Texas.—p. 687.
*Treatment of Fracture of Neck of Femur. H. P. H. Galloway, Winnipeg, Man.—p. 692.
Posterolateral Incision for Removal of Loose Bodies from Posterior Compartment of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 698.
*Treatment of Caries of Hip Joint; Use of Traction Abduction Splint. E. H. Bradford, Boston.—p. 700.

Massive Hypertrophy of Breast.—Four cases of this condition are recorded by Keyser. He states that massive hypertrophy of the breast is of two types: (a) fibro-epithelial and (b) adipose. It may occur between the ages of 12 and 48 but is most frequently associated with puberty or pregnancy. The normal development of the breast seems to depend on the ovary, and there is evidence which strongly suggests that the massive hypertrophy may be related etiologically to an ovarian malfunction. If spontaneous regression of the process fails to occur, surgical amputation is, at present, the preferred treatment.

Pathology of Fallopian Tubes.—The diseased tissues removed from 192 cases were submitted to bacteriologic study and analyzed by Curtis. Cultures were positive in 38 cases, as follows: gonococcus, 19; nonhemolytic streptococcus, 6; hemolytic streptococcus, 3; anaerobic streptococcus, 5; *Bacillus coli*, 3; mixed infection, 3; *Bacillus proteus*, 1. Nine revealed tuberculosis. The results of this work again direct attention to the dangers of uterine instrumentation. Nearly all streptococcus infections in this series were traceable to instrumental abortion or subsequent intra-uterine manipulation; some tubal infections recurred after curettage; tenth dilatation was followed by streptococcal pelvic abscess. It would appear that the normal uterus and fallopian tubes are comparable with an unopened tube of culture media; passage of instruments through the bacterial barrier of the internal os is analogous to removal of the cotton plug, and nature is not always able successfully to combat infection before serious lesions have resulted. This is particularly true if infection which has been previously introduced is stirred up through subsequent instrumentation.

Treatment of Pyelitis.—Kretschmer's paper is based on a study of 200 cases of renal infection. More or less accurate

cystoscopic data were available in 177 of the cases. Pathologic changes were seen in 128 cases. Eighty-nine patients gave a history of having had some sort of surgical operation. In cases of acute colon bacillus pyelitis, instrumental or local treatment was not resorted to. The treatment of the chronic cases of pyelitis consisted of (1) vaccine therapy, (2) medical treatment and (3) pelvic lavage. Pelvic lavage with silver nitrate was found to be an efficient, simple method for treating infections in the renal pelvis. In this series of cases 66.4 per cent. of the patients treated were finally discharged with urine sterile and free of pus. Careful routine examinations of the urine in all cases of obscure abdominal pain is urged before patients are subjected to surgical operation.

Preoperative Preparation in Cases of Obstructive Jaundice.—In order to determine whether deaths from hemorrhage were dependent on an elevated coagulation time and marked jaundice, a study was made by Walters of the case histories. Fifteen jaundiced patients dying from postoperative (intra-abdominal) hemorrhage and fourteen jaundiced patients dying from causes other than hemorrhage. The effect of preoperative preparation on coagulation time of venous blood in patients with obstructive jaundice was also considered. It was evident that most patients with obstructive jaundice who die after operation succumb from intra-abdominal hemorrhage. In most cases postoperative hemorrhage occurs when the coagulation time of the venous blood is longer than nine minutes. The coagulation time of the blood can be reduced greatly and the toxicity diminished in patients with obstructive jaundice by daily intravenous injections of 5 c.c. of a 10 per cent. calcium chlorid solution for a three-day period. Carbohydrates and glucose prevent disintegration of body proteins when the patient is in a state of toxemia. Large quantities of water aid in eliminating toxic bile pigments and increase the body fluids. It is self-evident that in operations for obstructive jaundice the various steps of the operation be carried out with the utmost gentleness, care being taken not to traumatize the tissues, especially of the liver, and for this reason cholecystectomy should not be performed at the primary operation if it can be avoided.

Disconnecting Gastro-Enterostomy Stomata.—Three cases are reported by Webb in which the Andrews operation was employed successfully. The results in these three cases and in the two animal experiments prove the value of the use of a cuff of stomach wall and the efficiency of the method to prevent constriction. These cases also illustrate that gastro-enterostomy should not be performed without demonstration at the time of operation of the definite indication or lesion.

Treatment of Fracture of Neck of Femur.—In the treatment of these cases Galloway advocates complete removal of the head and neck of the femur, followed by implantation of the trochanter in the acetabulum.

Treatment of Caries of Hip Joint.—Evidence is presented by Bradford demonstrating that caries of the hip joint taken early and treated thoroughly can be cured definitely with practical restoration of function.

Wisconsin Medical Journal, Milwaukee

November, 1921, 20, No. 6

- *Sequels of Epidemic Encephalitis. P. Bassoe, Chicago.—p. 263.
Ocular Manifestations in Lethargic Encephalitis. G. I. Hogue, Milwaukee.—p. 268.
Metabolic Diseases Caused by Tissue Extract (Cytost). F. B. Turck, New York.—p. 271.
Infections of Kidney. W. J. Tucker, Ashland.—p. 277.
Obstetrics in Rural Communities. B. J. Wadey, Belleville.—p. 285.

Sequels of Epidemic Encephalitis.—Among the sequels observed by Bassoe the following are the more striking and frequent types: (1) The paralysis agitans syndrome, unilateral or bilateral, stationary, regressive or slowly progressive, sometimes combined with neurasthenic or psychotic symptoms; (2) cases with prolonged psychoneurotic condition of marked hypochondriacal character; (3) a prolonged simple exhaustive state similar to what is usually called neurasthenia; (4) hemiplegic types. Not common and often mixed with other features; (5) persistent somnolence, and (6) persistent disturbance of innervation of muscles of the face and the jaw. Illustrative cases are cited.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

October, 1921, 9, No. 34

- Reconstruction of the Common Bile Duct. A. J. Walton, London.—p. 169.
 Bone Grafting. M. F. Forrester-Brown, Edinburgh.—p. 179.
 *Chronic Duodenal Ileus. D. P. D. Wilkie, Edinburgh.—p. 204.
 *Testicular Symptoms in Appendicitis. Z. Cope, London.—p. 215.
 Fracture of Humerus in an Individual with Obscure Bone Lesions. E. E. Hughes, Manchester.—p. 217.
 *One Hundred Operations for Gallstones in Private Patients: Special Reference to Recurrence. G. Barling, Birmingham.—p. 221.
 *Cystic Disease of First Rib Causing Lower Arm (Klumpke) Type of Paralysis. W. C. B. Meyer, London.—p. 224.
 *Tuberculosis of Flat Bones of Skull. V. St. John, Transylvania.—p. 228.
 *Cysts and Papillomas of Breast. G. L. Cheate, London.—p. 235.
 Reconstruction of Ankylosed Knee-Joints. W. I. D. Wheeler, Dublin.—p. 242.
 Reconstruction of Shoulder by Bone Transplant. W. I. D. Wheeler, Dublin.—p. 247.
 *Bronchobiliary Fistula. A. H. Burgess, Manchester.—p. 253.
 Traction Fracture of Lesser Trochanter of Femur. H. Poston, Manchester.—p. 256.
 Operative Treatment of Closed Fractures of Long Bones by Metal Bands; Description of New Instrument. E. G. Stanley and J. Gatellier, Paris.—p. 259.

Chronic Duodenal Ileus.—Chronic duodenal ileus from compression of the third part of the duodenum by the root of the mesentery, Wilkie asserts, is a clinical and pathological entity. It may be associated with duodenal or gastric ulcer, and with biliary and pancreatic lesions. Visceroptosis and congenital lack of fixation of the proximal colon predispose to its development. Fixation of the proximal colon may relieve certain cases. Drainage of the dilated duodenum by duodenojejunostomy is the most certain method of treatment, and the only one suited for well developed and late cases. Acute dilatation of the stomach either idiopathic or post-operative, is probably merely a gross manifestation of a previously present chronic condition. Four cases were reported by Wilkie.

Testicular Pain in Appendicitis.—Testicular pain or discomfort, Cope says, occurs in probably about 5 per cent. of the cases of appendicitis occurring in the male. The pain is often not so severe as the general abdominal pain, and may not be complained of by the patient unless he be directly questioned on the point. The pain is either a dull aching or of a sharp shooting nature. Cope believes it to be a pure referred pain, since the appendix and testicles appear to be supplied by the same cord segment.

Cholecystectomy for Gallstones.—Removal of the gallbladder rather than draining, in Barling's opinion, should be the routine procedure because an easier and safer recovery follows, although it does not prevent recurrence of stone in the common duct.

Cyst of Rib Causes Lower Arm Paralysis.—The tumor in Meyer's case was situated between the posterior border of the left sternomastoid and the anterior border of the trapezius, its lower margin encroaching over the clavicle superficially. It was soft, nonfluid, nonpulsatile, with a smooth surface, presenting three or four distinct lobulations, and with a very clearly defined edge. It moved remarkably freely in all directions, was subcutaneous, and the skin moved easily over its surface. The left first rib—more particularly its posterior half—was full of cystic spaces and the rib itself was expanded and irregular in outline. The left transverse process of the first dorsal vertebra exhibited the same cystic change. In addition to the superficial tumor there was a deeper tumor involving the pleura. Pressure caused almost complete physiologic interruption of the first dorsal nerve root. The eighth cervical root was also suffering from pressure and the second dorsal nerve showed irritative sensory pressure signs. It was clear that either the expanded first rib or the deep tumor or both together could cause these pressure symptoms. Operation established the diagnosis of hydatid disease of the first rib, the superficial and deep tumors being connected with the rib by perforations in the expanded bone. The superficial tumor had a long, narrow pedicle leading to the first rib, while

both tumors were filled with a thick creamy substance, which closely resembled the sebaceous secretion of dermoids, but was entirely odorless. Daughter cysts of varying size were present and from these scolices of *Tenia echinococcus* were obtained.

Tuberculosis of Skull.—Four cases of cranial bone tuberculosis are cited by St. John. The disease has but one symptom of any practical value, the cold abscess; and the diagnosis, like the symptom, loses much of its worth from the fact of its coming too late. This is an insidious affection which can make astonishing progress without giving obvious signs of its presence, and which is consequently all the more dangerous. A real symptom would be headache; but this is often absent and when present it is of equivocal value since it is perhaps more frequently indicative of cranial syphilis than of tuberculosis. The local treatment is operative, and only operative. Repeated interventions are sometimes necessary but all surgical intervention must be as extensive in degree as is demanded by the extent of the disease.

Papilloma of Breast.—Two forms of papilloma in ducts are discussed by Cheate. The papilloma with a single fibrous stalk of attachment he terms uniradicular papilloma. The papilloma with many stalks of attachment to the duct in which it occurs is termed multiradicular papilloma.

Bronchobiliary Fistula.—Burgess cites the case of an elderly woman, apparently in good health and without any previous illness of note, suddenly commenced without any obvious cause to cough up bile, and has continued to do so in amount from 10 to 20 ounces daily for the past five months. Physical examination failed to reveal anything definitely abnormal. A diagnosis was made of bronchobiliary fistula of unknown origin. A laparotomy was performed as the patient was becoming exhausted. The findings led Burgess to conclude that the most probable sequence of events had been—gallstones in the gallbladder and common duct; suppurative cholangitis, perforation of the left hepatic duct; formation of a small subphrenic abscess between the extremity of the left lobe of the liver, diaphragm, spleen and lesser curvature of the stomach; adhesion of the left lung to the upper surface of the corresponding area of the diaphragm; gradual inspissation of the contents of the abscess with thickening and calcification of its walls; extension of the lumen upward through the diaphragm into the left lung, and finally rupture into one of the smaller bronchi with development of a bronchobiliary fistula.

Glasgow Medical Journal

November, 1921, 96, No. 5

- Postnatal Treatment of Congenital Syphilis. G. B. Fleming.—p. 257.
 Sulfarsenol in Congenital Syphilis. E. Crawford.—p. 263.
 Antisyphilitic Action and Other Effects of Arsenical Compounds in Relation to Their Constitution. C. H. Browning.—p. 266.
 Antenatal Treatment of Congenital Syphilis. J. R. C. Greenlees.—p. 270.
 Ravages of Congenital Syphilis—How to Combat Them: Plea for Notification. L. Findlay.—p. 278.
 Syphilis as Seen by a Hospital Physician. T. K. Monro.—p. 284.

Indian Medical Gazette, Calcutta

April, 1921, 56, No. 4

- *Malaria and Lost Cities of Ceylon. L. Nicholls.—p. 121.
 Dangers of Delay in Operating on Appendicitis in Children and Pregnant Women. F. J. W. Porter.—p. 130.
 Off-Island Diagnosis of Cataract. S. K. Ganguly.—p. 131.

Malaria Destroys Cities of Ceylon.—Nicholls writes of ancient cities of the island of Ceylon which have fallen to ruin because of the exodus from them of peoples who became malaria infested and wandered away in search of a more healthful locality. Extensive and wonderful ruins of cities of an ancient civilization are scattered throughout the large areas of forests of the north central province of Ceylon. The existence of these ruins was unknown at the beginning of the last century, but the Sinhalese priests had preserved a record called the Mahawansa, which relates the history of Ceylon from about 500 B. C. on and recounts the building and the rise of these cities.

October, 1921, 56, No. 10

- *Typhus-Like Fever in India, Possibly Transmitted by Ticks. J. W. D. Megaw.—p. 361.
 Twelve-Day Fever of Nigeria. J. W. D. Megaw.—p. 371.

- Use of Galvanic Current in Treatment of Fibrous Ankylosis and Kindred Affections. F. J. W. Porter.—p. 373.
- *Formol-Gel Test in Kala-Azar. E. C. R. Fox and F. P. Mackie.—p. 374.
- *Iodin Injections for Septic Conditions. A. B. De Castro.—p. 375.
- Present Position of Leprosy in India. E. Muir.—p. 375.
- Sebaceous Horn. C. C. Murison.—p. 379.
- Liver Abscess Treated by Aspiration and Injection of Quinin Hydrochlorid. J. C. John.—p. 379.

Typhus-Like Fever in India.—Megaw's personal experience and a consideration of the available evidence have led him to form a strong suspicion that the disease is one affecting the animals of the jungle and that it is conveyed to man by a tick, and that the disease is either the same as Rocky Mountain fever or, at any rate, closely related to it. The disease is probably widely distributed in India and other parts of the world, but remains unrecognized because of its superficial resemblance to typhoid fever.

Formol-Gel Test in Kala-azar.—Fox and Mackie have devised a simple technic by which the test may be applied by the general practitioner with the minimum of equipment. (a) Collect the blood from the finger in a Wright's capsule just as is done for the Widal reaction for typhoid fever. (b) When the serum has separated from the clot take one drop and place it on a slide. (c) Invert the slide over a watch glass containing a few drops of commercial liquor formaldehyd solution, the vapor from which will arise and act on the drop of serum. In cases of kala-azar the serum will solidify in a few minutes, while other serums will remain fluid and unaffected. The solidified serum is opaque and is in the condition of a stiff jelly which adheres to the slide, whilst the serum in negative cases will run off the slide when it is tilted.

Iodin Injections for Septic Conditions.—In the Andaman Isles, during the monsoon weather, ulcerative processes of various gradations, from the simple punctured "angry looking," to the extensive phagadenic type, are by no means uncommon. The results accruing from the use of phenylsalicylate locally, and tincture of iodine injections intravenously in alternate cases were most gratifying; but with far-reaching, quicker, and greater beneficial action with the iodine injections than the phenylsalicylate dusting. De Castro invariably starts with an injection of tincture of iodine, 5 minims in 1 c.c. physiologic solution of sodium chlorid, and goes up to 20 minims in 10 c.c. The injections in bad cases are given every day, in ordinary cases every second day. Within thirty-six or forty-eight hours after the injections, an unhealthy looking surface freshens up and takes on a healthy look, sloughs are cast off, profuse discharges of pus stop, and healthy granulations start to shoot up all around. In extensive necrotic ulceration, if there is a concomitant pyrexial condition, the temperature falls to normal, and pain also disappears.

Journal of Laryngology and Otology, Edinburgh

November, 1921, 36, No. 11

- Nasal Sinusitis in Children. F. J. Cleminson.—p. 505.
- Experiences of an Otologist in France, 1915-1919. J. K. M. Dickie.—p. 514.
- Vestibular Reactions in Deaf-Mutes. G. Young.—p. 524.
- Fatal Case of Shawl Pin in Esophagus. W. F. Wilson.—p. 526.

Journal of State Medicine, London

November, 1921, 29, No. 11

- Problems of Industrial Hygiene in Relation to Public Health. T. Oliver.—p. 321.
- Prevention of Venereal Diseases. E. W. Hope.—p. 333.

Medical Journal of Australia, Sydney

Oct. 22, 1921, 2, No. 17

- Prevention and Treatment of Pulmonary Tuberculosis. J. W. Brown.—p. 333.
- *Problem of Tuberculosis. D. R. W. Cowan.—p. 341.
- Blood Transfusion in Case of Puerperal Streptococcal Septicemia. S. Crawcour.—p. 347.

Tuberculin in Pulmonary Tuberculosis.—The specific treatment of pulmonary tuberculosis by means of tuberculin is specially commended by Cowan. The general treatment of the patient must necessarily be joined with the tuberculin treatment. This combination of the two treatments is at

present the most efficient means of combating active pulmonary tuberculosis. If the combination of treatments be not possible, tuberculin by itself must be used whenever it can be done. More will certainly be achieved with it than with any other method of treatment used by itself. Cowan believes that every patient with early tuberculosis before the "open" stage has been reached can be cured by means of tuberculin, frequently with no radical alteration in his ordinary mode of living and with the minimum of interference with his ordinary avocation. Once a patient has an "open" form of tuberculosis, with all its consequent risk of mixed infections, the chances of cure are uncertain, no matter what treatment is adopted. This is an indication of how imperative it is to diagnose these cases before this stage arrives and to treat the patients during the period when they can be cured.

Oct. 29, 1921, 2, No. 18

- *Simplified Sacral Proctectomy. W. J. S. McKay, Sydney.—p. 365.
- "Oxyuris Incognita" in Australia. G. H. Burnell, Brisbane.—p. 374.
- *Simple Levitation Method for Detection of Hookworm Ova. H. H. Willis.—p. 375.
- Three Cases of Cancer of Pelvic Colon Complicating Gynecological Operation. R. Worrall.—p. 376.

Sacral Proctectomy.—McKay describes an operation which he claims is almost bloodless and shock is reduced to a minimum because the essential stages can be performed in thirty minutes; the tying off of vessels and sewing up occupying a similar time. An inguinal colostomy is done two weeks before the sacral operation is undertaken. The incisions were made in a similar way to those employed by Miles in the perineal portion of his abdominoperineal operation for cancer of the rectum. The details of the various steps or stages of the operation are described.

Detection of Hookworm Ova.—In the method employed by Willis the specimen is mixed with salt solution. After waiting a few minutes to allow the ova to rise, a clean, polished slide is placed on the container in contact with the surface of the fluid. After a further few minutes this is gently removed, inverted and examined under the microscope with a magnification of 100 times. If it be negative, a second slide is placed on the brim of the container and similarly examined. In special cases it may be desirable to examine more than two slides prepared in this way, but experience has shown that for ordinary work two are sufficient. Many advantages are claimed for the method, not the least of which is its great freedom from error.

Practitioner, London

November, 1921, 107, No. 5

- Diabetes Mellitus. W. H. Willcox.—p. 305.
- Surgery of Right Iliac Fossa. J. E. Adams.—p. 322.
- Treatment of Cardiospasm. N. Mutch.—p. 339.
- *Recurrent "Colds in Head" F. Stoker.—p. 348.
- Nonthyrotoxic Goiter. E. G. Slesinger.—p. 355.
- Three Cases of Fracture of Scaphoid Bone (Wrist). F. D. Saner.—p. 367.
- Review of 150 Cases of Surgical Operations under Local Anesthesia. K. S. Ray and L. M. Sen.—p. 371.
- *Familial Jaundice. J. B. C. Brockwell.—p. 375.

Recurrent Colds in Head.—In addition to taking measures to remove foci of infection in the accessory nasal sinuses, the tonsils, the teeth and elsewhere, Stoker suggests that owing to the resemblance of the phenomena of hyperthyroidism to the condition obtaining in the nose during an attack of spasmodic rhinorrhea, soluble calcium salts would seem to be strongly indicated, and as a matter of fact are often of great benefit, particularly the freshly prepared lactate in doses of from 15 to 30 grains three times a day after meals.

Familial Jaundice.—Brockwell reports the case of a woman, aged 37, who had had seven full term pregnancies and two miscarriages at the fourth month. All the children, except the first, developed "jaundice" on the second or third day, which lasted for about five months, except in the case of the fourth child, which died, aged one week, from "jaundice and convulsions." The mother had always had good health; neither she nor her parents, brother, or sisters have had jaundice. Syphilis could be excluded. The patient was six months pregnant. She was given 10 grains of sodium salicylate with 5 grains hexamethylenamin three times daily up to the date of confinement. There was no vomiting throughout

the pregnancy. She was duly delivered of a healthy male child and up to now (seven months) there has been no suspicion of jaundice in the child.

South African Medical Record, Cape Town

Oct. 8, 1921, 19, No. 19

- Cases of Venereal Disease. H. Gluckman.—p. 362.
- Sachs-Georgi Syphilis Reaction. T. J. Mackie.—p. 363.
- South American Impressions. D. P. Marais.—p. 369.

Oct. 22, 1921, 19, No. 20

- Treatment. D. C. Watt.—p. 382.
- Use of Bone Graft; Illustrative Cases. W. Welchman.—p. 385.
- Public Health in Union. J. A. Mitchell.—p. 390.

Annales de Médecine, Paris

1921, 10, No. 3

- *Progressive Myasthenia. P. Marie, H. Bouttier and I. Bertrand.—p. 173.
- *Determination of Albumose Content of the Blood. E. Wolff.—p. 185.
- *Glandular Dystrophia. V. Hutinel and M. Maillet.—p. 198.
- *Decerebrate Rigidity in Man. J. Lhermitte.—p. 228.

Progressive Myasthenia.—The necropsy findings are illustrated from a case of Erb-Goldflam's disease previously published with emphasis on the great and permanent benefit derived from suprarenal treatment. The nervous system was found apparently intact; the classic picture of bulbospinal myasthenia was thus presented without any lesions in the nerve centers. Small lymphoid nodules scattered throughout the suprarenals and the muscles testified that the suprarenals and muscles must have been responsible for the disease, and explained the benefit from the suprarenal treatment. The improvement had persisted for six months when the woman died in a few days after the onset of pulmonary edema.

Albumosemia.—Wolff has devised a micromethod for estimating the albumose content of the blood, and describes the findings with it in health and in various diseases. The physiologic albumosemia never averages above 0.8 per thousand, but it is high in fevers and in leukemia.

Glandular Dystrophia.—In this second article, Hutinel and Maillet discuss monosymptomatic dystrophia, especially from aplasia or atrophy of testicles, ovaries, and kidneys. They summarize from their own and others' experience eighteen cases of the various kinds of dystrophia, including some of infantilism with chronic nephritis.

Decerebrate Rigidity in Man.—Lhermitte reviews the recent literature on this subject and discusses the physiologic data and clinical applications. The war has thrown much light on the release of function in the nervous system when the brain is shut off.

Archives de Médecine des Enfants, Paris

November, 1921, 24, No. 11

- *Scurvy in Infants. J. Comby.—p. 649.
- *Partial Sclerosis of Lung in Children. P. Duhem.—p. 663.
- *Plague in Children. L. Guinon and Mlle de Pfeffel.—p. 670.
- *Pernicious Anemia in Girl of Fourteen. Mlle. Condat.—p. 676.
- *Primary Ileocecal Sarcoma in Boy of Eight. Idem.—p. 679.
- *Bubonic Plague at Paris. J. Comby.—p. 681.

Scurvy in Infants.—Comby adds twelve more cases to his record, bringing his total to seventy-two, and he declares that in 90 per cent. the correct diagnosis had not been made until the pediatricist was called in. In more than 22 per cent. there had been no hemorrhage from the gums, and he based his diagnosis solely on the kind of food the child had been getting and the pains in and impotence of the legs, the child screaming when it was moved. This painful pseudoparaplegia is practically never absent. There is never hemorrhage from the gums in infants without teeth.

Sclerosis of Lung in Children.—Duhem gives roentgenograms showing the hilus type and the diaphragm type of partial sclerosis of the lung in children. When there is extensive sclerosis of the lung, it drags the heart out of place as the lung tissue retracts. There may thus be displacement of the heart to the right or left.

Bubonic Plague in Children.—Among the special features that distinguished the six cases of plague in children from the disease in adults were a pyodermatitis and plague meningitis. The exanthema was mistaken for smallpox at first.

The meningitis developed the ninth day, notwithstanding the intravenous and intramuscular use of antiplague serum for nine days. There were no hypertrophied glands at any time in the two cases described in detail.

Pernicious Anemia in Child.—In Condat's case the anemia of the aplastic type became installed soon after puberty, and the girl of 14 died the ninth month after the onset of menstruation.

Plague at Paris.—Comby reviews the various publications on the small epidemic of bubonic plague at Paris. They testify, he remarks, that plague can be easily stamped out in civilized communities. None contracted the disease among the 1,000 contacts given prophylactic vaccination. Among the 91 cases recorded, the mortality was 80 per cent. among the 40 not receiving serotherapy, while it was only 3.9 per cent. among the 52 given intravenous serotherapy.

Gynécologie et Obstétrique, Paris

October, 1921, 4, No. 4

- Welfare Work for Prospective Mothers. A. Doléris.—p. 281. Conc'n.
- *Radium Treatment of Uterine Fibromas. J. L. Faure.—p. 290.
- *Radium Treatment of Uterine Cancer. H. Hartmann.—p. 301.
- *Radium Treatment of Hemorrhagic Metritis. M. Koenig.—p. 317.
- *Cesarean Section During Labor. J. Henrotay.—p. 336.
- *Cesarean Section During Labor. A. Couvelaire.—p. 358.

Radium Treatment of Uterine Fibromas.—Faure regards medium sized hemorrhagic fibromas as the special field for radium treatment, as also cases in which a major operation is contraindicated on account of weakness or other cause. Almost all other patients with fibromas, he says, should be given operative treatment. The results of operations, on the whole, including the danger of death, immediate or remote, are actually better with operative treatment than with radiotherapy. The first condition for treating a fibroma with radium is the exact diagnosis, and this may require direct inspection. He prefers to operate also on young women when the fibroma is small, and can be resected without interfering with ovarian functioning.

Radium Treatment of Uterine Cancer.—Hartmann found cancer cells still present in the uterus in two of five cases in which the uterus had been removed or taken from the cadaver after a course of radium treatment. The three found apparently free from cancer cells had been given from 30 to 64 millicuries; the two others only 20 and 22. He describes the technic he advocates: Three applicators, end-to-end in a tube, are introduced down to the fundus of the uterus, with another applicator in the culdesac of the vagina each side of the cervix, and a sixth one against the os. Each applicator represents a 50 dose except the two in the cervix, and these represent 100 each. Recurrences are almost always at a distance, in the parametrium, and hence hysterectomy after the exposures seems useless. Eight illustrations are given of the technic.

Radium Treatment of Hemorrhagic Metritis.—Koenig refers to hemorrhages outside of cancer and fibroma cases, and declares that the regularity of the cures under radium is most striking. For women over 40 it is the chosen method, he says, but for younger women he advocates it only after failure of the ordinary measures. Adnexitis contraindicates absolutely any radium treatment, if it is acute, and any intra-uterine applications if it is chronic. He has treated in this way only thirty cases, but his experience confirms in every respect those published by others.

Abdominal Cesarean Section.—Henrotay is chief of the Maternity at Antwerp and has compiled 55 cases in which cesarean section was applied for fibroma (12), eclampsia (7), placenta praevia (16), with 6 deaths, or for other cause exclusive of narrow pelvis. All the infants were saved except 4. With infected placenta praevia, he advocates following or preceding the hysterotomy with hysterectomy *en bloc*, as also with manifest infection under any conditions unless vaccine therapy can be perfected. Couvelaire analyzes his experience with 86 high abdominal transperitoneal hysterotomies during labor, exclusive of narrow pelvis cases. In a compilation of 1,040 cases of cesarean section in a number of French clinics, the indications were narrowness of the pelvis in all but 80. He thinks that the tendency now is for the decision to operate

to be made earlier, not left for an emergency operation. The articles in this and the preceding number of *Gynécologie* were presented at the recent gynecologic congress.

Paris Médical

Nov. 5, 1921, 11, No. 45

- *Pediatrics in 1921. P. Lereboullet and G. Schreiber.—p. 341.
- *Gastro-Intestinal Lesions in Infants: Causes and Clinical Forms. A. B. Marfan.—p. 352.
- Anaphylaxis and Antianaphylaxis in Pediatrics. Péhu.—p. 357.
- *Lack of Fat as Factor in Athrepsia. Nobécourt et al.—p. 363.
- *Present Status of Serotherapy in Diphtheria. P. Lereboullet.—p. 369.
- Intravenous Mercurial Treatment of Infants. G. Blechmann.—p. 374.

Children's Diseases in 1921.—Lereboullet and Schreiber open their annual review with the statement that 1921 has been distinguished by the practical organization of social hygiene for children on a huge scale. Among the important works of the year in pediatrics are Marfan's study of athrepsia in infants (summarized on pages 495 and 1450), Putzig's report of benefit from injection of horse serum as a kind of protein therapy in atrophy in infants, and de Villa's intradermal test with a culture autolysate of the Bordet-Gengou bacillus in the early diagnosis of whooping cough (summarized on page 74). They mention a recently reported case of mild epidemic encephalitis in a woman who soon recovered but her nursing died with symptoms and necropsy findings suggesting the same disease. In conclusion they comment on the increasing value of organotherapy in combating endocrine dystrophias in children, and mention a case of infantilism for which the pituitary was not directly responsible, a tumor being found in the third ventricle.

Digestive Disturbance in Infants.—Marfan classifies three grades of denutrition in young infants by the thickness of the adipose tissue left, especially in the abdomen and trunk.

Fat in Infant Feeding.—The infant, 45 days old, had been given only vegetable bouillon and a salted farinaceous gruel. General edema and a condition defined as azotemic atrophic athrepsia had developed, but the child began to thrive as soon as the salt was dropped and it was given buttermilk to which butter had been added.

Presse Médicale, Paris

Nov. 2, 1921, 29, No. 88

- *Articular Syphilis. A. Broca.—p. 873.

Syphilitic Disease of Joints.—Broca relates that in nineteen of twenty cases of syphilis of the knee sent to him to confirm the diagnosis, the disturbances had been labeled tuberculosis. A number of typical cases are described which demonstrate the necessity for applying the Bordet-Wassermann test in certain cases of hydrarthrosis and arthritis without effusion even when all seems to indicate merely an ordinary traumatic or rheumatic joint lesion, especially when the knee is involved. The bilateral occurrence, the persistence for months and years with alternating periods of improvement and aggravation, the lesion almost or entirely indolent, and not interfering much with ordinary life—these features should suggest search for syphilis.

Nov. 9, 1921, 29, No. 90

- *Hypercholesterinemia and Albuminuric Retinitis. F. Gaudissart.—p. 893.
- *Treatment of Acute Articular Rheumatism. R. Lutembacher.—p. 895.
- *Anastomosis Between Large and Small Intestine. H. Dubouché.—p. 895.

Hypercholesterinemia and Albuminuric Retinitis.—Gaudissart found hypercholesterinemia only in 7 of 18 persons with albuminuric retinitis, and also in 8 of 16 with chronic nephritis without retinitis. This shows that hypercholesterinemia is not an indispensable factor in albuminuric retinitis, and that it does not always entail the latter. On the other hand, either a high blood pressure or uremia or both were always found in albuminuric retinitis.

Treatment of Acute Articular Rheumatism.—Lutembacher insists that when there is recurrence of the disease, the treatment must have been inadequate. Given properly, sodium salicylate ought to cure this disease once and for all, without danger of recurrence. As in syphilis, the cure depends on the early diagnosis, adequate doses and perseverance in giving them. Sodium salicylate is rapidly eliminated and the dose should be regulated to correspond to the elimination. It is

much more rapid in children than in adults. To avoid disturbing the stomach, the drug can be given by the vein. The elimination then takes twelve or thirteen hours, and the drug gets a better chance to ward off complications involving the heart. After the disease has apparently subsided, he keeps up the large doses for two or three weeks longer, and then continues with small doses for another three or four weeks. The mild cases are the ones that usually get neglected, the medication being dropped as soon as benefit is apparent, when in reality the tenacious sepsis takes vigorous and prolonged treatment to eradicate. He makes a practice of giving 2 or 3 gm. of sodium salicylate for ten days each month for the following twelve or eighteen months even when there is nothing to suggest recurrence. By this means the disease does not return, if treatment was begun at the first attack. The infection becomes more tenacious in recurrences. For intravenous use he recrystallizes the sodium salicylate, and injects a 1:30 solution in a 3 gm. dose twice a day. In eight very severe cases with heart and lung complications, this proved the only means to arrest these complications. Two of the patients were unable to bear the drug at all by the mouth. He infuses a little of a physiologic solution of sodium chlorid directly afterward to prevent hardening of the vessel wall.

Anastomosis Between Large and Small Intestine.—Dubouché's illustrations show the simple technic with which the small stump is invaginated in the large stump with the edge of the latter turned in with it. The extra width is puckered in above the invaginated stump: first four stitches, one on each side, and then four more in the interspaces. This forms a firm and safe union, leaving the lumen entirely free below.

Progrès Médical, Paris

Oct. 22, 1921, 36, No. 43

- *Duodenal Ulcer. G. Parturier and P. Vasselle.—p. 495.
- Antianaphylaxis Action of Mineral Waters. G. Billard, Ferreyrolles and A. Mougeot.—p. 502.

Oct. 29, 1921, 36, No. 44

- The Blood and Circulation in the Pregnant. H. Vignes.—p. 507.
- Clinical Forms and Diagnosis of Miliary Tuberculosis. L. Ramond.—p. 509.
- Tuberculosis in Hernia. Metzquer.—p. 513.
- Fracture of Joints. Idem.—p. 513.

Differential Diagnosis of Duodenal Ulcer.—Parturier refers to the ulcer remote from the pylorus and free from complications. This portion of the duodenum has a silent and deceptive pathology, periods of apparent health intervening. This evolution by successive attacks is the most characteristic feature of this form of duodenal ulcer, much more instructive than the tardy pain. The appetite keeps good, and the pain at night, starting in the right hypochondrium, is not accompanied by vomiting. Besides the classical signs of contracture of the right rectus, occult bleeding, and hyperchlorhydria, he emphasizes the import of the tender point in the left side of the neck, and tenderness in the duodenum, when it is forced against the rear wall of the abdomen by palpation along the line connecting the tenth rib with a point at the center of a line connecting the crests of the iliacs. Another sign is the relief, rather than the aggravation, of the pain on deep inspiration. An enema of antipyrin and laudanum has also differential importance, as this eliminates the tender points for which the gallbladder or celiacgia is responsible. Cancer rarely affects the duodenum. The ulcer is usually on the posterior wall of the duodenum, and is thus liable to escape detection, he says, even when the abdomen is opened.

Revue Franç. de Gynécologie et d'Obstét., Paris

September, 1921, 16, No. 9

- *Surgical Treatment of Uterine Fibroma. E. Alfieri.—p. 465.
- *Fluidity of the Menstrual Discharge. J. L. M. Jansen.—p. 479.
- Röntgenograms of a Calcified and of a Cystic Uterine Fibroma. L. Bouchacourt.—p. 507.

Surgical Treatment of Uterine Fibromas.—Alfieri reviews a series of 138 operative cases of uterine fibromas, and compares them with various series published by others. All but one of the 138 women were cured of their gynecologic affection; the exception was a case of a racemose cyst in an ovary, left with a small fistula. The list includes 111 abdom-

inal subtotal and 15 total hysterectomies, and 6 vaginal, with 9 myomectomies. Malignant disease was found in 2.17 per cent. of the cases; the adnexa were pathologic in a large proportion of the cases, and heart disease was manifest in 36.2 per cent. of the total. Eight of the women were pregnant; one was in labor and another had just been delivered. The invariable fine results in such series as this should be taken into consideration, he adds, when hesitating between operative measures and radiotherapy.

The Fluidity of Menstrual Blood.—Jansen gives an illustrated description of a cup that fits over the cervix in the vagina and conveys the menstrual blood into a receptacle below the bed. The findings with this apparatus in Treub's service are tabulated from 100 observations. The largest amount thus obtained was 50 c.c. in the twenty-four hours; the smallest, 2 c.c. From 50 to 75 per cent. of the fluid is mucus, and minute flakes of fibrin are scattered through the fluid, with debris of the uterine mucosa. The greater the admixture of blood, the larger and finer are the macroscopic and microscopic clots.

Schweizerische medizinische Wochenschrift, Basel

Oct. 20, 1921, 51, No. 42. Dedicated to F. Fritzsche

- *Roentgenography of Pulmonary Tuberculosis. H. Staub-Oetiker.—p. 961.
- Ultimate Results of Operations on Stomach. A. Schwyzer (St. Paul).—p. 966.
- *Influence of Menstruation on Chronic Endometritis. K. Meyer.—p. 968.
- Cleft Palate Operations. E. Monnier.—p. 970.
- *Geography of "Scrofulosis." L. Steiner.—p. 974.
- *Treatment of Varices. H. Koller-Aeby.—p. 975.
- Infant Mortality in Neighboring Communities. Grämiger.—p. 977.
- *Oil Tampon for High Intestinal Fistula. E. Stadler.—p. 978.
- Butter-Flour Mixture in Infant Feeding. A. Resch.—p. 978.
- Acute Mesocolitis as Complication of Resection of Stomach. A. Wydler.—p. 980.

Roentgenography in Diagnosis of Pulmonary Tuberculosis.—Staub-Oetiker gives his conclusions from the roentgenologic study of over 2,000 tuberculous inmates of a sanatorium at Zurich during the last ten years. Great as is the importance of radiography, he adds, if we trust to it alone we will be led into the grossest blunders. The findings even in the normal hilus are not uniform, and the most striking shadows are cast by harmless healed processes. In children, beginning tuberculosis generally settles at the hilus and thus is more accessible to roentgenoscopy, while percussion and auscultation are less dependable than in adults. Consequently roentgen examination is indispensable for every child with positive skin tuberculin test and symptoms suggesting pulmonary tuberculosis. It is indispensable also to detect chalicosis in stonecutters and others exposed to inhalation of mineral dust, as this is often mistaken for tuberculosis and treated accordingly, when a change of occupation is the one thing needed to ward off disease and death.

Influence of Menstruation on Chronic Uterine Disease.—Meyer calls attention to the instructive case he reports of painful chronic endometritis with profuse purulent discharge which had kept up for three years unmodified by the whole arsenal of measures applied. It was originally of gonococcus origin, and Meyer finally made up his mind that it was the influence of the menstruation that prevented its healing. This supposition was confirmed by the prompt healing as soon as the remaining ovary had been removed.

Scrofulous Eye Disease.—Steiner comments on the rarity of "scrofulous" eye disease noted during his twenty years of ophthalmologic practice in Java, although pulmonary tuberculosis is common. He ascribes this to the scanty clothing and the bamboo houses, the skin being exposed constantly to light and air. Tuberculosis of glands and joints is invited and fostered by the clothing and close houses of colder climes.

Treatment of Varicose Veins.—Aeby reports gratifying results in fifteen cases of disturbances from varicose veins in which he supplemented the ligation of the veins with injection of 5 per cent. phenol.

Cure of a Rebellious Bile Fistula.—Stadler finally cured the persisting bile fistula by packing it with gauze dipped in olive oil. The oil prevented the soaking up of fluids from below, and gave the opening a chance to heal.

Policlinico, Rome

Oct. 31, 1921, 28, No. 44

- *Psychosis After Spinal Anesthesia. G. Bianchi.—p. 1459.
- Estimation of Wassermann Reaction. P. F. Zuccola.—p. 1463.
- *The Facialis Sign in Children. L. D. Veronese.—p. 1465.
- Indications for Treatment with Duodenal Ulcer. P. Gilberti.—p. 1466.

Psychosis After Spinal Anesthesia.—The young man was a hard drinker, and after spinal anesthesia for a herniotomy he developed an acute psychosis, with hallucinations, and recovery in two weeks.

Chvostek's Sign in Children.—Veronese has been testing for Chvostek's sign 413 children examined in the last two years. A positive response was obtained in 21 per cent. All the children were between 5 and 9. In 49 with manifest rachitis it was evident in 28.5 per cent. and in 21.8 per cent. of the 41 tuberculous children, and also in 23.7 per cent. of those who seemed to be free from tuberculosis, rachitis and tetany.

Riforma Medica, Naples

Oct. 8, 1921, 37, No. 41

- *Embryology of Jackson's Membrane. L. de Gaetano.—p. 962.
- Auscultation of the Mouth. I. Jacono.—p. 970.

Oct. 15, 1921, 37, No. 42

- Simultaneous Strangulation of External and Internal Inguinal Hernia. S. Scigliano.—p. 985.
- Electropuncture in Treatment of Spinal Disease. G. Piccinino.—p. 986.
- Renal Adenocarcinoma in Girl of Nine. F. de Gironcoli.—p. 990.
- Indol in Urine. O. Cantelli.—p. 993.
- Surgical Treatment of Stomach from Physiologic Standpoint. E. Aievoli.—p. 994.

Embryology of Jackson's Membrane.—De Gaetano gives an illustrated description of the findings in several of thirty fetuses examined to detect conditions which might explain the formation of Jackson's membrane in later life. Such were found in about a third of the fetuses, and when the membrane develops from this cause, its removal puts an end to the disturbances without danger of recurrence. But when the membrane is of inflammatory origin, it is liable to form anew after resection. This membranous pericolicitis is difficult to cure and is extremely liable to recurrence.

Rivista di Clinica Pediatrica, Florence

Sept. 2, 1921, 19, No. 6

- *Steeple Skull. G. B. Savelli.—p. 321.
- *Toxin in Blood Serum During Diphtheria. P. Busacchi.—p. 331.
- Case of Rat-Bite Disease. V. Zamorani.—p. 352.

Steeple Skull.—Savelli cites Hochsinger's case in which optic neuritis from congenital steeple skull was manifest in the 4 weeks' babe. He then describes a case in a girl of 5 in which the anomaly was not only congenital but inherited, the mother showing a similar but less pronounced oxycephaly. The sutures in the child were ossified, and convergent strabismus, exophthalmos, atrophic optic neuritis and occasional headaches were the special symptoms. Lumbar puncture showed the pressure normal in the spinal fluid.

Diphtheria Toxin in Serum During Diphtheria.—Busacchi's findings in fourteen cases were positive in some and negative in others, when guinea-pigs were injected with the child's blood serum. It was absorbed without reaction in some, while in others it induced a lively local reaction.

Sept. 20, 1921, 19, No. 7

- *Cerebrospinal Meningitis in Infants. C. Pestalozza.—p. 385.
- *The Neck Sign of Inflammation of Meninges. S. Segagni.—p. 409.
- Somatic Structure in Congenital Myxedema, and Modification Under Thyroid Treatment. M. Rosso.—p. 422.
- Scleroderma in an Infant. R. Pollitzer.—p. 435.

Oct. 15, 1921, 19, No. 8

- Group Agglutination in Typhoid in Children. D. Caffarena.—p. 449.
- Protein Therapy in Typhoid. A. F. Canelli.—p. 495.

Meningitis in Infants.—Pestalozza agrees with those who say that the abortive, incomplete character of meningococcus meningitis is its special feature in infants. This peculiar feature is most marked in the early phase, "the period of diagnostic blunders" as Babaud calls it, but it may persist throughout. Only the spinal puncture fluid will give the clue to the puzzling respiratory and digestive derangement, or mere general malaise. In 10 cases of this meningitis in

infants from 18 days to 7 months old, seen during the last four years, the antiserum was injected subcutaneously in 3; both by this route and intraspinally in 4, and by the latter route alone in 3. In one of the 7 fatal cases there was complicating pneumococcus infection, and in another erysipelas. In 2 of the others the meningitis had been walled off, and this was not discovered until too late. Pestalozza regards as the best treatment an antiserum made from meningococci isolated from the cerebrospinal fluid of some patient in the prevailing local epidemic. When this is not available, a polyvalent antiserum might be preferable, including parameningococci. The 3 infants in his series that recovered were treated by daily injection of the antiserum, alternately subcutaneous and intraspinal. One was given the intraspinal injection alone. These 3 who recovered were 6, 7 and 8 months old. Each of the 10 case histories is given in full to illustrate, as he says, the "typical atypical" course.

The Neck Sign of Meningitis.—Segagni reviews fourteen different phenomena utilized in the diagnosis of meningitis, and emphasizes the instructive character of Budzinski's neck sign, that is, the involuntary flexing of the legs on the thighs and of the thighs on the pelvis when the head is passively forced toward the sternum. This sign occurs early in inflammation of the meninges, and seems to be pathognomonic of this. He found this sign positive in 21 cases of tuberculous meningitis, in 11 of epidemic and 8 of serous meningitis, and in 2 of pneumococcus meningitis secondary to pneumonia. It was never negative except in one moribund child with tuberculous meningitis, while it was never positive among the 2,900 children free from meningitis tested since 1913. A table gives the parallel findings with this sign, the Kernig and the Babinski in 125 cases. They were positive respectively in over 99, in 55 and in 41 per cent.

Anales de la Facultad de Medicina de Lima

May-June, 1921, 4, No. 21

- *Cerebrospinal Meningitis Induced by *Micrococcus Catarrhalis*. J. Arce.—p. 159.
- Cantharides Used in Ancient Peru. E. Escomel and A. Maldonado.—p. 170.
- *Infant Mortality in Peru. R. Eyzaguirre.—p. 175.
- Pathogenesis of Dementia Praecox. Bayard Holmes.—p. 185.
- Studies on the Materia Medica of Peru. A. Maldonado.—p. 194.

Micrococcus Catarrhalis Meningitis.—The young man's meningitis was ascribed at first to his old malaria. Even after discovery of *Micrococcus catarrhalis* in the spinal fluid, its causal connection with the meningitis was doubted. A staggering gait was noted for a time after recovery was otherwise complete. The main reliance in treatment was on quinin and hexamethylenamin.

Infantile Mortality in Peru.—Eyzaguirre's statistics show that at Lima 19.85 per cent. of the children born die before they are a year old. The corresponding figure in Buenos Aires is given at 8.66; in New York (1917) 8.87; in Rome, 12.22; in Callao, 30.76, and in Bombay, 40.97 per cent. He outlines the measures necessary to combat this high infant mortality.

Archivos Españoles de Pediatría, Madrid

September, 1921, 5, No. 9

- *Treatment of Ascites in Children. M. Vázquez Lefort.—p. 513. Conc'n. System for Medical Inspection of Schools. C. Sáinz de los Terreros et al.—p. 528.
- *Ipecac in Treatment of Constipation in Infants. J. García del Diestro.—p. 549.

Tuberculous Peritonitis in Children.—The previous instalments of Vázquez' study of this subject were summarized on page 1929. He recapitulates the whole in his appeal to beware of draining the ascitic fluid in such a way as to deprive the organism of the antibodies contained in it. The ascites should be combated by stimulating the emunctories to the utmost, and not by tapping. The curative action of the defensive elements in the ascitic fluid should be utilized further by reinjecting it subcutaneously, as a form of autoplasmotherapy. This seems most effectual in tuberculous peritonitis. The disappearance of the ascites under its influence should be regarded as testifying to the cure of the causal disease.

Ipecac in Treatment of Constipation in Infants.—García endorses the cholagogue and stimulating action of tincture of ipecac on the functioning of the digestive tract. It is especially useful when nothing can be found to explain the gastrointestinal derangement. It is in this rebellious "idiopathic constipation" that this treatment seems to restore conditions permanently to normal. The tincture of ipecac can be given, 6 to 10 drops a day, to infants less than a year old, fractioned in two or three doses, or it may be given 1 or 2 drops at a time ten or fifteen minutes before feeding. He assures that ipecac in this way is harmless, and does not cause nausea or vomiting.

Archiv für Kinderheilkunde, Stuttgart

Oct. 29, 1921, 70, No. 2

- *Basal Metabolism in Children. W. Klein, E. Müller and M. Steuber.—p. 81.
- *Hot Baths as Test of Constitution. A. Meyerstein.—p. 88.
- Importance of Tuberculosis Reinfection. T. Köffler.—p. 95.
- *Action of Narcotics on Respiration. A. Eckstein and E. Rominger.—p. 102.
- Case of Diphtheria Glandis Penis in Boy of Six. P. Bode.—p. 112.
- *Suspension Stability of Erythrocytes in Children. Martha Bardach.—p. 114.

Basal Metabolism of Energy in Children.—The extremely carefully planned tests were made on two 8 year old boys who had been prepared by a light diet, and nothing but a little fluid for the nine preceding hours. They had also taken a long walk to insure sound sleep for the ten hours of the tests. Two nights a week were devoted to it, a total of eight in all, and the two boys kept each other company throughout. The average figure of the entire series was 1033.8, utilizing the Meeh formula; it was 1123.9 cal. with the Lissauer, per square meter of surface, and 44.52 cal. per kilogram of body weight. The writers regard the results thus obtained from two subjects, repeatedly examined, as more instructive than from a larger number examined only a few times. The work was done in the pneumatic cabinet of the Agricultural College at Berlin.

Hot Baths as Test of the Constitution.—Meyerstein noted the effect on twenty-nine children of hot baths, the temperature of the water 35 C. at first, and in two minutes raised to 40 the first day; to 41 the second, and to 42 (104 F.) on the following days. A total of 245 ten minute baths was thus studied. The age did not seem to modify the reaction. The temperature of most of the infants ran up rapidly and rapidly subsided afterward, confirming the prompt response to external heat, which is important in estimating the effect of hot weather on infants. The capillaries are evidently responsible for the reaction, and in some of the cases the skin grew pale instead of red. One 7 or 8 months babe had been given artificial heliotherapy before the bath, and after the bath had tonic-clonic spasms, with loss of pupil and tendon reflexes, the fontanels bulging, and the heart beat intensely accelerated. Under chloral, the spasms subsided in twenty minutes, but this case emphasizes anew the decisive rôle of the capillaries in the skin in the heat phenomena of infants.

Tests of Narcotics.—This is the third communication on the physiology and pathology of the respiration in children. The modification of the respiration in sleeping infants was utilized as a gage of the action of the different hypnotics tested. The respiration rate and volume and regularity is a sensitive index of the toxic action of the drug on the vital centers in the medulla, observed in connection with the depth of the sleep.

Suspension Stability of the Erythrocytes in Children.—Bardach found acceleration of sedimentation in certain diseases, and that the sedimentation on the whole seems to be more active in children than in adults.

Archiv für klinische Chirurgie, Berlin

Sept. 3, 1921, 116, No. 3

- *Operative Treatment of Surgical Tuberculosis. Fritz König.—p. 371.
- *Operation for Acute Cholecystitis. O. Nordmann.—p. 388.
- *Centripetal Massage of Scars. A. Szenes.—p. 398.
- *Open Pneumothorax. J. Amreich and R. Sparmann.—p. 413.
- Local Infection of Hand with Foot-and-Mouth Disease. Israel.—p. 453.
- *Loose Bodies in Joints. L. Buchner and H. Rieger.—p. 460.
- *Influence of Hypertonic Solutions on Absorption by Peritoneum. W. Reschke.—p. 466.

- *Action of Roentgen Rays on Brain Tissue. H. Brunner.—p. 489.
 Biology of Greater Omentum. E. Scifert.—p. 510.
 Resection of Duodenal Ulcer. E. Nowak.—p. 518.
 Pregl's Iodin Solution. E. Streissler.—p. 542.

Surgical Tuberculosis.—König tabulates the outcome in 1,932 operative cases of joint tuberculosis, with permanent recovery in 1,329, and discusses the indications for operative measures.

Acute Cholecystitis.—Nordmann analyzes his 134 cases of this kind, his conclusion being an appeal to internists to refer gallstone patients to the surgeon in the acute stage, before irreparable damage has been done.

Centripetal Massage of Scars.—The aim is to loosen up the scar from the bone or soft parts beneath, and Szenes' illustrated description shows how this can be best accomplished. It requires medical knowledge, skill and patience, and hence can be done successfully only by the physician.

Open Pneumothorax.—The condition directly after a gunshot wound is meant, and the proper treatment is outlined for this menacing condition.

Loose Bodies in Joints.—Arguments are presented against the assumption that trauma can induce the formation of a loose body in a joint. Occlusion of a vessel by fat embolism explains them more plausibly.

Influence of Hypertonic Solutions on Absorption by the Peritoneum.—Reschke's experimental research has confirmed the advantages of injection into the peritoneum of a hypertonic sugar solution as reducing absorption by the peritoneum. As the absorption of bacteria and toxins is a grave danger in peritonitis, by checking absorption in this way, we must aid materially the effect of our other measures. He injected salt and sugar in substance to make the tests as severe as possible.

Influence of the Roentgen Rays on the Brain.—Brunner announces that the mature glia cells of the animal brain seem to be very little affected by roentgen rays. When stimulated to reparative proliferation, they continue this unmodified by even intensive irradiation. The connective tissue cells of the pia display the same behavior.

Medizinische Klinik, Berlin

Sept. 25, 1921, 17, No. 39

- *Growing Old. H. Siegmund.—p. 1163.
 Notification of Tuberculosis. A. Winkler.—p. 1166.
 Pathogenesis of Itching Skin Disease. E. Pulay.—p. 1169.
 Lymphogranuloma of Eleven Years' Standing. O. Schiffner.—p. 1170.
 Recklinghausen's Disease of the Bones. H. Flörcken.—p. 1171.
 Biologic Action of Silversalvarsan. Karczag and Hetényi.—p. 1172.
 Whooping Cough in Adults. R. Neurath.—p. 1173.
 A Village Cancer Focus. E. Sachs.—p. 1173.
 Spirochetes in Healed Plaques in Mouth. A. Scheele.—p. 1176.
 Ear Disease from Practitioner's Standpoint. Grahe.—p. 1178. Cont'n.

Growing Old.—Siegmund lists atrophy and pigmentation as the main changes in the physiologic growing old process. The pigmentation he ascribes to defective elimination of waste, and its secondary damage of the cell. The most noticeable changes from growing old occur in the connective tissue, which becomes less porous for the tissue fluids. This impedes both the supply of nourishment and the casting off of waste products. Steinach's operation merely "rejuvenates" the ageing puberty gland by a transient piling up of the protein and fat substances accumulating from the destruction of the generative cells. These carry the specific internal secretion. The effect therefore is merely a temporary stimulation of the sexual function in consequence of the sudden and exaggerated resorption of this internal secretion. No proof has ever yet been advanced that the atrophy and pigmentation of growing old is a reversible process, either in whole or in part.

Pathogenesis of Itching Skin Diseases.—Pulay argues that prurigo, strophulus and urticaria are the result of action of electrolytes in the tissues. They can all be grouped as the pruritus of children. Among the arguments presented is the finding of intense uricacidemia in a child with both prurigo and urticaria.

Whooping Cough in Adults.—Neurath thinks that whooping cough occurs more often in adults than we realize. The inclination to cough meets with such exercise of will power in adults that the tendency to the spasmodic cough is unconsciously repressed below the characteristic type.

Medizinische Klinik, Berlin

Oct. 2, 1921, 17, No. 40

- *Urine Production in the Elderly. E. Zak.—p. 1193.
 *Influence of Diseases on Each Other. J. Löwy.—p. 1195. Cont'n No. 42, p. 1259.
 Anacidity with Syphilitic Gastric Ulcer. F. Glaser.—p. 1199.
 Eosinophilia with Quinke's Edema. M. Gänsslen.—p. 1202.
 *Hemoclastic Crisis Test of Liver Functioning. E. Sömjen.—p. 1203.
 *Import of Hemolysins in Spinal Fluid. F. Schleissner.—p. 1206.
 Ear Disease from Practitioner's Standpoint. Grahe.—p. 1207. Cont'n.

The Urinary Function in the Aged.—Among the points brought out by Zak is the undependability of the axilla temperature in the aged. The poor circulation in the skin may reduce the axilla temperature much below the actual temperature of the body. Another is that the glycosuria in elderly diabetics may subside from the kidneys becoming less permeable. This is not a turn for the better but exactly the reverse. When the night urine surpasses considerably in amount the day urine, this points to weakness of the heart, and digitalis may be required, or dieting and restriction of the intake of fluids. Urobilinogen in the freshly voided urine may explain stomach disturbances as due to stasis in the liver, and enable their cure under digitalis and caffeine, when otherwise cancer may be assumed. In the water test of the kidneys, the response is more instructive when only 500 c.c. of water is ingested than when more is taken. In the normal, 200 c.c. can be voided in the first hour, and the whole in three or four hours.

Influence of One Disease on Another.—Löwy remarks that the chief danger is from the fever, when an intercurrent disease develops in a diabetic. He cites some fatal cases of pneumonia or typhoid in diabetics, and says that the tendency to complications is particularly great when gout and diabetes are associated. He cites Fitz' case in which myeloid leukemia and diabetes were associated, and each improved under the usual treatment. In Rebitzer's case, necropsy confirmed the lymphatic leukemia and chronic nephritis, after death in diabetic coma. In Umber's case the diabetic woman had 9 per cent. sugar and megalosplenic polycythemia, with 150 per cent. hemoglobin. In a case of tuberculosis in a diabetic, there were no night sweats, very little expectoration and fever, while the glycosuria, polyuria and hyperglycemia entirely disappeared. The tuberculosis seems to transform the diabetic organism so that the clinical symptoms of diabetes subside. This may occur with granular atrophy of the kidneys, amounting to a cure of the diabetes. He quotes further several instances of a leukemic blood picture developing when the unstable balance of the bone marrow is upset by any toxic-infectious irritation. In actual leukemia, the blood picture may change to normal in the course of an infectious disease, but this is no sign of general improvement but rather the reverse. Pernicious anemia may be speeded up to a fatal termination by an intercurrent disease, or it may become transformed into an ordinary, secondary anemia type.

The Hemoclastic Crisis as Test of Liver Functioning.—Sömjen applied Widal's test ingestion of 200 gm. of milk to eighty-two persons, and thus confirmed the specific connection between the positive reaction and the liver. When leukopenia or leukocytosis is observed, twenty minutes after sipping the milk, this tells the story, the leukopenia or hemoclastic crisis, as he calls it, testifying to inability of the liver to retain and modify the proteins brought to it by the portal vein. The leukocytes may drop by 20 to 60 per cent. but this leukopenia does not parallel the severity of the liver changes. For diabetes, the test is made with 20 gm. glucose.

Hemolysins in Spinal Fluid in Meningitis.—Schleissner has found the presence of hemolysins in the lumbar puncture fluid a reliable index not only of the presence of purulent and cerebrospinal meningitis but of the trend toward recovery or aggravation. Before the clinical manifestations showed any improvement, the reduction in the proportion of hemolysins enabled a more favorable prognosis, and this was confirmed by the course. On the other hand, the negative findings with serous meningitis and with convulsions from spasmophilia were always dependable, as also in hydrocephalus, chorea, epilepsy and spastic diplegia. He urges greater use of this Weil-Kafka method by pediatricists; all that is necessary is to add 0.5 c.c. of the sheep blood solution to

5 c.c. of the cerebrospinal fluid. The hemolysins normally in human blood do not get into the spinal fluid in normal conditions.

Monatsschrift f. Geb. u. Gynäkologie, Berlin

September, 1921, 55, No. 4-5

- *Fate of Fetus with Hydramnion. G. Krahula.—p. 199.
- *Fate of Cesarean Section Children. H. Dencker.—p. 207.
- Partial Antigens. F. Kirstein.—p. 218.
- *Genital Prolapse During Delivery. F. Hannak.—p. 233.
- Radiotherapy Versus Operation. P. Hacndly.—p. 239.
- Treatment of Chronic Gonorrhea in the Female. O. Feis.—p. 246.
- Tuberculous Infection of Ovarian Tumors. E. E. Pribram.—p. 256.
- Artificial Vagina Made from Intestine. H. Futh.—p. 262.
- Atypical Delivery with Narrow Pelvis. C. Oertel.—p. 266.
- The Question of Medical Certificates for Marriage. F. Heinsius.—p. 274.

Prospects with Hydramnion for the Child.—Krahula tabulates the details of 291 cases of hydramnion compiled from the Bonn clinics and the literature. In the Bonn clinics, 37.5 per cent. of the 41 children were deformed and 54.13 were still-born or soon died. Only 3.78 per cent. of the total children were born viable and left the maternity, while only 1.03 per cent. were normal. With acute hydramnion, a viable child cannot be anticipated. The fact of a twin gestation does not modify the prognosis; some of the normal children were twins.

Fate of Cesarean Section Children.—Dencker has traced 236 viable children delivered at the Breslau clinic by cesarean section since 1909. Eight of them gave the normal cry at once, and 148 were in asphyxia. The mortality in the first month of life was 6 per cent. but 95.4 per cent. left the hospital in good condition, and 81.5 per cent. were living at the end of the year, and since then have averaged well. In fact, they average better than other children as the cesarean children are often exceptionally cherished as coming to parents who had almost given up hope of offspring.

Prolapse of Uterus and Vagina During Delivery.—Hannak remarks that the child is in unusual danger when prolapse occurs. He reports five cases and one in which total inversion of the vagina occurred seventeen days before delivery, but the latter proceeded normally. Four of the women died, and the child of the fifth required perforation.

Monatsschrift für Kinderheilkunde, Berlin

July, 1921, 21, No. 4

- *Creatin Metabolism and the Thyroid Gland. C. Iseke.—p. 337.
- Adhesive Pericarditis in Early Childhood. E. Reuter.—p. 350.
- *Disturbances of Growth in Children with Diabetes Insipidus. Gayler.—p. 356.
- *Stomatitis as Complication in Dysentery. N. Kundratitz.—p. 366.
- *Typhoid Fever in Infants. W. Larsson.—p. 373.

Creatin Metabolism and the Thyroid Gland.—Iseke concludes, from a series of investigations, that hyperfunctioning of the thyroid gland causes an increased creatin metabolism, and a hypofunctioning of the gland a lowering of the creatin output. In children up to 13, creatin, which occurs physiologically in the urine, is diminished in myxedema. This may serve as an early and differential sign by which athyreosis may be diagnosed. In exophthalmic goiter we find a high creatin content; also in fevers, toxicoses, retrogressive muscular changes and severe diabetes excessively high creatin values appear. The excretion of creatin in the urine of children reaches its apex at about the fourth month. Then it gradually decreases and disappears from the urine at the age of 12 to 14. By noting the effect on creatin values brought about by the administration of thyroid extracts or preparations, we have an excellent means of judging their quality.

Disturbances of Growth in a Child with Diabetes Insipidus.—In a child of 12 who for nine years had been suffering from diabetes insipidus and who was in the habit of drinking 5 liters of liquids daily, Gayler conducted metabolism experiments to discover whether the assumption was justifiable that the large quantities of liquids ingested washed away nutrient elements, thereby bringing about retardation of growth, which in this case (and very commonly in such cases) was an accompaniment of diabetes insipidus. He found that the excessive fluid intake was responsible for a marked elimination of nitrogen and large loss of calcium, which he considers substantial evidence in confirmation of the said

assumption with respect to the cause of the retardation of growth in diabetes insipidus in childhood.

Stomatitis Ulcerosa Cachectica as a Complication in Bacillary Dysentery.—Kundratitz describes two cases of severe stomatitis, resulting in necrosis of the bone, as a complication of bacillary dysentery not previously described in the literature. He thinks this disease process may possibly be classed with the group of gangrenous inflammations to which both Matzenauer and Rona assign noma and hospital gangrene.

Clinical Aspects of Typhoid Fever in Infancy.—Larsson states that the prognosis of typhoid in infants is, as a rule, more favorable than in adults and older children. Diagnostically it must be differentiated from dysentery, paratyphoid, the various types of meningitis, and alimentary toxicosis. Treatment may be confined to tepid baths to combat the fever and the application of the ordinary rules of infant feeding, of especial importance being the (if necessary, forcible) ingestion of liquids in case the water balance has been much reduced. If food is refused, feeding by sound may be resorted to without hesitation.

Münchener medizinische Wochenschrift, Munich

Sept. 16, 1921, 68, No. 37

- Tuberculosis in Relation to Pregnancy. E. Kehrer.—p. 1171.
- *Tuberculous Infection in the Family. T. Köffler.—p. 1172.
- *Latency of Sensations in Hyperalgesic Areas. F. Kauffmann.—p. 1174.
- Surface Tension as a Physiologic and Clinical Gage. Kisch.—p. 1178.
- An Improved Method of Ophthalmoscopic Examination of Certain Fundus Changes. O. Haab.—p. 1179.
- Roentgen-Ray Dosage from Biologic Standpoint. Holzknacht.—p. 1180.
- Roentgenographic Examination in Ileus. H. Kloiber.—p. 1181.
- Evidence that Gonorrhea in Women is Curable. L. Zill.—p. 1183.
- Advantages of Electric Bath in Disturbances of Circulation. L. Raab.—p. 1186.
- Protective Measures in Roentgen Ray Laboratory. A. Lorey.—p. 1187.
- Acute Respiratory Disturbances in Tabes Dorsalis. Pette.—p. 1188.
- A Life Saving Operation on Prevertebral Tuberculous Abscess in the Posterior Mediastinum. G. Riedel.—p. 1190.
- Operation for Extensive Rectal Prolapse. Eschenbach.—p. 1192.
- Treatment for Head Lice. A. Hase.—p. 1193.
- Pumice Pencils for Granulosis. Schmidt.—p. 1197.
- D'Espine's Sign of Bronchial Tuberculosis in Children. Klare.—p. 1197.
- General Diagnosis of Hip Joint Disease. J. Wieting.—p. 1198.

Observations on Tuberculosis Infection in the Family.—Köffler reports the results of his investigations to discover the extent to which members of families in which tuberculosis is present become infected. He reaches these conclusions: 1. A patient expectorating tubercle bacilli in large quantities will infect all the children in the family, but infants under 1 year of age often show no reaction in spite of every opportunity to become infected. 2. Tuberculous patients whose sputum contains only small quantities of bacilli are much less infectious for the other members of the family. 3. Patients who eliminate no bacilli are not infectious. 4. Bacillus-negative patients with grave clinical pulmonary tuberculosis, profuse, occasionally bloody expectoration are to be regarded as "facultative open" cases, and are exceedingly dangerous to children. 5. Young children over 1 year old are sure to become eventually infected if there is abundant and long-continued opportunity for infection. Such children often are taken ill following the first infection and present a high mortality. 6. Young children in contact with patients with rare and slight bacillus findings do not show such a great tendency to become infected. 7. Children past 2 years of age, though abundant opportunity is given, become infected much more rarely and their mortality is correspondingly less. 8. Children of patients who eliminate large quantities of bacilli are, on account of constant reinfection, highly sensitive to tuberculin and in a condition of continual sensitization.

Latent Interval in Pain Sensations in Hyperalgesic Areas.—Kauffmann discusses the various methods in use for testing the sensitiveness to pain of different areas of the body, and recommends a method which he has found superior to the common test by pinching a fold of the skin. He fills a test tube with hot water and inserts a thermometer, so that the temperature of the water may be read at any time. He found a temperature of from 50-75 C. the most favorable for comparative tests. The base of the test tube, which is flat, is allowed to rest without pressure on the part to be examined. The surface of the base is about 1.5 sq. cm. With a stop watch he measures the time that elapses between the applica-

tion of the irritant and the first sensation of pain. The measure for the sensitiveness of a given skin area is the latent interval before the pain sensation.

Therapeutische Halbmonatshefte, Berlin

June 15, 1921, 35, No. 12

Silver Therapy. A. Böttner.—p. 353.

Respiratory Disturbances in Children and Their Treatment. E. Rominger.—p. 367.

Clinical Aspects of Arsphenamin Exanthems. L. Kleeberg.—p. 370.

July 1, 1921, 35, No. 13

New Derivatives of Quinin. A. Heffter.—p. 385.

Blood of Relatives for Transfusion. M. Bürger.—p. 386. Cont'd.

*Surgical Treatment of Hypertrophied Prostate. W. Karo.—p. 393.

Regulation of Diet and Medication in the Treatment of Kidney Disease. G. Stroomann.—p. 401.

Treatment of Pointed Condylomas. B. Zelnik.—p. 407.

Surgical Treatment of Hypertrophy of the Prostate.—In 57 cases Karo operated by the suprapubic route. Of the 57 patients, 38 had aseptic urine, and of these, although many patients were over 70 years old, he lost only one—a man of 79—through embolism. The other 19 cases were already infected before the operation, and of these patients 8 died (nearly 50 per cent.). He therefore emphasizes strongly that patients should not be operated on until the infection has been combated by preliminary treatment. The best means of combating urosepsis is the retention catheter. It is thus often possible to counteract septic infection of the urinary passages in a surprisingly short time. The effect of the retention catheter should be supplemented by systematic lavage of the bladder with a boric acid or nitrate of silver solution. Also rectal enemas with sodium chlorid solution are beneficial. Sometimes it is well to alternate these with a 4 per cent. solution of glucose, to which a few drops of epinephrin may be added. A cleansing soapsuds enema should precede the use of sodium chlorid enemas, which may be given daily (from $\frac{1}{2}$ to $\frac{3}{4}$ liter). Furthermore, by suitable internal medication, we may endeavor to effect a sterilization of the urinary tract. Through frequent tests of kidney function the improvement should be controlled, so that the opportune time for the operation may not be overlooked.

Zeitschrift für Tuberkulose, Leipzig

October, 1921, 34, No. 7

*The Transactions in Full of the German Tuberculosis Congress, May 19, 1921, pp. 535 to 742.

Tuberculosis Congress.—Several of the twenty-six addresses and long papers read at this congress and all here reproduced have already been summarized elsewhere, in particular Wassermann's and Neufeld's addresses on immunity, reviewed on page 1852 and on page 1669.

Surgical Treatment of Pulmonary Tuberculosis in Children.—Brauer discussed the surgical treatment of pulmonary tuberculosis in children, saying that this can scarcely be anything but the artificial pneumothorax, and that all the points of view from which this procedure is regarded for adults are the same for children. There is of course the question what will become of the lung thus compressed, and whether the benefit realized will stand the strain of puberty. In considering the indications for it in children, the tendency to generalization, the predominance of the hilus processes, and the various forms of hepatization of the lung have to be borne in mind. Hepatization does not respond well to collapse therapy. Only when the hilus process has spread to involve extensive areas of lung tissue, is there any prospect of benefit from the pneumothorax; when this is the case, it may render great service. Thoracoplastic operations now accomplish the desired purpose quite effectually, but the pediatricist may well query the outcome later of such an operation on a child. A few scattered observations seem to show that even in a child a plastic operation with correct technic may provide more favorable conditions for the later growth of the thorax. Years of research will be required before we can estimate the ultimate outcome of surgical measures on children.

Surgical Treatment of Pulmonary Tuberculosis.—Only the conclusions of Sauerbruch's address are given. These are to the effect that unilateral chronic fibrous pulmonary tuberculosis, with cavities, has been cured by operative measures,

restoring earning capacity and the joy of life. These cures have been realized not only in the well to do but in many of the poor. This operative treatment extinguishes the source for the contagion of others, and hence it should be regarded as a cardinal measure in the campaign against tuberculosis to have surgical treatment of pulmonary tuberculosis perfected and applied on an extensive scale.

Tuberculosis and Pregnancy.—Petruschky is the advocate of percutaneous tuberculin treatment for the tuberculous at any age, and also in prophylaxis. He relates that with this specific treatment of pregnant women, the children are born free from tuberculosis and grow up strong, and if they acquire tuberculosis later, it is readily curable. Unfortunately, he adds, gynecologists have paid no heed to his announcements along this line in 1904 and 1911. Kehrers' communication was devoted to the indications and methods for interrupting a pregnancy in the tuberculous. He said that there was no activation of the disease during pregnancy in fully 90 per cent. and during the pregnancy and puerperium in 80 per cent. of the latent cases of pulmonary tuberculosis. When the tuberculosis first becomes manifest during a pregnancy, if in the Turban phase I, the physician has a grave responsibility but expectant treatment is indicated. In phase II there is aggravation in 80 per cent. Improvement follows interrupting the pregnancy in 80 to 90 per cent. of these cases, and the best method is abdominal panhysterectomy under sacral anesthesia. In phase III little is to be gained by total extirpation or sanatorium treatment, which, on the other hand, is especially beneficial for the pregnant in phases I and II.

Zentralblatt für Chirurgie, Leipzig

Sept. 17, 1921, 48, No. 37

*Cholangiolitis in Relation to Operations for Gallstone. P. Poppert.—p. 1342.

Sigmoido-Anastomosis. C. Pochhammer.—p. 1343.

Suprarenalectomy in Epilepsy. O. Specht.—p. 1347.

Sauerbruch's Tunnel Method to Replace Sphincter Activity in Artificial Anus. H. Hans.—p. 1348.

Cholangiolitis in Relation to Pain Following Operations for Gallstone.—Poppert says that his clinical observations lead him to believe that the colicky pains that frequently occur after operations on the bile tracts cannot be due solely to adhesions, but that an infectious cholangitis or cholangiolitis plays a part. These cholangitic processes are the regular accompaniments of manifest cholelithiasis. If at the time of operation an infectious cholangiolitis is present, recurrences of pain must be expected in spite of cystectomy. Recently, bacteriologic evidence for the correctness of the assumption as to the cause of the recurrence of colic has been secured.

Zentralblatt für Gynäkologie, Leipzig

Sept. 3, 1921, 45, No. 35

Hundred Births Under Scopolamin Amnesin Anesthesia. Meyer.—p. 1237.

Cervicovaginal Fistula from Criminal Abortion. E. Kosminski.—p. 1243.

"Skin Sutures." Comment. H. Hellendall.—p. 1245.

*War Amenorrhea in Petrograd. L. v. Lingen.—p. 1247.

*Operative Treatment of Ovarian Cysts. Schäfer.—p. 1248.

War Amenorrhea in Petrograd.—Von Lingen discusses the bad food and labor conditions in Petrograd, during the war, which resulted in many cases of amenorrhea extending over from four or eight months to two years. He observed personally 320 cases. Hunger edema, while very common in Petrograd, was seldom noted in his amenorrhea cases, most of which concerned married women. Nulliparas, primiparas and multiparas were all affected alike. There were no further phenomena noted, ascribable to the interruption of the menses; no hypoplasia of the uterus resulted therefrom.

Operative Treatment of Ovarian Cysts After the Manner of Klapp's Hydrocele Operation.—Schäfer not wishing to sacrifice the left ovary of a 25 year old nullipara, notwithstanding the presence of a retention cyst, since he had removed the right ovary one year previously for a similar cause, decided to operate after the method proposed by Klapp for hydrocele in men, shown in the illustration in the article. The cyst was split in two and part of it was removed, but a narrow free-hanging edge of the cyst was left. This was folded back on itself and sutured with small catgut sutures

to the healthy ovarian tissue. The bright red ground of the cyst was thus exposed and presented a somewhat "pickled" (*sulzig*) appearance. Recovery was uneventful. Menstruation has since been normal. Six months later the patient was married, and six months later still an abortion in the third month occurred. Seven months afterward he operated for mobile retroflexion of the uterus, and found incidentally that the left ovary was normal in size, color and shape, and free from adhesions with neighboring organs. Of the suture in the edge that was turned back no trace could be discovered. The former site of the cyst could no longer be established. Since retention cysts must be regarded as the product of inflammation of the follicle, it must be assumed that their inner surface is in an inflamed, irritated condition. He therefore expected to find adhesions between the remnant of the cyst and the surrounding structures. He counted only on a functioning of the ovarian remnant in the form of an internal secretion, and had not expected that conception would occur.

Zentralblatt für innere Medizin, Leipzig

Sept. 10, 1921, 42, No. 36

Changes in Blood Sugar in Poisonings. J. Löwy.—p. 713.

Sept. 17, 1921, 42, No. 37

Peculiar Type of Dyspnea in Diabetes. K. Pichler.—p. 729.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 13, 1921, 2, No. 7

*Joint Disturbances in Syringomyelia. R. A. Koopmans.—p. 822.

*Congenital Lymphosarcoma in Posterior Mediastinum. C. de Lange and W. T. van Goor.—p. 828.

*Gastric Cancer After 70. E. H. B. van Lier.—p. 837.

Anatomy of the Femoral Canal. G. C. Heringa.—p. 841.

*Treatment of Refractory Malaria. J. L. A. Peutz.—p. 854.

*Tests for Sugar in Blood. D. G. Cohen Tervaert.—p. 857. Idem. A. Foyer.—p. 866.

Epidemic Encephalitis. J. M. A. M. van den Bergh.—p. 865.

Joint Disturbances in Syringomyelia.—Koopmans warns that arthritis deformans, especially in the young, should always suggest the possibility of syringomyelia. It is more probable when there is a destructive process or dislocation within or near the joint. The arthropathy may develop early in syringomyelia, sometimes preceding all other appreciable manifestations of the disease. Recurring dislocation of the shoulder is usually due to syringomyelia. The degeneration of the trophic and vasomotor nerves interferes with the nourishment of the joint. He describes three cases in men between 18 and 43. In the youngest and the oldest men the first sign of trouble had been cracking sounds in one shoulder, and the joint swelled and function was impeded. There was no history of trauma. The lower ends of the radius and ulna were enlarged, and the hands were swollen, but the wrist seemed normal. Roentgenoscopy confirmed the spontaneous fracture of the humerus at the epiphysis. This healed in a month but spontaneous fracture occurred a second time in the region three months later. In the second case the shoulder disturbances had been ascribed to tuberculosis but the constantly sterile puncture fluid and signs of syringomyelia, considered by the light of the first case, soon corrected the diagnosis. In the third case the elbow was the region involved. The loss of sensation exposes the bones and skin to trauma, and the hand and arm of all three showed numerous traces of cuts and burns. Treatment can be only conservative, rest and massage, but the prognosis as far as function of the joint is concerned is relatively favorable.

Congenital Lymphosarcoma.—The child died when 8 weeks old, and the tumor in the left posterior mediastinum measured 2.4 by 5.6 and 6.7 cm. There was metastasis in the liver, and the Achilles reflex could be elicited in the child, but not the knee-jerk. In fifty other infants tested, the Achilles reflex could be elicited in 3.

Gastric Cancer in the Elderly.—Van Lier protests against the pessimistic view that cancer of the stomach should be assumed when a person approaching or past 70 has severe stomach disturbance and blood in the vomit. He asserts emphatically that the age of 60 or more testifies against cancer; also that the sudden aggravation of long persisting stomach disturbance is scarcely ever due to cancer. He also

asserts with equal emphasis that elderly persons can stand a gastro-enterostomy much better than many suppose. In the last year and a half he has operated in seven cases of the kind in persons between 68 and 82, and all were cured by the gastro-enterostomy from long persisting stomach disturbances, with extreme retention. The acidity ranged from 60 to 113 in all but one, and this patient was the only one without blood in the vomit. The recent rapid aggravation of the stomach disturbances, with pain, loss of flesh and strength and vomiting of blood, had been ascribed to cancer, but the operation revealed in all a benign stenosis of the pylorus, with lumps of connective tissue, the recent aggravation due to further closing of the lumen. He insists that this benign stenosis of the pylorus is comparatively frequent after 60, and he reiterates that it is possible that certain persons, who have been allowed to die from supposed cancer, in reality might have been saved by a gastro-enterostomy if the benign nature of the stenosis had been recognized. He protests against the universal carelessness in examining persons in the seventies and eighties. As nothing can be done to remedy their advanced age, the physician is too apt to feel that an exact differential diagnosis is scarcely worth the trouble. He operated under local anesthesia in the two men of 80 and 82. The latter had suffered from his stomach since his student days, and the other for years and had had hematemesis. In all his seven cases, the stomach tube introduced after a twelve hour fast brought from 300 c.c. to 1 liter of watery fluid contents, usually with more or less blood in the coffee-ground form. As to malignant degeneration of an ulcer, this certainly does occur, and in the leg as well as in the stomach, but in both it is rare. On the other hand, stenosis of the pylorus ought to be given surgical treatment the same as an incarcerated hernia regardless of the age.

Rebellious Malaria.—Peutz reports a case of malaria in a man of 31 in which no apparent benefit was derived from quinin, methylene blue or neo-arsphenamin. The attacks seemed to grow more severe under all this treatment. Then he applied the roentgen rays to the spleen, and there were no further attacks after the first exposure. Four more were given, and the man has had no return of symptoms during the six months to date. The exposures were for three minutes, 2 milliamperes; 3 mm. filter, and 20 cm. distance.

Estimation of Sugar Content of the Blood.—Tervaert has been testing the latest technics for this purpose, and reports that the Shaffer and Hartmann and the Folin and Wu, Ponder and Howie methods are comparatively simple, while the first mentioned can be applied to minute amounts of blood. He commends them all as thoroughly dependable. Foyer compares a number of other technics, and states that as the erythrocytes seem to be impermeable to sugar, this should be taken into account in estimating the sugar content of the plasma in anemic diabetics.

Finska Läkaresällskapetets Handlingar, Helsingfors

September-October, 1921, 63, No. 9-10

*The Defensive Ferments Under Anesthetics, Etc. J. Grönberg.—p. 429.

*Acute Hematogenous Nephritis. B. Runeberg.—p. 473.

Hydrocele of Kidney in Form of Pararenal Cyst. A. Krogius.—p. 493.

Spiral Spring in Extension for Fracture. R. Faltin.—p. 512.

Defensive Ferments in Blood Under General Anesthesia and Certain Intoxications.—Grönberg's extensive research on man and animals with Abderhalden's ninhydrin dialysis method was done in part at Abderhalden's Physiology Institute at Halle and partly at the Wiborg hospital. It has confirmed the reliability of the method, he says, and demonstrated that besides the clinical manifestations induced by ether, chloroform, phenol, barbital and compound solution of cresol these drugs and poisons have a toxic action on certain organs. With ether (11 surgical cases, 8 rabbits and 4 dogs), the serum gave negative findings beforehand, but during the general ether anesthesia, a positive reaction with brain tissue was obtained in 21 of 23 serums; with nerve substance in 10 of 20; with lung substance in 14 of 23. The intensity of the reaction was proportional to the duration of the narcosis. The action of the ether was evident in this respect up to the sixth to tenth day, and the serum of man and animals responded alike. With chloroform (11 clinical cases, 3 rabbits and 3 dogs) the corresponding figures were 14 with brain, 12 with nerve and

6 with lung tissue. In 5 cases of acute phenol, barbitol or compound solution of cresol poisoning, reaction was positive in all for brain, nerve and liver tissue, and, with phenol and compound solution of cresol, for kidney tissue likewise. In 5 cases of morphin addiction and 6 of lead poisoning, all reacted to brain and nerve substance and most to liver also, and 4 of the morphin addicts to thyroid tissue. Control tests with normal subjects were constantly negative.

Acute Infectious Nephritis.—Runeberg emphasizes the importance of curing the primary streptococcus or staphylococcus infectious process responsible for the acute blood-borne kidney disease, or curing the tendency to constipation when the colon bacillus is responsible. He has very seldom tried rinsing out the kidney pelvis, but a retention ureter catheter has often rendered invaluable service, especially in pyelonephritis with retention. The benefit may be remarkable not only when pus but also when merely urine is thus evacuated, relieving the effect of the inflammatory paresis of the urter, and thus acting on the lymphangitic process in the kidney parenchyma. His experience with vaccine therapy, especially with colon infection has not been large, but has not been encouraging. Surgical treatment is not required except with vital indications; colon bacillus processes in particular, although apparently alarming, are usually fundamentally benign. The vital indications are severe sepsis and anuria: decapsulation with bilateral disease; nephrectomy if only one kidney is involved. He resorted to nephrectomy only in 4 of his 250 cases, and as his experience increases, the proportion grows less except for large abscesses or similar embolic metastatic lesions, or paranephritic abscess. The latter calls for immediate intervention. His 24 cases have shown that simple evacuation is generally ample, without the necessity for exposing the kidney all around. When the suppurating process in the kidney has reached a chronic stage, there can be no question as to the advantage of nephrectomy, as no conservative measures can be effectual.

Hygiea, Stockholm

Oct. 16, 1921, **83**, No. 19

*Agglutination of Plague Bacilli. C. Kling and S. Hesser.—p. 625.

Agglutination of Plague Bacilli.—Kling and Hesser relate that plague bacilli from different localities may not be agglutinated alike, and the serums on the market are not always dependable. By immunizing rabbits with plague bacilli, killed by heat, they always were able to obtain a strongly agglutinating serum.

Oct. 31, 1921, **83**, No. 20

*Mercurial Tonsillitis. J. Almkvist.—p. 657.

Mercurial Sore Throat.—Almkvist found the mercurial angina alone in 15 of his 26 cases, but in 9 others it accompanied gingivitis or stomatitis, and in 2 there was merely salivation. He regards it as merely the casual localization in the throat of an ordinary mercurial stomatitis, but it is often mistaken for Vincent's angina. There was fever only in 2 of the cases. The angina persisted for from one to twenty-two days after the beginning of treatment. Both tonsils were involved in 9 instances. The angina developed as early as after the second injection of mercury in some cases; in others not until up to forty-eight days after the conclusion of the course. The infected tonsils afford a predisposition, and treatment to combat this infection is the main thing. It may not be necessary to suspend the mercury when this is done effectually. Arsphenamin by the vein may cure the angina promptly or may have little effect, its action varying widely. He tabulates his cases under nine headings for comparison.

Norsk Magazin for Lægevidenskaben, Christiania

November, 1921, **82**, No. 11

*Indirect Transfusion of Blood After Hemorrhage. F. Jervell.—p. 761.

*Transfusion of Blood for Melena Neonatorum. Idem.—p. 778.

*Diabetic Coma with Insufficiency of the Kidneys. S. K. Mordre.—p. 783.

*Apparatus to Detect Color Blindness. S. Holth.—p. 789.

*Cancer After Corrosion from Ammonia. J. H. Berner.—p. 794.

*Brain Tumor Clearly Shown by Roentgen Rays. V. Magnus.—p. 797.

*Etiology of Disseminated Sclerosis. V. Magnus.—p. 798.

*Progressive Gangrene, Syphilis and Diphtheria. J. A. Voss.—p. 802.

*Inversion of Plantar Reflex. Monrad-Krohn and Lossius.—p. 805.

*Frontal Tumor Masquerading as Cerebellar. Monrad-Krohn.—p. 809.

Transfusion of Citrated Blood.—Jervell gives a table of the findings in 21 cases showing the color index of the blood, the number of corpuscles and the coagulation time, recorded almost day by day, for thirty-five days after severe hemorrhage, at childbirth or after withdrawal of 650 c.c. of blood. This afforded a basis to estimate the effect of transfusion of citrated blood in a parallel group of 10 cases. The ultimate outcome of the transfusion seems to depend on the length of survival of the blood corpuscles from the donor. In 3 of the cases they were refound in the blood a month or two after the transfusion. The danger of complications is far greater in grave chronic anemia than with acute hemorrhage, but the risk is much less by the indirect, citrated method, as this can be made as slow as desired.

Transfusion of Blood for Melena Neonatorum.—Jervell ascribes the recovery of the infant to transfusion of 100 c.c. of the mother's blood plus 50 c.c. of saline. Two and a half days after birth, the apparently healthy child began to have profuse hemorrhages from the bowels, true melena. The mother was 42, with 5,200,000 erythrocytes and color index of 70, but it belonged to a different group from the infant's blood, but the melena was arrested immediately, probably by the increase in the agglutinating power of the infant's blood which became manifest at once. Six weeks later the maternal corpuscles were found agglutinated into compact lumps while the infant's own erythrocytes were not agglutinated, and the child was thriving.

Apparatus to Test for Scotoma and Color Blindness.—Illustrated descriptions are given of Holth's "three-object color" bar and charts, and the application of the three-object principle to the jointed perimeter.

Posttraumatic Cancer.—Four months after the man of 55 had severely corroded the esophagus and stomach by drinking water of ammonia, necropsy revealed three cancerous tumors in the esophagus between the strictures and patches of necrosis caused by the action of the caustic. There were also two papillomatous tumors in the greater curvature of the stomach. One, 3 cm. from the cardia, was the size of a walnut, with a second smaller one near it. The multiple tumors all showed the same microscopic structure of adenocarcinomas. The stenosis and inadequate feeding through a stomach fistula evidently hastened the fatal outcome. Berner regards a causal connection between the trauma and the malignant disease as highly probable although unable to prove it.

Etiology of Disseminated Sclerosis.—Magnus injected guinea-pigs with blood from cases of disseminated sclerosis. The results were negative in his entire series, a total of twenty-three cases of multiple sclerosis, using forty-two guinea-pigs and seven rabbits. None of the animals developed paresis or sickness of any kind, except two that died with brain symptoms explained by a local process from the ear. Seven of the sclerosis patients had been treated with neo-arsphenamin at the time.

Progressive Gangrene, Syphilis and Diphtheria.—A small abscess on the leg of a previously supposedly healthy man of 60 developed in a month into an extensive tertiary syphilitic lesion, covering an area of nearly 800 sq. cm. Diphtheria bacilli had become installed in it, plus progressive gangrene. Under neo-arsphenamin and diphtheria antitoxin the cure was soon far advanced.

Inversion of the Plantar Reflex.—A man of 25 and a girl of 13, who had both had poliomyelitis, the former nine years, the other one month before date of writing, presented the response to the Babinski test assumed to be characteristic only of pyramidal disease. Almost isolated paralysis of the flexor muscles—a peripheral lesion—had induced this inversion of the normal reflex.

Ugeskrift for Læger, Copenhagen

Oct. 13, 1921, **83**, No. 41

*Propyl Alcohol as Surgical Disinfectant and in Treatment of Skin Diseases. J. Christiansen.—p. 1319.

*Comparison of Diets on Different Incomes in Denmark. P. Heiberg.—p. 1326.

Nov. 3, 1921, **83**, No. 44

*Treatment of Bone and Joint Tuberculosis. R. Hertz.—p. 1431.

*Collapse and Heart Disease in Diphtheria. E. Faber.—p. 1440.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 26

CHICAGO, ILLINOIS

DECEMBER 24, 1921

A PERSONAL APPRECIATION OF SIR WILLIAM OSLER *

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BALTIMORE

The subject chosen for this, the opening address in the Osler Memorial Series, is a brief appreciation of Sir William Osler himself and a consideration of the influence exerted by him through his unique personality, and by his spoken and written words, on the medical thought and action of his time. As I stand before you this evening, I find myself appalled by the immensity of my task and by my own inability properly to perform it. Anything with which the name of William Osler is associated, to be at all in keeping with its title, should be something well worth while. The short notice and the consequent lack of time and opportunity for thought and careful preparation are urged as explanation and excuse for the rather desultory and disconnected character of the subject matter composing this address, which has necessarily taken a rather personal and reminiscent vein. It is an all too inadequate tribute to that charming personality, that inspiring teacher, that great physician so beloved by all his students, his associates, his patients and his friends, and so admired by all who knew him.

The appropriateness of the subject chosen for this particular occasion will be at once recognized by all. In the same breath, the query will naturally arise in the minds of some as to my particular qualification satisfactorily to deal with it. I hasten to acknowledge the justice of this query and to reply that my only qualification, and one that is shared by some at least present here tonight, is that I knew well the "Chief," as he was familiarly and lovingly known by his associates and pupils, and loved him.

It was my privilege to know Dr. Osler from the day when the Johns Hopkins Hospital was formally opened, May 7, 1889, and to be more or less intimately associated with him during the sixteen years of his connection with that institution as its first physician-in-chief, and the first occupant of the chair of medicine in the Johns Hopkins University Medical School. It was not my privilege to serve under him as an undergraduate or assistant, but I, like every other earnest student fortunate enough to have been attached to the staff of the Johns Hopkins Hospital in any capacity whatsoever during those golden years of opportunity, could not fail, in some degree, to come under the magic

spell of his influence, so potently manifested wherever he happened to be, whether in Toronto, Montreal, Philadelphia, Baltimore or Oxford. It was an influence so subtle and yet so compelling that one could not remain in his immediate environment for any length of time without receiving in some form or other his lasting imprint. Who can do justice to such a man? Who can recount his virtues? He had no vices. Some faults he had, for he was intensely human. Who can properly evaluate his qualities of mind or heart, or measure the extent of his influence upon the profession of medicine? I can only indulge the hope that from my vantage point, a little removed from the close and intimate relationship of pupil and teacher, or assistant and chief, my perspective may be a little better, perhaps, than that of either of the former and that thus I may be able the more justly to appraise the qualities of head and heart of that truly great man, at the time of his death the recognized leader of his chosen profession, in whose honor and for the perpetuation of whose memory we have gathered here this evening.

BIOGRAPHY

William Osler was born in Ontario, Canada, July 12, 1849, and like many distinguished men, was the son of a clergyman. His early education was received in Toronto, and he graduated from Trinity College, in 1868. He took his medical degree at McGill University, Montreal, in 1872. He studied abroad for two years, chiefly in London, Berlin and Vienna. On his return in 1874, he was made professor of the institutes of medicine in McGill University. Here he remained until 1884, when he accepted a call to the professorship of clinical medicine in the University of Pennsylvania. When the medical department of the Johns Hopkins University was inaugurated in 1889, he became the professor of the theory and practice of medicine and the physician-in-chief to the Johns Hopkins Hospital. Here he formed one of the famous "Big Four" in the faculty, and whatever of credit is due to the organization and development of that institution and the far-reaching effect that it had on medical education in this country is shared by him.

In the fall of 1904, he accepted a call to become regius professor of medicine in the University of Oxford, England, where he remained until his death, Dec. 29, 1919—fifteen years crowded with manifold activities, especially during the World War, when his counsel and advice were continually in demand, both by military and civil authorities. His career in the various institutions he served is too well known by the public and the profession, and especially by those present, to require extended comment.

* The first annual address of the Osler Memorial Lectureship, read before the Los Angeles County Medical Association, under the auspices of the Osler Memorial Association of Los Angeles.

HONORS

William Osler was the recipient of many honors, too numerous to recount. Institutions of learning were eager to honor themselves in honoring him. The list of universities conferring degrees on him would include practically all the leading ones of this country and many of those in Great Britain. In addition to all this, in 1911 he was created a baronet of the United Kingdom, by King George V. A rather unusual distinction completed this list of honors when, in 1918, Sir William was made president of the British Classical Association, a rare honor indeed to be conferred upon a physician, a member of a profession without special classical training. This is but an evidence of the wide range of his interest and the extent of his scholarship.

PERSONALITY

Well do I remember that eventful day, May 7, 1889, when the doors of the Johns Hopkins Hospital were thrown open to the public. There had gathered a distinguished assemblage containing many notable personages, both lay and medical, representing the élite of the profession of the country, and the responsible citizens of Baltimore and vicinity. Among the prominent figures who were present was one on whom, perhaps more than any one else, were focused the attention and the interest of the assemblage. That man, a rather spare figure, a little below the average height; dressed immaculately; debonair, with a flower in the buttonhole of his Prince Albert; with coal black hair, just beginning to get a little thin over a high forehead indicative of great intellect, a flowing mustache, bright, piercing eyes in which lurked almost constantly a most engaging twinkle; a complexion rather sallow, yet suggesting good health and constitution; with quick and agile movements, indicating great nervous energy; and altogether giving the impression of a body under excellent control physically, endowed with great mental acumen and poise, and possessed to a marked degree of the sense of humor. Wherever he was, he became the center of an interested and interesting group of men and women; the men especially interested in his brilliant sallies in reply to questions, or in his conversational ability, showing a wide range of interest along lines other than those strictly medical. The women, and that was so characteristic of him, were charmed, yet exhibited often a quizzical and somewhat puzzled expression; for it was part of Dr. Osler's religion, so expressed by him, repeatedly, never to take any woman too seriously. This is well expressed by Dr. McCrae:

Many interviews with patients come to memory. In one, the center of the stage was occupied by a nervous woman to whom something had been very kindly said of the need of self-control. With the tears flowing freely and a handkerchief in active use, "Oh, Dr. Osler, you misjudge me cruelly." He, standing at the foot of her bed, replied in a serious tone of voice, and with a twinkle in his eye, "Madam, I learned early in life never to judge any woman and that rule I have strictly kept; therefore I cannot have misjudged you. Good morning."

However, whether they could understand him or not, the women came readily under the spell of his personality, just as the men. It was extraordinary, the power of his personality; one could not work with or under him without experiencing it. This was equally true of all grades, socially or intellectually, for other leaders of medical thought and opinion were just as ready to acknowledge his influence as were his students, associates and patients.

The effect of his presence and his cheery words on his patients was most stimulating and helpful, and at times truly electrical. It was urged against Dr. Osler by some that he belonged to the school of therapeutic nihilists; and there was an element of truth in this charge. In fact, it was also rather jokingly said of him that he never ordered a drug for a patient except from a list of medicines containing not over half a dozen all of which were poisons. Perhaps he needed, less than many others, to use drugs with his patients. Certainly this was true of tonics, for it would be hard to conceive of any tonic producing a more happy or more lasting effect on a patient than the entry of Dr. Osler into a sickroom: a cheery word of greeting, a characteristic wave of the hand, a friendly or even familiar slap on the back, a bright sally at the expense of the patient, not leaving any sting behind, as, unfortunately, witty sayings so often do, but rather leaving a pleasurable afterglow, the effect of which on the mind and consciousness of the patient was both happy and salutary. Seemingly without knowing it, he put into operation the best there is in psychotherapy. To those who were so unfortunate as never to have had the opportunity to observe it, this description of the effect of Dr. Osler's presence in the sickroom may perhaps seem a bit fulsome, but we who have had the privilege, repeatedly, of learning by watching him how to approach a patient in order to gain his confidence, to calm his fears, or to inspire hope, know that it would be difficult to exaggerate the effect of his personality on those, well or ill, with whom he came into immediate contact.

One of his especial characteristics was optimism; not of the foolish sort, which, ostrich-like, buries its head in the sand and says all is well when it surely is not, but the optimism which grasps every opportunity legitimately and wisely to turn the current of the patient's attention and thought from self and gloomy forebodings into more healthful and stimulating channels. Hope was the bright particular star to which he was constantly pointing in all his relations with his patients. It was the gospel he preached to his students. His writings are filled with it.

One of the outstanding characteristics of the "Chief" was his thorough understanding and interest in human nature. He, like Abou-ben-Adhem, loved his fellow man despite faults and frailties, toward which he was always willing to turn a blind eye or a deaf ear. At the same time, in a very tactful way and from some text thus furnished, he preached many a lay sermon which had a lasting effect for good on the patient, or the group of medical students and assistants, or the medical or lay audience, as the case might be, to whom it happened to be addressed.

In addition to this, there was developed in him that extraordinarily rare faculty, the capacity of making each individual patient feel that he was personally interested in his or her case, not by number but as an individual. This was not merely assumed interest with him, either: it was genuine. Those who knew him best came to feel that to an unusual degree he was endowed with the love of his fellow men, both individually and collectively. This was one of the most potent of the impelling forces in his life and was largely responsible for the spirit of helpfulness that characterized his work.

The relationship between him and his students and his staff of associates was most cordial. Never was

chief more loyally served or more thoroughly worshiped by his subjects than was Dr. Osler by those associated with him. Their relations were certainly ideal. To see Dr. Osler at his best, to get a glimpse of the real "Chief," of the many-sidedness of his character, of his wonderful memory for cases, of the inexhaustible storehouse of medical lore with which his mind was filled, his remarkable insight into disease and its protean manifestations, and to feel the magic spell of his presence and personality, one must watch him by the bedside of his patient, surrounded by his students. There he sits in the midst of them, with thoughtful mien, in characteristic pose, his exquisite hands palpating the patient or toying with a stethoscope or adjusting a recalcitrant cuff; alert, never missing an opportunity to direct attention to some point of interest illustrated by the case in hand, or to point out to the students some direction in which possibly addition could be made to existing knowledge by study and research. Nor was the opportunity lost to try, in his own inimitable way, to stimulate the desire for these things in the minds of his students.

As to his habits, he was extremely punctual in attendance on all his appointments. Rarely, if ever, was he known to be late. Although he never seemed to be in a hurry, he lost no time. The failure now and then of other parties to an appointment to be punctual drew from him an occasional characteristic remark which, though kindly expressed, usually effectually prevented a recurrence of similar lack of punctuality.

He was a man of few words. He never expressed an opinion until he had acquainted himself fully with all of the available facts in the case. Then his opinion was stated in few words, and to the point, so that it could be readily understood by every one. Taciturnity was one of his virtues. He cultivated it and earnestly advised its cultivation in others. He was never heard to speak ill of any one. Sometimes in righteous indignation he would enter a vigorous protest against some wrong or wrong-doer. Under such circumstances, he could express himself both vigorously and emphatically, and at times in truly picturesque fashion. This was his characterization of the "patent" or proprietary medicine "drummer," always a trial to his soul: "While many of them are good sensible fellows, there are others voluble as Cassio, independent as Autolycus, and senseless as Caliban, who will tell you glibly of the virtues of extract of the coccygeal gland in promoting pineal metabolism, and are ready to express the most emphatic opinions on questions about which the greatest masters of our art are doubtful." What a delightful character sketch and how true we all know, to our edification and sorrow.

One of the cardinal principles of his life was the cultivation of equanimity. He preached this both in season and out of season and practiced it constantly, to the end.

AS A TEACHER

Dr. Osler had decided ideas as to the proper way to teach medicine, and these were not always in accord with prevailing methods. His ideas seem to have been influenced largely by the teachings of Louis, of whom and of whose methods of work he was an ardent admirer. He subscribed most heartily to the positive or modern method of the study of medicine by observation and analysis as distinguished from theory and dogma. He quotes with entire approval Louis' words:

The edifice of medicine reposes entirely on facts, and truth cannot be elicited except from those facts which have been well and completely observed. To get an accurate knowledge of any disease, it is necessary to study a large series of cases, and to go into all the particulars; the conditions under which it is met, the subjects specially liable, the various symptoms, the pathologic changes and the effect of drugs.

Listen to what he says further in this regard:

In what may be called the natural method of teaching, the student begins with the patient, continues with the patient, and ends his studies with the patient, using books and lectures as tools, as means to an end. The student starts, in fact, as a practitioner, as an observer of disordered machines, with the structure and orderly functions of which he is perfectly familiar. Teach him how to observe; give him plenty of facts to be observed, and the lessons will come out of the facts themselves. For the junior student in medicine and surgery, it is a safe rule to have no teaching without a patient for a text, and the best teaching is that taught by the patient himself. The whole art of medicine is in observation, as the old motto goes, but to educate the eye to see, the ear to hear, and the finger to feel, takes time, and to make a beginning, to start a man on the right path is all we can do. We expect too much of the student and we try to teach him too much. Give him good methods and a proper point of view, and all other things will be added as experience grows.

How much more rational, how much more effective this method with small groups of students than the old, now happily largely discarded, stereotyped lectures and text books, and recitations with large classes, in which it is impossible to have that intimate and personal contact between teacher and student so helpful to each.

Reared, as he was in his early youth, in a clerical home atmosphere, influenced, as he himself says, more profoundly than by any one else, by three of his old teachers, one of whom was a minister, and another later to become one, Dr. Osler's writings and addresses bear unmistakable evidence of this beneficent influence. Hear him while he speaks:

As to your method of work, I have a single bit of advice which I give with the earnest conviction of its paramount influence in any success which may have attended my efforts in life. Take no thought for the morrow; live neither in the past nor in the future, but let each day's work absorb your entire energies and satisfy your widest ambitions. . . . While medicine is to be your vocation or calling, see to it that you have also an avocation, some intellectual pastime, which may serve to keep you in touch with the world of art, of science or of letters. Begin at once the cultivation of some interest other than the purely professional. The difficulty is in a selection, and the choice will be different according to your tastes and training; but, no matter what it is, have some outside hobby. For the hard working medical student, it is perhaps easiest to keep up an interest in literature. Let each subject in your year's work have a corresponding outside author. When tired of anatomy, refresh your mind with Oliver Wendell Holmes; after a worrying subject in physiology, turn to the great idealists, to Shelley or Keats for consolation; when chemistry distresses your soul, seek peace in the great pacifier, Shakespeare; when the complications of pharmacology are unbearable, ten minutes with Montaigne will lighten your burden. To the writings of one old physician I can urge your closest attention. There have been, and, happily, there are still, in our ranks notable illustrations of the intimate relations between medicine and literature; but in the group of literary physicians, Sir Thomas Brown stands preëminent. The "Religio-Medici," one of the great English classics, should be in the hands, the hearts, too, of every medical student. As I am on the confessional today, I may tell you that no book has had so enduring an influence on my life. . . .

It was one of the strong influences which turned my thoughts toward medicine as a profession, and my most treasured copy, the second book I ever bought, has been a constant companion for thirty-one years.

Once more:

It seems a bounden duty on such an occasion to be honest and frank, so I propose to tell you the secret of life as I have seen the game played, and as I have tried to play it myself. You remember in one of the Jungle Stories that when Mowgli wished to be avenged on the villagers, he could only get the help of Hathi and his sons by sending them the master word. This I propose to give you in the hope, yes, in the full assurance that some of you, at least, will lay hold on it to your profit. Though a little one, the master word looms large in meaning. It is the open sesame to every portal; the great equalizer in the world; the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright; the bright, brilliant, and the brilliant student steady. With the magic word in your heart, all things are possible, and without it all study is vanity and vexation. The miracles of life are with it; the blind see by touch; the deaf hear with eyes; the dumb speak with fingers. To the youth, it brings hope; to the middle-aged, confidence; to the aged, repose. True balm of hurt minds, in its presence the heart of the sorrowful is lightened and consoled. It is directly responsible for all advances in medicine during the past twenty-five centuries. Laying hold on it, Hippocrates made observation and science the warp and woof of our art. Galen so read its meaning that fifteen centuries stopped thinking and slept until awakened by the *De Fabrica* of Vesalius, which is the very incarnation of the master word. With its inspiration Harvey gave an impulse to a larger circulation than he wot of, an impulse which we feel today. Hunter sounded all its heights and depths and stands out in our history as one of the great exemplars of its virtue. With it, Virchow smote the rock and the waters of progress gushed out; while in the hands of Pasteur, it proved a very talisman to open to us a new heaven in medicine and a new earth in surgery. Not only has it been the touchstone of progress, but it is the measure of success in everyday life. Not a man before you but is beholden to it for his position here, while he who addresses you has that honor directly in consequence of having had it graven on his heart when he was as you are today. And the master word is *Work*, a little one, as I have said, but fraught with momentous consequences, if you can but write it on the tablets of your hearts and bind it on your foreheads.

I have thus quoted at length from Dr. Osler himself because, while he is exhorting his students, he is at the same time revealing the innermost secrets of his heart. He is telling the secret of his great success, the reason why he was able to accomplish the wonderful work that he did, and how it was that he gained the pinnacle of fame which was his. Yes, Dr. Osler was preeminently a teacher. He would have made a wonderful preacher. He possessed to an unusual degree all the qualifications and characteristics necessary for success in this exalted calling, for so it is. He recognized and appreciated this fact, and it influenced greatly his whole career. Ever stimulating and inspiring, ever urging higher ideals, ever encouraging by his example and methods; never taking advantage of his position to humiliate a student before his fellows or his patients; never himself causing nor allowing any one else in his presence to cause unnecessary physical or mental pain or discomfort by rough handling, or the brusque, sometimes even brutal expression in the patient's hearing of opinions concerning a diagnosis of malignant or other disease with fatal or discouraging prognosis. His tactful replies to embarrassing questions of patients or of over-anxious members of the family; his successful escapes

from verbal encounters with neurasthenics and psychasthenics, especially women, leaving them bewildered, perhaps, but for the moment at least satisfied, are proverbial. He was always suggesting to the student new lines or investigation and work, new problems to engage his attention and activities. He was always interested in the progress made by the student in these directions, and, when anything worth while was developed, showed great interest in its prompt publication. It was just here that he displayed preeminently that quality unfortunately not universally present in teachers, namely, the insistence on the fact that whatever credit was due from the work done should belong alone to the one who did it, he taking no share in it to himself. Is it any wonder, then, that his influence on his students and associates should have had the happy effect which it did, and should have been rewarded by the development among them of teachers and masters who have since followed gratefully in his footsteps, illustrating, to a greater or less degree, in their lives and methods the principles he so eloquently preached and so faithfully practiced?

OTHER ACTIVITIES AND INTERESTS

Dr. Osler was a citizen of three countries and loyal to the best traditions of them all. He took an active interest in all the civic problems involved in this citizenship, especially those having to do with public health. Tuberculosis early engaged his thoughtful attention, and much of his best work was done here. So great was his interest in the study of this affection that the bibliographic list of his published works includes no less than forty-eight titles that have to do, either in whole or in part, with tuberculosis. In addition to this, he was the moving spirit in 1900 in the organization at the Johns Hopkins Hospital of the Laënnec Society for the special study of tuberculosis. He was a charter member of the National Tuberculosis Association and its first honorary vice-president. At all times he was to be found closely identified with the antituberculosis crusade, both in this country and in England. He was tremendously interested in all matters pertaining to hygiene and sanitation. The control of communicable diseases, pure water, a good milk supply, children's playgrounds, every movement, in fact, that had to do with improved living conditions and made for the upbuilding of humanity, found in him an ardent champion.

Attention has already been called to the fact that Dr. Osler was constantly urging students to have a hobby. His was books, old books, especially first editions. Many of his students retain vivid recollections of the delight with which he would exhibit in his own study, or at the meetings of the Historical Society, some rare old volume and fairly gloat over it as he recounted its history, gave the biography of its author and appraised its literary and scientific value with the authority of the connoisseur that he was. His collection of old books at the time of his death formed a library of great value, and along certain lines was second to none in existence. It was a source of intense satisfaction to him that his son, Revere, had inherited in large measure this same trait. At the end of his volume entitled "*Aequanimitas and Other Addresses*" is appended a list of books, his "*Bed-side Library for Medical Students*," as he called it, with this bit of advice well worthy of quotation here and of thoughtful consideration and practice by every student:

A liberal education may be had at a very slight cost of time and money. Well filled though the day be with appointed tasks, to make the best possible use of your one or of your ten talents, rest not satisfied with this professional training, but try to get the education, if not that of a scholar, at least that of a gentleman. Before going to sleep, read for half an hour, and in the morning have a book open on your dressing table. You will be surprised to find how much can be accomplished in the course of a year. I have put down a list of ten books which you may make close friends. There are many others. Studied carefully in your student days, these will help in the inner education of which speak.

The list of books is of special interest as an indication of the direction in which his literary tastes lay and the springs from which he gained inspiration and refreshment: The Old and New Testament, Shakespeare, Montaigne, Plutarch's Lives, Marcus Aurelius, Epictetus, Religio Medici, Don Quixote, Emerson, and Oliver Wendell Holmes (Breakfast Table Series).

Dr. Osler was a firm believer in the high mission of the medical profession, and in the opportunities which it affords to those of its members who are able to appreciate and take advantage of them. He was an uncompromising foe to chauvinism and its offspring, which he characterized as "nationalism, provincialism and parochialism." Especially does he inveigh against that unfortunately all too common variety that takes the form of professional jealousies and contentions among medical men, often leading to undignified and unprofessional conduct. He consistently held the position that there was no more high-minded body of men to be found than that which composed the medical profession, and that it was unseemly and unbecoming to engage in personal and professional disputes and controversies which could only tend to discredit the profession in the eyes of the public, and breed bitterness and hatred in the minds of those who indulged therein. Instead, he was always counseling against too hasty judgment of the actions of a confrère, especially as reported by a patient, however well meaning he or she might be, because so often such remarks are unintentionally misquoted and such actions misconstrued. "Never let your tongue say a slighting word of a colleague. It is not for you to judge. Let not your ear hear the sound of your voice raised in unkind criticism or ridicule or condemnation of a physician. If you do, you can never again meet that man face to face. Wait, try to believe the best. Time will generally show that the words that you might have spoken would have been unjust, would have injured a good man and lost you a friend, and then, silence is such a powerful weapon" (Thayer). Could you imagine more valuable advice for the student, or for us medical men, to receive than this? and the best part of it all was that Dr. Osler never preached what he did not practice. His own life was the best illustration of his precepts.

SENSE OF HUMOR

Dr. Osler's sense of humor, to which reference has been made before, was so fine and subtle that he was not infrequently misunderstood by his more matter-of-fact audience, "the dull, stupid public," as he was so fond of characterizing it. The most marked instance of this, perhaps, was the exploitation by the newspapers of the whole country, in fact on both sides of the Atlantic, of his facetious remarks made in his founder's day address in Baltimore on the relative uselessness of men from the standpoint of intellectual productivity, after they have reached the age of 40, and the

suggestion of the use of chloroform after 60 as an easy solution of the problem of senility. The way in which the press and the country at large reacted to this innocent remark was the source of great surprise and extreme annoyance to him, and caused him to exercise more caution in subsequent public utterances. He was always most felicitous in his quotations and his similes. It was here that his keen and discriminating sense of humor found expression. His characterization and description of men and things were notorious. Listen to this classification of the various types of professors: "It was a parson," he says, "who gave the well known libelous division of doctors: (1) those that talk but do nothing; (2) some that can do but not talk; (3) some that can both do and talk; (4) some that can neither do nor talk, and these get most monie." Of professors, "The first is the man who can think but has neither tongue nor technic. Useless for the ordinary student, he, however, may be the leaven of a faculty and the chief glory of his university. A second variety is the phonographic professor, who can talk but who can neither think nor work. In the old régime, he repeated year by year the same lectures. A third is the man who has technic but who can neither talk nor think. And a fourth is the rare professor who can do all three, think, talk and work. With these types fairly represented in a faculty, the diversities of gifts only serving to illustrate the wide spirit of the teacher, the dean at least should feel happy."

Often when apparently writing in a most humorous vein, he has been the most serious in his meaning, and how often and with what delicate touch does he expose some of our human faults and foibles (Brush). Listen to this homily addressed to a class of graduating students:

Curious odd compounds are these fellow-creatures at whose mercy you will be; full of fads and eccentricities, of whims and fancies; but the more closely we study their little foibles of one sort or another in the inner life which we see, the more surely is the conviction borne in on us of the likeness of their weaknesses to our own. The similarity would be intolerable if a happy egotism did not often render us forgetful of it. Hence the need of an infinite patience and an ever-tender charity toward these fellow-creatures; have they not to exercise the same toward us?

PRACTICAL SIDE

With all of his fondness for humor and the bright side of life, there was an intensely practical side to all of his teaching. Art for art's sake, science for science's sake, work for mere work's sake, did not appeal to him. The medical man should always be inspired and his work should have as its ultimate aim the benefit of humanity, some addition to the sum total of human knowledge, the cure of disease, the prolongation of life. "The knowledge," says he, "which a man can use is the only real knowledge, the only knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like raindrops off the stones."

HUMAN SIDE

The human side of Dr. Osler was perhaps, after all, the most attractive. Dr. Welch has well said of him, "To Osler nothing human was foreign." It is a curious fact that while many praise his scholarship, his ability as a physician along practical or scientific lines, and his stimulating leadership, yet all, with one accord, unite in acclaiming him as a man among men. This

factor played a large part in the phenomenal success which has crowned his career. His habit was essentially peripatetic. He never remained long enough in one place to become moss-grown. He felt the need and recognized the beneficial effect on his work of new surroundings and fresh pastures. He never bothered himself about the past, still less about the future; the present alone interested him. "Sufficient unto the day is the evil thereof" was the text from which he preached many an effective sermon.

Time past is gone, thou canst not it recall;
Time present is, employ the portion small;
Time future is not and may never be;
Time present is the only time for thee.

HOME LIFE

The home life in the Osler household was ideal. Every one will testify to this fact who was fortunate enough to have enjoyed its unostentatious hospitality. The "Chief," always interesting, seemed even more so in the unconventional freedom of the home atmosphere. Lady Osler made a charming hostess. Many a homesick student will recall with pleasure her gracious kindness to him, a perfect stranger, and her spontaneous and genuine cordiality which made him forget himself and feel at once at home. Those student Saturday night conferences in the Osler home, with their close and intimate contact with Dr. and Mrs. Osler, and the stimulus received there to higher planes of thought and action are never to be forgotten by the happy participants.

To Dr. Osler more than to any one else was due the inauguration of the student conferences in the homes of the professors and instructors. It was in these gatherings that the teacher came to know the students personally. They formed the basis for the intimate and lasting personal friendships and for the *esprit de corps* which has always been a distinguishing characteristic of the Johns Hopkins school.

INFLUENCE

As to the influence of Dr. Osler's personality exerted through his students, and the effect of his teaching and writings on medical thought and education, sufficient time has not as yet elapsed to admit of a just appraisal. This must be left for a future generation, with a better perspective and a longer time to judge of results. However, in passing, attention is called to the fact that this meeting tonight is but another evidence of the extent and character of Dr. Osler's influence, working through his former students toward better things in medicine. It augurs well for the future of the profession in Los Angeles that so much of his spirit is still alive and active in this community. May the fire thus kindled ever be kept burning brightly by you, his former pupils and your associates and your successors forever, to act as a beacon light, guiding the members of our beloved profession toward higher aspirations and more unselfish devotion to the service of our fellow men. I, with a thorough realization of my inability to judge as to the question of the permanent place that will be occupied by Dr. Osler in medical history, nevertheless venture to express as my opinion that, when the history of the time in which he lived comes to be written, the record of Dr. Osler's achievements as the foremost physician of his day, as investigator, teacher, author, historian and man will fill a large place.

His insistence on the fundamental relation of accurate observation and analysis of facts to the proper study of medicine, first enunciated in the French school in the early days of the last century, and later emphasized and popularized by Louis, did much to bring about its firm establishment in our system of medical education. The emphasis that he placed on historical, biographic and literary, as well as the strictly scientific subjects, has greatly broadened the outlook and widened the horizon of the medical men. His influence ever tended to humanize the study of medicine and to make it more fully meet the needs of humanity, and so fulfil its high mission.

Of Dr. Osler's literary style, it has been well said that his own estimate of some of the old writers may, with equal truth, be applied to him: "a rare quaintness, a love of odd conceits, and the faculty of apt illustration." There is a clarity of diction, a charm of expression, an epigrammatic style in all his writings that stamp them with a certain individuality that must leave a lasting impression on medical literature. Indeed, it can already be observed in the writings of some of his former pupils.

If one were to enumerate those traits of Dr. Osler's character most likely to affect permanently medical thought and practice, one would mention industry, accuracy, honesty, kindness and humanity, as perhaps the most prominent. In his writings and teachings, he ever dwelt on these cardinal virtues, with an intensity that could not fail to have a lasting and marked effect on his students. While in practice, always more potent than precept, he was a living and shining example known and read of all men, of the doctrines he professed. One of Dr. Osler's students, from among those best able to judge gives this estimate of his work:

No one has written more systematically or more consistently of the changes underlying the manifestations of disease; no one has recognized more clearly the boundary line between the known and the unknown, or sifted more judiciously and unerringly the truth from error.¹

Not the least of Dr. Osler's virtues was his ability to harmonize opposing factions and opinions among medical brethren and associates. He was ever, whether in Canada, the United States or England, to be found using his great influence in the bringing together of warring factions, in clearing up misunderstandings, in bringing harmony of action to opposing interests. This was equally true of individuals as of organizations, medical schools and societies, as well as of medical associates. Himself a friend to every one, a supporter of no special faction, identified with no party, he was always in a position to suggest a middle ground on which both sides to any controversy could find a common meeting place. He could do this because he had the confidence equally of both parties to the strife, who, for this reason, and knowing full well his disinterestedness, were usually ready to listen to his counsel and follow his advice.

It was a curious coincidence, the irony of fate, which has been so often observed among medical men, that Sir William should himself fall a victim to one of the diseases that had engaged his especial attention and had been the subject of so much study and thought on his part for so many years. He contracted pneumonia, that disease which he was wont so often to characterize as "the old man's friend," because it pro-

1. MacCallum.

vided a comparatively quick and painless exitus, especially for those of advanced years. With characteristic cheerfulness, a few days before his death, he sent to his friends in Johns Hopkins a Christmas message of hope and cheer, in which he said he was making a good fight. But all the while he himself, either by intuition or with his wonderful insight into disease processes, must have known and felt that the end was approaching; for, shortly before his death, he wrote thus to an intimate friend: "The harbor is not far off and such a happy voyage, such dear companions all the way, and the future does not worry. It would be nice to find 'Isaac' there with his friends—Isaac Walton and others."²

His system of philosophy, which he had consistently preached and so faithfully practiced throughout a busy and fruitful life, had served him to the end. In the hour of triumph and success, it had helped him to bear with becoming humility all the honors that were heaped on him by an appreciative and admiring profession on both sides of the Atlantic. In the hour of trial, when grief-stricken and crushed to earth by the greatest of all sorrows that could have come to him, the untimely death in the World War of his only son, a youth of unusual promise, the pride and joy of his heart, he was still able with a supreme effort to manifest that "equanimity" about the virtues of which he had so eloquently discoursed in times gone by. Even "in the valley of the shadow of death," as indicated by his message to his friend just quoted, this quality of equanimity, and "the rod and the staff," with which he had been made familiar from his youth up, combined to comfort him.

CONCLUSION

Thus ended a life crowded so full of good deeds and noble aspirations that there never was any room for the low, the base or the sordid. So busy was he trying to wrest from Nature the keys to some of her hidden mysteries, so filled with his love of humanity, so understanding of all of its weaknesses, so appreciative of its strength, so ready to extend a helping hand to any one in need, so overflowing with hope and good cheer that it continually radiated from his presence. Small wonder, then, that he was the most loved of men. He was the embodiment in his own person of "Luke, the beloved physician" of Holy Writ, with which he was so familiar and which he loved to quote, and continually did quote with such happy effect. Thus he lived and thus he died, true to himself, true to his philosophy, true to his traditions, having reached that height for which true men have ever striven and will continue to strive, and which it is granted comparatively few to attain, where it can be truly said of each, "He added something to the sum total of human knowledge, he left the world better for having lived in it."

Nor sun, nor moon, nor stars can shed more light
on humankind than one grand life.

1300 Eutaw Place.

2. "Isaac" was the nickname that Dr. Osler used for his son, Revere, because he was so fond of fishing and kindred pursuits.

Mental Health Maintenance.—In the field of mental hygiene, the maintenance of mental health begins where the prevention of mental disease leaves off. The prevention of mental disease usually leads to problems in eugenics and heredity, while the problem of mental health maintenance is largely a matter of environment and individual initiative, the latter after one has reached the age of accountability.—R. R. Spencer, *Nation's Health* 3:540 (Oct.) 1921.

TELANGIECTATIC SPLENOMEGALY

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In the classification of disease, it is desirable, whenever possible, to separate inflammatory from neoplastic processes, and in many instances this may be done with certainty. There is, however, a formidable list of diseases in which inflammatory and neoplastic features are combined in such fashion as to necessitate the promulgation of an intermediate group, to be included in which are Hodgkin's disease, mycosis fungoides, Cohnheim's pseudoleukemia, Kaposi's lymphodermia perniciosa, the true leukemias, Sternberg's leukosarcoma, Gaucher's splenomegaly, certain varieties of lymphosarcoma, solitary and multiple benign giant-cell growths of bone, the monolithic and generalized forms of Paget's disease of the bones, and exophthalmic goiter, all of which present characteristics of structure or behavior which are neither in consonance with the familiar conception of an inflammatory process nor frankly neoplastic. For example, the histologic changes in Hodgkin's disease bear a resemblance to those of tuberculosis on the one hand, and to a malignant connective tissue tumor on the other, while the distribution of lesions in the liver, kidney, bone marrow and other tissues not customarily included in the lymphoid series is comparable to that of a metastasizing tumor, but is also explicable on the basis of inflammatory hyperplasia of preexisting lymphomatous foci.

In mycosis fungoides the ulcerative lesions in the skin are associated with changes in the lymph nodes that are of two varieties. In one form the nodes are sclerotic, the process falling into the category of a chronic productive inflammation, while in the other form they exhibit hyperplasia of lymphoid cells resembling the changes in lymphosarcoma, and in this variety of mycosis fungoides life is not infrequently terminated with the symptoms of acute leukemia. In these circumstances the lymphoid cells in the blood represent, as it were, circulating metastases. In the same way the true leukemias may be interpreted as the outward expression of circulating metastases, derived, as the case may be, from the bone marrow or from hyperplastic lymph nodes. In Kaposi's lymphodermia perniciosa the lesions in the skin are obviously inflammatory, while the hyperplastic subcutaneous lymph nodes tend to remain localized up to a certain time, when the character of the process as a whole may change abruptly and life be terminated as an acute leukemia. Of Sternberg's leukosarcoma much the same may be said, namely, that the original focus of lymphoid hyperplasia tends to remain stationary for an indefinite period, finally pouring its cells into the blood in such numbers as to constitute an acute leukemia. In Gaucher's splenomegaly the presence of characteristic large rounded cells in the spleen, liver, bone marrow and lymph nodes suggests a neoplastic process, and yet the behavior of the disease throughout its course would appear to negative such an interpretation.

It is obvious that the subject might be elaborated into a discussion of length. The little that has been said, however, suffices to indicate that there is a point midway between inflammation and neoplasia at which certain diseases meet, and it tends to emphasize the frequently neglected fact that inflammation and neoplasia share many features in common.

It is my purpose in this paper to describe a disease characterized by great enlargement of the spleen due to the presence of proliferating endothelial cells, or angioblasts, which proceed to the formation of new capillary channels, these in turn dilating to form telangiectases, and by related or identical histologic alterations in other parts, notably in the liver, kidneys, bone marrow and lymph nodes. The distribution of the lesions as a whole is comparable to those of Gaucher's disease, that is to say, in both conditions the spleen is enlarged, and secondary hyperplastic changes of the same type as those encountered in the spleen are to be found in the liver, lymph nodes and bone marrow. In Gaucher's disease, however, the unit of hyperplasia is a large, round cell which, although it is of characteristic morphology, is of uncertain derivation and destiny, while in the telangiectatic splenomegaly here described the proliferating unit is an endothelial cell that represents the precursor of an embryonal capillary blood vessel. Beyond this, the two diseases present nothing in common except that the telangiectatic splenomegaly also belongs in that congregation of diseases in which inflammatory and neoplastic features are so intimately associated that sharp distinction is impossible.

REPORT OF CASE

History.—A man, aged 75, a carpenter, who was admitted to Bellevue Hospital, April 20, 1921, and who died seven days later, had complained of nothing in particular other than a persistent, dull, aching pain under the left costal margin that had been present for a period of about three and one-half months.

Examination.—Physical examination revealed beneath the ribs on the left side, corresponding to the position of the spleen, a mass the edge of which was rounded and reached to the level of the umbilicus and as far forward as the mid-sternal line. The mass moved with respiration and was extremely tender to the touch and perfectly smooth. Beneath the skin covering the right pectoral muscle, just below the shoulder, were two pea-size nodules which were freely movable. In the right upper quadrant of the abdomen two larger but otherwise similar masses were to be felt. None of these were tender. The skin covering them was greenish yellow but, after palpation, became hemorrhagic within a few hours. On the day before death the skin of the anterior abdominal and thoracic walls suddenly exhibited an extensive network of minute bluish or bluish-red, intercommunicating streaks which corresponded, apparently, to congested and dilated capillaries.

The white blood cells numbered 5,400; the differential count was: polymorphonuclear leukocytes, 69 per cent.; lymphocytes, 20 per cent.; eosinophils, 1 per cent.; hemoglobin, 80 per cent.

Necropsy Findings.—Inspection of the body revealed nothing worthy of note other than the presence of the subcutaneous nodules already referred to in the summary of the clinical history, and the network of bluish lines in the skin of the abdomen and chest.

When the abdomen was opened, the lower edge of the spleen came into view 10 cm. (4 inches) below the ribs on the left side. The organ was removed with ease. It was massively enlarged, measuring 26 by 14 by 6 cm. (10 by 5½ by 2½ inches) and weighed 1,130 gm. (2½ pounds). It was noticeably soft; in fact, its consistency gave much the same impression as that of a huge, saturated sponge. The shape of the spleen was perfectly preserved. The capsule was smooth and thin. Seen through the capsule, the organ presented a reddish, finely speckled appearance. On section, the organ cut readily. The cut surface was smooth and grayish-red, and scattered through it were innumerable rounded, oval, angulated or splotch-like, bluish-red areas, varying in size from that of the head of a pin to that of a small split pea. Between them the pulp tissue was abundant, soft and grayish-red. The malpighian bodies could not be differentiated. The vessels at the hilum were intact.

The kidneys presented the naked-eye changes incident to a mild degree of chronic interstitial nephritis. In the right kidney, immediately under the capsule, were a half dozen or more bluish, spider-like bodies which measured 1 or 2 mm. ($\frac{1}{25}$ or $\frac{2}{25}$ inch) in breadth and 0.5 cm. ($\frac{3}{16}$ inch) in length and were depressed below the surface. The liver was enlarged, opaque, pinkish and friable, but no nodules were visible in it. The thoracic and abdominal lymph nodes showed no noteworthy naked-eye changes. Hyperplastic hemolymph nodes were specifically sought for, but none were found. The bone marrow of the lower half of the right femur was reddish at the periphery and yellowish at the center. When incision was made into the nodules in the skin of the upper portion of the chest and in the anterior abdominal wall on the right side, they were found to consist of pea-size, dull reddish, succulent-looking collections of tissue which, to the naked eye, presented an appearance not to be distinguished from that of the cut surface of the spleen.

Histologic Examination.—On microscopic examination of the spleen, one was immediately confronted by two facts: first, that the structure was readily recognizable as the spleen and, secondly, that it was provided with an extraordinary number of vascular channels distended by red blood cells, these channels varying in size from those with lumina of negligible dimensions to sinuses that filled or even transcended the entire low-power field of the microscope. There was nothing in the microscopic appearances to suggest a neoplasm. On the contrary, one was likely immediately to receive the impression that the changes were of the nature of an inflammatory reaction. The malpighian follicles, as such, were not discernible. Occasionally there was to be seen, however, a small hyaline arteriole which represented, no doubt, the remnants of a follicle. The pulp showed an abundance of cells which were either distributed diffusely or arranged in islands, the latter at first glance bearing a resemblance to the malpighian follicles. On close examination, however, it was apparent that these cells were noticeably larger than those normally present in the splenic follicles. They were moderately chromatic, plump, rounded or oval, sometimes polyhedral in shape, depending on the angle from which they were viewed, and on the amount and arrangement of the cytoplasm, sometimes spindle-shaped. Both in the pulp spaces and in the insular collections, they frequently tended to arrange themselves about a slitlike or rounded lumen, the whole obviously representing the beginning of a young capillary vessel. In other places were better formed capillaries, filled or even distended by the same sort of cells and limited externally by endothelium with spindle-shaped nuclei. In still other instances an occasional red blood cell might be seen lying in the lumen. The larger capillaries presented varying degrees of distention by red cells up to the formation of the relatively immense caverns already described.

Microscopic examination of the small, spider-like, bluish depressions found in the cortex of one of the kidneys revealed numerous well formed, thin walled capillary vessels embedded in a delicate connective tissue reticulum, richly infiltrated with cells of the same sort as those referred to above. Each capillary vessel was limited externally by a layer of flattened endothelium, the nuclei of which appeared, on cross-section, as spindle-shaped forms. Superimposed immediately on them was a single circumferential layer of cuboidal cells each of which was provided with a rounded, moderately chromatic nucleus. In some of the lining cells, mitotic figures were to be seen. Crowding the lumen of the capillary were cells which, except for their rounded or oval shape, presented essentially the same histologic appearances as those lining the wall of the capillary. In some of these free cells mitotic figures were likewise to be seen, and among them well formed red blood corpuscles sometimes occurred. In still other places within the cellular focus large vascular channels filled or distended by red blood cells were to be found in numbers. The foci in the kidney were small and were not definitely circumscribed. On the contrary, they presented a jagged outline, the cells insinuating themselves into the intertubular connective tissues in irregular fashion.

Microscopic examination of one of the subcutaneous nodules removed postmortem revealed that the epithelial covering was atrophic. Between the surface epithelium and the underlying lymph node was a quantity of sclerotic connective

tissue. Immediately under the epithelial layer were numbers of dilated capillary vessels, in practically every one of which collections of free endothelial cells could be seen. In many instances these were arranged as circumscribed foci lying within the capillary lumen and distending it in such fashion as to cause bulging of the wall at that point and partial or complete obstruction of the lumen. In the deeper connective tissues were numerous capillaries, many of which were immensely distended, partly by free endothelial cells and partly by red blood corpuscles. Microscopic examination of the underlying lymph node revealed the presence of numerous rounded or slitlike capillary vessels which lay at or near the periphery of the node. Like the capillary vessels in the kidney, they were made up of an external layer of flattened endothelium, superimposed on which was a circumferential layer of cuboidal cells, in some of which mitotic figures were to be seen—a lymph node from the same situation removed during life and fixed immediately in formaldehyd revealed the presence of vast numbers of mitotic figures. In most instances the lumina of the small capillary vessels were occupied by free endothelial cells, but in other places there were to be seen telangiectatic vessels filled or distended by red blood cells.

Microscopic examination of the liver revealed the presence of numbers of islands composed of cells of the type already referred to in the spleen and elsewhere, lying in the periportal connective tissue, while the sinusoids contained them in numbers, the cells being arranged in rows. Small telangiectases were occasionally to be seen in the periportal spaces.

The capillaries of the bone marrow, like those of the skin, showed numbers of the same cells arranged, as a rule, in rows, and frequently serving to displace the red cells. In still other places the capillaries of the interstitium were immensely distended by red blood corpuscles.

The anatomic and histologic diagnosis was: massive telangiectatic splenomegaly, profuse proliferation of the endothelium of the capillaries and blood sinuses; localized hyperplasia of capillary endothelium in the cortex of the right kidney and subcutaneous lymph nodes with telangiectatic formations; localized collections of angioblasts in the periportal connective tissues, infiltration of sinusoids and telangiectases; intravascular collections of angioblasts in the capillaries of the bone marrow and skin, with dilatation and congestion of capillaries.

COMMENT

In searching the literature, I have been unable to find a case which duplicates the one here described. There are, however, two reports which would seem to fit into the same category:

Borissowa¹ records an example of a woman, aged 52, who, during life, presented the signs of simple anemia associated with the presence of a few normoblasts and an occasional megaloblast. At necropsy, the spleen was found to weigh 1,605 gm. (3½ pounds), and microscopic examination revealed the presence in the pulp and splenic sinuses of numerous cells, the description of which corresponds to that of the cells observed in the case here recorded. The liver capillaries were distended by cells of identical appearance with those seen in the spleen, and the bone marrow contained them in the meshes of its reticulum. None of the organs, however, showed signs of telangiectases.

Another case was that of Pentmann:²

A woman, aged 56, had been examined by a physician at the age of 15, and told that she had an enlarged spleen. The patient stated that eight years previous to admission to the hospital the enlarged spleen began to act as an annoyance because of a dragging sensation and feeling of pain in the region of the left costal slope. At the time of admission it was found that the spleen was palpable as far down as the left inguinal region and forward to within a few finger breadths of the umbilicus. The patient exhibited marked secondary anemia. At necropsy, the spleen weighed 2,120 gm. (4 pounds, 11 ounces) and measured 29 by 15 by 9 cm.

(11½ by 6 by 3½ inches). Scattered through its substance were numbers of brownish-red, spongelike nodules, varying in size from 5 to 6 cm. (2 to 2½ inches). Microscopically, these nodules were described as composed of cavernous hemangiomas, while the intervening spleen tissue presented venous sinuses filled by cells of the type of angioblasts. In the neighborhood were numbers of large mononuclear or multinuclear giant cells. The liver was enlarged and, on microscopic examination, showed cavernomatous formations, in the lumina of which were cells of the same type as those described in the sinuses and pulp of the spleen, although in the liver giant cells were more numerous and more varied in form than in the spleen itself. In addition, free endothelial cells were found scattered through the sinusoids of the liver lobules. In the marrow of the first lumbar vertebra was a solitary nodule, 1 cm. (¾ inch) in diameter, which, on microscopic examination, was found to consist of cavernomatous tissue.

Although the three cases available for analysis do not correspond in all details, it nevertheless seems to me that they present certain fundamental features which warrant their inclusion in one and the same category: All of them were conceived in hyperplasia of the lining endothelium of capillaries of a closely related group of organs, namely, the spleen, bone marrow, lymph nodes and liver, the ultimate differentiation of these cells or their failure to differentiate serving to produce certain divergencies of structure in the several organs. For example, in Borissowa's case, the sinusoids of the spleen, liver and bone marrow contained cells morphologically identical with those described by Pentmann and myself as proliferating endothelial cells or angioblasts. In fact, Hedinger and Pentmann reexamined Borissowa's microscopic preparations and agreed on the structural identity of the cells in the two cases. The chief discrepancy in Borissowa's case is that the cells in question remained in an undifferentiated state, that is, they did not progress to the formation of new capillaries and, consequently, in his case the term telangiectatic splenomegaly is not applicable. Pentmann's case was also attended by profuse proliferation of the endothelial lining of the capillaries in the spleen and liver, leading to the formation in these localities of vast numbers of new capillaries. In addition, the lesion was marked by the presence of cavernomas in the liver, spleen and bone marrow, differing in this regard both from my case and that of Borissowa, in neither of which were angiomas observed.

Other minor points of difference consisted in the presence of numerous giant cells in the spleen and liver, and the occurrence of tumor-like angiomatous nodular formations in the spleen. In Pentmann's case, however, it is to be recalled that the patient is known to have had an enlarged spleen for a period of at least forty-one years, and it is quite possible that the formation of giant cells and of angiomas is to be attributed to the element of time, both processes representing an effort in the direction of development. However this may be, Pentmann expressed no doubt that the enlargement of the spleen and liver in his case was occasioned primarily by diffuse proliferation of endothelial cells of the same type as those here designated as angioblasts, and that these, following their natural bent, proceeded to the formation of new capillaries. It is likewise to be emphasized that all three of these cases involved chiefly organs that belong to the hematopoietic system—in Borissowa's and Pentmann's cases the spleen, liver and bone marrow, in my case the lymph nodes, in addition. That manifestations of the disease, however, are not necessarily confined to the hematopoietic apparatus is shown by the presence of renal foci in the case

1. Borissowa: Virchows Arch. f. path. Anat. **172**: 108, 1903.
2. Pentmann: Frankfurt. Ztschr. f. Path. **18**: 121, 1915.

described in this paper and by changes in the subcutaneous capillary vessels. In connection with the latter phenomenon, however, it is to be observed that the changes came on only a few hours before death and represented, therefore, an incident of doubtful significance. Finally, it may be mentioned that the only clinical factors common to all three cases are anemia with leukopenia and massive enlargement of the spleen.

CONCLUSIONS

1. There is a systemic disease characterized by extensive proliferation of the endothelium of capillaries, particularly involving organs that belong to the hematopoietic group—the spleen, bone marrow, liver and lymph nodes.

2. The most striking feature of the disease is to be found in massive enlargement of the spleen, due to profuse proliferation of the lining endothelium of its smaller vascular channels, with the production of new capillaries and the subsequent formation of telangiectases, identical or related histologic changes being apparent in the other organs named and, occasionally, in organs beyond those of the hematopoietic system.

3. In the spleen and lymph nodes the proliferative changes in the capillary endothelium appear to arise in vessels that are native to the part. In other instances the same sort of cells may be seen infiltrating and distending capillaries, notably in the skin bone marrow and liver; but whether these cells are produced in situ is not apparent.

4. The disease is neither frankly neoplastic nor strictly inflammatory, but presents features incident to both and, perhaps, is best included in that group which occupies a position intermediate between neoplasia and inflammation, taking its place, in this regard, with Hodgkin's disease, mycosis fungoides, Cohnheim's pseudoleukemia, Sternberg's leukosarcoma, Gaucher's splenomegaly, and the like.

THE CLEAN INUNCTION TREATMENT OF SYPHILIS WITH MERCURY

PRELIMINARY REPORT *

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Inunctions have been used in the treatment of syphilis since the earliest times. In using them, the usual custom has been to leave the inunction on the part of the body to which it has been applied. The recommendation to leave the excess of ointment on the skin does not seem to have been based on actual comparisons, but on the theoretical views as to the mechanism of mercury absorption; i. e., that the mercury is absorbed mainly by inhalation, and that it may be absorbed directly through the stratum corneum of the skin.

The experiments of Wile, Elliott, Schamberg, Kolmer, Raiziss and Gavron speak strongly against inhalation as the essential mechanism. The second explanation was shown to be erroneous by the work of Neumann and Fuerbringer, who many years ago

showed that, after rubbing mercury ointment into the skin of men and animals, mercury globules could be found in the hair and sebaceous follicles to about two thirds of their depth. None was found in the sweat glands except at the orifices. They concluded that these globules must be taken up from these parts, as in a few days they were decreased in number and in a few weeks entirely gone. While soluble mercury was to be found chemically in the internal organs, mercury globules were nowhere to be found internally. They concluded that the absorption took place from the rubbed places alone, for even by perfectly closing off all the lungs from this territory, mercury was found in the body. They also found that the unperforated epidermis does not absorb mercury, and concluded that the absorption of mercury took place by the influence of sodium chlorid, fatty acids and albuminates, especially through the influence of the gland secretions of the skin. If absorption is limited to the mercury that has been rubbed into the glands, the excess of mercury ointment that remains on the surface of the skin, after the rubbing is completed, can serve no useful purpose.

This gives us a valuable point in therapeutics for several reasons. The inunctions are not used by many: (1) because they are dirty and disagreeable; (2) they are liable to lead to discovery, and (3) when the preparation remains on the skin for such a length of time it is more liable to set up a folliculitis. Now, if the patient, after a thirty minute rubbing, can cleanse off what is left on the skin, none of these points come into consideration and we have an avenue of approach in the treatment of syphilis that can be used by the patient himself without fear of discovery, with no uncleanness, with no irritation to the stomach, and with none of the attendant pain that comes from the use of mercury injections. We have felt this to be such an important consideration that we have attempted to prove our point from the clinical standpoint. For this purpose we took at random a series of forty-four patients in all stages of syphilis, though most of them were in the secondary stage.

With these patients the following technic was used under the eyes of an orderly: Four grams of the official Unguentum Hydrargyi U. S. P. was rubbed in for thirty minutes. At the end of this time all mercury remaining was thoroughly removed from the skin by the orderly by the free use of benzin and cotton. With these patients a different spot was used each night for a least six nights in order to prevent chances of irritation of the skin, and so that criticism could not be raised that mercury was being absorbed through the irritated skin. The patients were watched primarily with the desire of seeing how soon they would show symptoms of hydrargyria, or, rather, if they would show symptoms of hydrargyria with the same number of rubs as the average individual on whom the inunction was allowed to remain. Secondarily, a certain number with secondary syphilis were observed to note the therapeutic action of the mercury inunction following this technic. Out of forty-four patients we succeeded in getting a marked salivation and edema of the gums thirty-two times. These were the average run of patients that one sees in hospital practice, each patient receiving the routine potassium chlorate mouth wash and tooth brush treatment twice a day, the number of inunctions being 20, 17, 9, 10, 13, 5, 8, 9, 7, 17, 19, 23, 10, 13, 13, 13, 15, 17, 14, 12, 17, 18, 6, 8, 13, 13, 11, 19, 13, 13 and 16. In nine, the salivation and edema of the gums were not so marked, the number of inunc-

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tions being 9, 15, 17, 6, 18, 10 and 14, while in five there was extreme salivation and edema, probably in one of the cases being due to a special susceptibility of the drug, as it came on after the sixth inunction, while with the other patients it resulted from 22, 12, 15 and 9, respectively. For the entire series of forty-four patients the number of rubs required to produce stomatitis ranged from five to twenty-three, with a median of fifteen rubs.

By any one doing syphilis work and using mercury inunctions, it must be seen that these figures are practically the same as one usually sees in treating patients with mercury inunctions and leaving the ointment on the body after the rubbing. The average patient is usually able to take from ten to twenty inunctions before symptoms of hydrargyrim—depending partly on the susceptibility of the individual. However, the same results can be achieved, as our figures show, when the drug is cleansed from the skin after the inunction. We believe that these data show conclusively that the full effect of the ointment is secured if it is rubbed thoroughly into the skin for thirty minutes and the excess then cleansed off immediately.

If the mercury is absorbed so as to produce salivation, it must also produce the therapeutic effects of the drug. The occurrence of salivation is, of course, convincing proof of the absorption of therapeutic quantities of mercury. However, we confirmed this directly. In several of these cases with secondary eruption we did not give any arsphenamin at first, merely using the inunctions. Our first patient, a man with secondary syphilis and mucous patches, showed a positive therapeutic result after twenty rubs, with resultant salivation and slight edema of the gums. The next patient, with a maculopapular eruption, received eight rubs, when he became salivated so badly that we had to begin the use of arsphenamin and stop the mercury, at which time it had as yet had no especially positive effect on the disease. One patient, a colored man with a marked lichen syphiliticus, and fairly good teeth, had a positive result after seven rubs, at which time he was salivated so badly that we had to stop the mercury and begin arsphenamin; while another patient, a colored man with a follicular syphilid and good teeth, had a positive therapeutic result after seventeen rubs, when his gums were so badly affected that we had to discontinue the drug and use arsphenamin. Still another colored patient with a follicular syphilid was likewise salivated at the end of seventeen rubs, when we had to stop the mercury. He had had a very good result from the mercurial inunctions. This was also true of a white man with a maculopapular syphilid after eighteen rubs; while another man with a primary lesion and good teeth was salivated after six rubs so that we had to stop the mercury, the therapeutic result, of course, being as yet slight. To be sure, these patients were not cured of their syphilis by these few mercury rubs. Nevertheless, the symptoms of their disease were much benefited—certainly as much as when using inunctions according to the old technic.

CONCLUSIONS

As a result of our preliminary clinical study we believe we are justified in drawing the following conclusions:

1. In treating syphilis by means of mercurial inunctions, probably the only mercury absorbed is that part of the mercurial ointment which is rubbed into the hair follicles, and entrances of the sebaceous and sweat

glands. Hence, all superfluous ointment remaining on the skin may be cleansed off immediately after the inunction without lessening the mercurial effect.

2. From forty-four clinical cases of syphilis treated by this technic, we feel that we have been able to prove this clinically.

3. As a result of our findings we feel that, in the future, mercurial inunctions need not be discarded because of the unpleasant considerations in regard to their use, namely, uncleanness, liability of discovery, and causing of a folliculitis.

4. Mercurial inunctions following the technic that we advise are to be recommended in the treatment of syphilis as a distinct advance in the therapy of this disease.

THE EXISTENCE OF GASTRIC ULCER WITH TABES DORSALIS*

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My object in presenting a paper on this topic is to call attention to the fact that, coexistent with the easily recognized and familiar picture of tabes, we may be and probably often are treating a fully developed gastric or duodenal ulcer. Not infrequently in medicine, two distinct, clinical entities occur in the same patient at the same time. When this symbiosis of diseases is present, there is a natural human weakness, probably inherent in the best of us, to stop with self-content after recognizing the one syndrome and thus to overlook the presence of another, but equally important cause of the symptoms. This is the psychologic frame of mind in which one recognizes a neurasthenia and thereafter attributes to the psychic disturbance all the subsequent complaints. The neurasthenia is so striking, so self-evident, that it seems causeless and unnecessary to seek further for a *raison d'être* for the remaining symptoms. However, we have all of us learned to beware of this trap, and while we may from time to time fall, with our eyes open, into error, yet experience and knowledge have taught the possibility of more than one disease being synchronously present.

In a case which shows predominant abdominal complaints, such as pain and vomiting, the discovery of an Argyll Robertson pupil or absent deep reflexes will tend ordinarily to the ready diagnosis of tabes with gastric crises, and undoubtedly correctly so. It is essential in every such case that we investigate thoroughly the possibility of a coexistent organic abdominal lesion. Such a distinction is usually made with considerable difficulty, for the complexity of the symptoms often defies solution; even with all the laboratory data that can be amassed at our right hand we remain not infrequently undecided.

Probably by far the largest percentage of cases of gastric crises of syphilitic origin are primarily diagnosed and treated as cases of pyloric ulcer, many of these patients even being operated on for such a condition. The discovery of a positive Wassermann reaction or of physical signs swings the diagnosis entirely to one of tabes dorsalis and allows the ulcer diagnosis com-

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

pletely to lapse. This, I believe, may not infrequently be an error, as the exceptional experience of finding a penetrating ulcer with a fully developed tabes dorsalis may prove.

TABETIC CRISES WITHOUT DEMONSTRABLE ULCER

As an example of the difficulty encountered in analyzing the symptoms of a case wherein both conditions may be suspected, I will quote the history of a case in which, eventually, we concluded that ulcer was not present.

CASE 1.—I. B., a man, aged 42, had been married sixteen years, and had one child who was living and well. The patient asserted that he had had no previous illness. Two years before I saw him he began to suffer from attacks of sharp epigastric pains. The pains were shooting in character, sometimes cramplike, originated in the epigastrium, and radiated to both sides of the chest anteriorly and posteriorly. The pain was associated with nausea, belching and sour eructations. Food aggravated the pain and caused vomiting; the vomiting was at no time extreme or protracted, nor was hematemesis ever present. The pain lasted for about two weeks and ceased. The constipation which began with the attack did not cease with it, but remained as a permanent symptom. A few months later the patient suffered from attacks of hiccup, such attacks beginning suddenly, lasting from a half hour to two hours, and ending suddenly.

During the last year, the patient had complained of attacks of sharp epigastric pains. The attacks lasted from one to three weeks, and were separated by short periods of relief, lasting usually only a few days. The attacks were characterized by the sudden onset of a severe epigastric pain which radiated across the chest to both sides of the back and to the lower abdomen. Nausea, belching, eructations and renewed paroxysms of singultus often accompanied the attacks of pain. The pain was aggravated by the ingestion of food, and was followed by vomiting at irregular periods after the meals.

Five months before, without warning, he suffered from a right facial hemiparesis. There was no speech disturbance or loss of consciousness associated with this paralysis.

One month before, he placed himself under the care of a physician who, regarding his case as one of gastric ulcer, fed him by means of a duodenal tube for two weeks. Little relief accompanied this form of treatment.

Physically, the patient was poorly developed and poorly nourished; he had evidently lost much weight. His pupils were irregular and reacted sluggishly to light and to accommodation; nystagmus was constantly present. He had a right facial palsy. The chest examination was negative.

Abdominal examination revealed a moderate degree of tenderness to the right of the midline in the epigastric region. This point was consistently tender on repeated examinations over the right side of the abdomen, corresponding to the tenth and eleventh somatic segments. There was an area of pronounced hyperesthesia; the area was well defined, rather sharply delimited and was easily elicited by stroking with the point of a pin. It extended dorsally, but was demonstrable over the back only with some difficulty.

The peripheral deep reflexes were present, the right knee reflex being more marked than the left. The Achilles tendon reflexes were preserved. A note on the history states that Wassermann reactions taken two years before were negative, but that similar tests of both blood and spinal fluid taken within the year showed a four plus reaction in both fluids.

In this case we are dealing with a patient who has been suffering with recurrent attacks of abdominal pain and vomiting, and who has in addition some of the earlier physical signs and the serologic reactions of syphilis. He had been regarded as a typical case of gastric or duodenal ulcer up to the time when his last examination showed a positive Wassermann reaction. Thereupon the diagnosis was completely reversed and the case was regarded as one of tabetic crises.

The diagnosis of tabes rests on the serologic reaction, the irregular pupils and diminished accommodation response and the hyperesthetic abdominal zone. Have we fully explained all our gastric symptoms?

The most common cause for such abdominal symptoms in a young man is either a gastric or a duodenal ulcer. There are, however, some important points lacking in the history. Peptic ulcers rarely run such a continuous stormy course with such short periods of interruption. The pains of ulcer have more relation to food, occur more regularly at a stated period after the meal, occur at the same time every day, are relieved by food, and this relief usually is maintained to the proximal meal. In approximately one third of all gastric and duodenal ulcers, hemorrhage takes place at some time in the form either of hematemesis or of melena. But before we can determine further this question of the existence of ulcer, it is necessary to include in our data the laboratory findings, both chemical and roentgenographic.

The secretory tests of the stomach revealed the following: In the fasting state, 13 c. c. were removed with a titer of 20 per cent. for free and 50 per cent. for total acidity. There was no food stasis; there were few bacteria, and a few cells. The Ewald test meal showed 110 c. c. at the end of one hour, of which the free acidity was 80 and the total acidity 120 per cent. There was a trace of blood quite evidently traumatic, a few red blood cells and some epithelial cells in the sediment. This test meal was repeated with approximately the same result.

The stool examinations from time to time showed a positive guaiac test. However, when one considers the continuous and very violent retching and vomiting which was taking place, it is not difficult to explain a positive Weber test in the stool.

The fractional test meal showed a moderate hyperacidity and a well sustained hypersecretion which in all probability was of a continuous type (gastrosuccorhea). The fact that the patient had a hypersecretion is corroborated by the fact that the vomitus was often profuse, watery, and did not consist of food.

A critical consideration of the chemical data shows: first, that there was no food residue present such as might be expected with a pyloric stenosis or a pylorospasm due to an ulcer, and causing reflex interference with gastric emptying. Hyperacidity was present, as shown by the Ewald test meal. The fractional test meal showed both a hyperacidity and a marked hypersecretion, but with normal emptying time after one and three-quarter hours. Such an acid curve might characterize a duodenal ulcer or a lesion distal to the stomach—such as cholecystitis, or even a renal calculus. It could also be accounted for on the basis of a marked functional disturbance. A highly neurotic individual might give just such a curve, but we know from a recent survey of a series of cases showing hypersecretion¹ that syphilis—particularly syphilis of the nervous system—accounts for a large percentage of cases of continuous hypersecretion—so-called gastrosuccorhea. Such pictures of continuous hypersecretion were described in the early eighties of the last century by writers such as Rossbach, von Leyden and Reichmann as being associated with continuous and marked nervous excitation, such as hysteria and neurasthenia. The clinical conditions, of which hypersecretion and vomiting were predominant symptoms, were described by

1. Crohn, B. B., and Reiss, J.: *Am. J. M. Sc.* 161: 43 (Jan.) 1921.

these writers as a distinct clinical complex. They failed in great part to associate many of these manifestations with a syphilitic infection, when present.

In the case under consideration, the roentgenographic examination disclosed a degree of gastric ptosis which was inconsistent with normalcy in a man of his build, and a delayed motility of the colon. Three quarters of a barium test meal were present in the colon, even after forty-eight hours. The gastric peristalsis was normal. No defect was seen. The roentgenographer noted slight tenderness over the antrum. The roentgenographic examination failed to bear out the diagnosis of an independent gastric lesion, and, combined with the chemical examination, points rather to a functional disturbance of the stomach in the nature of a functional excitation of the secretory mechanism. The spastic delay in the colon is simply another evidence of the spastic condition of the alimentary tract. The absence of a defect in the roentgen-ray examination and the absence of further symptoms pointing to a new growth will justify us in omitting a more serious consideration of new growth as the diagnosis in this case.

Had this patient possibly visceral syphilis or, more particularly, had he syphilis of the stomach?

Syphilis of the stomach is still a disease over which there is considerable controversy and one which is still denied by some conservative observers. Such competent students, however, as Chiari,² Dieulafoy,³ abroad, and Einhorn,⁴ Eusterman,⁵ Smithies,⁶ and Downes and Lewald⁷ in this country have in the last few years drawn up a very concrete and comprehensive picture of the disease. Gastric syphilis may show itself either as a localized process—as gumma; as a diffuse process involving the walls of the stomach; or by causing one of the varieties of deformity of the gastric contour, such as an hour-glass stomach or a pyloric stenosis. It is diagnosed roentgenographically by the fact that it appears as a defect similar to all intents and purposes to that shown by a gastric neoplasm. In addition, gastric syphilis is associated with a marked subacidity or an anacidity. Clinically, a mass is usually palpable in the epigastric region. The course of the disease is similar to that of carcinoma, but is to be differentiated by the therapeutic test. Like other types of visceral syphilis, gastric syphilis reacts promptly to antisyphilitic medication.

In this case we find in the roentgenograms no defect, and from the chemical standpoint (hypersecretion) we are certainly not justified in making a decision that gastric syphilis is present.

By the process of exclusion we are left to consider a disease of the nervous system as responsible for the symptoms. Gastric crises in tabes are, like other visceral crises of locomotor ataxia, a phenomenon of the early or preataxic period. In fact, when tabetic incoordination is already present, the crises have usually diminished or disappeared. These crises may take the form of laryngeal crises, pharyngeal crises, gastric, intestinal, renal crises, or crises of lightning-like pains in the extremities. They occur at infrequent intervals and last usually for a few days to a week or two,

though sometimes for as short a time as a few hours. They begin suddenly and end suddenly. The gastric crises are among the most severe that may occur.

The description by George Hayem and Gaston Lion⁸ is so expressive that I cannot refrain from quoting it.

The loss of appetite is absolute; the tongue is coated and thickened; there is an invincible dislike for food, even liquids; thirst is intense, but the suggestion of the least quantity of drink only intensifies the vomiting. From the beginning, the attack has a remarkably depressing effect upon the general nervous state. A sense of fatigue is established. With the earliest pains a feeling of soreness and hurt throughout the body forces the patient to take to his bed. When the vomiting appears, the anguish becomes extreme, the suffering cruel. The facies is contracted, pallid, the extremities covered with cold sweat, and after each series of efforts the patient falls exhausted on his pillow. A series of access and of calm follows, during the latter of which he rests immobile, bent up under the coverlets, avoiding the light and the noise, resenting even the approach of the doctor. To this state of anxiety there may be added vertigo, trembling, tingling and cramps in the fingers and in the toes. When the pains are very violent, the vomiting repeated and profuse, the prostration most extreme, the extremities become cold and cyanosed and the patient presents all the appearances of collapse. Then in the full height of all the symptoms, the situation resolves itself suddenly, pains diminish; vomiting and nausea are suspended, abdominal muscles relax, and the appetite returns with a rapidity often very remarkable.

From this description one can conceive of the degree of the prostration and weakness to which this malady may lead. It has repeatedly been likened to severe seasickness, and as such will be easily understood by any one susceptible to *mal de mer*. Such attacks are independent in their incidence of the character or the amount of food ingested.

On the idea that the vomiting, in this case, might after all have been due to a peptic ulcer in association with tabetic crises, we caused this man to be lavaged, on several successive evenings. At all times his stomach was found to be empty—no trace of food and only variable amounts of secretion. The lavage had no effect on the vomiting. The vomiting continued in a completely fasting state just as surely as after an attempt to take food. The vomitus always consisted of watery fluid containing mucus; and, when sufficiently prolonged, contained also some bile. We should not think of the vomiting in these cases as being due to a spasm in the intestine or in the stomach, or at the pylorus due to spastic obstruction. Such spasm has not been demonstrated. The vomiting is best explained by abnormal stimuli originating in the spinal ganglions or spinal cord, which pathologic stimuli cause the vomiting and the pain. Blood in the vomitus is not unusual, but an actual hematemesis may also take place, and blood may appear in copious amounts. These are the "crises noires" described by the French writers, particularly Vulpian,⁹ Fournier¹⁰ and Charcot.¹¹

On going further into the history, we find that the patient had suffered from two attacks of hiccup, one attack lasting for two hours and the other for two days. This form of crisis is similar to the attacks of pharyngeal crisis, in which from twenty to thirty sounds a minute are produced in the pharynx, the

2. Chiari: *Fest. Rud. Virchow* 11: 297, 1891.

3. Dieulafoy: *Bull. de l'Acad. de méd.* 39: 578, 1898.

4. Einhorn: *Philadelphia M. J.* 5: 262, 1900.

5. Eusterman, G. B.: *Am. J. M. Sc.* 153: 21 (Jan.) 1917.

6. Smithies, Frank: *Syphilis of the Stomach*, *J. A. M. A.* 65: 572 (Aug. 14) 1915.

7. Downes, W. A., and Le Wald, L. T.: *Syphilis of the Stomach*, *J. A. M. A.* 64: 1824 (May 29) 1915.

8. Hayem, George, and Lion, Gaston: *Diseases of the Stomach*, 1913, p. 149.

9. Vulpian: *Rev. de méd.* 5: 60, 1885.

10. Fournier: *Leçons sur la période préataxi que du tabes d'origine syphilitique*, Paris, 1885.

11. Charcot: *Leçons sur les maladies du système nerveux* 1: 261; 2: 32, 1877.

sounds being of a gurgling nature, suddenly produced. The patient further had a severe attack of diarrhea a year and a half before, without nausea and apparently not to be attributed to any particular article of food. The possibilities are that this attack was in the nature of an intestinal crisis.

All in all, it is fair to consider the diagnosis in this case as one of the preataxic stage of tabes dorsalis, the gastric symptoms being attributable to typical tabetic crises. There is no positive evidence favoring a diagnosis of ulcer.

TABES AND DUODENAL ULCER

By applying the same methods, clinical and laboratory, to Case 2, a somewhat different conclusion is arrived at:

CASE 2.—S. B., a man, aged 52, a furrier, had been married twenty-five years, and had four children in good health; his wife had had no miscarriages. Thirty-five years ago he had a primary indurated chancre, which lesion was cauterized. He had no secondary symptoms. His present illness began with a gradual onset of epigastric pains and pains in the right upper hypochondrium. These pains began three weeks before I saw him, were cramplike in character, radiating to the chest, were accompanied by nausea and gaseous eructations, and were relieved by food. During the last twelve days he had vomited everything ingested, vomiting taking place four or five times daily, and consisting of food, later of watery fluid, and finally of bile. He had lost his appetite, and was constipated. His weight loss had been considerable.

The patient was poorly nourished. His eyes were congested; the pupils were myotic, equal and slightly irregular, and reacted slowly to light and to accommodation. Fundus examination of the eye was normal. The examination of the chest was essentially negative. Abdominal examination revealed an involuntary rigidity over the upper right abdomen. The right rectus muscle was held spastic and rigid; the patient also evinced rebound tenderness. The knee reflexes were elicited with difficulty, the right greater than the left. The Achilles reflexes were absent. Abdominal reflexes were exaggerated. There were no areas of abdominal hyperesthesia.

The blood count showed a normal condition throughout, both as regards red and white cells. The stool was negative for blood. The Wassermann reaction, both on blood serum and spinal fluid, showed a four plus reaction.

The fractional test meal showed a marked hyperacidity as well as an extreme grade of hypersecretion. There was, in addition, a marked delay in motility, the stomach containing starch from the test meal even at the end of three hours.

The roentgenographic examination gave evidence in the fasting state of a fair amount of retained secretion. The stomach was vertical, fishhook in shape, and there was a persistent increase in the peristalsis. The duodenal bulb was consistently irregular. This irregularity was found always in the same place and always present. There was no delay of the opaque meal, the viscus emptying itself within the six hour period. Ptosis of the colon was noted, though not of a marked degree.

The patient was placed on a modified Sippy diet, and the effect of the rest in bed and dietary restriction was noted. On this conservative medical treatment the patient became free of symptoms. The pain and distress of vomiting were relieved, and after three weeks the patient was discharged from the hospital, apparently quite well.

It is not very difficult to perceive in this case that we were dealing with undoubtedly two independent conditions: (1) A condition of early tabes dorsalis, as evidenced by the changes in both pupillary and peripheral reflexes, and the positive Wassermann reaction. There was proof of the syphilitic origin as well as of the presence of the disease. (2) The abdominal disease was apparently one of duodenal ulcer, visually demonstrated by roentgenographic examination, and capable

of diagnosis by reference to the character of the pain, the chemical findings in the stomach and the results of treatment. It will be seen at a glance that the pains were not similar to those observed in the previous case. These came somewhat regularly from three to four hours after meals, were worse after heavy meals, and were felt not nearly so badly after a light meal of cereal or milk products. The pains were relieved by food and not aggravated by eating; the vomiting was a secondary symptom, occurring only about ten days after the onset of the pain.

We are fully aware of the fact that vomiting is not an essential feature of tabetic crises; we may have entire crises of pain without vomiting, as well as crises of vomiting with practically no pain. In fact, Fournier¹² has described attacks of belching, pure and simple, of explosive amounts of gas as the only symptom of crises. This type of crisis is characterized by eructations of gas which are not necessarily accompanied by pain or vomiting.

The hypersecretion which is so constantly a symptom of duodenal ulcer is also a very frequent phenomenon in the gastric symptoms of tabes. Statistics in literature show about an equal number of cases with hyperacidity and with hypo-acidity. The amount of acid, or at least its strength, is less important than the amount of secretion, for many of our cases have had hyperacidity even with low acidity. The hypersecretion is an almost constant phenomenon accompanying irritation or stimulation of the vagus, the tenth cranial nerve having as its function, among others, the secretory control of the stomach. Even the delayed motility, which otherwise would be attributed to the pylorospasm accompanying the duodenal ulcer, could be simulated by a condition arising from the state of overexcitation of the spinal or cerebral nerves.

The subsequent course of this case was most suggestive. The improvement on a restricted diet and bed rest, the cessation of the vomiting, the absence of pain, and the lowered secretory curve and improved motility, are all characteristic of the phases of healing of a duodenal ulcer. We may summarize this case as one of a duodenal ulcer in a man in the early stages of locomotor ataxia. The treatment and the improvement were all instituted from the standpoint of the gastrointestinal lesion; there was no attempt to give any specific antisyphilitic treatment.

There would be little basis for asserting that these attacks of pain were due to the gastric crises of tabes. It is much more probable that the ulcer antedated and existed, independent of the syphilitic degeneration of the spinal tracts.

The literature on the subject of hematemesis in the course of tabes, particularly during gastric crises, contains references to several cases in which an organic lesion of the stomach coexisted. Vomiting of blood during a crisis is a rare complication, only about thirty instances being reported. Included in these case reports are seven fatal instances in which a necropsy was performed, and in which an ulcer was found. Of the seven cases, two were instances of perforating ulcer with peritonitis, four were benign extensive ulcers of the lesser curvature or juxtapyloric ulcers, and one was a large healed ulcer. Further, Lyon,¹³ reporting on three cases of gastric crises in cerebrospinal syphilis, found constant occult bleeding in two of them and

12. Fournier: *Leçons sur la période preataxique du tabes d'origine syphilitique*, Paris, 1885, p. 214.

13. Lyon: *Internat. Clinics*, Series XXX 2: 194.

presumed that superficial ulceration was present. In addition, death due to carcinoma of the stomach occurred during a case of gastric crisis reported by Roque and Chalier;¹⁴ and another case, presumably one of gastric carcinoma, is similarly reported by Noel.¹⁵ Thus it is seen that organic lesions of the stomach of a benign and nonsyphilitic nature are not uncommonly found coexisting in gastric crises. Every case of crises in which hemorrhage takes place should be strongly suspected of an independent lesion.

TABES, DUODENAL ULCER AND GASTRIC HEMORRHAGE

The facts in a third case combine several factors simultaneously, namely, tabes, duodenal ulcer and gastric hemorrhage:

CASE 3.—S. D., a man, aged 40, was brought to the hospital in an exsanguinated condition, having suffered a recent and very severe intestinal hemorrhage. The history, as elicited, disclosed that he had had a gonorrheal infection eighteen years before and had syphilis for the last twenty years, with very minor treatment for the latter. About the same time that he had developed syphilis he had been sent to Saranac Lake for an incipient pulmonary tuberculosis. Four years before I saw him he was forced to return to Saranac Lake because of a recurrence of his pulmonary symptoms and the finding of tubercle bacilli in the sputum. For the last nine months he had been sexually impotent. For two or three years his gait had been so unsteady that he had been unable to walk without a cane.

About a year before, he vomited several times shortly after taking food, and had a slight pain in the epigastrium. During the last three months he had suffered from epigastric pains radiating to both sides of the lower chest. Pains occurred irregularly, according to his account; no relief from food was experienced; the pains were usually worse at night and were followed by nausea and vomiting. The vomitus contained a little food and was followed by relief. Nine days before, without warning, he vomited about a quart of bright red blood. Four days before, he had a large tarry stool. On the morning he was examined he vomited a small amount of bloody fluid, though he had no pain.

He was well nourished, with extreme pallor. His pupils were irregular and showed absolutely no reaction to light or accommodation. His knee reflexes, Achilles tendon reflexes, and abdominal reflexes were all absent. He had the signs at one apex of an old healed tuberculosis. On admission to the hospital his hemoglobin was 30 per cent., his red blood count 1,400,000 cells.

The patient received, during the two months that he lay in the hospital, two citrate transfusions of 400 c.c. of blood. During the interval between the first and second transfusions the fractional test meal was taken, and showed a subacidity, normal emptying time, but a rather marked hypersecretion. The roentgen-ray examination disclosed exaggerated peristalsis and a persistently irregular and tender duodenal bulb. Throughout his stay in the ward he was under a prolonged modified Sippy diet, on which regimen the vomiting ceased, pains finally disappeared, and he felt well. The hemoglobin gradually rose, until on the day of discharge he had 55 per cent. with a red blood count of 3,400,000 cells.

The Wassermann reaction in the blood was four plus.

There is no question in this case of the existence of syphilis, as well as of an advanced state of spinal tabes. The question is, Can we account for the hemorrhage on the basis of this clinical diagnosis? We do know that hemorrhage can take place in the persistent vomiting of crises. This has been repeatedly remarked in the literature, and is described as varying in amount from slight amounts of blood to larger amounts, such as 1 ounce or 8 ounces and even up to severe and fatal

hematemesis. Sahli¹⁶ seemed inclined to think that such hemorrhages are apparently due to the violence of the retching, and that the vomiting might actually be the cause of the gastric and duodenal ulcer which may accompany the tabetic crises. In this case it is both possible and probable that the hemorrhage was of duodenal origin and did not constitute the real *crises noires* of the French authors. In addition, we must take into consideration the fact that crises do not usually persist when the stage of the ataxia has advanced as far as has this one. In fact, the crises are generally considered as disappearing after a variable length of time. There are even some writers who consider that the occurrence of visceral crises gives a guarantee against the development of ataxia and that, conversely, ataxia rarely occurs in patients who have had crises in tabes; nevertheless, a close reading of the literature on gastric crises shows this view to be in error.

What percentage of cases of tabes dorsalis are accompanied or associated with gastric or duodenal ulcer? This would be very difficult to estimate, since, in a general hospital, neurologic cases as such are not admitted to the medical wards. All of these cases come under observation, not because they had tabes, but because they had alimentary tract symptoms.

It is possible that ulcer is a frequent concurrent of tabes. The question arises whether the involvement of the spinal cord and brain does not in some way predispose to the ulcer. It may even be suggested that the gastric ulcers are "trophic" in origin and nature (mal perforans) or that the involvement of the nervous system might predispose to ulcer formation by giving rise to hypersecretion. This hypersecretion is similarly seen in the class of cases described by Reichmann, von Leyden, Jaworsky, Rossbach and others as periodic gastrosuccorhea, gastroxynsis, etc., all of them being characterized by a state of nervous excitation, occurring in attacks, and similar to hysteria. The hypersecretion of tabetic crises is probably of the same origin. In fact, Sahli¹⁶ thought the attacks were caused by the hypersecretion (not hyperacidity). It has been shown that about 33 per cent. of cases of continuous hypersecretion are accompanied by ulcer; It is at least possible to believe that the ulcer is the result of a long-standing gastrosuccorhea. May not similarly the sequence of events in these cases be syphilis, tabes, hypersecretion, ulcer?

In addition, there is a frequent disturbance of gastric motility associated with gastric crises. This fact I have observed particularly in one case of pure gastric crises of tabetic origin. Delayed motility in the stomach is not an infrequent phenomenon in nervous diseases. Recently I have seen a delay of gastric emptying lasting up to the fourth hour, and due to a spinal cord tumor in the dorsal area. Similarly I have observed a delayed emptying with profuse vomiting in a case which on necropsy showed a gliomatous tumor in the pontile area of the brain and no gastric or other abdominal lesion.

That delayed emptying predisposes to ulcer and causes retarded healing of experimental ulcers in dogs was amply proved by the convincing experiments of Friedman and Hamburger.¹⁷

Another variety of motility disturbance of the stomach is shown in balloon and kymograph tracings

14. Roque and Chalier: Bull. et. mém. Soc. méd. d. hôp. de Lyon 7: 486, 1908.

15. Noel: Thèse de Paris, 1905.

16. Sahli: Cor.-Bl. f. Schweiz. Aerzte, 1885.

17. Friedman, J. C., and Hamburger, W. W.: Experimental Chronic Gastric Ulcer, J. A. M. A. 63: 380 (Aug. 1) 1914.

of patients suffering from gastric disturbances. Included in a series of such observations made by Crohn and Wilensky,¹⁸ there was demonstrated, in a tabetic patient, an incoordination of the hunger contractions; the contractions were irregular, of unequal height and force, and differed from those found in the normal stomach or those suffering from other gastric diseases. (While this was a single observation, it is suggestive.)

A roentgenographic picture of similar intent has been described by Carnot and Bruyère.¹⁹ Their description of the peristaltic activity of the stomach after a crisis is one of incoordination of exaggerated peristaltic waves, a muscular hyperexcitability, an "*asynergia remarquable*," to use their own words.

What percentage of ulcers occurring in the presence of cerebrospinal syphilis are syphilitic ulcers? Probably a very small percentage. Von Neumann²⁰ estimated from postmortem statistics that 20 per cent. of patients who had syphilis had gastric ulcer. Boas²¹ rightfully criticizes this statement as an exaggerated one.

Chiari² found at necropsy that gastric syphilis occurred in only two of 243 necropsies on syphilitics.

I have failed to find elsewhere in the literature any reference to syphilitic ulcer or gumma of the stomach in a tabetic person or particularly in one suffering from gastric crises of tabes. This undoubtedly holds good for the stomach and duodenum as well as for other visceral invasions. Some doubt may have been thrown on this remark by the observations of Warthin,²² who demonstrated in postmortem examinations spirochetes in the heart, lungs, liver, etc., as frequent concomitants to spirochetal involvement of the nervous system. However, cardiovascular system infection was the most common finding with cerebrospinal syphilis, the abdominal viscera being less often involved.

THE NERVOUS MECHANISM OF GASTRIC CRISES

One does not find a concise and unchallenged explanation for the mechanism and paths by which tabes dorsalis or cerebrospinal syphilis produces the pain, vomiting and motor and secretory phenomena of the gastric crises. The accepted version of the lesion in tabes is that of a degeneration and atrophy beginning and involving the lateral column of the spinal cord in the lumbar and dorsal segments. That the posterior nerve roots and ganglions are involved in the process is also an accepted fact. These facts are founded on actual degenerative lesions found in these nervous tissues at necropsy on tabetic crises. The lesions involve the voluntary nervous system, causing incoordination of organs of locomotion, and disturbances in the reflex arcs, and cause the sensory symptoms, both hypesthesia and hyperesthesia. The involvement of the dorsal root ganglions undoubtedly causes the crises of pain, whether peripheral in the extremities or invading the abdominal segments. We know from the researches of Head, MacKenzie and others that visceral disease evinces itself as pain along the spinal root segments that correspond to the sympathetic innervation of the involved viscera. The reflex arc between the centripetal sympathetic fibers from the

viscera to the dorsal ganglions and spinal cord, and the centrifugal spinal nerves with their surface sensitization, is a complete one. The pains of gastric crises (and the zones of hyperesthesia as well as the girdle sensations) are due to the involvement of the sensory dorsal roots in the pathologic process.

The motor and secretory disturbances in the stomach result from abnormal irritation of the areas of nervous control of the viscera. The stomach as part of the alimentary tract has a double autonomic innervation, namely, a parasympathetic or vagus and a sympathetic or splanchnic set of fibers; as such it is subject to the interplay of these two systems, known as the "law of contrary innervation." The disease must therefore either arise in the cord and affect the vagus by reflex irradiation or involve both sympathetic and vagal origins. The splanchnic system is vulnerable to the attack of the disease since the rami communicantes traverse the spinal ganglions and travel in the dorsal roots. Pathologic stimulation of these fibers may result, not only in pain directly, but reflexly may originate trophic and secretory visceral disturbances. The centrifugal medullated sympathetic fibers, whose ganglion cells occupy the lateral columns of the cord, in their involvement, participate in some of the motor and secretory disturbances seen in the stomach. This could not be otherwise, since they supply the impulses which are antagonistic to those of the parasympathetic or bulbovagal sacral system.

Actual degeneration of nerves of the splanchnic system has been demonstrated by Roux,²³ in necropsy specimens.

However, the main effect is seen in the vagus system, that bundle of fibers which is the great innervator of motor and secretory phenomena in the alimentary tract and its derivatives. The view that the vagus system is the main and actual pathway of the abnormal stimulation is held by Castelli and Pinel,²⁴ and is suggested as the explanation of all the phenomena by Joseph Byrne.²⁵ To those who have studied closely gastric secretion and peristalsis this view makes a lively appeal. Eppinger and Hess²⁶ assert that a condition of vagotonia is essential to the occurrence of the phenomena. It is well known that the vagus is very sensitive to all sympathetic system disturbances. Centripetal stimuli reach the midbrain and vagus nuclei by means of the intercalated or connector fibers that traverse the length of the cord connecting the sympathetic ganglions in the visceral walls, in the paravertebral chain of sympathetic ganglions and in the ganglion cells of the lateral column with the nucleus dorsalis of the tenth nerve. These stimuli either pass over connector sympathetic fibers which anastomose with fibers of the vagal nucleus, or are carried directly by afferent sensory vagus fibers to this nucleus. There, an indirect reflex arc is formed (Gaskell) and an efferent reflex stimulus is originated, by way of the nucleus ambiguus or nucleus intercalatus of Staderini, which evidences itself in motor disturbances or secretory phenomena in the larynx, esophagus, stomach or intestines.

SUMMARY

I have discussed three cases. The first was one of violent tabetic crises with symptoms very suggestive

18. Crohn, B. B., and Wilensky, A. O.: Gastric Musculatures, Arch. Int. Med. **20**: 145 (July) 1917.

19. Carnot and Bruyère: Bull. et mém. Soc. méd. de hôp. de Paris **41**: 1103, 1917.

20. Von Neumann: Spezielle Pathologie und Therapie **33**: 354.

21. Boas: Diagnostik und Therapie der Magenkrankheiten, 1903.

22. Warthin: Am. J. M. Sc. **152**: 508 (Oct.) 1916.

23. Roux: Thèse de Paris, 1905.

24. Castelli and Pinel: Med. Rec. **83**: 783, 1913.

25. Byrne: New York M. J. **101**: 880, 1915.

26. Eppinger and Hess: Die Vagotonie.

of gastric ulcer, but one in which the existence of the latter complication could not be established. The second was a case of tabes with predominant gastric symptoms and an apparent duodenal ulcer. The third was an example of advanced tabes with vomiting, hematemesis and melena due to an active bleeding duodenal ulcer.

The frequency with which ulcer coexists with tabes cannot be stated. That it can so coexist and probably frequently does is most likely.

The pathogenesis of the ulcer as a complication of, or as a coincident of tabes is probably as follows: Cerebrospinal syphilis is accompanied in a large percentage of cases by gastric hypersecretion. Organic lesions of the spinal cord or brain often cause delayed gastric motility, and probably abdominal gastric peristalsis. These two conditions presumably predispose to gastric or duodenal ulcer. Syphilitic aortitis may also play a rôle.

Such ulcers as form are probably simple peptic and not syphilitic ulcers or syphilis of the stomach. The point of origin of the secretory and motor disturbances in the stomach and intestine is probably in the involvement in the pathologic process of the sympathetic fibers to these viscera in their passage through the dorsal spinal ganglions and posterior nerve roots.

It is quite possible that the finding of a gastric or duodenal ulcer in tabes is a pure coincidence, and that there is no relationship of cause and effect between the two conditions.

47 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. ANTHONY BASSLER, New York: Various grades of gastritis may be caused by syphilis. When an ulcer is present and a plus Wassermann reaction also, the therapy of the ulcer should be considered not only in the way of diet and rest for the ulcer patient but for a syphilitic individual as well. We have found in our combined cases that approximately one third of them will apparently do well on rest and diet treatment alone. In another third the antisiphilitic treatment is required during the course of the ulcer treatment. I have seen only three cases of tabes and ulcer together, and in those three cases we accomplished nothing worth while by antisiphilitic treatment as far as the ulcer was concerned. I feel, too, as Dr. Crohn has mentioned, that mistakes are being made in diagnosing locomotor ataxia with crises as ulcer cases. I have seen not a few of those, and the differentiation even clinically is not so difficult because, without considering roentgenology and other means of diagnosis, abdominal crises present rather an irregular picture, so far as pain is concerned, coming on without any reference to meals, quality or character of food, whereas in ulcers it is different. The pain, too, is most insistent, lasts perhaps for hours or days, and suddenly disappears.

DR. J. D. DUNHAM, Columbus, Ohio: In my own observation there have not been as many cases of gastric ulcer with tabetic crises as Dr. Crohn seems to have found, in spite of the fact that for some time I have been using as a routine the Wassermann and Hecht-Gradwohl tests on all patients presenting themselves. In the last hundred cases I found 17 per cent. of neurosyphilis or visceral syphilis in the presence of symptoms that might indicate ulcer or appendicitis. Dr. Crohn's paper will be of great aid in calling attention to the presence of syphilis, either tabes or other varieties, and in particular to cases coming up for operation. I recall cases in which nothing was found at operation, and later observations indicated the presence of syphilis. I should like to emphasize the importance of using the Wassermann and Hecht-Gradwohl tests. I have found that the Hecht-Gradwohl test will be 4 plus with a negative Wassermann reaction when later the presence of syphilis was proved therapeutically.

DR. LOGAN CLENDENING, Kansas City, Mo.: I should like to ask Dr. Crohn whether he has observed with the roentgen ray any cases of gastric crises with intense gastric symptoms.

DR. EMANUEL LIBMAN, New York: Besides the gastric crises that may occur in association with tabes or cerebrospinal syphilis, actual lesions in the stomach of an ulcerative nature may be found. The patients can be classified, in general, into several groups. In the first place, as Dr. Crohn has pointed out, there is no reason why a patient suffering from a syphilitic spinal cord lesion should not develop an ulcer of the stomach or intestine of the ordinary type. In the second place, such an ulcer may be due to an actual syphilitic lesion in the stomach—these cases are very uncommon. In the third place, it is probable that an ulceration may occur that is due to what we term a trophic change, or secondarily to hemorrhagic erosions. Hemorrhagic erosions are not at all infrequent in patients who suffer from severe or long continued attacks of vomiting. Of course, the error in diagnosis to which Dr. Crohn has referred is not as frequent as the error made the other way, that is, in ascribing gastric symptoms to ulcer or some other form of gastrointestinal disease, when the symptoms are really due to tabes or cerebrospinal syphilis. Dr. E. C. Wood of Wilmington, N. C., has introduced a method for the purpose of making a diagnosis of tabes earlier than it is usually established. This consists in applying a tuning fork to the tibia or some other bone, and ascertaining how long the patient appreciates the vibration. As compared with the normal, this time is shortened in cases of tabes. Dr. Wood basing his conclusions on studies made at Guy's Hospital, believes that the test, as ordinarily used, is not as valuable as it is in the form which he has devised. He uses a tuning fork, which is constructed so as to vibrate at a definite speed. With such a tuning fork, he finds that the period during which vibrations are felt in cases of tabes is shorter when the tuning fork is applied to the sacrum as compared with other bones. He has found this test positive in cases in which no other objective symptoms of syphilis could be found, and has even found it present before the cerebrospinal fluid has shown a positive Wassermann reaction. In this way, a number of cases were diagnosed as examples of gastric crises in which, otherwise, an improper diagnosis would have been made.

DR. GEORGE B. EUSTERMAN, Rochester, Minn.: In an experience covering sixty-two cases of gross gastric syphilitic lesions I have occasionally found tabetics in whom there was an associated chronic benign ulcer of the stomach or duodenum. Frequently the characteristic ulcer complex antedated the gastric crises so that there was no speculation as to cause and effect. I am confident that the coincidence of chronic benign ulcer and gastric crises of tabes is not so uncommon. Several years ago a European observer reported benign ulcers found at necropsy in twelve stomachs of 100 tabetics having marked gastric disturbances. I got the impression from Dr. Bassler's remarks that the occurrence of circumscribed syphilitic gastric lesions is quite common. This has not been our experience. To date I have only three proved cases of this type, one of which was in the duodenum. By the time a diagnosis is possible or concluded, the process is found to involve a considerable portion of the stomach, therefore simulating cancer in most instances. Finally, one should not be too quick in accepting the roentgen diagnosis of a lesion in association with tabes for, as Exner has pointed out, the vagus may undergo degenerative changes in this disease, which in turn may bring about spasm defects through faulty innervation.

DR. B. B. VINCENT LYON, Philadelphia: The association of gastric ulcer and tabes has already been stressed. The two conditions can and often do exist simultaneously. I want particularly to point out certain differences in the symptoms in gastric crises. The usual triad of symptoms is nausea, vomiting and pain. But pain need not be present. It should be emphasized that there is a painless type of gastric crises. Perhaps the hardest type to diagnose is the one in which the pain symptom is omitted. Instead, we have sudden, explosive attacks of nausea but more particularly vomiting—vomiting that comes on without cause and may extend through several days or several weeks—a persistent type of severe retching and vomiting in which nothing can be retained on the

stomach, but which suddenly ceases as abruptly as it began. A few days later the patient can resume a type of diet which would be utterly inconsistent with any other gastric condition. I had occasion to review the literature on the subject a few years ago and bring it up to date, and I found extraordinary reference to the frequency of operation on patients with gastric crises in which nothing surgical was found. This is a serious diagnostic error. I came across a test described by Holmes, the so-called epinephrin test. He calls attention to it particularly as a means of differentiating the surgical cases. Having previously taken the blood pressure, if an injection of 15 mm. of 1:1,000 epinephrin is given subcutaneously, the blood pressure in gastric crises cases instead of being increased is depressed and relieves the pain. He suggested using epinephrin for this purpose instead of morphin, which too frequently masks all abdominal symptoms. Within the last month I have had occasion to use it for only the third time since I heard of it. It promptly brought the blood pressure down from 180 to 120, with relief of pain. This test is worthy of extended trial. Finally, I wish to mention the fact that fractional analysis done during the attack is likely to show hyperchlorhydria, whereas fractional analysis done between the attacks is likely to show a normal acid curve, or frequently subacidity. After all, the real diagnostic test lies in the examination of the spinal fluid. In a great many of these patients, blood infection is not demonstrable and the existence of the lesion can be made definitely positive only by spinal fluid examination.

DR. B. B. CROHN, New York: Ulcers that have accompanied tabes, when examined postmortem, proved to be a simple benign ulcer. One such case was studied by Ewald. There was present a syphilitic endarteritis, but cut sections showed no signs of syphilis in the ulcer. In the cases recorded in the literature there was nothing to show that the ulcer was syphilitic. It was simply a benign ulcer occurring in a syphilitic patient. In thirty-three cases, hematemesis accompanied the crises of tabes. In some the hemorrhage was so severe that it resulted in fatal exsanguination. In two cases the stomach was very much thickened, rather edematous, and showed superficial ulcerations. It was believed that the severe vomiting attacks caused the bleeding and death. Even a small hemorrhagic erosion would be sufficient to cause the hematemesis. Gastric crises initiate tabes in about 15 per cent. of the cases. The percentage of ulcer in the adult population of the state varies from 1.7 to 4 or 5. In may not be justifiable, therefore, to say that ulcer is more common in tabes than in general practice. The cases cited in my paper were cases of ulcer associated with tabes. When a real hematemesis occurs in the course of tabes, there is a 50 per cent. chance of an associated ulcer being present. There are some points that will help to differentiate the hemorrhage of gastric crises (vomit^{us} niger) from the hematemesis of an accompanying ulcer. In the essential bleeding of a crisis, the hemorrhage occurs at the end of each bout of severe vomiting; the hemorrhage due to ulcer may occur at any time, before or during the spells of vomiting, and usually is more profuse and serious.

Births and Birth Rates in the Birth Registration Area.—

The Department of Commerce, through the Bureau of the Census, announces that in the year 1920 there were 1,508,874 births reported within the birth registration area, which includes twenty-three states and the District of Columbia, the estimated population of this area, July 1, 1920, being 63,659,441, or 59.8 per cent. of the total population of the United States. The birth rate was 23.7 per thousand population, which is considerably higher than the rate (23.3) for the previous year, but is below the rate (25) for 1916, which may be looked on as a more normal year, as it preceded the influenza epidemic and the entrance of the United States into the war. For 1920, the highest birth rate (31.7) for the white population is found for North Carolina, and the lowest (18.3) for California; while for the colored (which includes negroes, Indians, Chinese and Japanese) the highest rates are 39.5 and 39.3, respectively, for Washington and California. The next highest rate for the colored, 31.3, is for North Carolina. The lowest rates for colored (disregarding the very low rates in a few of the New England states in which the negro population is small) are for Kansas (17.1) and Kentucky (17.6).

FRACTURES OF THE SKULL

DIAGNOSTIC AND PROGNOSTIC FEATURES *

J. W. STEWART, M.D.

ST. LOUIS

During a service at the St. Louis City Hospital extending over a period of five years, an opportunity was afforded to observe and review the records of 6,135 cases of head injuries. Of these, 617, or approximately 10 per cent., showed definite signs and symptoms of skull fracture.

These cases were studied with particular reference to age, method of injury, nature and site of the wound, nature and site of the fracture, roentgen-ray examination, state of consciousness, vomiting, pulse, spinal fluid, pupillary reaction, blood pressure, neurologic findings, operative and postmortem findings, and results.

AGE

The average age was 36 years. Males predominated in the ratio of 65:35. Taken generally, the patients of extreme ages suffered the highest mortality.

METHOD OF INJURY

Crandon and Wilson,¹ in a series of 530 basal fractures, found that 80 per cent. of the patients were

TABLE 1.—DISTRIBUTION OF METHODS OF INJURY

Cause	Cases		Mortality, Per Cent.
	Number	Per Cent.	
Fall.....	208	33.8	60.4
Automobile.....	147	23.8	53.8
Blow.....	135	21.8	28.6
Street car.....	58	9.4	70.6
Motoreyele.....	21	3.5	52.3
Train.....	20	3.2	85.0
Gunshot.....	10	1.6	60.0
Horse kick.....	10	1.6	30.0
All other causes.....	8	1.3	30.0
Total causes.....	617	with average of 52.19	

injured by falling, and 20 per cent. by other accidental violence. Cushing² states that 60 per cent. of skull fractures are due to falls from a height; while in our series, only 33.8 per cent. were due to falls. Dennis³ believes that fracture of the middle fossa of the base is most important, and is usually the result of a fall from a height; occasionally it is the result of being knocked down or of being run over by a vehicle or a car. Fracture of the base of the skull involving the posterior fossa is usually the result of a fall backward on the occiput, or, of a heavy weight's falling on the back of the head. LeCount and Apfelbach⁴ in 504 postmortems of fractured skulls found, in the 380 cases in which the method of injury was known, approximately 57.6 per cent. due to falls, 16.4 per cent. due to street car accidents, 12.4 per cent. due to automobile accidents, and 9.8 per cent. the result of blows.

With the increasing use of automobiles, it is to be expected that they will soon be a predominating causative factor of this condition. It can be seen at a glance that the mortality varies directly with the severity of the violence.

* From the Department of Surgery, St. Louis University School of Medicine.

1. Crandon, L. R. G., and Wilson, L. T.: *Ann. Surg.* **19**: 823 (Dec.) 1906.

2. Cushing, Harvey: *New York M. J.* **35**: 97, 1907; *ibid.* January, 1901; *ibid.* **35**: 113 (Jan.) 1907; *Am. J. M. Sc.* **124**: 375, 1902; *Bull. Johns Hopkins Hosp.* **12**: 290, 1901; *Am. J. M. Sc.*, 1906.

3. Dennis: *Interstate J. Surg.*, April, 1906.

4. LeCount, E. R., and Apfelbach, C. W.: *Pathologic Anatomy of Traumatic Fractures of Cranial Bones and Concomitant Brain Injuries*, *J. A. M. A.* **74**: 501 (Feb. 21) 1920.

NATURE AND SITE OF THE WOUND

A very deceptive feature of head injuries is the appearance of the external wound. This can never be taken as an index of the severity of the damage done to deeper structures. Three hundred and seventy-one, or 60 per cent., of our cases showed a laceration of the scalp. Of these, 98 were frontal, 130 parietal, 88 occipital, and 55 temporal. Lacerations were present

TABLE 2.—NATURE AND SITE OF WOUND

Nature and Site of Wound	Cases	
	Number	Per Cent.
Lacerations.....	371	60.0
Frontal.....	98	
Parietal.....	130	
Occipital.....	88	
Temporal.....	55	
Hematomas.....	237	38.3
Frontal.....	41	
Parietal.....	67	
Occipital.....	85	
Temporal.....	44	
Nondiscernible injury.....	9	1.4

more often in fractures of the vault, the size and extent of the laceration depending on the nature of the violence. Two hundred and thirty-seven, or 38.3 per cent., revealed hematomas of varying size. The location was frontal in 41, parietal in 67, occipital in 85, and temporal in 44. Those cases showing hematomas more frequently were purely basal or linear, involving the vault and radiating to the base.

Large hematomas very often give the false impression of depressed fracture at their center; the indurated edge giving the feel of solid bone. The differential diagnosis depends on the base of the whole swelling being superficial to the bone level.

Nine, or 1.4 per cent., of these cases showed no discernible external wound, the only evidence of trauma being, possibly, hemorrhage from the nose, ears, or mouth.

Crandon and Wilson¹ considered "bleeding from at least one ear a pathognomonic sign of fractured base in common practice. It does not of necessity imply the existence of a basal fracture; but, practically, if the hemorrhage is severe, it must come from the mucosa of the drum, or the middle ear, and hence must mean bony injury."

Ecchymosis about the orbit or mastoid area (Battle's sign) is to be taken as strong evidence of an existing skull fracture, since ecchymosis is almost always present in fractures in any other part of the body. Cases in which ecchymosis is scarcely noticeable on admission may have the typical "black eye" appearance within a few hours. The "black eye" from fracture of the skull differs from that due to external violence. The bleeding comes from within, and the discoloration is limited to the borders of the orbit; whereas the ordinary black eye shades off into the tissues of the cheek, temple or forehead. It is well to consider ecchymosis as a late sign, not usually appearing until several hours after the injury. Ecchymosis of the orbit is invariably present in basal fractures involving the anterior fossa.

It has been the practice to incise, as a routine, all lacerations and hematomas when there is any suspicion of skull fracture. On exploration of the wound, such suspicions were proved justifiable in seventeen of thirty-one cases of this series, which had been found negative by roentgen-ray examination. Fourteen of these were linear and three slightly depressed.

The more severe cases were those in which the patient's own body was the motile factor in the trauma.

In this type, there were more basal fractures, and a larger percentage showed evidence of contrecoup brain injury. Thus, patients that are hurled by a fast moving force are more severely injured than patients that fall from a height, and these in turn are more severely injured than those suffering localized trauma.

In those cases in which the instrument of trauma was the motile factor, for instance, blows and falling objects, the fracture was most often of the vault, usually depressed, and the brain injury was localized to the site of fracture.

Cushing² and others have said: "The injury done the bone is always to be held of secondary importance. The complications on the part of the nervous system which attend injury or fracture of the skull, rather than the cranial lesions themselves, are of prime moment."

But fractures of the skull at some stage are always accompanied by intracranial manifestations, whether unconsciousness, concussion or compression.

NATURE AND SITE OF THE FRACTURE

There were 408 fractures of the vault, depressed, 198; linear, 210, and basal, 209.

Of our series, 408 were vault fractures; of these, 198 were depressed, and 210 linear. Of the linear vault fractures, approximately 70 per cent. extended to the base by the shortest route, the nearest fossa to the fracture origin being the one most commonly involved, as evidenced by operation, postmortem examination and symptoms. Two hundred and nine were basal fractures. Of those purely basal, the middle fossa was most frequently the site of the lesion.

ROENTGEN-RAY EXAMINATION

Seventy-three and one-tenth per cent. were positive and 26.8 per cent. were negative on roentgen-ray examination. Of the latter, 10.7 per cent. showed linear fracture on operation; 12.3 per cent. were diagnosed basal by other signs and symptoms; 11.6 per cent. were found to have been basal at postmortem examination, and 2.2 per cent. were proved to be fractures of the vault and were slightly depressed when the wound was explored. This shows that a negative roentgen-ray report is not conclusive evidence of nonexistence of fracture of the skull.

STATE OF CONSCIOUSNESS

On admission to the hospital, 303 patients, 49.1 per cent., were unconscious; 193, 31.2 per cent., were conscious, and 121, 19.5 per cent., were semiconscious.

TABLE 3.—CAUSE OF INJURY AND OUTCOME

Cause of Injury	No. of Cases	Deaths	Recoveries
Fall.....	100	85	15
Automobile.....	93	73	20
Blow.....	45	34	11
Street car.....	35	30	5
Train.....	15	14	1
Motoreycle.....	12	8	4
Gunshot.....	3	3	0

Patients were received at the hospital on an average of one and one-half hours after injury.

In the 303 cases in which the patients were unconscious on admission, the cause of the injury and the outcome are given in Table 3.

Prolonged unconsciousness or failure to regain consciousness for a period of time is a very grave sign, considering, at the same time, the cause of injury. Regaining consciousness for a period of time, followed by a lapse into semiconsciousness, is almost pathogno-

monic of intracranial hemorrhage as shown by operation. This condition can occur with a rapidly increasing edema; but the period of consciousness is longer and the secondary unconsciousness is of slower onset. Those patients that lapse into unconsciousness after a few days, or that have an irritable semiconsciousness with Kernig's and Brudzinski's sign, are found to be suffering from an edema of the cerebrum.

One patient, injured by a street car, with fracture of the vault extending to the base and with bilateral temporal edema, was unconscious for a period of thirteen days and recovered. Crandon and Wilson,² in the series of 520 cases, report unconsciousness in 232 patients, of whom 98 lived and 134 died; and consciousness in 288, of whom 191 lived, and 97 died.

VOMITING

One hundred and seventy-six, or 28.5 per cent., vomited on admission; eighty-seven died and eighty-nine recovered. Of the eighty-nine patients that recovered, forty-five showed sequelae (Table 4).

On the whole, patients that vomited shortly after the injury or on admission to the hospital offered a more guarded prognosis than the patients that did not vomit,

TABLE 4.—SEQUELAE IN CASES OF PATIENTS THAT VOMITED ON ADMISSION

Sequelae	No. of Cases
Seventh nerve paralysis.....	4
Severe mental change.....	4
Aphasia.....	2
Convulsions.....	8
Vertigo.....	12
Deafness, one ear.....	2
Tinnitus.....	11
Persistent headache.....	24
Meningitis.....	6 (died later)
Brain abscess.....	2 (died later)
Hemiplegia, persistent.....	1
Irritability and changed disposition..	15
Unable to tolerate extreme hot weather	5

Eighty-four of the 176 patients that vomited showed unequal pupils, and four fixed pupils. Forty-five of the 176 showed abnormal knee reflexes.

other things being equal. There were more marked neurologic signs, and the average pulse rate was lower by 9 beats per minute than in the patients that did not vomit.

I am not in accord with the prevailing opinion that vomiting during the unconscious period is a sign of good import and an evidence of returning consciousness. Our experience has shown that in those cases in which there was vomiting with unconsciousness, the ratio of deaths to recoveries has been 3 to 1.

Crandon and Wilson,¹ in a series of seventy-eight cases of skull fracture in which vomiting occurred, report thirty-six recoveries and forty-two deaths. Our observations with regard to vomiting do not vary from those of others in regard to mortality.

PULSE ON ADMISSION

The average pulse of patients that did not vomit was 92 per minute; that of patients that vomited was 83 per minute. The average pulse was found to be higher than is usually expected to exist in cases of skull fractures; but included in the series were patients with compound and simple fractures in other bones, also patients with internal injuries and hemorrhage. Not all patients developed compression symptoms. In the latter group, i. e., compression, the pulse rate was markedly lower.

It was noted also in cases of fracture with intracranial hemorrhage, found either at operation or post-

mortem, that the pulse rate was higher than in compression cases due to brain edema or depressed bone.

The pulse rate averaged 9 beats slower per minute in the patients that vomited, than in the average of the patients that did not vomit. It has been observed that the pulse is usually increased in all cases in which vomiting from other causes has been noted; but this has not obtained in the vomiting occurring in the cases under discussion.

In the simpler cases, with no compression or other troublesome symptoms, the pulse was often noted to remain slow, even as low as 48 or 52, for two or three weeks. Patients with concussion and in whom no fracture was demonstrable exhibited the same phenomenon.

SPINAL FLUID

Spinal puncture was performed in 165 cases of the series, either as an aid in diagnosis or with the idea of relieving the compression to some extent. One hundred and fifty, or 90.5 per cent., had bloody spinal fluid; fifteen, or 10.5 per cent., clear spinal fluid. Of the latter, six were proved to be linear fractures; one basal, by roentgen-ray examination; two showed extradural clots at operation; two were depressed fracture of the vault without dural puncture. Six cases with clear spinal fluid were diagnosed as basal fractures on symptoms.

We have practiced spinal puncture without observing the unfortunate outcome of sudden death, as is reported by many. The patient was kept in the horizontal position during and after puncture was made, however.

NEUROLOGIC FINDINGS

Pupillary Reaction.—In a total of 209 cases of basal fracture, the pupils were equal and reaction normal, in 92 cases; unequal and reaction normal, in 94 cases, and equal, dilated and fixed, in 23 cases.

In 408 fractures of the vault, the pupils were equal, and reacted normally when the injury was on the right in 187 cases; when on the left in 117 cases. The homolateral pupil was enlarged in 64 cases when injury was on the right, and in 30 cases when it was on the left. The contralateral pupil was enlarged in 25 cases when the injury was on the right, and in 55 cases when the injury was on the left.

The pupils were equal, dilated and fixed in 17 cases when injury was on the right side, and in 13 cases when it was on the left.

In the fifty-three cases of dilated and fixed pupils, all patients died within from five minutes to two hours after admission to the hospital. Twenty-three of these were basal fractures and thirty were of the vault.

Of all patients with change in consciousness, with equal pupils, reacting normally, and in whom no other neurologic signs were demonstrable, 137 lived and thirty-two died. No neurologic signs were present, except inequality of pupils in sixty-three patients, of whom forty-six recovered and seventeen died. Pupils have been seen to change size relationship after admission.

Lovett and Monroe⁵ reported forty-seven deaths among fifty-four patients with nonreacting pupils. Crandon and Wilson¹ considered the pupillary condition as only a general aid in prognosis and diagnosis, reporting 131 deaths in a series of 142 cases, without pupillary reaction. Nichols⁶ mentions that fixation of

5: Lovett and Monroe: Med. & Surg. Rep., Boston City Hosp., 1889.
6: Nichols: Med. & Surg. Rep., Boston City Hosp., 1895.

the pupils is far more grave than inequality. In his fifty-four cases of nonreacting pupils, forty-seven patients died, and all twenty-four cases of basal fracture with nonreacting pupils were fatal.

Walton⁷ reported fixed pupils in thirty-nine out of fifty-three fatal cases. As to the *modus operandi* of the pupillary change, he concludes that:

Doubtless various factors play a part in producing the altered pupil in intracranial lesions, but if disorder of very simple mechanism is to be related with the production of the pupillary changes noted, the only lesion worthy of this place is disturbance, irritative or paralytic, of the intracranial fibers of the ciliospinal tract. This tract after leaving the cervical sympathetic passes into the *vas* with the carotid plexus, thence forward by the ophthalmic division of the fifth nerve and nasal branch, having first passed over the gas-serian ganglion. The fact is established that irritation of this tract causes dilatation, and its destruction produces contraction of the pupil. He says that the generally accepted theory of paralysis of the third nerve causing dilatation of the pupil is untenable.

Rawlings⁸ attributes the disordered pupil to trauma affecting the cortical center of the third nerve, and states that the pupil is first contracted and then dilated. I am in accord with the latter statement. Hutchinson⁹ held that a single dilated pupil indicated hemorrhage in the middle fossa at the cranial base of the same side.

TABLE 5.—OCCURRENCE OF PATELLAR REFLEXES AND OTHER NEUROLOGIC SIGNS

Patellar Reflexes	Other Neurologic Signs	Pupils Equal		Right Larger		Left Larger	
		Recov-ered	Died	Recov-ered	Died	Recov-ered	Died
Equal.....	Absent	137	32	27	10	19	7
Equal.....	Present	54	17	16	28	16	21
Left increased...	Present	5	6	3	6	1	8
Right increased...	Present	5	8	6	23	2	7
Hyperactive.....	Present	13	8	7	8	5	2
Diminished.....	Present	14	12	4	11	5	2
Absent.....	Present	6	13	3	27	2	29

Wrist Sign.—Chaddock¹⁰ says that this consists of “flexion of the wrist and simultaneous extension and separation of all the digits, upon irritation of the palmar surface of the wrist at the junction of the palm with the wrist, and just at the ulnar side of the tendon of the flexor corpi radialis and the tendon of the palmaris longus. This sign always occurs on the opposite side from the hemiplegia when both are present.”

A wrist sign was present in twenty-two cases of our series of 617; of these patients, ten died and twelve recovered.

The wrist sign was on the same side as the injury in five cases. There was a bilateral wrist sign in three cases, one basal injury and two midparietal. The wrist sign was present on the side of the larger pupil in five cases, and on the same side as the smaller pupil in nine cases.

Nystagmus.—This was observed in fifty-three patients, of whom thirty died and twenty-three recovered.

Crandon and Wilson¹ reported twenty-five cases of nystagmus; twelve patients died and thirteen lived. We found in our series: nystagmus toward the injured side in twenty-three cases; nystagmus toward the side opposite the injury in eleven cases. In basal fractures, we found nystagmus to the right in seven cases, and to

the left in twelve cases. Nystagmus, with unequal pupils, was present in thirty-four cases; toward the side of the dilated pupil in twenty cases, and toward the side of the small pupil in fourteen cases.

In all cases of coexisting cranial nerve palsy, usually the seventh, and nystagmus, the quick phase of the latter was invariably toward the paralyzed side. It would seem to bear some relation to disturbance in the semicircular canals on that side.

Patellar Reflexes.—These are given in Table 5.

When the increased knee jerks existed on the same side as the dilated pupil, the mortality was higher.

Bilaterally increased knee reflexes bore no especial prognostic significance. Patients with absent knee jerks showed a high mortality.

Toe Reflexes.—(Babinski, Chaddock, Oppenheim, Gordon):

TABLE 6.—OCCURRENCE OF TOE REFLEXES

Toe Signs	Fracture	Pupils Equal		Right Larger		Left Larger		Total	
		Recov-ered	Died	Recov-ered	Died	Recov-ered	Died	Recov-ered	Died
Absent.....	.....	137	32	27	10	19	7	185	49
Right.....	Left	10	5	1	5	9	8	20	18
Left.....	Right	8	2	8	14	2	6	18	20
Bilateral.....	Basal	2	8	1	17	1	6	4	30
Bilateral.....	Right	3	4	5	13	3	4	11	21
Bilateral.....	Left	7	6	0	4	0	11	7	21
Left.....	Left	13	3	1	4	2	6	16	13
Left.....	Right	12	6	3	2	2	4	17	12
Right.....	Basal	7	6	1	5	1	2	9	13
Right.....	Right	8	2	1	8	0	1	9	11
Total.....	.....							111	151

With bilateral toe signs in fracture of the base of the skull, the mortality is high, thirty and thirty-four cases. When the toe sign is over the same side as the dilated pupil, the mortality is higher.

A pathologic toe sign with other pathologic reflexes in a case of fracture of the skull is a bad prognostic sign.

Paralysis.—In cases in which hemiplegia is mentioned, it occurred as in Table 7.

TABLE 7.—OCCURRENCE OF HEMIPLEGIA

Hemiplegia		Injury	Pupils Equal	Right Larger	Left Larger
Left.....	.....	Right	3	1	1
Right.....	.....	Left	2	5	2
Left.....	.....	Left	0	0	1
Right.....	.....	Right	1	1	1
Total.....	.....	.....	6	7	5

Recovered, 12; died, 6.

The longitudinal sinus syndrome, i. e., injury of the longitudinal sinus producing damage to both motor cortices with varying degrees of paralysis of a paraplegic or monoplegic nature, existed in eighteen cases of our series.

TABLE 8.—OCCURRENCE OF LONGITUDINAL SINUS SYNDROME

Injury	Pupils Equal	Right Larger	Left Larger
Right.....	3	2	2
Basal.....	0	3	2
Left.....	1	0	0
Midparietal.....	3	2	0
Total.....	7	7	4

Crandon and Wilson¹ consider that whatever lesson is to be learned from the reflexes in such cases, it should not be regarded as specifically diagnostic of fracture of the skull, but as resulting from violent jar-

7. Walton: *Ann. Surg.* 40: 654, 1904.
8. Rawlings: *Lancet* 1: 16, 23 (April 9) 1904.
9. Hutchinson, quoted in Jacobson: *Guy's Hosp. Rep.*
10. Chaddock, C. G.: *Interstate M. J.* 19: 127, 1912; and personal communication.

ring of the intracranial contents, accompanied perhaps by a local bruising and by hemorrhage, either limited or extensive. Walton,⁷ contrary to the impression obtained from many writers, found paralysis of the cranial nerves relatively uncommon, reporting forty-six in a series of 530 cases, with us thirty-nine in 617 cases.

BLOOD PRESSURE

Experiments have been made which show the relationship between the intracranial pressure and the peripheral arterial blood pressure.¹¹

Cushing,² in a series of experiments in which the amount of intracranial pressure was recorded coincidentally with the blood pressure, was the first clearly to associate the blood pressure changes with the degree of intracranial tension. He was able to show in a very

TABLE 9.—OCCURRENCE OF MONOPLÉGIA

Monoplegia	Injury	Pupils Equal	Right Larger	Left Larger
Left.....	Right	1	0	1
	Left	1	0	0
	Basal	11	0	0
Right.....	Right	1	0	1
	Left	6	2	3
	Basal	2	3	2
Bilateral.....	Right	0	0	0
	Left	0	0	0
	Basal	0	1	0

striking way that the arterial blood pressure is related to the intracranial pressure as a compensatory process. When intracranial pressure exceeded the blood pressure, a rise of the latter occurred, and this tended to remain slightly, but constantly, above the line of intracranial tension. The result of such a rise of blood pressure was obviously a protection against bulbar anemia.

So long as this relation was maintained, disturbances of pulse and of respiration, and cerebral symptoms were in a great part absent, and death was not imminent until the blood pressure was no longer held above the pressure of the compressing fluid, forced into the cranial cavity.

He showed that this rise in blood pressure did not occur after section of the spinal cord above the origin of the splanchnic sympathetics, or after cocainization of the medulla; and by direct observation of the splanchnic vessels, he was able to see that, with the rise in blood pressure, these vessels underwent constriction. Employing a cerebral window placed in a trephine opening in the skull, Cushing² observed that when intracranial pressure was greater than the blood pressure, the capillaries of the brain were blanched, and the rise of blood pressure above the intracranial pressure line was coincident with a renewal of the blood supply in those vessels.

Cannon and Bullard¹² concluded by histologic examination of injured brain tissue that the dendrites and bodies of the nerve cells swell as they degenerate, and vacuoles form within them precisely as in unicellular organisms deprived of oxygen. Also they showed that there was an increased osmotic pressure within injured brain cells and a consequent taking up of water from the surrounding plasma. The swelling spreads until the blood flow is so greatly excluded from the brain that life is no longer possible. There is an inter-

ference or interruption between the arterial and venous flow, lessening of pressure behind the venous flow, with consequent venous stasis. Venous stasis results in accumulation of carbon dioxide, which produces excitation of the respiratory center and resultant Cheyne-Stokes respiration.

Cannon and Bullard¹² have said that encroachment on one-twelfth the cranial cavity by clot, foreign body or edema is incompatible with life.

Since the brain is enclosed in a firm, fibrous, non-expansive capsule, the dura, a little compression becomes dangerous, and early trephination, with opening of the dura, is essential. The tendency is toward too small an opening, especially in edema cases, as the brain bulging closes the opening tightly. Bilateral subtemporal decompression or even large osteoplastic flaps should be made hurriedly under local anesthesia.

When the dura is opened, there is a marked drop in blood pressure, and stimulation is needed to tide the patient over this critical period. Injections of intravenous saline solution have given us our best results.

Compression does not develop in compound fractures with perforated dura as often as in simple fractures, and it is only the compound fractures with extensive brain damage and edema that require wider decompression.

There is a definite time beyond which operative procedures are futile in cases of compression. This is reached when the pulse rate per minute exceeds and continues higher than the systolic blood pressure, measured in millimeters of mercury.

In many cases, the fall in blood pressure was observed to be coincident with opening of the dura. This sudden fall is dangerous, and we have found that injection of intravenous saline solution is the best method of overcoming this lowering of blood pressure.

The average blood pressure in our series was: High: systolic, 140; diastolic, 77. Low: systolic, 117; diastolic, 71.

TABLE 10.—RESULTS IN SIX HUNDRED AND SEVENTEEN CASES

Cases	Number of Cases	Died		Recovered	
		Number	Per Cent.	Number	Per Cent.
Nonoperative.....	443	232	52.37	211	47.63
Operative.....	174	90	51.7	84	48.3
Total.....	617	322	52.19	295	47.81

We observed that in all cases in which operation was not performed and in which the pulse rate per minute reached or exceeded the systolic blood pressure measured in millimeters of mercury, death occurred within a few hours after the appearance of this phenomenon. In the cases in which operation was delayed longer than a few hours after this phenomenon occurred, death was invariable; while, if decompression operation were promptly performed before the elevation in blood pressure became pronounced, 80 per cent. of the patients recovered.

In every case of extradural clot with linear or depressed fracture and intact dura, the bleeding was from the middle meningeal artery. Compression symptoms of slow or late development offer a more guarded prognosis than those of sudden and early onset.

NECROPSY FINDINGS

Postmortem examinations could not be obtained in every instance because of lack of cooperation between

11. Hill: Proc. Royal Soc., London 5:52, 1894. Cannon and Bullard: Boston M. & S. 115: (Aug.) 1901. Horsley: Tr. Royal Soc., London, 1892. Eyster: Bul. Johns Hopkins Hosp. 17:296, 1906; J. Exper. M. 8:565, 1906.
12. Cannon and Bullard: Footnote 11, second reference.

the institution and the coroner's office. In 60 per cent. of the cases in which necropsy was performed, there was found a lacerated dura with intradural or extradural clot, with brain edema opposite the side of the injury and in the majority of cases more or less laceration of the brain at the site of fracture. In a small percentage, there was extradural and subdural clot at the base. The middle fossa was most often the seat of basal injury.

RESULTS

It would seem to the casual observer that it makes little difference what is done, but it must be remembered that in the hopeless cases, and in the less severe ones operation is not performed, while in the cases in which the patient is not doing well and in all compound comminuted cases, the fractures are explored. Of the 322 patients that died, 54 died of shock; 24 died in convulsions; 17 died of meningitis; 9 died of pneumonia; 4 died of brain abscess; 4 died of delirium tremens, and 4 died suddenly and unexpectedly.

Two hundred and ninety-five patients recovered with sequelae: headaches, 51; irritability, 25; dizziness, 14; unable to tolerate heat and strong light, 10; sluggish mentality, 9; aphasia, 7; hemiplegia, 5; insanity, 4; epilepsy, 24; change mentally, 4; deafness, 3; paralysis, seventh nerve, 3; paralysis, arm, 1; paralysis, leg, 1; temporary amaurosis, 2, and hemi-amaurosis, 1.

The total number that recovered, with unpleasant sequelae, was 164, or 55 per cent.

English¹³ asserts that there is an element of truth in the statement, "A man is never the same after a head injury." He gives as his experience that some degree of mental impairment, though rarely sufficient to be included under the title of traumatic insanity, occurs in more than 10 per cent. of the patients.

He considered that the chief lesson to be learned from these cases was that a great bulk of the patients who suffered head injuries became absolutely well, provided they submitted to the necessary period of mental rest after the injury. Those who suffered from remote consequences were the patients who returned to their business too soon after the accident. He further asserted that intellectual workers required twice as long a time for convalescence as manual workers.

215 Lister Building.

13. English: *Lancet* 1: 845 (Feb. 20) 1904.

Centennial Number of "Gaceta Médica."—In honor of the centenary of the independence of Mexico, Sept. 27, 1921, the *Gaceta Médica*, the official organ of the National Academy of Medicine of Mexico, appears in gala form with numerous illustrations of historical value. The original articles are headed with a band of the national colors, and nearly every member of the academy is represented by some communication in the bulky number of 434 pages. Dr. A. B. Vasconcelos is the editor. Among the reports presented is the official verdict of the academy that not one of the three articles sent in was eligible for the prize offered by a Mexican daily for the discovery of the causal germ of Mexican typhus. Another item relates that educators from different countries of the Americas decided in a recent conference to warn students wishing to come to the United States that they must be supplied with means to support themselves during the first year, and that they should study English at home before leaving for the United States, and should plan to reach this country three or four months before the opening of the course. The Pan-American Union is now investigating opportunities for self-support for students, and candidates desiring to earn their expenses can consult the Union.

INVESTIGATION ON THE ACTIVITIES OF INFECTIVE HOOKWORM LARVAE IN THE SOIL

PRELIMINARY REPORT *

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Accurate knowledge of the activities of the infective hookworm larvae in the soil is important for the understanding of the etiology of the hookworm disease and for the improvement of control measures. Almost all of our knowledge of this phase of the life history of the hookworm has been gained from the study under laboratory conditions of larvae which had developed in cultures; for not until the development by Baermann¹ (1917) of an apparatus for isolating nematodes from the soil was it possible to study effectively the hookworm larvae in their natural environment. The use of this apparatus during the investigations in Trinidad made it possible to locate the hookworm larvae in the soil in connection with field surveys and to study their activities while in the soil. These investigations gave results so at variance with present ideas that we were forced to revise our whole conception of the life of the infective hookworm larvae under natural conditions. The present communication will bring forward in a preliminary way the results of the investigations on the loss of the sheath, the extent of migrations and the length of life of infective hookworm larvae in the soil.

Although several investigators have reported that mature hookworm larvae lose their sheaths under certain conditions, the general opinion has always been that they live normally enclosed in their sheaths, and complete their second larval molt only at the time of penetration through the skin of the final host. We were very much surprised, therefore, to find in both our field and our laboratory studies that it is a common occurrence for mature hookworm larvae to lose their sheaths while living in the soil, and to continue their lives in the unsheathed condition. For example, it was found that out of a total of 4,279 mature hookworm larvae isolated from a series of 105 soil samples, taken from an area of a sugar cane field heavily polluted by individuals infested with hookworms, only 1,808 were enclosed within the protective sheath, while 2,471 had lost their sheaths. A series of experiments to test the migrations of infective hookworm larvae in various types of soil gave similar results. In these experiments, mature sheathed hookworm larvae, from 5 to 8 days old, were placed on the surface of soil in pans, and when isolated from the soil from fifteen hours to eleven days later, numbers of them ranging from 52 to 98 per cent. were found to have lost their sheaths. Other experiments² of our expeditions gave the same gen-

* This paper is a preliminary report of certain phases of the hookworm investigations which were carried on in Trinidad, British West Indies, from May to September, 1921.

1. Baermann, G.: *Mededeel. u. h. Genesck. lab. te Weltevreechen*, Feestbrendel, Batavia, 1917, pp. 41-47.

2. These were experiments by Drs. James E. Ackert and Florence King Payne to test the conditions under which hookworm eggs develop, and to find the extent of the vertical migrations of the mature larvae.

eral results. These findings showed that under the conditions in Trinidad during the months of June, July and August, when the daily range of temperature is from 74 to 94 F., mature hookworm larvae very commonly lost their sheaths in soil and continued to live actively.

In regard to the migrations of infective hookworm larvae in the soil, the opinion has become current that they actively move out from the place of development and that a small center may give rise to extensive soil infestation. This conception is largely founded on the microscopic study of the behavior of these larvae when mounted in water or water and soil on glass slides or small dishes. When, however, with the help of Baermann's apparatus we studied their activities while still in the soil both in the field and in laboratory experiments, it was found that they were definitely limited to the place of development unless they were mechanically carried away by the action of water or on the feet of man or domestic animals. In the field studies, negative samples were taken in a number of cases from spots, only a short distance away from centers of intense and long continued soil infestation, under conditions of soil which would seem to be favorable for the active migrations of the larvae. In a series of twenty laboratory experiments to test the extent of active migrations of hookworm larvae, it was found that in not a single case had they migrated more than 4 inches (10 cm.) from the spot where they had been placed, although they were left in the soil for periods ranging from fifteen hours to forty-two days. Several types of soil were used in these experiments, ranging from a heavy clay loam to a light coarse sand. These observations indicate that as far as their own activities are concerned, the infective hookworm larvae are definitely limited to the place of development.

It is generally believed that infective hookworm larvae may live in the soil for periods of more than a year. The observations on which this opinion is based have been made on sheathed larvae kept on moist feces or in water under laboratory conditions, usually under temperate zone temperatures. Our studies made under tropical conditions on the larvae in the soil gave entirely different results. To test the length of life of the hookworm larvae under natural conditions, an experiment was devised in the course of which examinations of the soil for the larvae in a heavily infested cane field area were made before and at intervals after the practical elimination of pollution by infested individuals. It was found that within six weeks there was an almost complete dying out of the larvae. This finding was supported by the results of a similar study carried on in a cacao grove, and by a series of thirty laboratory experiments. In these experiments three general types of soil were used: (1) clay loam; (2) sand, and (3) clay loam sod. The soil was kept constantly moistened, and there was a daily range of temperature of about 74 to 94 F. Sheathed larvae were placed on the surface of these soils, and the rate of reduction was followed. The results of these experiments showed a very rapid reduction in numbers in the first three weeks, in some cases reaching 90 per cent. of the larvae, and an almost complete dying out in about six weeks. These observations both from field and laboratory experiments show that under tropical conditions hookworm larvae in the soil die out quickly, and that an area even of very heavy soil infestation will soon become safe after the elimination of soil pollution.

NONSURGICAL DRAINAGE OF THE BILIARY TRACT

ITS USEFULNESS, DIAGNOSTICALLY AND THERAPEUTICALLY *

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It has been known for a long time that the bile ducts, as well as the gallbladder, are innervated by a set of nerve fibers comparable in their general action to the vasoconstrictor and the vasodilator fibers of the blood vessels. In 1894, Doyon¹ showed that the splanchnics are the motor pathways to the bile passages and to the gallbladder. Excitation of the peripheral end of the cut splanchnic nerves produces definite contraction of the bile ducts and the gallbladder, the contraction being so pronounced at Oddi's sphincter as to produce, practically, obstruction of the duct lumen at such point. At the same time there occurs constriction of the liver capillaries and to some extent decrease in secretion. Stimulation of the central end of the splanchnic nerve brings about relaxation of the walls of the liver capillaries, the bile ducts, the gallbladder and of Oddi's sphincter. Doyon also noted that stimulation of the central end of the vagus produced gallbladder contraction with relaxation of Oddi's sphincter, and from a study of the phenomena observed by splanchnic and vagus stimulation, considered that there was a definite interrelationship (crossed innervation) of the bile passages, gallbladder and Oddi's sphincter. Doyon further showed that irritation of the gastric and of the duodenal mucous membrane brought about relaxation of Oddi's sphincter coincident with contraction of the walls of the bile passages and of the gallbladder. Such experiments would indicate that the afferent fibers of such reflex pass upward in the vagus, while the efferent fibers to the gallbladder run in the splanchnics and reach the liver through the semilunar plexus. It cannot be said that either of these pathways is without intercommunication. Oddi later demonstrated that the center of both tracts (particularly for gallbladder irritation) lies in the first pair of nerves of the lumbar section of the cord. Oddi² showed that local and mechanical, as well as reflex irritation in the nerve distribution of this cord segment produced gall tract and gallbladder contraction with relaxation of the sphincter at the papilla of Vater. Such reflex could readily be brought about by irritation locally of the duodenum, particularly that portion of the duodenum in the neighborhood of Oddi's sphincter.

In 1908 and 1909, Meltzer and Auer³ published their studies on the effects of magnesium salts, particularly the effects of such salts on the central nervous system. In these and in later studies they (Meltzer,⁴ 1917) emphasized that magnesium salts, especially mag-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

1. Doyon: Arch. de physiol. **1**: 19, 1894.

2. Oddi: Arch. ital. de Biologic, **22**: 106, 1895.

3. Meltzer and Auer: Am. J. Physiol. **21**, **23**, 1908; J. Pharmacol. & Exper. Therap. **1**: 1, 1909.

4. Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.

magnesium sulphate, had direct inhibitory or depressing action on peripheral nerve endings. This appeared to be the case, whether the magnesium salts were made to act parenterally, intraperitoneally or directly upon the mucous membrane of the alimentary tract. Meltzer pointed out that the local application of magnesium sulphate solutions to the wall of the duodenum resulted in a seemingly paradoxical phenomenon, namely, dilatation of the duodenum and relaxation of Oddi's sphincter, accompanied by bile duct and gallbladder contraction. He explained this phenomenon on the basis of "contrary or crossed innervation," pointing out that stimulation of the peripheral end of the splanchnics supplying the duodenal wall produced duodenal inhibition, but at the same time, through crossed fibers carried through the vagus, it brought about contraction of the smooth muscle in the wall of the bile ducts and the gallbladder.

While this observation was directly in accord with the observations of Doyon, made in 1894, yet the original work of Doyon was forgotten and it was assumed that Meltzer had put forth an entirely new principle. In reality, Meltzer had only correlated as a fundamental neuromuscular, physiologic, alimentary tract reflex the facts which Doyon and Oddi long previously had demonstrated with respect to one section of the alimentary tract, namely, the gall tract and the duodenum. Doyon suggested in 1894 that irritation of the duodenal mucosa by such substances as ammonia or vinegar could bring about gall tract response. But it remained for Meltzer to show that while many substances (hydrochloric acid, peptone, foreign bodies and various hyperisotonic saline solutions) could produce limited demonstration of "crossed innervation," yet, magnesium salts, owing to the peculiar properties of magnesium, could most dependably be employed to bring about such a reflex. It should be emphasized that Meltzer was working on magnesium compounds, and was not working to show, especially, that magnesium salts could be used in clinical medicine, although at the time of his last publication he pointed out that, in a diagnostic or therapeutic way, advantage might be taken clinically of this action. It remained for Vincent Lyon⁵ and others to demonstrate that, when magnesium salts in hyperisotonic solution were directly introduced into the duodenum in sufficient amount to produce an acute, powerful stimulus, and were then removed (before there occurred opportunity for absorption, toxic central action or catharsis), specimens of fresh bile could be secured in a state permitting more accurate study than by any method previously known. It was further advanced by Lyon and other observers that, by the exercise of proper care and intelligent supervision, in normal people specimens of bile could be identified as coming from the various segments of the bile passages, namely, the common bile duct, the gallbladder, the hepatic duct and the liver capillaries.

The chief criticism which has been brought against metapyloric biliary tract aspiration following the intraduodenal instillation of magnesium sulphate solution appears to be directed toward the value, chemically, of magnesium sulphate as a stimulus:

(a) It is asserted that magnesium sulphate does not do anything which hydrochloric acid, salt solutions, peptone, food, water, foreign bodies and other substances are capable of doing. It may be said at once

that magnesium sulphate may not be the most desirable agent for intraduodenal stimulation of splanchnic terminal dendrites and the stimulation of vagus fibers running to the nonstriated muscles in the walls of the bile capillaries, bile ducts and the gallbladder. There may be other agents more useful than magnesium sulphate. But of all those thus far suggested, magnesium sulphate solution has, as the basis of its employment, certain well-controlled, frequently repeated experiments in physiology. It cannot be said that other agents which have been proposed have such a basis. Scrutiny of experiments attempting to minimize the value of magnesium sulphate solution indicates that most of those experiments have been carried out incompletely, by amateurs in physiologic experimentation or by clinicians who were attempting to prove, in a few weeks, that the researches of years on the nerve-muscle reactions of the alimentary and biliary tracts are valueless. Usually such workers have attempted to show that something else which they had to suggest, often on purely empiric grounds, acted better than did magnesium sulphate.

(b) It has been stated that there is no necessity for the direct introduction of magnesium sulphate solution into the duodenum through a tube; that this solution introduced into the stomach produces the same effect as when used introduodenally. Certainly it is true that if magnesium sulphate is introduced into the empty stomach and the solutions are hyperisotonic to the blood salts, they are capable (through both the magnesium and sulphate radicals) of producing physiologic effects on the pyloric section of the stomach and the proximal portion of the duodenum. They leave the stomach very quickly. They thus act as local irritants to the duodenal mucosa; if they are retained but a few minutes in the duodenum, this temporary stay in the duodenum stimulates the Doyon-Meltzer reflex. If given by mouth they later act as cathartics, blood fluid depletents, and, in a limited degree, alter portal circulation. But such temporary, haphazard action of magnesium sulphate must be distinguished carefully from the clinical procedure suggested by Meltzer and Lyon. The procedure advanced by these investigators, and elaborated by others, is a procedure whereby deliberate attempt is made to take advantage of the known action of magnesium sulphate on the duodenal membranes. Such stimulus is controlled in duration by the prompt removal of the magnesium sulphate solution, and following this stimulus, material is collected from the various segments of the bile passages with a definite object. If the procedure is properly carried out, there can be but little action of the magnesium sulphate as a cathartic, as a robber of blood fluid, as an agent acting after absorption on the liver, or as a bile contaminant. Those who have suggested such hypothetic actions of magnesium sulphate have not fully recognized the physiologic basis or the clinical application of the method. Their criticism is a confession of inexperience both as physiologists and as clinicians.

(c) Several surgeons have stated that the method is not of service, since, at laparotomy, with a duodenal tube in position, injection of magnesium sulphate solutions have not been followed by visible contraction of the gallbladder. It is not necessary here to emphasize that these surgeons have not been operating on normal gallbladders (if they have, they would not publish the fact) and that, in extensively diseased viscera, dilatation of Oddi's sphincter could not be expected to be followed always by prompt and vigorous contraction of

5. Lyon, B. B. V.: Diagnosis and Treatment of Diseases of the Gallbladder and Biliary Ducts, J. A. M. A. 73: 980 (Sept. 27) 1919.

the weakened wall of gallbladder or bile ducts. Nor would it seem necessary to state that gross observation of the stimuli on the fine muscle bundles of the liver substance itself could not be made by these surgeons. It should be emphasized, moreover, that when magnesium sulphate is injected into the duodenum of a patient under general anesthesia, it should not be expected that physiologic function is normal. It is a well established observation that a general anesthetic can be considered successful only when it has been administered to the point of inhibition of intestinal peristalsis and total relaxation of the abdominal muscles. In such circumstances, it shows lack of appreciation of physiology to expect that any stimulus applied to the mucous membrane of the viscera will act normally. Certainly, if an anesthetized individual did react normally to stimuli, irritation of the stomach during gastric resection or gastro-enterostomy would be followed by gastric secretion, intestinal peristalsis, duodenal secretion and bile outflow. That this does not occur is within the experience of any one who has observed major abdominal surgery. It has been shown, however, that in incompletely anesthetized individuals and on dogs whose duodena have been segregated, local introduction into the duodenum of hyperisotonic solutions of magnesium sulphate, with subsequent early withdrawal, produces a definite, visible dilatation of the viscus contraction of the gallbladder and of the bile ducts, with out-pouring of bladder and liver bile. Such observations have been made by Sachs,⁶ Lesner⁷ and Friedenwald.⁸

(d) It has been stated that the dark bile (B fraction) secured during metapyloric drainage did not represent gallbladder bile, but that such biles could follow the introduction of salts other than magnesium sulphate whether they were introduced into the stomach or into the duodenum, and that dark biles were secured following magnesium sulphate injections because magnesium salts were absorbed, reacted on the bile in the liver and caused certain indefinite changes which became manifest by alteration in bile color. It is not necessary to emphasize here that those who claim that magnesium sulphate, absorbed from the alimentary tract, acts on bile in the liver, causing it to become altered and of dark color, are not familiar with the pharmacology and the chemistry of magnesium salts. Meltzer and Auer, and Mendel and Benedict⁹ have definitely shown, by a large series of experiments, that magnesium salts are but rarely absorbed from the alimentary tract. When they are absorbed as such, they are excreted through the kidneys. It is doubtful whether any are excreted into the alimentary tract. Even if magnesium salts are injected intraperitoneally or intravenously, they leave the body through the kidneys and rarely if at all through the bile passages and the intestine. In our experiments we have mixed 20 per cent. solutions of magnesium sulphate with varying dilutions and colors of fresh bile, and have observed no color change after sixty-eight hours. Furthermore, it is evident that those who look for mere alterations in color of bile as evidence of disease of the biliary tract are inexperienced in the method or they are extremely superficial in the acceptance or the interpretation of diagnostic criteria. They seem to forget also that since in metapyloric biliary

tract drainage the magnesium sulphate solutions are to be withdrawn within a few minutes after their injection, there is very little possibility of their admixing with bile passing downward from the upper segments of the biliary tract. Some of the most pronouncedly diseased biles which come under observation are by no means of dark color (brown, black, etc.) but are green, purulent, fluorescent, bloody, thick and mucoid or crystal clear; but, on detailed study, often enough, the specimens reveal definite bacterial, cytologic or crystalline abnormalities.

To those who have had any properly controlled experience with the method, the sequence of types of biles in normal persons or in ailing persons with limited pathology, as laid down by Lyon and others, is too constant and striking to admit of seriously considered criticism. When the bile ducts are not occluded or extensively diseased, and when the procedure is properly carried out, then the recurring picture of a small quantity of greenish-yellow or light amber common duct bile, the free flow of darker colored, cholesterol and bile pigment laden gallbladder bile to be followed quickly by clear, amber liver bile, is too familiar an occurrence to admit of any interpretation other than that three separate but intercommunicating segments of the gall tract have been emptied. In pathologic cases, this sequence may be varied greatly with respect to kind, quantity, rate of flow, duration, or accurate recognition of material from the different gall tract segments. It is such variations from the normal that go to help create a picture of disease.

It is pertinent to ask those who do not recognize the well-delimited so-called B fraction as gallbladder bile. Where, in the course of the bile passages from the papilla of Vater to the liver, can such accumulations of a special type of bile (chemically, cytologically and quantitatively) be held, if not in the gallbladder? Furthermore, it is a common observation that, following cholecystectomy or cholecystostomy, while one may secure from the biliary tract or from the liver itself large quantities of bile (even dark colored, mucoid, chemically or bacteriologically abnormal) this does not flow abruptly and freely under pressure and following definite stimulus, as does the B fraction normally, only to be then followed by a definitely different type of bile. It has been stated that, following partial or complete occlusion of the common bile duct, the introduction of magnesium sulphate into the stomach or into the duodenum results in dark colored bile passing outward through a cholecystostomy fistula. It has been contended that, as this dark bile came in the absence of a gallbladder, the appearance of dark, thick bile when the gallbladder is present cannot be regarded as bile coming from that viscus. Such criticism is a confession of ignorance both physiologically and pathologically. A physiologic magnesium sulphate stimulus to the pyloric ring or to the first portion of the duodenum can definitely excite the Doyon-Meltzer reflex. None of the observers who make such criticism have been able to show that their magnesium sulphate solutions did not reach the pylorus or did not reach the duodenum and excite such reflex. Further, it is a well-known fact that when patients who have had cholecystectomy or cholecystostomy are reoperated on, dilatation of the common or of the hepatic ducts is frequently pronounced; in fact, these ducts are often of such size as to excite comment; they act, in emergency, physiologically as places for secreted bile to be stored until there is a digestive demand for it. In these cholecystectomy or

6. Sachs: Proc. Med. Sect. Nebraska State M. A., Annual Meeting, Lincoln, May, 1920.

7. Lesner: Proc. Med. Sect. Mississippi Valley M. A., Annual Meeting, Chicago, October, 1920.

8. Friedenwald, J.: Personal communication to the authors, Feb. 24, 1921.

9. Mendel and Benedict: Am. J. Physiol. 25: 1, 1909.

stula cases, stimulation of the Doyon-Meltzer reflex seems quite capable of emptying stagnant, dark colored bile from dilated ducts or through a cholecystostomy stula. Lastly, such abnormal bile, quantitatively or qualitatively, as is secured in the presence of a gallbladder incapable of emptying or in the absence of a gallbladder is of great significance, diagnostically and physiologically. The liver, not being able to avail itself of the normal storage capacity of the gallbladder, with constantly manufactured bile at hand irrespective of digestive demand, secretes a bile of higher concentration, in less amount than normally; storage space is secured by dilatation of the elastic bile ducts—seemingly from the bile capillaries outward to Vater's papilla. Such dilatations are of common observation at abdominal section. Recovery of this stagnant bile, metapylorically, is certainly of importance with respect to proof of gallbladder dysfunction or bile duct and liver stasis. No one of experience expects that this dark, freshly obtained, static bile represents gallbladder bile; it is different from quantitative, qualitative, chemical and microscopic points of view.

"PHYSIOLOGIC BLOCK" IN THE BILE-EXCRETING MECHANISM

We have selected the term "physiologic block" to describe the phenomena exhibited when the normal neuromuscular reflex concerned in bile excretion fails to function. Our meaning may be made evident by analogy. An injury to or disease of the brain, an acute psychic shock, trauma to the spinal cord by accident or ailment, or local pathologic or mechanical abnormalities of the urinary bladder may result in pronounced dysfunction of that viscus: there occurs incontinence or retention, accordingly as voluntary or involuntary neuromuscular pathways are disturbed. We feel strongly that similar breaks occur, at times, in the neuromuscular reflexes of the biliary tract and the liver. Because such reflexes are concerned with the autonomic nervous system and are not voluntary their importance and significance are no less. In the event of "physiologic block," even though the bile passages are not obstructed by calculi, adhesions, twists or kinks, intraduodenal stimulus by magnesium sulphate solutions or other agents cannot be expected to excite normal physiologic response. Consequently, difficulties are experienced in securing gall tract specimens when patients are under anesthesia or when subjects are fatigued or in dread of the procedure. Our records show this in striking fashion, particularly in respect to excitable, apprehensive Latin-Americans or psychically hyperplastic Hebrews. Of the latter class, we encountered defective response in 50 per cent of the females and in 35 per cent of the males when, in a consecutive series, other groups of patients exhibited defective response in 17.8 per cent of women and 18.3 per cent of men (140 and 120 subjects, respectively).

Organic cord lesions (tabes, tuberculosis, tremor) similarly interfered with our aspirations. We had difficulties with certain patients in whom organic lesions of the stomach and the duodenum were present. In the gall tract and the liver, there exist many opportunities for local breaks or uncoordinated response to the normal neuromuscular reflexes. Disease at the papilla of Vater, in the walls of the common and hepatic ducts, in the gallbladder and possibly in the liver itself is productive of such gross or microscopic evidences of destruction that one cannot fail to appreciate hindrances to normal function, particularly muscular

activity. Thus, it follows that a gall tract, especially a gallbladder, may harbor no obstructive lesion and yet even frequent attempts to stimulate its emptying by magnesium sulphate solutions or other agents fail. But if these phenomena are observed and are correlated with physical examinations and clinical histories, they certainly are of significance. The psychically unstable subject may respond normally after repeated seances; the feebly contracting musculature of an infected gallbladder or bile duct may empty at later sessions, particularly when static, thick or overdilating bile accumulations have been removed; a bile-engorged, enlarged liver shrinks beneath the costal arch. When there has occurred extensive destruction of bile tract musculature, even though ducts are freely patent, our observations show that magnesium sulphate or other agents intraduodenally introduced have little or no effect in promoting bile flow. Frequently enough have we seen distended gallbladders and ducts with paper thin walls devoid of muscle bundles, or fibrosed gallbladders and ducts, in which, in no circumstances, could one expect neuromuscular response to stimuli to occur: both muscle and nerve terminal mechanism are absent, there is "physiologic block." This form of "block" undoubtedly accounts for many failures in biliary tract aspiration in the face of nonobstructing lesions; and unless its possibility is considered and the patient studied at several sessions, the Meltzer-Lyon method will receive unwarranted criticism: the method would seem to be not at fault; rather the interpretation of the results of its application.

MATERIAL STUDIED

When this report was first contemplated, it was our purpose to present data respecting all our cases. In making an intensive study of the work, it soon became evident that we had had to spend more than a half year in learning the technical points of the procedure, in evolving a practical system of work, and in recognizing along what lines observations should be recorded in order that our facts might be susceptible of clinical interpretation. While we are still undecided in respect to many points, we feel that we have made sufficient advance to warrant the statement that we now regard metapyloric biliary tract drainage as being the most important single procedure available for the elucidation of gall tract and liver anomalies. We are just beginning to appreciate its therapeutic possibilities.

In going through our records we regret that our early observations were incomplete; this includes more than half our work. However, this admission should carry significance to those clinicians who have extolled or condemned the method after experience with a few dozen subjects. Of some 1,500 drainages on somewhat less than half that number of patients, we wish to present certain facts regarding 679 drainages or the attempted carrying through of such, in 309 individuals. This material represents our observations from Aug. 11, 1920, to April 29, 1921. There were 169 females and 140 males. The youngest patient was aged 6 years; the oldest, 69. The average age was 42.2 years. There were nineteen patients who were experiencing acute or subacute biliary tract disease; the remaining patients were chronic sufferers who appeared for relief or diagnosis of various types of digestive upsets.

Method of Work.—Our application of the Meltzer-Lyon procedure has been described elsewhere.¹⁰ We

10. Smithies, Frank: *Illinois M. J.* 39:325 (April) 1921

have but slight modifications to suggest. If the patient is studied only after an absolute twelve hour fast, with stomach and duodenum food-free, our bacteriologic and cytologic observations seem to indicate that elaborate attempts to render stomach and duodenum relatively sterile are not necessary. Our experience is in line with that of Sachs, namely, that bacterial and cytologic duodenal and gastric aspirates (from the non-retention stomach and duodenum) are similar after elaborate attempts toward rendering these parts sterile to what they were before such technic. If the nasal and oral passages are cleansed the night previous to the test day, by antiseptic gargles, nasal douches and teeth scrubbing, and the patient drinks copiously of cold water before retiring, he needs little more than teeth and mouth cleansing previous to swallowing the duodenal tube on the morning following. Tubes are, of course, sterile when passed. The normally rapid duodenal peristalsis keeps the contents of that section of the viscus relatively free from micro-organisms. This is the experience of those who have observed duodenal contents at laparotomy or who have attempted bacteriologic studies on such. Not infrequently, lavage of the duodenum or the stomach immediately preceding magnesium sulphate solution injection prevents accurate bile tract specimen segmentation and results in the loss of material which might have been studied to advantage.

In doubtful instances, the position of the duodenal tube tip should be ascertained by fluoroscopy. Since duodenal tubes are of approximately the same length but the distance from patients' teeth to papillae of Vater varies greatly, it is not possible to say that the tip is well located from the tube markings. This is an important practical point; we know of a number of so-called "failures" of the method when the duodenal tube has been coiled in the stomach or the tip down in the jejunum. The jejunum seems to be in no way stimulated by the drug, apart from such stimulus as comes from its cathartic action. Generally, similar results follow magnesium sulphate solution introduction into the stomach. We are of the opinion that those observers who attribute the effect of magnesium sulphate solutions to their cathartic action, have injected the solutions when the duodenal bulb lay in faulty position. Our experience indicates that catharsis following the magnesium sulphate solution is so unusual as to excite comment on its occurrence; the withdrawal of the solution within three minutes of its slow injection does not permit very marked intestinal stimulus—from one half to practically all of the magnesium sulphate solution injected can be recovered if patients are being supervised carefully.

The position assumed by the patient when the duodenal tube has been introduced is of importance in facilitating satisfactory work. Our observations suggest that uniformly good results occur when the patient lies in a right modified Sims' position, with thighs well flexed on the trunk, previous to the introduction of the magnesium sulphate solutions and when such position is kept during the entire procedure. Less than 2 per cent. of cases drained better when in the left modified Sims' position. Psychic inhibition seems to be prevented by having the procedure carried out in pleasant surroundings, in an atmosphere of leisurely quiet and accommodation, and when the patient is physically comfortable and mentally tranquil. Our patients commonly read books, magazines or newspapers during the sessions. Lack of such environment—as in the rush

of dispensary work or when dealing with people of low intelligence—may explain many failures.

Securing of persistently acid bile fractions may occur, even when the duodenal bulb is in ideal position and yet the A B C sequence of gall tract fractions obtain. We have observed this in eighteen drainage on twelve subjects; and strangely, the presence of acid does not always produce clouded or opalescent fractions.

RELATION OF BILIARY TRACT DRAINAGE TO FREQUENCY OF MAGNESIUM SULPHATE SOLUTION INSTILLATIONS

SPECIMENS SECURED		
	Number	Per Cent.
After one instillation 15% MgSO ₄ solution.....	461	67.9
After two instillations 15% MgSO ₄ solution.....	106	15.6
After three instillations 15% MgSO ₄ solution.....	17	2.5
Total.....	584	86
"Spontaneous" drainage	1	0.15
SPECIMENS NOT SECURED		
Bulb did not leave esophagus.....	1	0.15
Bulb did not leave stomach.....	35	5.15
Tube knotted	2	0.29
Tube withdrawn on account of severe neck pain.....	1	0.15
Tube constantly vomited	1	0.15
Tube vomited (osteomalacia subject).....	1	0.15
Tube imperfect	1	0.15
Profuse duodenal hemorrhage.....	1	0.15
Only blood-stained fluid secured.....	1	0.15
Bulb in jejunum	3	0.45
One instillation MgSO ₄ solution failed.....	18	2.65
Two instillations MgSO ₄ solution failed.....	25	3.68
Three instillations MgSO ₄ solution failed.....	4	0.58
Total.....	94	13.85

Failure to Secure Bile Specimens.—The accompanying table summarizes our experience in 679 carefully controlled attempts. We would emphasize that in 584 (86 per cent.) of sessions, drainage was satisfactory following from one to three duodenal stimuli by magnesium sulphate solutions, while failure was experienced at ninety-four attempts (13.85 per cent.). The unsatisfactory results are seen to be mainly from failure of the tube to reach the stomach, obstinate vomiting (two cases) or from persistent pylorospasm (5.15 per cent. of the failure group). In approximately 7 per cent. of the unsuccessful attempts, there were from one to three magnesium sulphate stimuli applied intraduodenally. We would emphasize the importance of repeated stimuli at appropriately spaced (commonly about one hour apart) intervals. Frequently enough we have succeeded in promoting responses and securing highly satisfactory specimens only after three magnesium sulphate duodenal instillations. However, 461 (67.9 per cent.) of the sessions were successful following one stimulus.

Early in our work we presumed, empirically, that failures were due to local or general spasms occurring in the alimentary tract, consequent on disease, presence of foreign body (duodenal tube) or psychic upsets. In an attempt to modify this condition we administered local anesthetics, sedatives or antispasmodics at 220 sessions (cocain, one; codein, one; tincture of deodorized opium, three; atropin, 112; benzyl benzoate, eighty-nine, and tincture of belladonna, fourteen). As our experience became more mature, we learned that our failures were due to improper selection of cases, to faulty technic or to undue haste in carrying through the procedure. At present, we find that medicinal antispasmodics or anesthetics are rarely necessary in the work.

For a time we considered that habitus might influence the rate of deliverence of the duodenal bulb from the stomach, i. e., slow delivery in the asthenic and

more rapid in the sthenic (Mills',¹¹ classification). A study of 569 subjects indicated that no practical difference existed (asthenics, 267; sthenics, 298).

"Spontaneous" Gall Tract Drainage.—In varying quantity, this was exhibited by 104 subjects, previous to the instillation of magnesium sulphate solutions. In quantity, character, rate of flow, microscopically and chemically the specimens at "spontaneous" drainage frequently differed markedly from specimens secured following the magnesium sulphate instillations. This is an important distinction. Many workers who depend for their diagnostic information on bile stained material recovered from the duodenum, with the patient in the fasting state and without the employment of such physiologically acting agents as magnesium sulphate solutions, are, doubtless, studying the bile spontaneously passed from an overloaded gall tract upon local duodenal irritation. Consequently, such workers receive wholly unreliable information with respect to biliary tract residues or the capacity of the liver and gall tract to respond to physiologic stimuli. It is interesting to observe that of the 104 patients from whom any considerable quantity of spontaneously discharged bile-containing fluid was recovered, in 61.5 per cent. of instances some degree of liver enlargement was recorded at the physical examination made previous to the attempt at biliary tract drainage. In this group of patients there were about 2 per cent. of instances of pylorospasm preceding the appearance of bile-stained duodenal contents. Other important and interesting data for this group cannot be presented here on account of limited space.

Time Interval Elapsing Between Patient Swallowing Duodenal Bulb and the Appearance of Bile-Containing Duodenal Aspirates.—These figures are, of course, given with respect to 585 successful aspirations and following duodenal instillation of the magnesium sulphate solutions. Only one patient gave satisfactory response in less than two hours; between two and four hours were required by sixty-seven; from four to six hours by 291, and longer than six hours by 188. These figures should require no comment; they carry a significant importance to those who would use nonsurgical biliary tract drainage dependably as a diagnostic or therapeutic aid. Such time intervals occurred in subjects who, in approximately 80 per cent. of the instances, were ill with organic intra-abdominal disease, commonly involving the biliary tract. In less than 15 per cent. of our aspirations were the liver and the bile passages uninjured.

Ability of Magnesium Sulphate Solutions to Excite the A B C Sequence of Bile Flow.—Lyon proposed that an attempt be made to segregate segmentally and to study common duct, gallbladder and hepatic duct and liver bile, by a carefully supervised technic following intraduodenal instillation of magnesium sulphate solutions. He suggested that variations from the normal sequence and from the normal microscopic, cultural and chemical observations on specimens would have diagnostic value. Our observations support those of Lyon. From more than 95 per cent. of subjects who have no alimentary or biliary symptom anomaly, segmental biliary tract drainage is practically feasible. Departures from the A B C sequence commonly indicate disease, and such disease is usually located in the gall tract and the liver.

Of our drainages when biliary tract disease existed as shown by histories, physical examinations, roentgen

studies, operative procedures or necropsies, such definite anomalies were established by biliary tract aspiration per duodenum in 97 per cent. of the cases. Of 309 subjects, gallbladder bile was not secured from 100 patients. These patients all had gallbladder disease ranging from acute catarrhal upsets to stasis, fibrosis or calculi. In this group of 100 patients in which B bile was not secured, anomalous duct and liver bile fractions frequently enough indicated on study that, in addition to the pathologic condition of the gallbladder, malfunction and disease were present in other portions of the efferent pathways of the liver.

What Indicates Gall Tract Disease as Revealed by Metapyloric Drainage? Space permits of only a summary of our suggestions; they will doubtless be augmented as our experience widens.

1. No appearance of bile stained fluid in duodenal contents, after repeated magnesium sulphate solution stimuli.

2. A quantity of common duct bile greater than 25 c.c., in which bile are found abnormal sediments: blood, pus, increased cholesterin, pigment crystals, calculi, epithelium, mucus and bacteria. When biliary tract disease was present, our average quantity of common duct bile was 49 c.c.; it ranged from 25 to 300 c.c. Intermittence of discharge of common duct bile on repeated intraduodenal stimuli is of useful import.

3. Absence of gallbladder bile following repeated magnesium sulphate stimuli indicates some break in the neuromuscular reflex, cystic duct obstruction from whatever cause, gallbladder atony or overdistention, inspissated or calcareous gallbladder contents, gallbladder tumor or benign or malignant adhesions involving the gallbladder or ducts.

4. Securing gallbladder bile in quantity greater than 75 c.c. or less than 20 c.c. or of different types on repeated intraduodenal stimuli; gallbladder bile intermittently discharged, especially when in the specimen obtained there are found pus, blood, minute calculi, high cholesterin and pigment values, and in contrast to other gall tract specimens studied, desquamated, diseased epithelium and actively growing bacteria. Our cases returned an average of 119 c.c. of bile (range of from 5 to 1,350 c.c.) in forty-five instances in which gallbladder disease actually existed. In none of these specimens were chemical, cytologic or cultural returns normal. We would again emphasize the observation that dark colored bile specimens do not necessarily come from diseased gallbladders, or that bile not dark colored is free from anomalies and does not come from gallbladders. The microscope and the culture tube give the deciding evidence. Dark color indicates commonly stagnation in some part of the biliary tree from the liver lobule to the papilla of Vater, or abnormal function on the part of the liver itself due to local or systemic upsets.

Value of Laboratory Analysis of Each Specimen Secured on Nonsurgical Biliary Tract Aspiration.—If one desires to obtain reliable information, specimens must be examined grossly and from the laboratory side as they appear fresh from the duodenal tubes. A microscope should be immediately at hand, culture tubes available (several tubes are planted from each bile tract fraction, with mediums chosen to render possible the maximum information), specimens carefully set aside for estimation of cholesterin and pigment values, and slides prepared for study of viable protozoa, crystalline bodies, atypical cells and bacteria. It is highly important that slides stained and unstained be

11. Mills, R. W.: Proc. Am. Gastroenterol. A., 1919.

examined if one is to secure a maximum of evidence from the different bile tract fractions. Even with such attention to detail, particularly with respect to bacteriology, one is often in doubt.

Our observations with regard to the microscopic pictures presented by various types of biliary tract disease, as well as by normals, will be reserved for a later report. There is much work to be done in these lines. Viable colon bacilli were returned by 75.4 per cent. of our patients; staphylococci, by 14.9 per cent.; streptococci by 5.26 per cent. and yeasts, *B. typhosus*, micrococci and unidentified organisms were found in 4.38 per cent. It has seemed to us that only when one fraction of the segmented aspirates contains a predominant increase in a type or group of bacteria (particularly the streptococcus, colon and typhoid groups) or an extensive infection exists noticeably through all the fractions, can we at present stress the significance of our cultural studies. From the gall tract fraction alone of a patient from Alabama we recovered viable *Trichomonas hominis-intestinalis*.

THE THERAPEUTIC USEFULNESS OF NONSURGICAL BILIARY TRACT ASPIRATION

Elsewhere¹⁰ we have already voiced our cautions in respect to this phase of the work. It is a mistake to attempt relief of obstructive lesions, known calculi, tumors and the like, when by surgical endeavor more logical and positive relief may be quickly brought about. If such caution is neglected, then the Meltzer-Lyon regimen will fall into disrepute both as a diagnostic and as a therapeutic adjuvant.

It has been proved to us definitely in our practice that metapyloric biliary tract drainage has a place in the treatment of affections of the biliary tract. In ailments which are of recent inception or where pathologic damage precludes hope of successful surgery, by preventing bile stasis, by attempting to eradicate infection and by striving to improve hepatic function, in these groups of disturbances the procedure is of service. In summary, such patients fall under the following classification:

1. Acute cholelithiasis, cholecystitis or hepatitis in association with acute infectious ailments (scarlet fever, pneumonia, typhoid fever, tonsillitis, etc.); or arising as limited biliary tract disease.

2. Hepatitis with duct malfunction of toxic origin—ptomain poisoning, lead or phosphorus poisoning, and acute yellow atrophy, especially the variety following injection, intravenous or muscular, of certain arsenical products used therapeutically.

3. Biliary stasis in association with acute or chronic heart embarrassment.

4. Gall tract stasis in the cirrhotoses.

5. Gall tract stasis, dysfunction or infection in the severe anemias (hemolytic, "pernicious," Banti's syndrome, "chlorosis," etc.).

6. Dyspeptic storms occurring as "biliousness" in conjunction with migraine, epilepsy, etc.

7. Chronic or acute "rheumatoid" infections when all extra-abdominal foci of infection have been removed, and when biliary tract involvement remains and the "rheumatoid" ailment progresses.

8. Gall tract and liver stasis or infection present with diabetes, exophthalmic goiter or pancreatitis where operative interference is not possible or can be performed to but a limited extent.

9. Duodenopyloric or pyloric ulcer, frequently recurring coincident with "bilious" attacks or atypical ulcer

manifestations, and when reliable surgery is not available or the subject is unsuited.

10. Instances of intestinal stasis in which dyspepsia of gall tract and liver type complicates; frequently recurrent attacks of so-called "mucous colitis."

11. As we have elsewhere reported,¹² when, following operative procedures on the biliary tract, malfunction still remains and no further surgery is possible.

12. Gall tract stasis with low grade indolent infection not complicated by gross mechanical defects, calculi or neoplasm.

Method Employed.—Metapyloric biliary tract aspiration is only part of a therapeutic program; this fact is worthy of much emphasis. To relieve stasis in the bile tract, we suggest frequent drainages (from three to six days apart) and at each drainage from two to four stimuli with magnesium sulphate solutions. The most satisfactory results follow these frequent drainages and the repeated stimuli at each session: clinical improvement seems to be directly proportionate to the frequency of drainages in a given period. In 150 subjects we have instituted drainage from six to eleven times. This group has shown the greatest improvement, not only clinically, but also with respect to the laboratory reports on the bile fractions secured.

Elsewhere¹⁰ we have published the regimen which we have found of service. We see no occasion to modify its general principles and procedure.

ABSTRACT OF DISCUSSION

DR. SYDNEY R. MILLER, Baltimore: I have constantly kept in mind one of Lyon's statements made in one of his earliest papers to the effect that the method is to be regarded as a supplementary procedure in diagnosis and treatment. From a review of the literature and the study of cases, I have come to have the following conclusions: After transduodenal lavage a free flow of bile is secured in most instances passing through an A, B and C sequence. Despite this I am not entirely convinced that the evidence is conclusive in proving that this sequence represents common duct, gallbladder and hepatic bile discharge. Meltzer's theory is perhaps more theoretical than absolute and, as yet, has not lent itself to accurate experimental verification. The technic is surrounded by fundamental difficulties which can hardly be overcome by any method sufficient to make the bacteriologic findings absolutely free from doubtful interpretation. It has been difficult to correlate the bacteriologic findings secured in the laboratory with those subsequently found at operation on the same patient. Too little precise knowledge still exists concerning the normal bacterial flora of the stomach, duodenum and gallbladder region. It is difficult to understand how some find a hemolytic streptococcus with such ease. It is hard to believe that the colon bacillus secured in this way is of as much importance as some would assume. I cannot help but feel that the method offers much of promise not only in the field in which Dr. Lyon introduced it but in the broader field of internal medicine. However, a little more conservatism should be exercised, at least for the present. The most extravagant and unfounded claims are already being made for the method which does it more harm than good.

DR. S. K. SIMON, New Orleans: As far as I can learn, the opposition to the method centers around two main points. First, magnesium sulphate is not essentially the sole agent that might simulate the innervation of a group of reflexes as those exhibited by Darier and afterward by Meltzer. Second, the so-called B bile is not derived from the gallbladder itself. In regard to the question of stimulation of biliary contraction by a chemical agent, and granting that other agents are able to simulate biliary contraction, it does not essentially detract from the underlying principles of the method. Whether the B bile really represents an

12. Smithies and Oleson: Proc. Med. Section, Illinois State M. A., Annual Meeting, Springfield, May, 1921.

accumulation of septic bile is not an essential point. Those who have carried out this technic faithfully and have observed the results say that the bile can be distributed into three distinct portions. These three portions have been unfolded definitely as the result of clinical observation with the method. The method does succeed in bringing down a free flow of bile into the duodenum. A new field in diagnosis has been opened. Therapeutic possibilities of a far greater degree than we can conceive are made possible by this method. The method is not meant to supplement surgery, but it is designed to supplement many of the procedures in which surgery has failed. One other point I want to stress: In acute cases of acute cholecystitis with intense gallbladder pain and all other symptoms, I have seen in two or three instances remarkable clinical recoveries following the emptying of the bile, with immediate subsidence of the tumor and immediate recovery from the high temperature, pain and toxic symptoms.

DR. JAMES B. LUCKIE, Pasadena, Calif.: Dr. Lyon states that, in 63 per cent. of his cases subjected to operation, bacterial cultures were obtained. In my own practice I find 59 per cent. giving cultures. He mentions the low gastric acidity cases as more liable to have gallstones. In most of the patients with no gastric acid or very low readings who have symptoms referable to the gallbladder, there is a lessened amount of B bile or none at all. This is not saying, however, that all low acid cases have stones. Our bacterial findings vary somewhat from those of Dr. Lyon. Maybe this is due to California's salubrious climate, but at any rate we find colon bacilli far oftener than any other, staphylococci second and pneumococci third. We make use of vaccines only in the staphylococcus cases, as disappointment has been our lot in the use of other vaccines. Something should be said of the dry duodenum, as it is puzzling at times. I have seen three such cases. No fluid was obtained when the tube entered the duodenum, yet I felt sure that the bulb was in the proper position. In these cases I gave the patient a swallow of grape juice and after a moment used gentle aspiration. Not recovering the grape juice, I injected Meltzer's hormone and was immediately rewarded by a good biliary flow. On account of the grape juice, however, this bile was not used for culture. The use of the method should be mentioned as a preoperative procedure also, as it is of great assistance to the surgeon, and eases the patient over the postoperative rough spots. A note of warning should be sounded regarding the treatment in arteriosclerotics. In checking up the blood pressure in 100 cases before and after draining, I find the systolic pressure is raised on the average of 12 mm. of mercury by the procedure. This could, I imagine, cause a rupture in a person with very brittle arteries.

DR. F. W. WHITE, Boston: This method of medical biliary drainage makes a strong appeal to the physician and to the patient. The physician can take out the contents of the bile passages for examination for mucus, cells, bile salts, bacteria, etc. The "bilious" patient sees the bile flow out and feels that the physician has done something for him. It is often hard to tell just where the bile comes from and to segregate the bile from different parts of the bile passages in an accurate way. I find considerable difficulty, at times, in interpreting the cells, crystals and cultures and in estimating the total value of the whole method. I heartily agree with what Dr. Miller has just said about it. The method deserves scientific study. We must know more of the physiologic basis of the method. Why does the bile flow so freely? Where does it come from? How complete is the bile drainage? We must have long series of normals and more laboratory experiments. My own experience shows that there is something of real value in the method both for diagnosis and for treatment; but there are plenty of limitations and exceptions, as in all clinical methods. We must be a little cautious about our conclusions. I was struck by the remarks of Dr. Smithies that, in carrying out the method, no drugs were needed to help insert the tube; also that the type and shape of stomach made little difference. We have found the same thing. We do not agree with Dr. Smithies in regard to the ease of segregation of A, B and C bile. If we have three bottles, of course, we have to put something in each;

but I think another observer might put a different amount in each bottle. I have tried the treatment carefully and I am left with the impression that these patients were better, at least some of them, because of their treatment by bile drainage.

DR. B. B. VINCENT LYON, Philadelphia: The correctness of the interpretations of the bacteriology seems to be still an open question with some, and a stumbling block with others. We found that cultures taken on solid mediums did not give accurate cultural returns like those from liquid mediums. The first necessity is that the extra duodenal tracts higher up should be properly taken care of before a duodenal or bile cultivation can be worth anything. Secondly, cultures must be made immediately as the materials are being recovered, and not allow rapidly growing organisms to overwhelm more feebly growing but pathologically important bacteria, such as the streptococcus. Thirdly, microscopic examination of the freshly recovered materials should be made in spreads or hanging drop preparations, and a general idea obtained as to the floridity of bacteriologic growth, the presence or absence of colony formations, and a rough morphologic division between bacillary and streptococcus groups. A liquid medium used in the Rockefeller Institute for the especial purpose of recovering streptococci is a glucose bouillon, titrated to a certain acidity which stimulates streptococcic growths and inhibits colon bacilli growth. During the past one and a half years we have used this formula with a great increase in our positive streptococci recoveries. It is a little difficult to tell when the recovery of the colon group may be considered a pathologic finding. We believe that in the larger number of normal patients the colon bacillus does not customarily grow freely in the duodenum. We do not feel that the simple recovery of the colon bacillus indicated a definite infection of the duodenum or gall tract; but we do feel that if we take a culture in our glucose bouillon, and it develops a luxuriant growth of colon bacilli after merely standing at room temperature for an hour or two, such a luxuriant growth may be a truly pathologic infection that has gained a strong foothold. Particularly do we feel so if this growth is secured from the gallbladder bile in luxuriant growth, and rather less luxuriantly from the duodenal fluids alone. We believe in the reliability of our bacteriology, as checked up by our vaccine therapy when it gives rise to a focalizing vaccine reaction reproducing one or more of the presenting complaints, and which symptomatically disappears as vaccination, together with biliary drainage, is continued.

CHRONIC ULCERATIVE COLITIS *

FRANK C. YEOMANS, M.D.

NEW YORK

Since Sir Samuel Wilks¹ in 1875 and W. Hale White² in 1888 first described "simple ulcerative colitis," very few extensive reports on the subject have appeared in the literature. Noteworthy among these are the communications of Albu³ in 1914 and Logan⁴ in 1919.

This paper is based on sixty-five cases of chronic ulcerative colitis of unknown etiology that I have observed. No cases due to parasites, tuberculosis, syphilis or other recognizable causes are included.

The disease is characterized by an acute or gradual onset, most frequently between the twentieth and fortieth years of life; ulceration of the colon as the essential pathologic condition; dysentery, either con-

* From the Department of Surgery, Columbia University College of Physicians and Surgeons.

¹ Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Wilks, S., and Moxon, W.: *Lectures on Pathological Anatomy*, Ed. 2, 1875, p. 408.

2. White, W. H.: *Guy's Hosp. Rep.* **30**: 131-162, 1888.

3. Albu, A.: *Mitt. a. d. Grenzgeb. d. Med. u. Chir.* **28**: 386-414, 1914-1915.

4. Logan, A. H.: *Collected Papers*, Mayo Clinic **10**: 180, 1918.

tinuous or with remissions, as the cardinal symptom; a protracted course of many months or years, and a guarded prognosis.

ETIOLOGY

Thirty-five patients were between 16 and 30 years of age; thirteen, from 31 to 40; eight, from 41 to 50; five, from 51 to 60, and four, 61 or older. The youngest patient was 16, four were under 20 years, and the oldest was 66 years of age. Thus, young people, subject to indiscretions of diet and exposure, comprise the majority of cases. Males numbered thirty-six, and females, twenty-nine cases.

From the history, no definite cause could be assigned in thirty-seven cases. In five cases there was a history of amebiasis; but no amebas or cysts were found in the stools, and full courses of emetin gave temporary benefit in only one case. The onset dated from dietary indiscretion in six cases, severe constipation in five, exposure in three, and injury, pyorrhea and root abscesses, and pregnancy, two cases each. It followed parturition in one case and a surgical operation in three cases. These etiologic factors are significant only as reducing temporarily the natural body resistance.

Search of the stools was negative for *B. dysenteriae* (Shiga, Flexner) amebas, cysts, ova, parasites, tubercle bacilli and flagellate bodies.

Stained smears from the stools and direct from the ulcers generally showed the usual intestinal flora. Cultures from the same sources grew *B. coli* regularly, together with various strains of streptococci and staphylococci.

The bacteriologic study in 12 per cent. of the cases yielded no special organism, thus suggesting that the normal intestinal flora or types not differentiated from them were responsible for the inflammatory process.

As Kendall⁵ states, "Normal intestinal organisms, or types indistinguishable from them by ordinary methods of study, may multiply with abnormal luxuriance through unusual conditions, extend their normal habitat and crowd out some of the existing organisms, eventually leading to abnormal reactions in the alimentary canal which may be detrimental to the host." Among such "unusual conditions" are food toxins, severe constipation, injuries, surgical operations, pregnancy and labor, all of which temporarily lower normal resistance. Normal intestinal bacteria may thus assume unusual virulence or abnormal organisms be ingested.

There remains, however, a majority of cases in which none of these factors were apparently operative. Although it is debatable whether a specific organism is the causal agent, it is without doubt an infection that keeps up the inflammatory process. Flavoring the theory of infection is the fever and prostration often present at the onset, and later, septic complications, especially arthritis.

PATHOLOGY

The pathologic process is that of a simple, chronic inflammation. The superficial changes in the mucosa, as seen through the sigmoidoscope introduced 10 inches and extending an indefinite distance beyond, were classified as:

- (a) Superficial discrete ulcers, small or large, twenty cases.
- (b) General superficial ulceration and granular areas, twenty cases.

(c) Large, irregular, chronic ulcers, with a grayish, necrotic base, the intervening mucosa being apparently normal, nine cases.

(d) Deep hemorrhagic ulcers, or a bosselated appearance in four cases.

(e) Deep "moth eaten" closely set ulcers, two cases.

(f) Superficial irregular ulceration and granulation, limited to rectum and sigmoid, ten cases.

Secondary complications were polyps in four cases, a rectal stricture of 2 cm. diameter in one case and arthritis or joint pains in four cases.

Liver abscess has been reported in the literature as a rare complication. Amyloid liver might naturally be expected to develop eventually, as in other chronic pyogenic processes.

Both the gross and microscopic changes in the colon are well illustrated by a patient (Case 39) of Dr. David Bovaird, seen by me in consultation, and later operated on by Dr. Hugh Auchincloss. Through their courtesy, the case is reported.

History.—J. M., a man, aged 28, had severe ulcerative colitis of three years' standing when I first examined him in 1917. Weight loss was 60 pounds, and he was weak and miserable. All laboratory tests were negative. Appendectomy, cecostomy and enterostomy were performed at one sitting. Considerable improvement ensued, then the bowel condition remained stationary, and arthritis and contractures of several muscles developed. Colectomy was performed in October, 1918, with most favorable result. The patient has gained 37 pounds in weight and feels practically well. Nevertheless, the residual ulcerated rectum is still unhealed two and one-half years after operation.

Drs. W. C. Clarke and A. P. Stout report on the resected colon:

Gross Appearance.—The specimen consisted of a resected colon, 37 cm. long, and 3 cm. in diameter. Its peritoneal surface was somewhat blood-stained and there was considerable fat in the appendices epiploicae. The distal end of the colon was much contracted. Longitudinal section revealed the proximal end distended, the wall thin. The mucosa was apparently absent, roughened by fibrin. There were blood coagula irregularly throughout the whole lumen. The roughening of the lining with deposition of fibrin and apparent ulceration extended to within 8 cm. of the distal end. Here, the mucosa was thrown up into irregular hillocks, was not ulcerated, and was covered with fine, irregular patches of fibrin. No ulcerated surface was apparently deeper than the mucosa, except apparently a few small isolated points where the ulceration may have invaded the submucosa (Fig. 1).

Microscopic Examination.—Most of the sections taken through the wall of the intestine showed no direct ulceration, but a rather atrophic mucosa in which there were a number of widely dilated glands filled with leukocytes. Some of these gland spaces had lost part of the epithelial lining, and the resulting appearance suggested a small abscess (Fig. 2). The submucosa and muscularis were edematous, and were infiltrated with scattered leukocytes, round and plasma cells and evidences of connective tissue proliferation. External to the muscularis were a number of dilated lymphatic vessels. One section showed a distinct area of ulceration on the lumen surface with complete loss of mucosa and replacement by granulation tissue (Fig. 3). In the vicinity of this ulcer there was a group of foreign body giant cells with irregularly rounded spaces in their cytoplasm. The process had no specific characteristics.

The diagnosis was ulcer of the intestine.

SYMPTOMS

The onset was gradual in forty-seven cases and acute in eighteen with diarrhea, and in nine cases an elevation of temperature. The number of stools varied from three to twenty, the average being seven, and occurred mainly in the morning and evening, seldom at night. Ten patients were constipated, passing dis-

5. Kendall, A. I.: *Gastro-Intestinal Bacteriology*, Philadelphia, Lea & Febiger, 1916.

charge only. The reaction of the stools to litmus varied. The discharge consisted of blood alone in ten cases, blood and mucus in nineteen, blood and pus in twelve, and blood, pus and mucus in fifteen. Hence blood predominated or was present in the discharge of 86 per cent. of the patients. Steady blood loss rapidly weakens the patient.



Fig. 1 (Case 39).—A, roughening of lining with deposition of fibrin and apparent ulceration of proximal end of colon; B, intact mucosa of distal end.

Loss of weight was not striking in several cases, being less than 4.5 kg. (10 pounds) each in twenty-five cases, from 4.5 to 9 kg. (10 to 20 pounds) in eighteen cases, from 9.5 to 23 kg. (21 to 50 pounds) in thirteen cases and over 23 kg. (50 pounds) in four cases. The greatest weight loss was 36 kg. (80 pounds), and the average 9 kg. (19½ pounds). The blood picture is not characteristic, but often is that of a secondary anemia. The red cell count was under 4,000,000 in a few cases having marked bleeding. The hemoglobin index varied from 55 to 90 per cent., and was 30 per cent. in one case of severe melena. Leukocytes varied from 9,000 to 29,000. The eosinophil count in ten cases was from 1 to 11 per cent. of the white cells, with an average of 4 per cent. The Wassermann reaction of the blood was positive in three cases, negative in fifty-five, and not taken in seven. So syphilis is not an important etiologic factor.

In the cases in which gastric analysis was done, the findings were comparatively normal or a subacidity was found. Urinalysis gave no significant deviation from the normal except a regular excess of indican.

Intestinal colic and urgency before bowel action is rather characteristic, as is a feeling of abdominal unrest and occasionally tenseness when the rectum is extensively involved. Abdominal tenderness is notable only when perforation of peritonitis complicates the colitis. The sigmoid colon, however, can usually be felt as distinctly thickened, and pressure on it excites a desire to defecate.

Some patients carry on their usual vocations without great effort, but in the majority there is progressive weakness and prostration.

The chronicity of the process is indicated by the period the disease had existed before my observations, namely, under one year, twenty-nine cases; from one to five years, twenty-eight cases; from six to ten years, six cases; and from eleven to fifteen years, two cases. The average period was two years and two

months. Remissions of weeks or months characterized many of the protracted cases.

DIAGNOSIS

The diagnosis is easily made on the (a) history; (b) laboratory examination of the stools; (c) sigmoidoscopy, and (d) roentgenograms of the colon.

Direct inspection of the bowel through the sigmoidoscope is essential. By it we see the character and extent of the ulceration, which practically always begins in the terminal colon and rectum, obtain material for laboratory examination, and rule out other lesions characterized by frequent bowel discharges as benign and malignant tumors, stricture, etc.

The roentgenologic examination should include the chest for infiltration of the lungs, as some of the protracted cases suggest a latent tuberculosis. Infiltration was present in few cases, but the sputum and stools were always negative for *B. tuberculosis*.

The colon picture after the barium clyisma is characteristic, once the bowel has become thickened and inelastic. Very early it may present a mottling, probably due to the ulceration and hyperperistalsis. Later, nonhastration and contraction are marked, especially in the descending colon and sigmoid flexure (Figs. 4 and 5), the transverse colon may also show the same changes (Fig. 6), and rarely the entire colon.

In none of the sixteen cases of this series examined by the roentgen rays were upper segments of the colon demonstrated to be implicated without the descending colon and sigmoid.

Good roentgenograms indicate the extent of the pathologic process, and are of great value in the prognosis and method of treatment. Spastic colitis may, of course, present similar roentgen-ray findings, but the other diagnostic factors are absent.

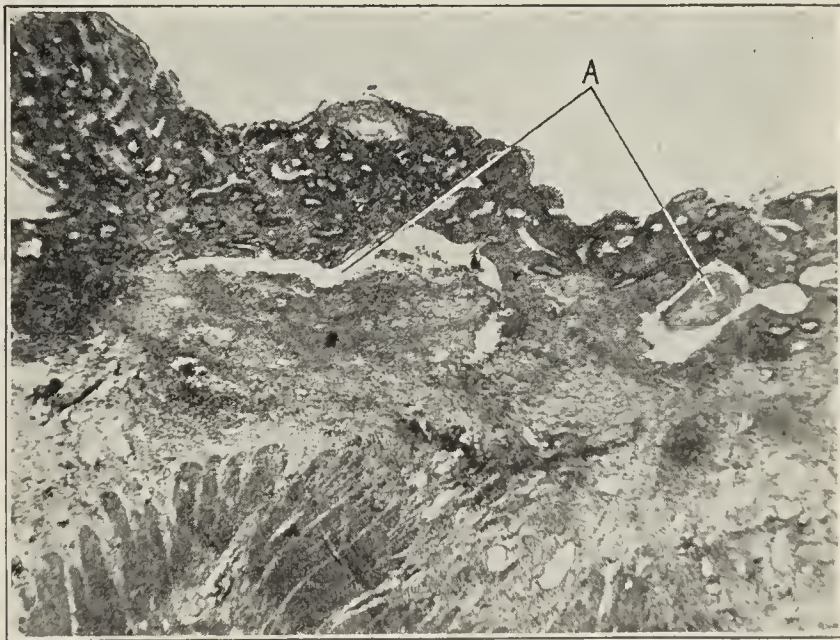


Fig. 2.—Section of colon wall. Rather atrophic mucosa; dilated glands filled with leukocytes; loss of epithelial lining of some glands. Resulting appearance suggests small abscesses at A. Submucosa and muscularis are edematous, infiltrated with round and plasma cells, and present evidences of connective tissue infiltration.

PROGNOSIS

The prognosis should be very guarded. Some patients respond to treatment promptly; others, with closest cooperation of both physician and patient, improve slowly, remain stationary or retrograde, while a few succumb despite our present medical and surgical therapy.

TREATMENT

Of the sixty-five patients in this series, eleven were seen only once in consultation or discontinued treatment, leaving fifty-four cases (twenty-nine clinical and twenty-five private) which were observed over months or years and treated consistently. All but six of the cases occurred in the years 1916-1921.



Fig. 3.—Section of colon wall. Note distinct area of ulceration and replacement of mucosa by granulation tissue.

The accompanying table gives the methods of treatment pursued and the results obtained.

Rest.—Relaxation for an hour while lying down after meals is important. Absolute confinement to bed does not limit the number of bowel actions, and in a few instances was attended by regular loss of weight, as much as 0.5 kg. (1 pound) a day for two weeks, progressive weakness and exhaustion. On the other

RESULTS IN CASES TREATED						
Medical	Total	No Benefit	Fair Improvement	Marked Improvement	Cured	Death
Local and constitutional	28	6	3	8	10	1
Emetin with local and constitutional	4	1	1	1	..	1
Autogenous vaccine	10	3	1	3	3	..
Blood transfusion..	3	1	..	2	..	..
Surgical						
Appendicostomy ..	7	1	2	1	3	..
Colectomy	2	..	..	1	..	1
Totals	54	12	7	16	16	3

hand, in severe cases, especially the hemorrhagic type, close confinement to bed is imperative. In general, most of these patients do best with moderate exercise, but not to the point of fatigue.

The diet may be mixed, but must be nutritious and thoroughly masticated, excluding only highly fermentative articles and those which leave an irritative residue.

The drugs employed have ranged from the usual tonics and intestinal antiseptics to arsphenamin, emetin, yeast, and Bulgarian bacilli, the last by mouth, by colonic implantation, and through an appendicostomy.

Local Treatment.—This comprised colonic irrigations, instillations, and topical applications through the sigmoidoscope. Mechanically, the latter is limited to the segment of bowel below the apex of the sigmoid. Instillations, to be retained over night, of warm olive oil or liquid petrolatum with bismuth and orthoform, and of 1 to 2 per cent. argyrol solution are very beneficial, as is aqueous extract of krameria.

Colonic irrigations vary in efficiency with the individual patient. Some tolerate them well and respond favorably to daily irrigations, while others do better with intervals of two or three days, and a few patients seem to be aggravated by them. Irrigating fluids have included plain water and physiologic sodium chlorid solution and solution of boric acid, sodium bicarbonate, hydrogen peroxid, potassium permanganate, quinin, chloramin-T and silver nitrate. Peroxid, in 2 per cent. solution, has given the best results.



Fig. 4 (Case 7).—Nonhaustration of descending colon. Patient markedly improved by treatment through an appendicostomy.

Autogenous vaccines from cultures of material taken directly from the ulcers were employed in ten cases.

The vaccine used was *B. coli-communis* in five cases, and *B. coli* and *Staphylococcus albus*, five cases. The prompt and favorable response to rapidly increasing doses of vaccine was most striking in three of these patients who were apparently cured, and three others were markedly improved.

The vaccine was used empirically, but the results would seem to warrant their further trial.

It is possible that a special or specific micro-organism may initiate the disease. However, we know that chronic ulceration of the colon may persist after an attack of amebic or bacillary dysentery, although the presence of amebas or *B. dysenteriae* can no longer be demonstrated.



Fig. 5 (Case 3).—Nonhaustriation of descending colon.

Bacteriologic studies indicate that in these cases at least the usual intestinal flora infect the ulcers secondarily and so maintain the process. The benefit from autogenous vaccine therapy may therefore accrue from antidoting the secondary infection.

Transfusion of blood was employed in three cases, with striking and permanent improvement in two and no benefit in one. It is indicated in exhaustion due to hemorrhage and preliminary to surgery in debilitated patients.

Surgery is indicated after a thorough trial of the measures already mentioned, without favorable result, and early in a certain few "galloping" cases which are rapidly passing to a fatal issue.

In one of the cases reported, in which there was severe hemorrhage, the patient could almost surely have been saved had the patient not refused an ileostomy.

Irrigations through an appendicostomy cured three patients and markedly improved one of seven patients on whom I operated. Ileostomy is preferable and more efficient, but has the objection of a fecal fistula which must be closed later. Either of these operations can be performed under local anesthesia.

When the entire colon is involved and all its coats implicated so that it is practically a suppurating tube, colectomy is surely indicated. Even then the residual

functioning rectum, if involved, may be slow to heal, as noted in the case reported.

Three patients died, two of whom were treated medically and one surgically.

In one of the medical cases the patient had a three-plus Wassermann reaction, high temperature and frequent large passages of blood. She refused to have an ileostomy performed which probably would have tided her over.

The other patient was an Englishman who had suffered from amebiasis in China some years before. The blood Wassermann reaction was four-plus. His diarrhea was severe, the temperature was subnormal, and he succumbed to exhaustion.

The operative death occurred in a man, aged 63, a few days after a colectomy performed in another city against my advice.

SUMMARY

1. Chronic ulcerative colitis is a serious disease, its victims often passing through many hands before its true nature is recognized.

2. By the use of modern instruments of precision and laboratory tests, its diagnosis is simple, as is its differentiation from other lesions which cause similar symptoms.

3. Until and unless a special or specific micro-organism is isolated as the causal agent—a rather unlikely probability—the treatment is symptomatic and empiric.



Fig. 6 (Case 45).—Haustra absent and marked contraction of transverse and descending colon and sigmoid. Ulcerative colitis of eighteen months' duration. Ileostomy indicated and advised. Patient refuses operation.

4. Treatment in the vast majority of cases is medical at first; this failing, surgery is indicated.

5. There is need of further observation and reports of large series of cases and serious study, especially on bacteriologic lines, by staining of tissues and cultures, to elucidate, if possible, the obscure problem of its etiology.

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ABSTRACT OF DISCUSSION

DR. H. W. SOPER, St. Louis: I endorse what Dr. Yeomans has said. In the milder forms of colitis much can be accomplished by means of dietetic measures, autogenous vaccines, etc. In the severe form of hyperplastic colitis, when the roentgen ray shows complete obliteration of the haustra, colectomy is the only measure that is successful. In this form of colitis the colon is much thickened and is really to be considered as merely an elongated pus tube. Before colectomy, the operation of ileostomy should be done. It is important that the ileum be entirely separated from the cecum. In one of our cases in which this separation was not done, reverse peristalsis of the colon flooded the wound, producing a fatal infection of the ileum. Irrigation of the severe hyperplastic type of case by appendicostomy is of no avail. It is important to distinguish cases of general colitis from those infections which involve only the rectum and pelvic colon. Cases in which the rectum and pelvic colon alone are involved are amenable to local treatment, particularly by the insufflation of dry powder. The powder that has the most value is a mixture of equal parts of calomel and bismuth subcarbonate. Irrigations are contraindicated in cases of proctosigmoiditis, as infectious material may be carried higher up and the simple proctosigmoiditis thereby converted into a severe general colitis. As a matter of fact, irrigations are of doubtful value in general colitis; in my opinion they produce irritation and are harmful.

DR. RALPH W. JACKSON, Fall River, Mass.: From what has been said, it is evident that ulcerative colitis is of unknown etiology. Liquid petrolatum has its value in the treatment of ulcerative colitis, but is contraindicated when using irrigations, because it is not miscible with water and the aqueous solutions usually used, and it complicates the removal of offending materials by these means. Bismuth salicylate, in my hands, has proved a drug of definite value in the treatment of ulcerative colitis, apparently having a positive intestinal disinfectant action, lessening the number of discharges, the amount of gas, etc. No great amount of time should be wasted in medical treatment alone, and early resort should be made to irrigations in some form. The great variety of solutions recommended is a commentary on their efficiency; yet, in spite of what Dr. Soper has said, I believe that they are of much value. After cleansing irrigation, silver nitrate solution in proper strength often does good; likewise solutions of salicylic acid and of the vegetable astringents, such as krameria, are good; and during the last two or three years some surprising results have been obtained in aggravated cases with chlorin preparations. The irrigations should always be given slowly and with a short tip either in the knee-chest or in the exaggerated Sims position on the left side, in the form of what I like to call a "gravity enema." Failing to get results with irrigations by the anus, resort should be made to appendicostomy or valvular cecostomy. I prefer appendicostomy. In the more aggravated cases nothing will do but putting the entire colon at rest, and this is best done by a double barreled ileostomy from 6 to 8 inches above the ileocecal valve, the proximal opening serving as a fecal exit and the distal for irrigations, which will not back out if the valve is competent. When the colon has been at rest long enough for the pathologic condition to disappear, then I believe it is often preferable to do an ileosigmoidostomy and retain the distal opening for occasional irrigation and keep the colon clean, rather than to restore the continuity of the ileum and the whole colon to function again, thereby opening the door to relapse of the colitis. Colectomy may be considered but is not to be undertaken lightly or often, whereas ileosigmoidostomy may be done safely, with the sigmoid now in fairly healthy condition, and has proved very satisfactory. Finally, I would stress two things; first, that all ulcerative colitis tends to recur; and second, that the chief guide in diagnosis, determination of improvement, and decision as to method of treatment, should be the sigmoidoscope and its findings.

DR. S. G. GANT, New York: I did not know that bacillary colitis and amebic colitis had been eliminated. We have syphilitic colitis, tuberculous colitis, and a type very difficult to cure which is caused by *Balantidium coli*. Then we have a certain number of cases in which we do not know the etiol-

ogy. It does not make much difference. They all respond to the same line of treatment. I think the cure of the ulcerations depends chiefly on keeping the parts clean. Regarding Dr. Soper's statement that he did not think appendicostomy was of value, I cure hundreds of patients by appendicostomy. I cannot appreciate why a man will resect the colon for ordinary ulcerative colitis. I think there have been enough people killed by colectomy for constipation, and I hope we do not get an epidemic of this for diarrhea. Dr. Yeoman's cure was deplorable since the patient suffered from polyposis; secondary to ulcerative colitis. In that type of case, if the colon is not removed the condition will sooner or later degenerate into malignancy. I do not know of any type of case in which I get as good results as in colitis following appendicostomy and irrigation with 2 per cent. iodine. In cases of hemorrhagic colitis, ileostomy or colostomy is all right, and I make a double barrel opening. When I do not cure by appendicostomy it is because I do not use sufficient irrigation or change the patient's posture during treatments.

DR. J. M. LYNCH, New York: I have seen a great many patients suffering from ulcerative colitis, within the last ten years. It seems they are in one of two classes—either surgical or medical. It is not a question of ileocolostomy, cecostomy, or any other ostomy. It is wholly a question of putting the bowel at rest. If you put the bowel at rest, it heals. I have found potassium permanganate, 1:100,000, almost a specific. A few years ago Dr. Brewer, at my suggestion, performed an ileocolostomy, and a gain of 22 pounds (10 kg.) followed. When no specific germ is present, we classify the infection as nonspecific. It is my opinion that, in a large percentage of cases, the small bowel eventually becomes involved.

DR. C. D. SPIVAK, Denver: We all want to use every means that will prevent our patients from coming to the operating table. We have been using sunlight in the sanatorium of the Jewish Consumptives' Relief Society for the last eight months. It has proved an excellent remedy in many cases of tuberculous colitis. We have not had any experience with cases of nonspecific colitis, but I am sure that if tuberculous colitis can be benefited by sun treatment, surely all the other nonspecific cases must also be benefited. We commenced the treatment hesitatingly, but we are applying it faithfully and systematically and are arriving at the conclusion that the value of the sun's rays in a great number of tuberculous colitis is unquestionable. I will not dwell on the other types of cases being treated by sunlight with benefit, but I am sure that any one who will carry out the treatment in accordance with the technic worked out by Rollier will surely have good results in more cases than they have ever had before.

DR. FRANK C. YEOMANS, New York: The limit of the local treatment through the sigmoidoscope, of course, is the apex of the sigmoid, because we cannot pass a straight tube beyond that point. To ulceration below that point we apply local treatment when indicated. In ten of these cases with constipation I found, contrary to the experience of Dr. Jackson, that liquid petrolatum worked very well. I do not usually give liquid petrolatum while irrigations are being used. We are discussing chronic ulcerative colitis of unknown etiology. Sometimes in amebiasis, after the amebas and cysts disappear, a chronic ulcerative colitis persists. Tuberculous colitis is excluded from the paper on the ground that it can be diagnosed. Bacillary dysentery infection may have initiated the process; but, after a short while, *B. dysenteriae* disappears from the stools, and there remains a chronic ulcerative colitis. In most of these cases neither an amebic nor a bacillary dysentery infection initiates the process. The case shown was rather extreme, which was the reason for the operation. We were dealing with the chronic suppurative type. In such a case the indication is, of course, surgery if the patient is in condition to stand it. The selection of operation depends on the experience and preference of the surgeon. The purpose of this paper is not to discuss the technic of operation. That is not the point. Patients who have very severe suppurations have gone for years without thorough examination or a diagnosis and without competent treatment. We do not know the etiology.

HERNIA REDUCED "EN BLOC"

E. L. ELIASON, A.B., M.D.

PHILADELPHIA

In a review of the literature I find that Corner and Howitt,¹ in 1910, reviewed a series of 137 cases of hernia to that time reduced *en bloc* or *en masse*. In this article they state that 113 were inguinal, twenty-two femoral and two obdurator, but none of the umbilical or ventral variety. The mortality in the inguinal cases was 48 per cent. and in the femoral cases, 72

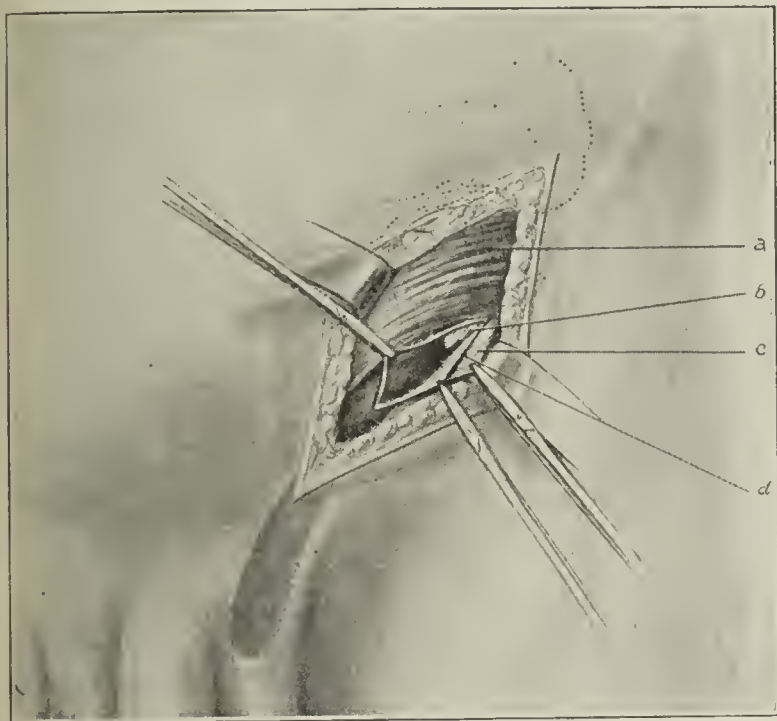


Fig. 1.—a, internal oblique muscle, the external being retracted; b, omentum; c, Poupart's ligament; d, opened hernial sac.

per cent. The condition is usually a result of taxis, but may occur spontaneously.

Since this publication in 1910, isolated cases have been reported from time to time by Bookman, Henningsen, Roscher, Ochsner, Harrison, Rayner and others. In all, only twelve cases could be found from 1910 to 1920. This is a remarkable difference from the quoted series of 137. However, to substantiate this great reduction is the fact that in the examination of the reports in a total of more than 12,000 herniorrhaphy cases taken from several different hospitals from 1901 to 1918, not a single case of reduction *en masse* is mentioned.

This may mean many things, but probably points to a lessened practice of taxis in incarcerated cases.

Then, too, in recent years, as a result of employers' rules, a great many more hernias are repaired while still comparatively recent and consequently small. It is the old hernia that contains the large intestine, the bladder and the cecum, and it is the elderly person that more often has a reduction *en masse*. This is borne out in this series of twelve cases as well as in the larger and older series.

These cases showed the common symptom of slight relief after reduction and there was a bowel evacuation in two in which the hernia was of the Richter type; but they all soon showed increasing obstructive symptoms, which were diagnosed as due to adhesions, bands, etc., rather than to the true cause.

In all the cases the reduction was described as occurring differently from the usual custom. In these cases

reduced by the patients, it was stated that the hernia did not go back as easily as usual, and in one case reduced by the physician, it is stated that the reduction gave the sensation of a button slipping through a button hole.

To these cases I add the report of a case which shows some additional interesting features:

REPORT OF CASE

History.—W. S., a man, aged 20, colored, had been seized, two days before admission to the Howard Hospital, with cramplike pains in the abdomen. About three hours later vomiting began and had continued until the time of his admission. The bowels had not moved since the attack began. The patient said he had a chill and had had fever. A physician pronounced the case one of acute appendicitis and sent him to the hospital.

Physical Examination.—The general examination had no bearing on the case. The abdomen, however, was distended, tender and tympanitic. The left inguinal region was somewhat fuller than the right. The patient, on being questioned, stated that he had had a hernia on that side since childhood, and that it was always easily reducible when it came down. It came down at the beginning of this attack, and was very much larger than it ever had been before, and went back very slowly under manipulation three hours after the attack began. He could not state definitely which occurred first, the vomiting or the appearance of the hernia. Peristaltic sounds were increased in character and frequency. Tenderness was noted in both iliac regions, but most marked on the left. The slight fulness in the left inguinal region was a somewhat thickened, edematous spermatic cord. No hernia was demonstrable. On deep palpation above the left Poupart's ligament, an increased massive resistance was noted.

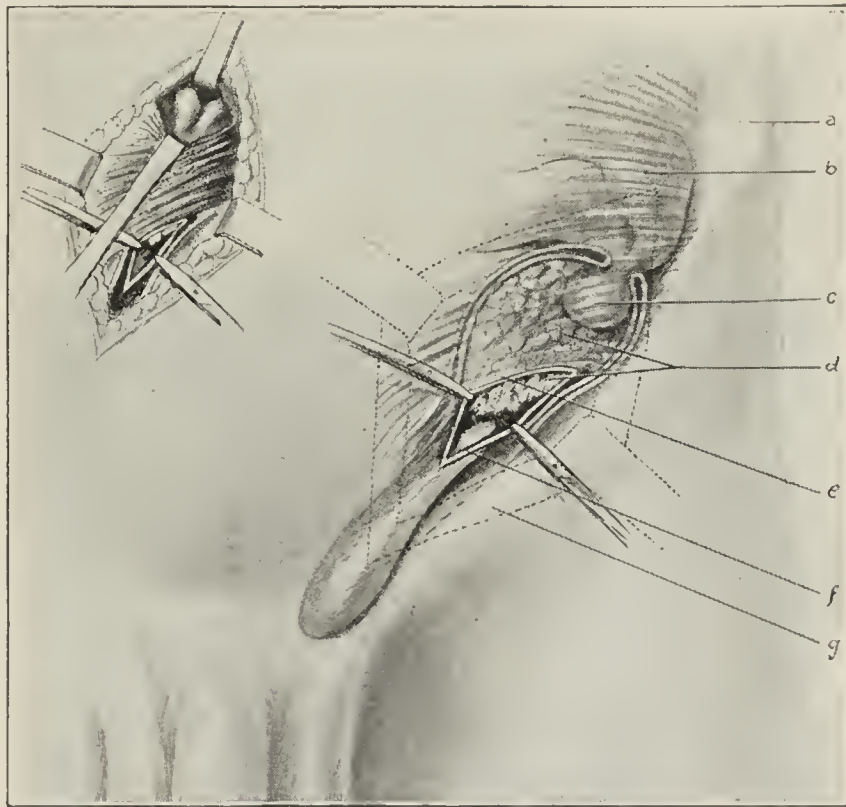


Fig. 2.—The inset shows the incision necessary for the liberation of the intestine. Below is indicated the state of affairs as seen at operation. The dotted line (g) illustrates the wound through to the internal oblique (b); c represents the Richter hernia, covered by the internal oblique and transversalis muscle and still in the grip of the sac neck, which has been pushed up from its old position in the internal ring; d is omentum shown hidden above and exposed at the sac opening (f) at the internal ring.

Blood count revealed 10,200 leukocytes. The temperature was 100; pulse, 110; respiration, 14.

Operation and Result.—Incision was made as for a left inguinal hernia. The cord was edematous, and the sac contained some blood-tinged fluid. Projecting into the upper limit of the sac was a tab of congested omentum. Traction on this, which was situated at the internal ring, pulled out from under the muscle an edematous congested mass of

1. Corner and Howitt: Ann. Surg., 1910.

omentum the size of a small orange. This was again reduced, but because it did not go back and free the ring it was again drawn out and ligated through normal omentum. On endeavoring to push the ligated stump back, the finger encountered a closed sac beneath the muscles, with a small immovable knuckle of intestine at its deepest part, about 3 inches (15 mm.) above the ring.

Traction on the sac would not bring this constriction with the imprisoned intestine up to the internal ring without danger of tearing the obstructed intestine. A gridiron incision was made above, the peritoneum opened, and the constricting neck severed from within.

It was a Richter's hernia of the ileum. After application of hot salt solution for a few moments, the intestine showed vitality and was returned to the abdomen. Repair was made by Bassini's method, and the patient's recovery was uneventful.

330 South Sixteenth Street.

PERICARDITIS WITH EFFUSION

A CLINICAL STUDY OF TWENTY-THREE CASES*

CHARLES SPENCER WILLIAMSON, M.S., M.D.
CHICAGO

The present clinical study of pericarditis with effusion was suggested by an experimental study completed two years ago, and published about a year later.

The points with which our experimental study chiefly concerned itself were: (a) the point at which the exudate accumulates earliest, and the effect of such accumulation on the adjacent organs, particularly the liver; (b) the existence of a dullness in the fifth right interspace (Rotch's sign) or the rounding of the cardiohepatic angle (Ebstein); (c) the position of the heart in the exudate; (d) the behavior of the dullness over the great vessels, and (e) the relationship of an audible friction rub over the front of the heart to the fluid accumulation.

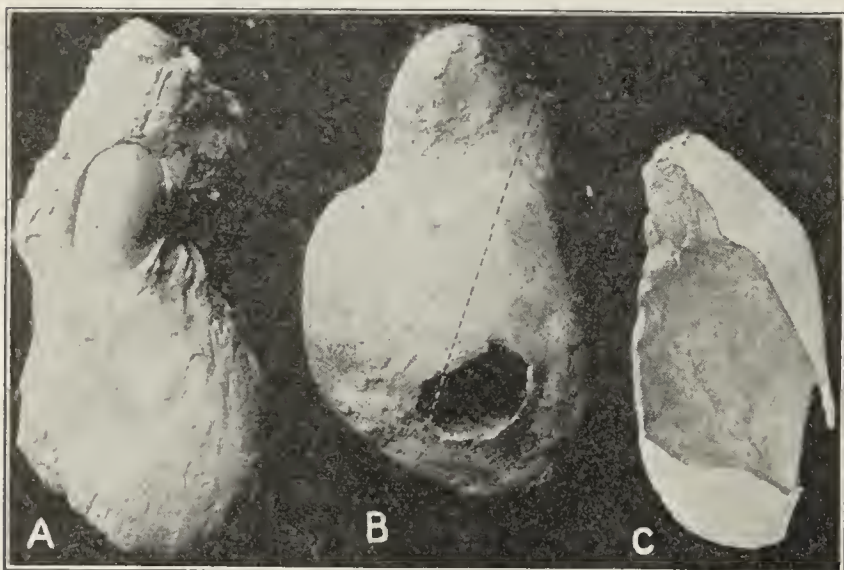


Fig. 1.—Casts of the injection masses in a typical case: A, the heart; B, the exudate proper; C, the exudate, bisected in a sagittal plane. Note the accumulation of fluid in the costodiaphragmatic angle, and also that even with this size exudate the front of the heart remains uncovered.

In regard to the point at which the exudate first accumulates, it is obvious that while accumulations of fluid about the apex and around the right border of the heart, or even over the great vessels, can be fairly well made out by percussion or by use of the roentgen ray, both of these methods of investigation

fail when used to determine the presence of an exudate in the costodiaphragmatic angle, as the dullness on percussion, or shadow of the roentgenogram is continuous with that of the heart above and liver below.

In our experimental research it had been noted with great uniformity that the exudate first appears in the costodiaphragmatic angle, the left lobe of the liver being pushed down and rotated in such a way as to

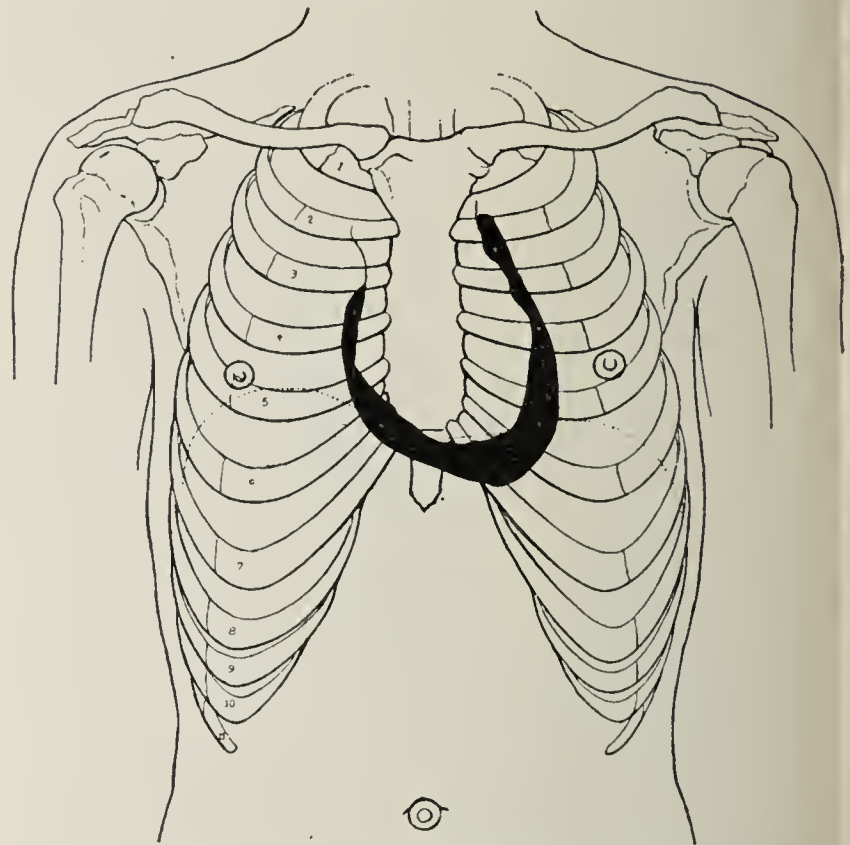


Fig. 2.—Projection of the heart and exudate of Figure 1 on a chest outline. Note here again how the diaphragm and the liver would be depressed.

push down the anterior margin most, the right lobe remaining in its normal position.

The cut, one of a considerable number not published in the original experimental work,¹ shows in a striking manner the place in which exudate first accumulates. The work was done on fresh cadavers by the injection of a suitable agar-gelatin solution. When hard, this was frozen and casts made of the exudate, of the heart itself, and then of the two together.

In Figure 1, A represents the heart, B the exudate, and C a sagittal section of the exudate, the anterior surface facing away from the others. In the latter the position of the exudate in the costodiaphragmatic angle, and also over the great vessels, is beautifully shown. The outline represents the heart and exudate placed in situ on a chest outline drawn accurately to scale. A glance will show that even with exudates of moderate size (about 500 c.c.) as this one was, the amount of depression of the left lobe of the liver will be more than an inch (2.5 cm.).

The first few injection experiments indicated plainly that this depression of the left lobe of the liver would be a valuable early diagnostic sign, if it could be recognized clinically, and even before the experimental work was finished we had convinced ourselves that this was actually the fact; but at that time the number of cases studied was hardly sufficient to warrant definite conclusions.

Eliminating all doubtful cases, we have studied twenty-three patients with pericardial effusions of various sizes. Of these, eighteen showed clearly and

* Read before the American Society for Clinical Investigation, May 9, 1921.

1. Williamson, C. S.: Pericarditis with Effusion, Arch. Int. Med. 25: 206 (Feb.) 1920.

unequivocally a pushing down of the left lobe of the liver as determined by light percussion. This was most striking in the effusions which developed while the patient was under treatment for other conditions, such as polyarthritis, recurrent endocarditis, and chorea. In this group, at the very first intimation of a pericardial friction rub, the position of the liver border was carefully mapped out, and in all cases in which the exudate was of any considerable size, the progressive lowering of this border could be clearly noted. On the average it amounted to two finger breadths in extent. In all but two cases, at the time when this sign was plainly manifest, the cardiohepatic angle was still obtuse, or at most, a right angle. In the five instances in which no pushing down of the liver could be noted, the effusion was a small one, and in none of these could any change be noted in the Ebstein angle. In one patient with no other sign than a depression of the liver of a full finger breath, 240 c.c. of fluid were aspirated. It is obvious that in the group of cases in which a fluid effusion was already present when the patient first came under observation, the demonstration of the pushing down of the liver was not so striking as when this displacement had been observed day by day. It is evident that in the presence of a broken compensation, with consequent enlargement of the liver, this sign could not be properly applied, as diagnostic of an effusion.

The behavior of the cardiohepatic angle was as follows: In the five instances in which no pushing down of the liver could be noted, there was no change in the Ebstein angle. In the remaining eighteen cases, five showed a definite rounding of this angle, but only after the effusion had attained a size of approximately



Fig. 3.—Large pericardial effusion. A loud rub persisted over the whole anterior surface. Diagnosis was confirmed by aspiration.

500 or 600 c.c. In the other thirteen cases, with a pushing down of the liver easily demonstrable, the Ebstein angle remained either acute or at most a right angle.

The behavior of the dulness over the great vessels gives considerable valuable information. An increase of this dulness was noted in nine instances, not only in the sense that the dulness was more absolute, but

also in the sense that the transverse diameter of the great vessel dulness was increased. It could occasionally be made out with quite small exudates, and in one case was made out simultaneously with the initial pushing down of the liver. The behavior of the dulness in the erect and recumbent position varies. In some cases it seemed more marked in the erect, and

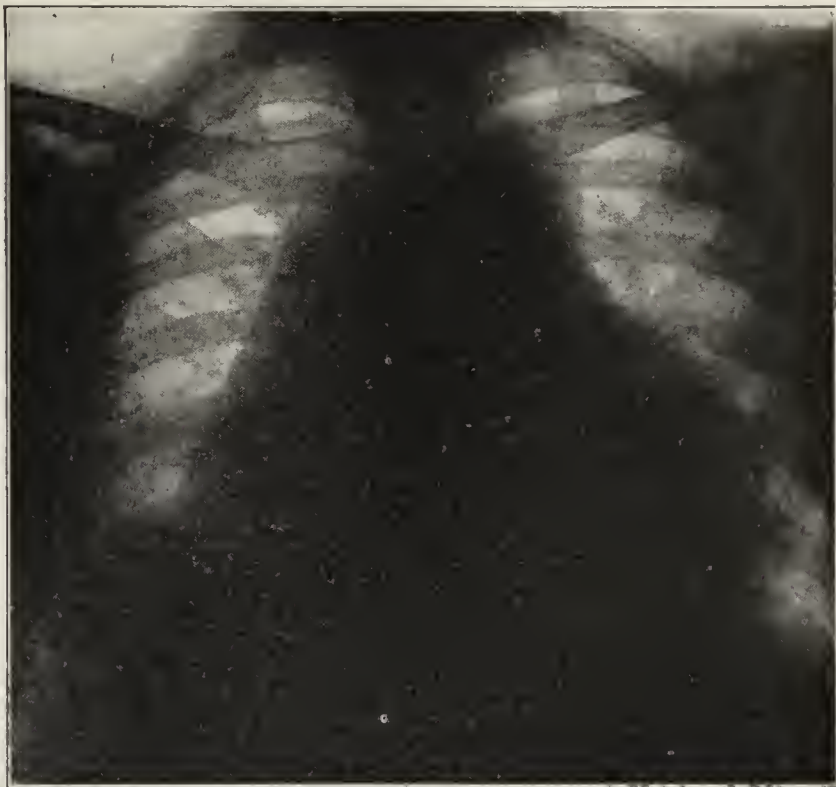


Fig. 4.—Large pericardial exudate, confirmed by aspiration. Loud rub persisted even at the height of the effusion.

in some in the recumbent, and in still others, the position seemed to exert no influence.

An audible friction could be heard, even at the height of the effusion, in fifteen cases. A number of these were instances of very large effusions. This behavior has been noted a number of times before, especially in a noteworthy case recorded by Thayer. A perusal of the literature, however, gives no indication that it is generally known that a friction rub not only may persist with quite large exudates, but that, as a matter of fact, actually does persist in more than two thirds of the cases. We believe that we were the first to show in our experimental work that the reason for this usually lies in a disproportionately large heart, and hence most frequently occurs when the pericardial effusion complicates a preexisting valvular lesion. Experimentally we found that in fourteen of the thirty-three injections, the anterior surface of the heart, in spite of the exudate, remained, at least in part, uncovered by the fluid, so that a pericardial friction rub could readily exist. This experimental ratio is actually less than that which exists clinically. We have seen two striking cases in which a sudden death occurred, the necropsy disclosing, as the cause of death, pressure on the auricles due to the fluid. In both these instances it had been assumed that there was no fluid in the pericardial sac, because a loud rub was everywhere audible. A paracentesis pericardii might have saved life in each case.

SUMMARY

1. In pericarditis with effusion, the fluid accumulates earliest in the costodiaphragmatic angle. This is manifested clinically, in all but very small effusions, by a pushing down of the left lobe of the liver, which serves as a useful diagnostic criterion.

2. This sign can nearly always be observed before any rounding of the cardiohepatic angle or any increase in the great vessel dullness occurs. The extent to which the edge of the liver is depressed amounts to about two finger breaths, with effusions of 500 or 600 c.c.

3. A pericardial friction rub not only may, but does persist with fairly large effusions in about two thirds of the cases. This is especially true when, for any reason, there is a disproportionately large heart, so that the latter organ comes into close apposition with the sternum.

4. Pressure signs over the lungs posteriorly occur only with much larger effusions than the signs already enumerated.

25 East Washington Street.

A NOTE ON THE VENEREAL SPIROCHETOSIS OF RABBITS

A NEW TECHNIC FOR STAINING *TREPONEMA PALLIDUM* *

HIDEYO NOGUCHI, M.D.

NEW YORK

Ross and Bayon,¹ in England, were the first (1913) to call attention to the occurrence in rabbits of a spontaneous disease presenting certain resemblances to experimental syphilis and associated with a spiral organism morphologically indistinguishable from *Treponema pallidum* of human origin. Soon afterward, Arzt and Kerl² in Austria published observations of a similar nature, and recently several workers, Jacobsthal³ and Schereschewsky⁴ in Germany and Klarenbeek⁵ in Holland, have confirmed the existence of the disease, but up to the present no instances have been recorded in America.

In June, 1921, I found, among fifty rabbits of the so-called normal stock of the Rockefeller Institute, three females and two males having spontaneous lesions of the anogenital region containing an organism resembling *Treponema pallidum*. Recently (November, 1921) six females among twenty rabbits just purchased in Pennsylvania were found to have similar lesions. The observations may be of interest to workers on experimental syphilis.

The lesions are situated on the vulva or prepuce and appear as scaly, papular, somewhat congested spots or patches, slightly elevated from the surrounding mucocutaneous surface; they are not indurated to any marked extent as are usually the lesions produced by *Treponema pallidum* in similar regions. There is at first no exudate, but mechanical irritation of any kind induces a hyperemic condition of the lesions, and the

dry scales fall off, leaving an exposed, granular surface. The exudate dries rapidly and forms a shining crust, dark gray or yellowish, removal of which is followed again by exudation, appearance of minute ecchymoses, and crust formation. In chronic cases the lesions may cover the entire genital region and extend to the anus.

The minute initial papules, as well as the advanced lesions with crust, contain very large numbers of organisms perhaps slightly coarser and longer than the average type of *Treponema pallidum*. The length varies from 10 to 18 microns, the majority being from 12 to 16 microns, as compared with a length of from 10 to 12 microns for the average *Treponema pallidum*. Individuals as long as 30 microns have been observed (specimens of *Treponema pallidum* as long as 24 microns have occasionally been encountered in experimentally infected rabbits). The width is about 0.25 micron, spiral amplitude from 1 to 1.2 microns, spiral depth from 0.6 to 1 micron; the spirals, from eight to twelve in number, are regular and deep. Rapid rotation and occasional bending at the middle are observed, but no vibratory or lashing movements. The organism belongs to the genus *Treponema*, and may be designated as *Treponema cuniculi*.⁶

The staining properties of *Treponema cuniculi* are identical with those of *Treponema pallidum*. As in the case of *Treponema pallidum*, silver impregnation of tissues gives inconstant results, and films from fresh material fixed in methyl alcohol take a pale stain with Giemsa solution and none at all with other anilin dyes. A new procedure has been worked out by Miss Evelyn B. Tilden in my laboratory by which both *Treponema cuniculi* and *Treponema pallidum* can be stained very distinctly not only with Giemsa solution

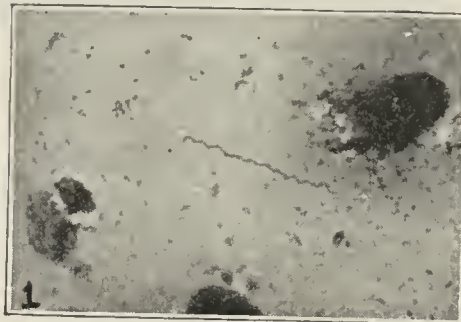


Fig. 1.—*Treponema cuniculi*, stained with fuchsin after fixation in a buffered formaldehyd solution; $\times 1,000$.

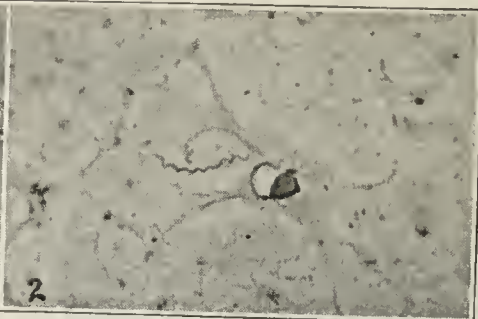


Fig. 2.—*Treponema pallidum* from human chancre, stained by the same method, for comparison; $\times 1,000$.

but also with basic dyes, such as gentian violet and fuchsin (Figs. 1 and 2.). The procedure promises to be of practical value in the routine diagnosis of syphilis, when the dark field is not available, because of its simplicity. A buffer solution containing formaldehyd (1 part of formaldehyd solution in 9 parts of phosphate buffer solution⁷) is used as fixative, the scraping or tissue emulsion being suspended in a small amount of the buffered formaldehyd solution and the mixture allowed to stand for at least five minutes (the longer the fixation the better the results; the organisms remain well preserved for at least two or three weeks). Thin films are made on clean slides, dried in the air, the film surface is flooded with a saturated alcoholic solution of gentian violet or fuchsin, or with Stirling's solution of gentian violet such as is used for Gram's stain, and the slide is almost immediately washed in running water and air dried. If the amount of material available is very small, a drop of

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Ross, E. H.: Brit. Med. J. 2:1653, 1912. Bayon: Ibid. 2:1159, 1913.

2. Arzt, L., and Kerl, W.: Wien. klin. Wchnschr. 27:1053, 1914.

3. Jacobsthal, E.: Dermat. Wchnschr. 71:569, 1920.

4. Schereschewsky, J.: Berl. klin. Wchnschr. 57:1142, 1920.

5. Klarenbeek, A.: Ann. de l'Inst. Pasteur 35:326, 1921.

6. Jacobsthal proposed the rather cumbersome name, "*Spirochaeta paraluis cuniculi*," but the consensus of opinion now is that organisms of the pallidum type do not belong to the same genus as Ehrenberg's *Spirochaeta plicatilis*.

7. Eighty-eight parts of M/15 Na_2HPO_4 + 12 parts of M/15 KH_2PO_4 (pH 7.6). Nine parts of this solution are added to 1 part of commercial formaldehyd solution. The mixture keeps well for from two to three weeks at room temperature.

the fixative (from a capillary pipet) may be put on a slide and a drop of the exudate added. The mixture is allowed to stand for five minutes or longer (protected from evaporation) and then spread into a very thin film. The less blood serum present, the better the differentiation between the organisms and the background. If Giemsa solution is used for staining, the slides are left in the staining fluid for one hour, as usual. It may be mentioned that the organisms remain well preserved for at least two or three weeks in tissues fixed in buffered formaldehyd solution and may be teased out for dark field examination or for staining by the procedure outlined above. They take a more intense stain when teased out of tissues.

Transmission of the rabbit disease to normal rabbits has been accomplished both by mating and by smearing the exudate, viscid vaginal secretion, or an emulsion containing the spirochetes on the prepuce or vulva, either with or without previous scarification. The scarification method has given the largest number of positive results. The lesions are identical with those occurring spontaneously and contain large numbers of the organisms. The incubation period varied from twenty to eighty-eight days, the average in sixteen rabbits being sixty days, but on the third passage with one of the strains a definite lesion appeared in five days. The inguinal or popliteal lymph nodes are seldom palpable in these animals. Attempts to produce orchitis, keratitis or chancre on the scrotal skin have so far (from five to six months) been unsuccessful. Several monkeys inoculated from five to six months ago (eyebrow, prepuce, ventral skin) remain free from any indications of infection.

Histologic study shows accumulation of mononuclear cells, chiefly in the interpapillary spaces, a condition recalling condyloma.

Arsphenamin, given intravenously in a dosage of 0.02 gm. per kilogram of body weight, destroyed the spirochetes in the lesions within twenty-four hours. The lesions healed completely within seven days, and no recurrence has been observed during a period of five months.

A rather striking fact is that the serums of rabbits harboring large numbers of *Treponema cuniculi* in the genital lesions, even for as long as from five to six months, give negative Wassermann reactions, while, with the blood of rabbits having scrotal chancres, strong positive reactions are obtained. It is possible that this fact, together with the difference in the character of the lesions and the slightly larger size of the organism, may serve to differentiate between experimental syphilis and the *Treponema cuniculi* infection in rabbits.

Herxheimer Reaction.—The Herxheimer reaction is as much a feature of late syphilis as of the acute infection. In general, it is conservative to give all individuals affected with late syphilis mercurial preparation.—J. H. Stokes, *Arch. Dermat. & Syph.* 4:779 (Dec.) 1921.

Clinical Notes, Suggestions, and New Instruments

UNUSUAL INSTANCE OF FOREIGN BODY PENETRATING THE HEAD

J. A. HAGEMANN, M.D., PITTSBURGH

Sept. 4, 1921, H. R., an Italian, was brought to the Pittsburgh Hospital by the police, who stated that he had just been stabbed in the left temple during a fracas with some of his countrymen. The first physician who saw him at the hospital suspected a fracture of the skull, although there were no symptoms to suggest it. To determine this point the patient was taken to the roentgen-ray room. The film revealed the presence of a foreign body, probably metallic, situated transversely in the middle of the head. September 6, the patient was referred to me. At this time there was considerable proptosis of the left eye globe, with edema of the bulbar conjunctiva within the open palpebral fissure. Vision for fingers was unimpaired. After the nasal mucous membrane had been shrunk and a Killian nasal speculum employed, the sharp edge of a metallic blade could be seen in both nostrils about 2 inches (5 cm.) within the nose, and about 1¼ inches (3 cm.) above the floor. By hooking a silver probe, bent to a right angle near its tip, over the inmost,



The proximal, broken end of the dagger immediately under the left eyeball, the point projecting into the right maxillary sinus.

blunt edge of the blade, then, parallel with it, placing a blunt probe against the sharper, presenting edge of the blade and removing the two probes juxtaposed from the nose, it was ascertained that the blade was one-half inch (1.3 cm.) in width. As extraction by the route of entry would jeopardize, if not destroy, the sight of the left eye, it was decided to approach the pointed end of the dagger by way of the right maxillary antrum. For this purpose, the patient being anesthetized, an incision to the bone was made one-half inch (12.7 mm.) above the gingival margin, and extend-

ing from the right canine to the second molar tooth. The mucous membrane was elevated and, with a Hajek chisel, an opening into the antrum was made through the canine fossa. This aperture was quickly enlarged to the size of a five-cent piece by means of a rongeur. When the incidental blood had been sponged from the antrum, about three-quarters inch (19 mm.) of the blade, including its point, could be seen in the posterior and upper portion of the sinus. It was so firmly impacted that one could not budge it with forceps. The tip of a curved antrum rasp was, therefore, inserted behind that portion of the blade protruding into the antrum and forcible traction made in a forward direction. By alternately levering the blade in this way, and oscillating it with forceps, the point of the dagger was brought out through the perforation at the canine fossa and the invader in this manner delivered. The antrum was packed with 5 per cent. iodoform tape and the wound closed with three catgut sutures. The packing was withdrawn forty-eight hours later.

An ice cap was kept against the right cheek for two days. The edema of the left conjunctiva persisted for about a week. The patient made an uneventful recovery and was discharged from the hospital, September 18.

The weapon, devised by grinding one margin of a flat file to a keen edge and the end to a sharp point, had entered the left side of the head about 1½ inches (3.8 cm.) behind the external canthus, and about one-half inch (1.3 cm.) above the zygomatic process of the molar bone. The point pierced

the temporal muscle and the great wing of the sphenoid bone, and traversed the floor of the orbit; it then penetrated successively the left ethmoid bone, the nasal septum, and the right ethmoid bone, and projected about three-quarters inch (19 mm.) into the hindermost superior portion of the right maxillary sinus. In the conflict, the blade broke at a point on the floor of the left orbit, and the section nearer the handle was extracted or fell out. The presence of the pointed end of the dagger was not suspected until revealed by the roentgenogram. The extracted piece measured $2\frac{3}{4}$ inches (7 cm.) in length, one-half inch (1.3 cm.) at its greatest width, and was three thirty-seconds inch (0.024 cm.) thick at the blunt edge.

Highland Building.

A MACROSCOPIC AGGLUTINATION METHOD IN CAPILLARY TUBES *

FREDERICK L. GATES, M.D., NEW YORK

In 1918, a study of prophylactic antimeningococcus vaccination and of the meningococcus carrier state¹ involved an extensive series of agglutination tests on human serums. Only small samples of serum, from 1 to 2 c.c., were available, and as these had to be examined after different intervals of time, and in successive low dilutions, it was necessary to employ a method requiring a minimum amount of material. For this purpose the capsule method of agglutination, briefly described at the time, was developed and found to be reliable and satisfactory.

Since then the method, modified somewhat in the direction of accuracy and simplicity, has been applied in a number of experiments with various organisms when limited amounts of serum or bacterial suspensions were available. Its demonstrated advantages over microscopic methods and the ease

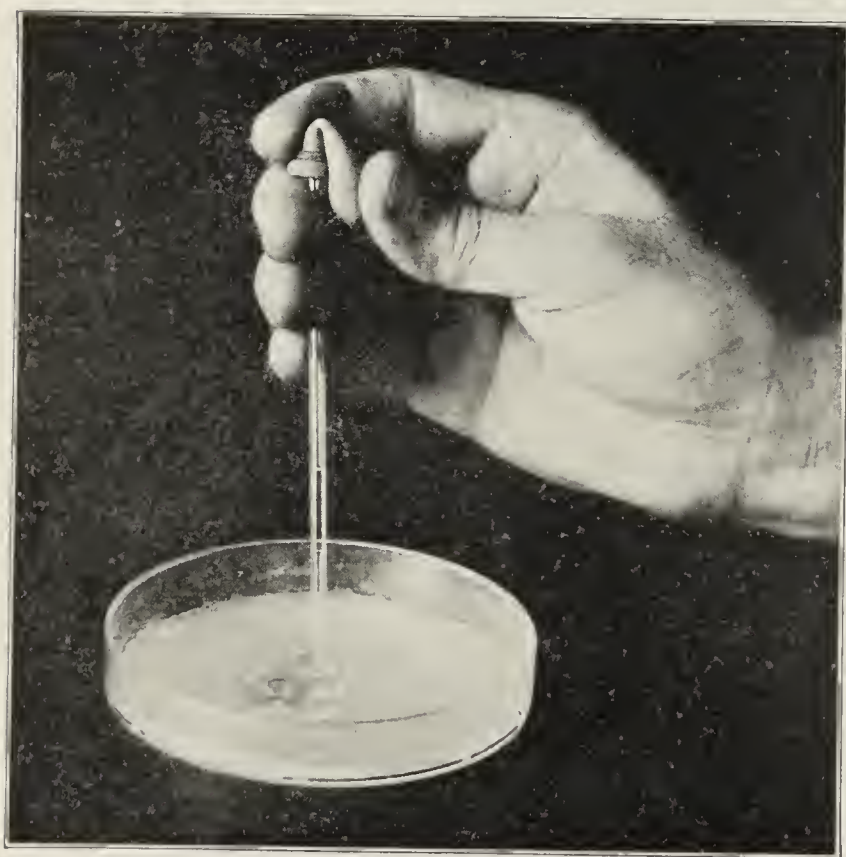


Fig. 1.—Aspiration of a drop of serum and bacterial suspension from a paraffin plate into a capillary tube. The elastic band constricting the nipple to fit the tube, the position of the nipple for accurate control of the liquid and the drops of serum and of bacterial suspension, before mixing, are to be seen

with which large numbers of specimens are prepared and examined have led to a separate report on the method in which the technic may be described in detail.

Capillary tubes have previously been used for macroscopic agglutination, but so far as I am aware no general method

has been developed which is easily applicable to an extensive series of tests with successive serum dilutions. Thus, Ellis,² in 1915, in a study on meningococcus classification, made macroscopic agglutinations with equal quantities of undiluted serum and rather thin bacterial suspensions which were drawn into a capillary pipet, thoroughly mixed on a glass slide and the mixture again drawn into the pipet, the tip of which was then sealed in the flame. The tubes were read immediately and then left at room temperature, readings being again made at the end of one hour and on the following morning.

It is evident that the use of a separate capillary pipet for each specimen, in which it is individually measured, mixed, sealed and incubated, involves a prohibitive amount of labor when many tests are to be made.

THE CAPSULE METHOD OF AGGLUTINATION

Successive serum dilutions, as many as are required, are made in small test tubes or, if necessary, in amounts of a drop or two on a paraffin plate. Graduated pipets may be used, or a number of Wright pipets may be calibrated for equal quantities of fluid by placing large drops of salt solution, measured in one marked pipet, at intervals on the smooth surface of paraffin wax in a Petri dish. A drop is drawn into

each pipet and its length indicated by a file scratch or a wax pencil mark. The advantage of the paraffin surface is found in the fact that the entire drop may be taken up, and in the ease with which a fresh, clean surface may be prepared by rinsing off a thin layer of paraffin with hot water. When pathogenic micro-organisms are under test, heavy waxed paper, which may then be destroyed, serves the same purpose. One pipet is used for salt solution and one for each different serum and each bacterial suspension employed. The liquid in a Wright pipet may be delicately and accurately manipulated if the nipple is bent double and held as in Figure 1.

The standardized pipets are used to dilute the serum successively, and to measure out equal quantities of serum dilutions and bacterial suspensions, which are placed opposite each other in parallel rows on the paraffin plate. Beginning with the highest dilution, each drop of serum is mixed with its opposite drop of bacterial suspension by means of a platinum hook (not a loop).

Incubation of these mixtures is carried out in capsules 12 cm. long, of thin walled glass tubing, 2 mm. inside diameter, pulled out and sealed off in the flame.

The ends of a capsule are snapped off close to the shoulder, and one end is slipped into a rubber nipple whose neck has been constricted by a tight elastic band. Beginning with the salt solution control or with the most dilute serum mixture, successive columns about 1 to 1.5 cm. long, separated by air bubbles of equal length, are drawn up into the capsule (Fig. 1). Before the nipple is released, the distal tip of the capsule is sealed off in a small flame and the nipple then slipped off



Fig. 2.—Agglutination of *B. typhosus* in its antiserum. Complete agglutination in Capsule A; unagglutinated control specimens in Capsule B.

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Gates, F. L.: J. Exper. Med. 28: 449 (Oct.) 1918.

2. Ellis, A. W. M.: Brit. M. J. 2: 881, 1915.

carefully so that atmospheric pressure is maintained in the tube. The proximal end is also sealed off and marked with a file for identification.

These sealed capsules, each containing four or five specimens, are then woven through holes in a card which designates their contents. They are incubated in a horizontal position, and unless the card is dropped or rudely handled, no appreciable admixture of the specimens occurs. Tests with methylene blue show that an air bubble 0.8 cm. long is an effective barrier. The surface tension at each meniscus keeps the specimens apart. They may be separated by columns of liquid petrolatum, if desired, of which a length of 0.4 cm. is sufficient, but the air bubbles are practically effective.

When the density of the bacterial suspension (about 2 billion organisms per cubic centimeter) has been properly chosen to produce a visible, even clouding of the capillary columns, the presence of agglutination is as readily determined, macroscopically, as in the standard methods of test. Viewed by oblique, transmitted light against a dark background, unagglutinated organisms appear homogeneous; or, if sedimented, they form a narrow, sharply outlined zone on the lower inside surface of the tube. If the capsule is rolled horizontally between the palms, the bacteria are evenly dispersed through the liquid. Agglutination, on the other hand, is indicated by clumps of flocculated organisms, which form a wide, feathery layer of sediment with broken edges and are not homogeneously dispersed on resuspension (Fig. 2). All degrees of agglutination may be recognized. In comparative tests with the same materials, the results of capsule agglutinations have coincided with the standard tests.

Most methods of agglutination which require only small amounts of serum or bacterial suspension are suited only to the immediate demonstration of agglutinins, and therefore are useful only with serums of high antibody concentration. It is hoped that the capsule method, which permits the full range of variation in serum dilutions and incubation of the standard tests, may be of practical value in other hands in demonstrating the presence of agglutinins in serums of low titer. In this connection it may be pointed out again that fresh serum in low dilutions may inhibit agglutination (the pro-agglutinoid zone) and that after storage a serum previously found negative may reveal its antibody content.

SUMMARY

This macroscopic agglutination technic requires the use of only small amounts of serum dilutions and bacterial suspensions. The specimens are sealed in small glass capsules, so that evaporation is prevented, and the method affords all the quantitative advantages in point of measured serum dilutions and incubation of the standard methods of test.

A NEW SYRINGE FOR LOCAL ANESTHESIA

ITS PRACTICAL APPLICATION

LOUIS DUNN, M.D., MINNEAPOLIS

The desirability and safety of local anesthesia is well established among those who are familiar with its advantages. Its more extensive employment has been curtailed by the lack of a suitable apparatus. The ordinary glass syringe has been the only equipment available. It is no wonder, therefore, that the profession has shown lack of enthusiasm for local anesthesia in major surgery.

The pneumatic injector invented by Dr. R. E. Farr furnishes surgery with an unusually efficient instrument for local anesthesia. It consists of a solution receptacle and a compression gas tank as the driving force. Another instrument recently devised for local anesthesia is the Babcock self-filling syringe. This also consists of a fluid container, and uses the gravity method to fill the syringe.

My interest in the development of a satisfactory device led me to devise an apparatus based on an entirely different principle, and resulted in the construction of a very efficient instrument. It has been tested by four years of service and has given most gratifying results at all times.

The apparatus consists of a needle, syringe and connecting valve chamber, enclosed in a perforated metal case of pocket size and capable of sterilization as a unit.

The needles are noncorrosive and are made of hardened gold. The smaller type has a Luer slip hub which is attached directly to the syringe and with which an intradermal wheal is made. The longer type is attached to the valve chamber by a screw thread and is used for deep infiltration. There are twelve needles. Four of these are short Luer needles with sharp points for intradermal work. Two are long Luer needles for deep intra-abdominal work. The others have screw hubs, are larger gaged, and are long enough for deep infiltration.

The barrel and plunger of the syringe are made of an extra tough green glass that stands high temperature. The metal mountings are actually fused to the ends of the glass parts.

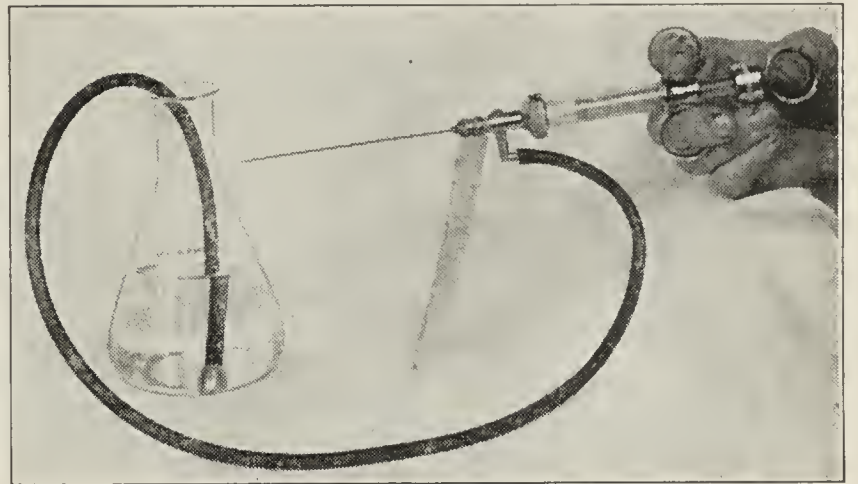


Fig. 1.—Syringe connected to valve by a bayonet attachment; weighted end of rubber tube in solution.

It is tested to a pressure of 75 pounds per square inch. It will not leak or break on boiling.

The automatic drop valve is the key to the whole apparatus. It is situated in its T-shaped chamber between the screw hub needle and the syringe. The valve proper is in that portion of the chamber which is perpendicular to the instrument. A rubber tube of approximately 2 feet (or any convenient length) connects this chamber to the receptacle containing the fluid. The end of the tube is retained in the fluid by a weighted metal end. The receptacle is held at whatever angle the surgeon desires. The valve itself is of the drop type and is made accessible by a milled-head screw on the top of the valve chamber. It operates in any position of the syringe.

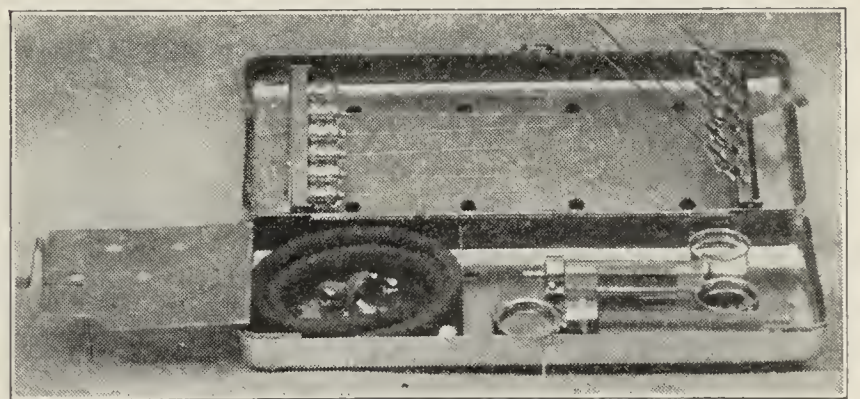


Fig. 2.—Case containing syringe, valve and needles, ready to be sterilized with other instruments.

The outfit is as easy for the operator to handle as its construction is simple and substantial. The entire outfit is sterilized in its perforated metal case, thereby protecting the syringe and needles against injury.

The syringe is attached to a sharp-pointed Luer needle, and an intradermal wheal is made with little or no pain to the patient. The small needle is then removed. The long needle is screwed into place on the valve chamber, and this in turn is slipped over the Luer tip of the syringe and locked firmly into place by a bayonet pin-and-slotted joint. This arrangement insures stability and rigidity. The needle is submerged in the fluid together with the weighted end of the rubber tube. A few strokes of the plunger fill the syringe and expel the air. The assistant or nurse holds the

receptacle containing the fluid at any level convenient to the operator.

The needle is then introduced through the wheal. With a piston-like movement of the forearm, the solution is injected in a steady stream as the needle is kept on the move. By withdrawing the needle to the skin and redirecting it at a different angle, a large area may be infiltrated. A wall of fluid is placed in any direction by a repetition of this movement. As the needle is withdrawn to the wheal, the glass plunger is simultaneously retracted by the thumb. The ensuing suction causes the tissues to act as a valve which prevents the fluid returning into the syringe from them. At the same time the suction induced by the retraction of the plunger opens the automatic drop valve and refills the syringe from the reservoir through the rubber tube. The forward motion

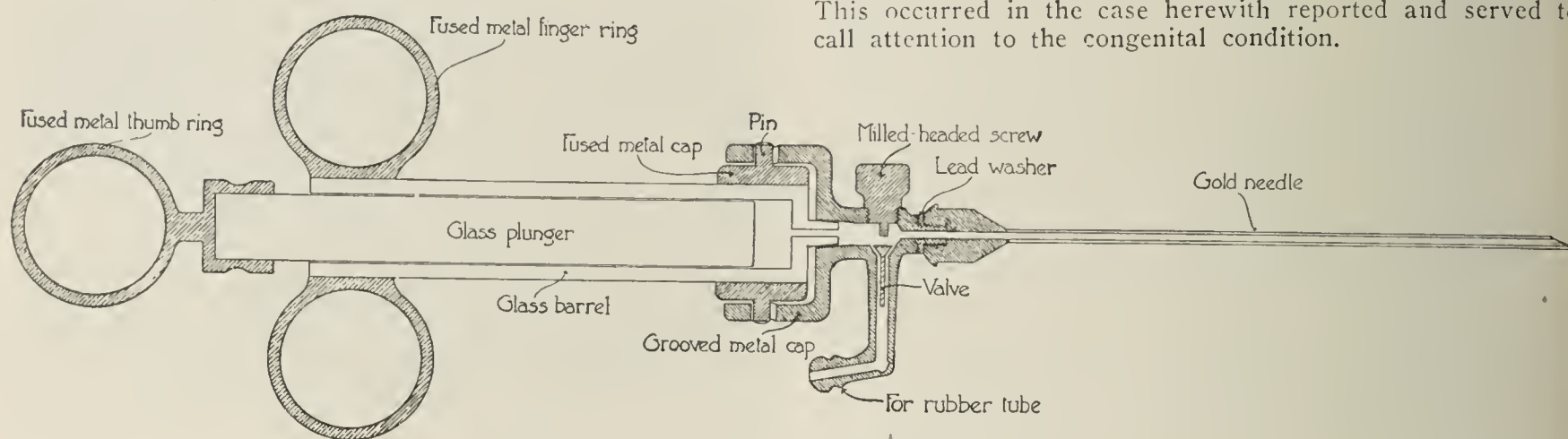


Fig. 3.—Sectional view of local anesthesia syringe.

of the thumb in pressing the plunger "home" closes the automatic drop valve and forces the fluid through the needle into the tissues. Only one valve, therefore, is required for the apparatus. The small diameter of the barrel makes it a powerful syringe and at the same time permits small quantities of fluid to be delicately and accurately deposited. The small diameter of the syringe is essential to insure an even distribution of fluid and to prevent distortion of the tissues by edematization. Up to the present, the even distribution of small quantities of fluid has been obtained only by the Farr pneumatic injector. The Dunn syringe produces anesthesia easily and promptly, without discomfort to the patient or withdrawal of the needle.

The cleansing of the instrument with clear water at the conclusion of the operation must be done thoroughly, or the solids in the solution may either be deposited in the needle or on the valve, causing the latter to stick on drying. Although the valve can be loosened readily by removing the milled head screw of the chamber, this loss of time is prevented by washing the instrument with water before it is put away.

I have found this apparatus advantageous in the following respects:

1. It is durable and simple in construction.
2. It can be operated and directed entirely with one hand.
3. The automatic valve makes it possible to produce a wall of solution without detaching the syringe or without withdrawing the needle for refilling.
4. The automatic valve makes practical the use of the small diameter syringe.
5. The 3 c.c. capacity of the syringe enables the operator to place a small amount of fluid accurately and easily where he desires.
6. The glass syringe enables the surgeon to detect blood or air in the barrel.
7. The bayonet attachment permits the instantaneous removal of the syringe in order to remove the air bubbles.
8. The perforated metal case containing the entire apparatus can be carried in the pocket and can be sterilized as a unit.
9. It is so simple in its manipulation and so reliable in its action that it does not require great skill for its operation.
10. It is particularly valuable where trained assistants are not obtainable.

3040 Lyndale Avenue South.

BILATERAL CONGENITAL BACKWARD DISLOCATION OF THE LOWER END OF THE ULNA

HENRY L. HOLZBERG, M.D., SAN FRANCISCO
Surgical Assistant, Mount Zion Hospital

There is not a great deal of literature on this subject. According to Fosdick Jones,¹ there were only two authentic cases on record up to the time of his writing (1911). However, there have been a number of cases of habitual dislocation of the ulna reported.² This condition was first recognized by Desault, in 1771.

The great majority of these cases were studied before there were any roentgen-ray opportunities. Most of these cases come to medical attention through a traumatic incidence. This occurred in the case herewith reported and served to call attention to the congenital condition.

None of the cases reported up to date lay stress on the importance of an enlarged styloid process, from an etiologic point of view. However, there were no roentgenograms reproduced with any of the reports which would bring out this point. It am, therefore, reporting this case with illustrations, showing the congenitally enlarged styloid process to be responsible for the backward dislocation. This patient came to me with a history of trauma, and the true condition was not recognized at first.

REPORT OF CASE

History.—M. G., aged 21, single, born in Malta, employed as a metal sorter by a junk company, first complained of trouble with his right wrist, May 7, 1918. He thought he had



Fig. 1.—A, right wrist before operation, showing large styloid process; B, right wrist after operation.

injured his wrist by doing heavy lifting and asserted that something had snapped in the wrist. Examination at that time revealed slight edema of the right wrist, with slight

1. Jones, Fosdick: Bilateral Congenital Dislocation of the Lower End of the Ulna, *Am. J. Orthop. Surg.* **9**: 199, 1911.
2. Behrend, Moses: Habitual Dislocation of the Ulna, *Pennsylvania M. J.* **20**: 533 (May) 1917. Cotton, F. J., and Brickley, W. J.: Luxation of the Ulna Forward at the Wrist (Without Fracture), *Ann. Surg.* **55**: 368, 1912. Darrach, William: Habitual Forward Dislocation of the Head of the Ulna, *ibid.* **57**: 928, 1913; **56**: 801, 802, 1912. Jopson, J. H.: Subluxation of the Ulna, *ibid.* **60**: 785, 1914. Yoder, A. C.: Unique Wrist Injury: Recurrent Anterior Dislocation of Ulna, *J. A. M. A.* **61**: 767 (Sept. 6) 1913.

tenderness over the lower ends of both the radius and ulna and some general limitation of motion. Relief was obtained by strapping the wrist with adhesive plaster.

Six months later, the right wrist bothered him again. His complaints were the same. Temporary relief was obtained for a few months by the wearing of a leather supporter.

June 27, 1919, he again complained of inability to lift heavy pieces of metals. He said he had no power in his right wrist. Examination revealed marked prominence of the wrist over

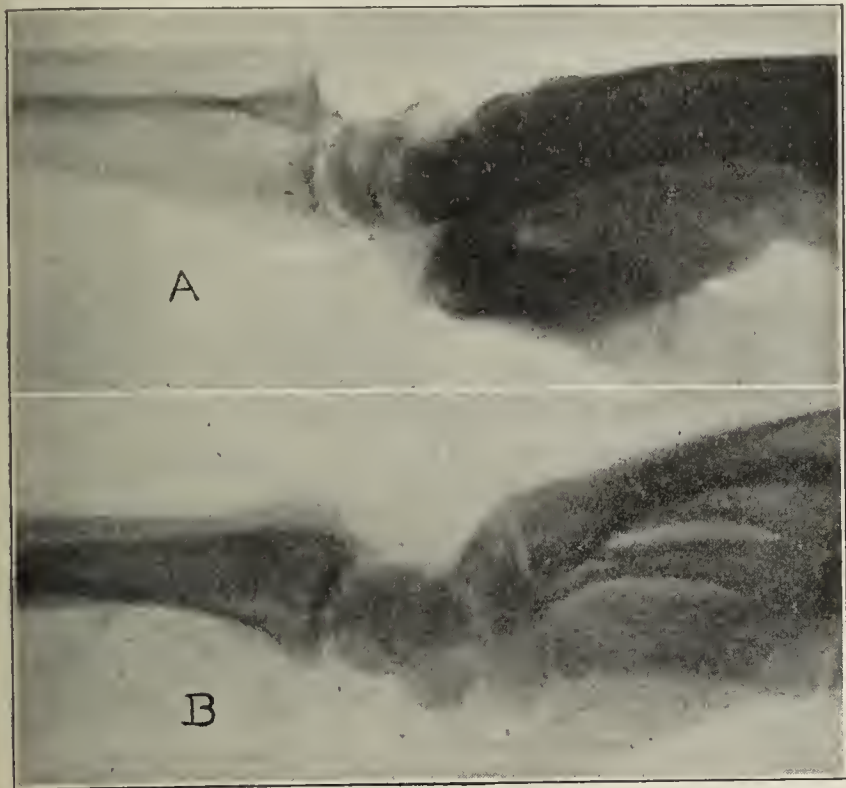


Fig. 2.—*A*, lateral view of right wrist before operation, showing displacement of lower end of ulna; *B*, lateral view of wrist after operation, showing no displacement with hand held straight.

the lower end of the ulna with the hand held in some pronation and slight adduction. The lower end of the ulna could be distinctly felt. There was an apparent dislocation of the lower end of the ulna. This dislocation could be readily reduced; but the lower end of the ulna would not remain in place. As soon as pressure over the lower end of the ulna was removed, the dislocation occurred. This dislocation also occurred on any tendency toward pronation.

Roentgenograms revealed dislocation backward of the lower end of the ulna (Figs. 1 *A* and 2 *A*). The Wassermann reaction and Noguchi control tests were negative. A leather supporter was made for the wrist and was worn for about one month, with no relief.

July 22, 1919, Dr. Leo Eloesser, in consultation, suggested drilling through the lower ends of both the radius and ulna and tying the two bones together with kangaroo tendon.

The patient was very nervous and of a distinctly neurotic type. After considerable persuasion he agreed to the operation.

Operation and Result.—This was performed, July 29, 1919, at the Hahnemann Hospital, where I was assisted by Dr. Friedman. Two small incisions were made on either side of the lower end of the forearm. The bones were exposed, the periosteum was incised and elevated. Two holes were drilled through the lower ends of the radius and ulna. Kangaroo tendon was inserted, and the two bones were tied together. The wrist joint itself was not entered. The wrist was put up in plaster, with the hand in supination and rotated slightly laterad. Roentgenograms were taken nine days later (Figs. 1 *B* and 2 *B*).

During convalescence the kangaroo tendon sloughed out from the wound on the radial side. Sept. 10, 1919, the patient attempted light work. He was unable to do any lifting and became very much discouraged.

Oct. 10, 1919, Dr. Harold Brunn, in consultation, called attention to the large styloid process of his ulna. Further examination revealed that the same condition existed in both wrists.

Roentgenograms of both wrists were taken. A study of these showed that he has a congenital bilateral enlargement of the styloid process of the lower end of the ulna. This enlarged styloid process impinges on the pisiform in pronation and ulnar flexion, and causes the dislocation backward of the lower end of the ulna. He has the same prominence on the back of the left wrist that he has on the right. The patient is right handed, and undoubtedly would have the same complaint with his left wrist if he used his left hand more.

The condition was explained to the patient and removal of the enlarged process was suggested; but after all these examinations, and treatment, the patient was more of a "neurasthenic" than ever and refused all treatment.

890 Geary Street.

AN AIR PRESSURE METHOD OF ADMINISTERING ARSPHENAMIN

JOHN G. BURKE, M.D., PITTSBURGH

The article of Dr. Spence G. Gill¹ on a modification of the gravity method of administering arspphenamin prompts me to describe an apparatus that I have been using for three years. I think that this apparatus embodies all the advantages that Dr. Gill claims for his, and is free from one disadvantage inherent in his apparatus, in that the solution passes through the bulb and the valves. Both of these, being of rubber, would be difficult to keep sterile and in working order, especially with a solution which decomposes as readily as arspphenamin.

The apparatus that I use is not a modified gravity method but depends altogether on air pressure and, as the illustration shows, consists of a 250 c.c. Erlenmeyer flask with a No. 5 perforated rubber cork, and two bent tubes, a short one and a long one. The short tube is connected by a piece of rubber tubing about 18 inches (45 cm.) long to a compression bulb taken from a blood pressure apparatus. The long tube is connected by a piece of rubber tubing about 30 inches (75 cm.) long to the side extension of a Kaufman-Luer syringe. A piece of glass tubing is inserted into this line about 8 inches (20 cm.) from its distal end. To withstand the air pressure, all joints are reinforced by a piece of light copper wire twisted around each connection, and a heavier piece of wire is twisted around the neck of the flask and one end is left long so it can be bent over the rubber cork and



Apparatus for administering arspphenamin by air pressure.

fastened so as to prevent the cork from coming out when pressure is applied (adhesive plaster may be used to fasten the cork, but the wire is preferable). It is also necessary to encircle the piston of the syringe with a piece of wire, as the clip that comes with the syringe will not stand the pressure.

The advantages of the Kaufman-Luer syringe are that the opening on the side one-half inch (12.7 mm.) back of the needle, where the arspphenamin solution enters, indicates

1. Gill, S. G.: Modification of Gravity Method of Administering Arspphenamin, J. A. M. A. 77: 464 (Aug. 6) 1921

definitely when a vein has been entered; for if blood does not show when the piston is pulled back, one knows that a vein has not been punctured. When blood shows, one starts the flow of solution by drawing the piston back past the side opening. Another advantage of this syringe is that it is light and is easily handled and held by one hand, which leaves the other hand free to compress the bulb or do anything else that may be necessary. I use a 21 gage needle for a man; a 22 gage for a woman, and a 24 gage for a child (one size larger than an ordinary hypodermic needle). The smaller the needle, the greater is the pressure required; but this is readily obtained by compressing the bulb more frequently. With the use of the small needles a precipitate injection is impossible, and the caution of the Public Health Service to inject slowly is naturally met. Another advantage of this apparatus is that it can be used without an assistant, the patient reclining on a table and the operator sitting on a stool. If the apparatus is placed on a towel between the arm and the chest of the patient, the field of operation and the apparatus are all within the operator's vision and within easy reach of his hand, the flow of arsphenamin can be stopped by pushing the piston past the side opening, or the air pressure can be released by opening the valve on the compression bulb, and there is no occasion for looking up to see whether the solution is flowing, which movement often causes the needle to slip through or out of the vein.

Excepting the Kaufman-Luer syringe, which can be purchased at any instrument house, the parts necessary to make this apparatus can be obtained at small cost. Any physician should be able to put them together. The main point is to have it as air tight as possible.

I do not claim any originality in devising this apparatus, as several similar ones have been described; I have only assembled it from parts found in any physician's office or that can be easily procured.

8122 Jenkins Arcade Building.

FRACTURE FRAME

LYMAN G. BARTON, M.D., PLATTSBURG, N. Y.

This frame may be described as a combined "Balkan-Bradford" and was designed to carry out the technic employed by Dr. Joseph A. Blake in the treatment of fractures by suspension-traction. It has been used during the past nine months at the Champlain Valley Hospital and has been very satisfactory.



Fig. 1.—Assembly for thigh fractures with overhead trolley for one or both limbs.

The frame can be economically constructed, the only material used being ordinary gas pipe, with standard parts and fittings obtainable at any hardware establishment. No machining is required other than thread cutting and drilling.

Some of the advantages of this frame are: (1) quick assembly for all types of fractures, as the frame is an inde-

pendent unit not requiring attachment to bed frame; (2) adjustable length (from 5 to 7 feet), the foot section sliding on the side members of the Bradford frame, thus rendering it adaptable to both adults and children; (3) easy application of accessory attachments, making possible every position required in this form of treatment; (4) elevation of the foot,



Fig. 2.—Assembly with side extension bar attachable to either end of top member for positions of extreme abduction.

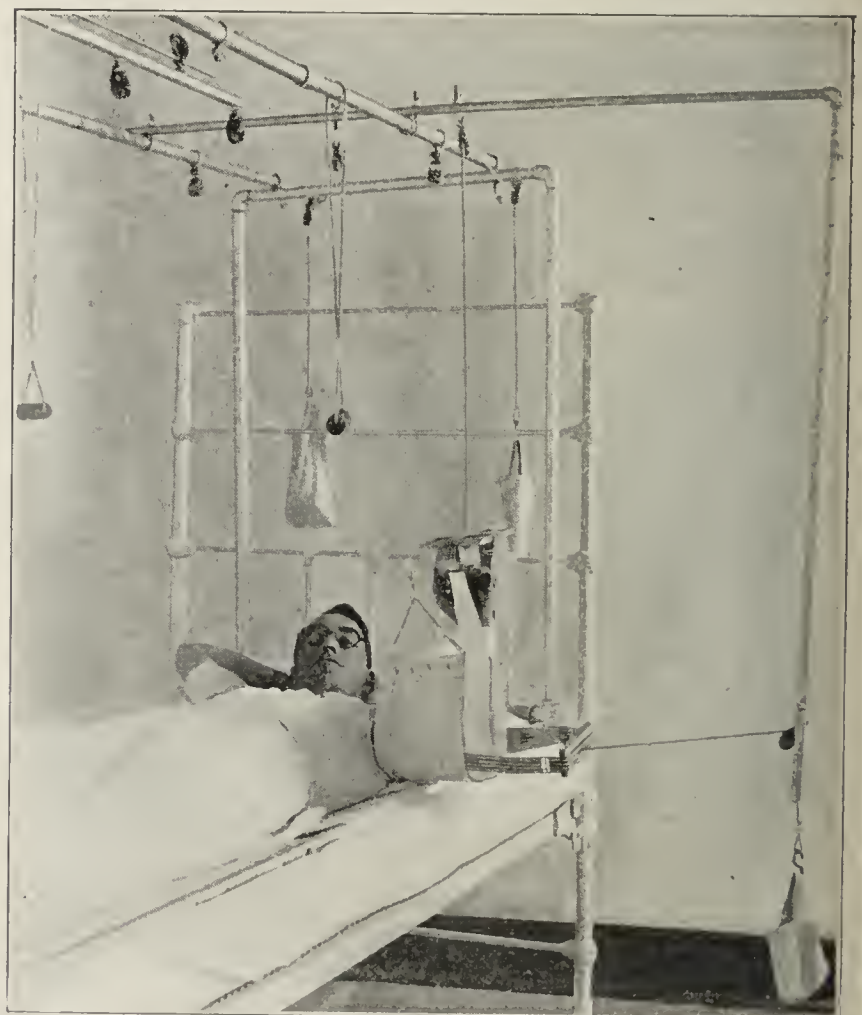


Fig. 3.—Assembly with outrigger for arm, adjustable for all degrees of abduction and rotation.

if desired, by blocking up the foot of the frame instead of the bed; (5) increased facility in nursing care, since the patient may be easily elevated on this frame or even transferred to another bed without disturbance of the apparatus, and (6) compact closure for storage when not in use.

12 Margaret Street.

Special Article

REPORT OF THE COMMITTEE ON THE PREVENTION OF HEREDITARY BLINDNESS *

I. ORGANIZATION OF THE COMMITTEE

Two years ago, a paper was read before this Section "On the Relation of Hereditary Eye Defects to Genetics and Eugenics." Later a resolution was adopted, providing in substance for the appointment of a committee to report on the prevention of hereditary blindness—this committee being composed of an ophthalmologist, a geneticist, and a general surgeon.

One of those first appointed could not serve because of military duties; but his place was filled by another who had already written on certain operations in connection with this subject.

This central committee, in accordance with the resolution constituting it, has increased its membership, adding also some laymen.

II. SCOPE OF THE INQUIRY

As clear definition is important in this connection, it should be remembered that the term "hereditary" has been confined as far as possible to eye defects which have appeared in two or more generations. This evidently includes examples of what is called "a filial characteristic." That word, indicating, of course, descent from parent to immediate offspring, is confusing and should be discarded.

But this report has nothing to do with cases of blindness which are simply congenital. While it is true that hereditary blindness often is congenital, on the other hand, many cases of congenital blindness are by no means hereditary. The indiscriminate use of these terms by members of our profession has confused the literature and befogged our ideas concerning the whole subject.

III. PLAN OF STUDY

In any such work, evidently the first thing is to ascertain what has been already accomplished.

In the paper referred to, credit was given for the bibliographies already collected by Groenouw,¹ Libby² and especially by Loeb.³ Additions to the list at that time brought the total number of references to more than 700. Considerable trouble has been experienced in the recent effort to bring this bibliography to date. This was especially because of the impossibility for a time of obtaining foreign journals, and the discontinuance, after the war began, of Nagel's *Jahresbericht der Ophthalmologie* and other valuable publications. That was one of the principal reasons for the delay in presenting this report.

In spite of these difficulties, however, the increasing interest and growing importance of the subject had added much to the literature, and made it possible to collect a bibliography now of about 800 references.

It was by no means an easy task to eliminate reports of simple congenital eye defects, and that necessitated the exclusion from this list of a large number of references heretofore quoted. But it is hoped that the bibliography is now practically complete.

In nearly all of the families reported, a number of individuals have inherited the eye defect described, so we have now a record of several thousand of such unfortunate persons, though not all of them are entirely blind in both eyes. The publication of such a bibliography is evidently not adapted to the transactions of this Section of the American Medical Association,⁴ but the Eugenics Record Office of the Carnegie Institution has considered it of sufficient value to be published under its auspices as a special bulletin.

Other data collected by the committee are sufficient for several papers on the scientific, philanthropic, economic, and other aspects of hereditary blindness. But these data, like the bibliography, are more suitable for publication elsewhere.

Although a large part of this bibliography consists of reports of family histories of eye defects, on the other hand it shows that much new light has been thrown on this phase of heredity. The breeding experiments of Castle, Morgan and those by an entire group of workers in the department of genetics of the Carnegie Institution of Washington, at Cold Spring Harbor, form only a small part of this new material. The most recent and perhaps most striking results have been obtained by Guyer⁵ at the University of Wisconsin. By serologic methods, he has produced cataract and other defects in the eyes of rabbits which have persisted into at least the sixth generation. And this is only one step in the rapid advance in the science of eugenics.

As the committee was charged only with the consideration of the prevention of hereditary blindness, we naturally ask whether the subject is worth considering at all. May it not be that the popular impression is correct, that the number of those that are blind from hereditary causes is so small, the cost of caring for them so trifling and any attempt at prevention so hopeless that the question is not worth discussing? Therefore, let us ask: About how many persons blind from hereditary causes are there in the United States; about how much is the annual cost of their care, and what, if anything, should we, as physicians and especially as ophthalmologists, do about the matter?

IV. NUMBER OF PERSONS BLIND FROM HEREDITARY CAUSES

In order to estimate the number who suffer from hereditary blindness, let us first ascertain the total number of blind from all causes. Taking the corrected returns of the last census, together with results of careful searches made by the commissions in New York state and elsewhere,⁶ and comparing those with the figures obtained by this committee in answer to a circular letter, it appears that the total number of blind persons in the United States is between 70,000 and 100,000. Campbell, one of the most careful students, placed it ten years ago at 100,000.

The proportion of blindness due to hereditary causes is more difficult to estimate. Data on this point have been gathered from various sources. It is a striking fact that earlier statisticians made this a comparatively small number; the estimate has been larger when made from data gathered by personal examination of the blind. Thus Paly⁷ thought that proportion was about 5 per cent. of all of the blind. Another estimate was 8 per cent. Loeb,⁸ in 1908, estimated it at between 5 and 10 per cent. of the total number.

Some years ago a careful examination was made of 306 pupils in the schools for the blind at Batavia and in New York City⁹ by the chairman of this committee. It was found that in many of the cases in which the pupils were reported as having been "born blind," that statement concerning them was erroneous—theirs were simply cases of infant ophthalmia. But when other pupils were questioned as to the existence of blindness among their relatives, the answers given were such as to indicate that blindness due to heredity among these pupils, and among the older blind elsewhere, was much larger than 10 per cent. The total number examined was, however, far too small to enable one to draw conclusions.

But making allowance for all deductions, in order to put the estimate beyond criticism, let us place the proportion of hereditary blindness at 7.5 per cent. of the entire 70,000 to 100,000. In other words, the total of hereditarily blind in the United States ten years ago was from more than 5,000 to perhaps 7,500.

5. Guyer: Studies on Cytolysins, J. Exper. Zoology, No. 2, August, 1920.

6. New York Report of the Commission for the Blind, 1906, pp. 5 to 15 and 26; United States Census with subsequent bulletin, 1910; Campbell: The Annals of Political and Social Science, 37: 517, 1911, and Best, Harry: The Blind, 1919, p. 5.

7. Paly: Die Blinden in der Schweiz, Ztschr. f. Schweiz, Statistk, 36.

8. Loeb, Clarence: Hereditary Blindness and Its Prevention, Tr. Am. Acad. Ophth. and Otolaryng., 1908, p. 264.

9. Twenty-Eighth Annual Report of the New York State School for the Blind, p. 56.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Groenouw, A.: Handbuch der gesamten Augenheilkunde, Graefe-Seamisch, Ed. 2, Part 1, 11: 415.

2. Libby, G. F.: American Encyclopedia of Ophthalmology, 8: 5812.

3. Loeb, C.: Ann. Ophth., 1909, p. 771.

4. Copies of this bibliography will be given with pleasure to members of the Section sufficiently interested to ask for it.

V. THE COST OF HEREDITARY BLINDNESS

This cannot be considered in detail here. Much could be written concerning it from data obtained by others, and in a small part also by our committee in answer to circular letters of inquiry.

Best⁹ (p. 69) gives \$30,725,000, "or in round numbers, nearly thirty-one million dollars as the total annual cost of the blind in the United States." Seven and one-half per cent. of this would be more than two million. But if we take statistics that have been carefully collected in Massachusetts and elsewhere concerning the average cost per year per blind person in and out of institutions, the total cost for the entire country would be considerably more than three million. In a word, we are probably safe in estimating the cost of hereditary blindness between two and three million dollars annually. To ensure moderate statement again, let us call it only two million. These estimates of number and cost are based on rough calculation. The figures are probably too small. They should be revised from the results of careful surveys.

Moreover, with our present negligence, we allow serious eye defects to be propagated without let or hindrance. One member¹⁰ of this committee some time ago reported eight cases of glaucoma in one family. Now there are at least fourteen. He had operated on four of these patients and a colleague had operated on still another. In one branch of a family represented at the New York School for the Blind at Batavia, there were seventeen, in another branch also seventeen blind.¹¹ Any one who doubts the persistence with which this terrible heritage follows certain families, will find in the bibliography referred to, abundant and much worse examples, especially among those reported by Nettelship.

In view of such facts the question arises: Is it right? Is it fair for us physicians, posing as guardians of public health, to sit idly by, year after year, with folded hands, while human beings are brought forth to lives of misery, and large sums of public money are wasted?

In searching for a reply, naturally we think of our own duties and also of the advantages of legislation. Law makers are perhaps justly slow to be moved by considerations of philanthropy or of science. But they and the public respond promptly to an impression made on the pocket nerve. Therefore, let us summarize the foregoing and see to what conclusions and then to what recommendations we are led.

VI. SUMMARY AND COMMENTS

1. The literature on this subject includes about 800 articles, with records of cases of several thousand individuals with hereditary eye defects, most of them entailing more or less loss of vision.

2. Estimates made by this committee, with data obtained from other sources, indicate that there are in the United States from about 5,000 to 7,500 persons blind from hereditary causes.

3. The annual cost of caring for these, directly and indirectly, is not less than two million dollars.

4. It is unspeakably cruel to inflict blindness on innocent human beings and eminently unjust to load the cost of supporting them on the taxpayers. The desirability of at least lessening this double wrong is evident.

5. As ophthalmologists should be among the first to recognize such facts, it would seem to be their duty to enlist the cooperation of other physicians, of clergymen, teachers, legislators, indeed, to interest every taxpayer in an effort to lessen hereditary blindness by means of legislation or otherwise.

6. We all agree that education concerning the evil of dangerous marriage is one of the best remedies against it.

7. At present our elective or voluntary method of education in this direction is imperfect and ineffective. It is difficult to find any school, or college, in which the principles of eugenics are systematically taught.

8. There is at present no prospect of improvement in this branch of education, as long as it remains one of the elective studies.

9. Concerning the more direct methods of preventing these hereditary defects:

(a) Compulsory sterilizing operations cannot be recommended, because of their danger to the female and because of uneducated public opinion. When, however, men express a desire to have vasectomy performed (as has happened occasionally in certain states and for other purposes than the protection of possible children), operation might well be sanctioned by the profession, or, if necessary, by law, when performed also for eugenic purposes.

(b) Separation of man and wife is also too severe a measure to be adopted by legislatures.

The simplest method which can be recommended at present is legislation which will compel the contracting parties to a marriage to furnish bonds that the children of the proposed union shall not become public charges.

This would mean a statute about as follows:

AN ACT FOR THE PREVENTION OF HEREDITARY BLINDNESS

SECTION 1.—If a visual defect exists in a man or woman who is about to marry, or in a blood relative within the third degree of either party, and if any taxpayer fears that the children of such a union may become more or less blind and therefore public charges, then such taxpayer, on guaranteeing the costs, may apply to the county court for an injunction against such marriage.

Thereupon, the judge shall appoint at least two persons to advise him concerning the probability of the further transmission of the eye defect. One of the experts thus called in consultation by the judge shall be a professor of sociology, biology or genetics in one of the universities of the state, or one of the staff of the Eugenics Record Office of the Carnegie Institution or any other person whom the judge may consider to be also well versed in the usual manifestations of heredity. The other expert shall be a legally qualified physician well versed in diseases of the eye.

SEC. 2.—Disobedience of the provisions of the above statute shall constitute a misdemeanor.

SEC. 3.—This act shall take effect on the — day of — in the year —.

But objections to any restrictive legislation occurred at once to members of the committee.

(A) Most of us are naturally suspicious of novelty. An Englishman, they say, on a wager, posted himself on London Bridge with a number of perfectly good sovereigns, offering them at nineteen shillings each, and he could sell them only with great difficulty.

(B) We all wish to avoid cumbering the statute books with useless laws. But no one actually knows whether a proposed law is useless until it has been tried. The mere discussion of a law to prevent hereditary blindness would unquestionably be of value as a lesson in eugenics, and its passage would be justified if it saved only one human being a year from blindness. This is better for a beginning at least than the certainty we have now of continued propagation, generation after generation, of the blind.

(C) Restrictive legislation is not in accord with the theory of free government. Injunction against marriage, as such, would probably be declared unconstitutional. But if the known or declared intent of one or more persons is such as to make it probable that their action would result in a quasi tort against any citizen, then in accord with established practice, such persons or person may be required to give bonds to protect such citizens against harm, namely, unjust taxation—the plaintiff as usual paying the costs.

On the same principle, one man is placed under bond to keep the peace or another may be placed under bond not to desert his family (Section 899, Code of Criminal Procedure, New York). This is practically universal. Moreover, the protection given to that one taxpayer affords equal protection to all others.

(E) The practical working of such a law seems at first complicated. But an example will show it is possible for a judge to obtain a basis for calculating a just bond in a given case. If the average duration of human life is forty years (as for instance in Massachusetts), and the average cost of supporting and educating an individual from birth to death

10. Howe, L.: A Family of Glaucoma, Arch. Ophth. 16:72, 1887.

11. Lewis, F. P.: Tr. Sect. Ophth., A. M. A., 1918, p. 75.

was about seven dollars a week, then one person would cost about \$14,600. That would be the maximum bond for the support of one blind child. But in the law proposed, the exact amount is discretionary with the judge. If the defect is frequent (dominant), then a poor and shiftless couple, or one wealthy and dissolute might well be held by a bond approaching the maximum; whereas, if the defect is not frequent (recessive), then a poor but sturdy and promising couple, or one well able to provide against calamity, would probably be required to give a bond for only a nominal amount. With such factors taken into account there would seem to be no unusual difficulty in administering the law.

Indeed, it is possible that "eugenic protection" might become a function of some organizations already existing. Or a special eugenic protective association might be formed. Paid agents would probably discover defective families, learn about intended weddings, and attend to legal details not customary now.

This principle might have a still wider application if such associations would deal not with blindness alone but include feeble-mindedness, waywardness and phases of poverty and of crime. Thus, two great wrongs of unjust taxation and cruelty would be rectified. Eugenically, that plan seems advisable. Legally, the principle has been pronounced sound.

The foregoing objections to restrictive legislation, together with some others, occurred to the writers of this report early in its preparation. Therefore, in order to learn the views of others, a preliminary questionnaire was submitted to a considerable number of ophthalmologists and geneticists. The replies are still to be classified and carefully studied. But at this first opportunity, we wish to express our thanks not only to those who approve our proposition, but especially for suggestions, and even for opposition, sometimes very instructive. Several of the suggestions, although adverse, have been gladly adopted in our conclusions. Two important changes have been made in the form of the law as at first proposed.

In this report it is only possible to mention the more evident objections to legislations. Answers to other adverse reasons will be gladly furnished, if desired, in a subsequent report.

The opposition which any such law is sure to elicit reminds one of the history of the first efforts for the control of ophthalmia of infancy. Previous to forty years ago, that disease was common. It caused at least from 15 to 20 per cent. of all the blindness among the young. At that time, a short and simple law was proposed to compel midwives and others to report suspicious cases. At first, the proposal met with active and persistent opposition when not with apathy.¹²

But by this and several other efforts, the public was gradually educated. Now that law, in some form, is operative among more than half of the hundred million inhabitants of this country. Ophthalmia of infancy has become a rare disease. As we were negligent concerning that condition before legislation against it, so now with heredity.

At present, we give less attention to the breeding of human stock than to that of horses, cattle or hogs. What should be the holy bond of matrimony becomes too often the legalized gratification of passion, a matter of pride, or the hope of profit. The wedding then is rather a spectacle than a sacrament. Divorces are more common with us than in any civilized country, except Japan. If public education, with its natural sequence of reform in such evils, is to come at all, it must begin somewhere. Why should it not come with safe and mild legislation like this, for the prevention of hereditary blindness? This leads us to the following recommendations.

VII. RECOMMENDATIONS

First, ophthalmologists should record histories as completely as possible, especially when serious eye defects are revealed.

Second, all other physicians and surgeons should try to keep pace with the rapid progress made in genetics, applying the new facts to improving methods of diagnosis, and, when possible, of treatment also. Any unusual defects if not pub-

lished should be reported to the eugenics record office of the Carnegie Institution, Cold Spring Harbor, Long Island, N. Y. There such records are carefully classified, and guarded for study whenever desired.

Third, local and state medical organizations should use their agents and field workers to obtain further data concerning hereditary defects in certain families.

Fourth, clergymen should be pleaded with until, with quickening conscience, they refuse absolutely to marry couples whose defects or whose well known heredity make probable the begetting of still another brood of unfortunates. The desecration of the sacrament of marriage can be left to those whose moral standards are low.

Fifth, educators of all kinds should awaken to the fact that marriage is the most important event in the life of an individual; and heredity the first factor of our being. For that reason, if for no other, the teaching of eugenics should begin in the lower schools with familiar examples in botany and zoology, and should progress gradually until in the high school, with lessons in cell development and otherwise, the defects of careful or careless breeding become evident. Examples could there be cited of a multitude of physical defects, among them, blindness or mental infirmities, such as feeble-mindedness, forms of poverty and crime, as exemplified on the one hand by the Adams or Fields, and on the other hand by the Juke or Kallikak or other families. Education like this seems more sensible and should rank higher than an acquaintance with Greek roots or mythologies of doubtful morality.

Sixth, legislators, and especially lawyers among them, should have shown to them their magnificent opportunities for control by beneficent legislation. They could accomplish more at one stroke than could a whole army of physicians, clergymen, teachers or all other groups combined.

Every taxpayer should join in urging our legislators to pass this law—if no better one can be proposed now, and then amend this one later, as experience may prove advisable. In a word, let us not continue to wait and wait, but *do something*.

Finally, the committee asks for more time. No effort will be made, this year at least, to recommend to the House of Delegates that it shall give its endorsement to the proposed law. We desire to study the subject more thoroughly—especially any possible objections to legislation with the hope of improving what is now suggested. Meanwhile also the subcommittee may be enlarged. The present members have either signed their names as usual, or given authority for that by letter. But the liberty has been taken to add explanatory titles, for the sake of identification and with the hope that the example of the few who have thus far learned of the proposed legislation may be followed later by the approval of others. In a word, the committee trusts that with increasing knowledge of the subject, means of some kind may be found by which to lessen hereditary blindness.

LUCIEN HOWE, Chairman,
CLARENCE LOEB,
WILLIAM T. BELFIELD.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

THEOBROMINE-SODIUM ACETATE (See New and Nonofficial Remedies, 1921, p. 363).

Theobromine and Sodium Acetate-P. W. R.—A brand of theobromine-sodium acetate-N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

12. The first draft of the law was prepared in the office of the chairman of the committee.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 24, 1921

THE BLOOD IN INFANTILE TETANY

About 1 per cent. of the weight of the protoplasm of the body is composed of inorganic elements. Of them Mathews¹ has expressively written: "They are not simply clinkers clogging the grates of the protoplasmic fires, but they are active in the production of the vital phenomena." In recent years, physiology has learned to regard the inorganic constituents of the body tissues not merely as structural units, such as one might assume the mineral components of the bone to be, but also as elements taking a more active part in relation to physiologic function. It has become apparent in numerous instances that any change in their relative proportions at once affects the activity of the cell; thus, by increase or by diminution in the proportion of sodium, calcium or potassium, skeletal muscle may be made to twitch rhythmically or to remain at rest; nerve impulses may be set up in motor nerves, or the irritability of the nerve raised or lowered. Hence has come the conception of a "physiologically balanced" solution representing the ideal circulating fluid of the organism—a fluid in which the relative proportions of the different ions is such that their antagonisms are neutralized and the proper balance for the maintenance of a normal irritability of muscle and nerve is secured.

The studies of Loeb and others have shown, for example, that calcium and magnesium are antagonists to sodium and potassium. Small amounts of calcium prevent the stimulating action of sodium in experiments on isolated muscles; hence Loeb once remarked that we are indebted to the calcium concentration of our blood for the fact that our muscles do not constantly twitch. There are disorders of man in which the musculature either twitches or shows a hyperexcitability to electric stimulation. There has been much speculation as to whether and how such phenomena might be related to an "unbalanced" condition of the body fluids which perfuse the organs.

Conjecture can now be replaced by knowledge, because the inorganic composition of the blood is no longer as much of a mystery as it used to be. The

physiologic chemist has devised methods of micro-analysis by which even small quantities of blood can be made to tell the story of their chemical composition. From data obtained in this way, Kramer, Tisdall and Howland² have confirmed earlier evidence from the Department of Pediatrics at the Johns Hopkins University indicating that the concentration of the sodium, potassium and magnesium in the serum of patients with tetany is essentially normal. On the other hand, the concentration of the calcium is regularly lowered. Obviously, the Baltimore pediatricians conclude, the important factor in increasing the irritability of the neuromuscular mechanism in infantile tetany is the decrease in the calcium concentration. The stimulating effect of the sodium and potassium salts is unopposed by the inhibitory effect of calcium. A procedure for the treatment of infantile tetany thus immediately suggests itself.

THE HUMAN BODY AS A WORKING MECHANISM

During the last few years, clinicians have learned much about the so-called basal metabolism of man. By this is meant the amount of energy required by the human organism under conditions of minimal activity, that is, at complete repose and without food. It represents the lowest hourly expenditure of energy compatible with continuance of the normal physiologic functions. Today it is well known that pathologic states of the organism may decidedly modify the basal metabolism; they may raise or lower the "metabolic rate." The apparatus and technic for estimating this factor have been perfected so as to come easily within the range of clinical laboratory management.

Less precise information is available, on the other hand, regarding the additional expenditure of energy which the many diverse activities of daily life call for. Broadly speaking, it may be said that the changes in the energy requirement due to differences in activity range from one-half calory hourly for each pound to three or more calories for severe effort; for the average man these figures represent variations from 1,700 to 6,000 calories in twenty-four hours. The data have usually been secured in a statistical manner by observing the actual food consumption of persons engaged in occupations of varying severity, and translating the intake into terms of energy. Direct calorimetric observations have been comparatively rare because of the technical difficulty involved in making measurements on persons actually engaged in mechanical work.

A few classic instances are often quoted in illustration of the surprisingly large working capacity of the human body in selected instances. The wood chopper in the Maine forests and the college athlete furnish

1. Mathews, A. P.: *Physiological Chemistry*, New York, William Wood & Co., 1920, p. 14.

2. Kramer, Benjamin; Tisdall, F. F., and Howland, John: *Observations on Infantile Tetany*, *Am. J. Dis. Child.* **22**: 431 (Nov.) 1921.

illustrations. Recently Gullichsen and Soisolon-Soininen¹ of the Physiologic Institute at Helsingfors have had unusual opportunity to make accurate studies on fencers and wrestlers under conditions of the most strenuous muscular performance. The energy output of these workers, estimated on an hourly basis during the periods of actual exercise, was more than 800 calories.

It is not without interest to translate such muscular efforts into other terms. Lavonius² found that the maximum amount of work attainable by a trained wrestler was the equivalent of 30 kilogrammeters a second. In the case of the Finnish athletes just referred to, the performance was even greater. Such exertions cannot be continued for any considerable periods of time; nevertheless, they give some concrete idea of what the human machine is capable as a converter of energy.

THE SIGNIFICANCE OF A PERSISTENT THYMUS

The association of sudden death with enlargement of the thymus was noted by Bichat early in the eighteenth century; Paltauf and others of the Vienna school showed that the persistence of the thymus in these circumstances is only one of a combination of hereditary anatomic imperfections occurring in the same body, and Charles Norris pointed out the external manifestations by which the condition of status thymicolymphaticus can be detected clinically.³ Since then the recognition of this condition, especially on the necropsy table, has become general, and its medicolegal importance is universally accepted. The chief characteristics of status lymphaticus are not limited to the general hyperplasia of the lymphoid tissues, with enlargement of the thymus in the young subject or its persistence in adults, but there are also more general changes, including hypoplasia of the vascular system, a delicate, clear, pale skin, noticeably rounded lines on a graceful body, scanty body and facial hairs, feminine distribution of the pubic hairs in male subjects, and other less significant changes. Symmers reports that 8 per cent. of the bodies examined at necropsy in Bellevue Hospital showed this condition to a recognizable degree.

Not only has the lymphatic constitution been found frequently in persons dying suddenly from trivial accidents, simple overexertion, or even mental shock, but attention has frequently been drawn to the presence of an enlarged or persistent thymus in persons who have committed suicide, and in criminals who have met death by violence. In the last groups of cases the persistent thymus has been interpreted as an evidence

of constitutional defective development, of which the mental and emotional instability is merely a part.

During the war, however, the opportunity to examine large numbers of healthy, well developed men who have been suddenly killed has shown that the current view of the thymus as an organ which disappears soon after adolescence is not at all correct. Edgard Zunz⁴ examined the thymus of a large number of Belgian soldiers who died soon after being wounded, and in forty-nine cases found in men between 19 and 34 years but three with completely atrophied thymus. In the others the gland weighed from 6.9 to 31.2 gm. (106½ to 481½ grains), averaging 15.7 gm. (242 grains). Yamanoi⁵ also found a persistent thymus in a large proportion of bodies of persons dying quickly of acute influenza. Sternberg⁶ calls attention to the prevalence of what seemed to be a lymphatic status in German soldiers killed during the war. He quotes Borst and Groll as finding in 2,000 necropsies a lymphoid hyperplasia in no less than 56 per cent., and in soldiers of from 19 to 20 years this condition was present in 86 per cent. The probable explanation of these findings is that the thymus does not undergo involution so rapidly as has been generally assumed, and that the abundant lymphoid tissue of youth persists well into adult life. So susceptible is the lymphatic tissue to toxic conditions or malnutrition that most persons who die otherwise than by a sudden death have suffered marked atrophy of the lymphoid elements, and our experience with necropsies on diseased bodies has given an erroneous impression of the age at which lymphoid involution takes place. In subjects meeting sudden death while in full health, the amount of lymphoid tissue found at necropsy is so much greater than that seen in the more familiar condition of death from disease that we are likely to consider that there is lymphoid hyperplasia, when actually the amount is normal. Presumably this accounts for at least some of the supposed frequency of status thymicus in suicides and in criminals meeting violent ends. It does not mean, however, that all our ideas concerning status lymphaticus are incorrect, for there is no doubt of the existence of the anatomic picture so carefully drawn by Paltauf and Norris. With this picture is associated a true hyperplasia of the thymus, for in Symmer's series of 118 cases of well developed status lymphaticus the glands usually weighed between 20 and 30 gm. (309 and 463 grains), as against the average weight of 15.7 gm. (242 grains) in Belgian soldiers. Nevertheless, these recent observations point out the necessity of discrimination in diagnosing status lymphaticus in persons meeting a sudden violent death, for the presence of a good sized thymus gland and well developed lymphatic tissues is not necessarily an abnormality in young adults.

1. Gullichsen, R., and Soisolon-Soininen, J. L.: Ueber die Kohlenstoffabgabe des Menschen beim Fechten und Ringen, Skandin. Arch. f. Physiol. **41**: 188 (July) 1921.

2. Lavonius: Skandin. Arch. f. Physiol. **17**: 196, 1905.

3. A review of this subject is given by Symmers, Douglas: Am. J. M. Sc. **156**: 40 (July) 1918.

4. Zunz, Edgard: Arch. internat. de physiol. **15**: 459, 1920.

5. Yamanoi: Schweiz. med. Wehnschr. **51**: 554, 1921.

6. Sternberg: Wien. klin. Wehnschr. **34**: 291, 1921.

Current Comment

THE INFLUENCE OF FAMINE ON DISEASE

The vast experiment on undernutrition furnished by the war taught much concerning other things than nutrition itself, especially the relation of nutrition to the incidence or manifestations of all and sundry disease processes. Much has been written concerning the decrease in obesity and diabetes among the population of the central powers as a result of enforced temperance as to food, while the tuberculosis curve during the famine years has been extensively discussed. During the period of short rations the alimentary canal also had new experiences, both as to quantity and character of food, the potato and turnip assuming a more conspicuous place in the day's work of digestion than had previously been the case. Apparently, on the whole the digestive tract met the new demands with success, for there seems to be no agreement in the German literature that there was any general increase in diseases of this part of the anatomy during the war. Some authors, as Boas and Albu, state specifically that there was no such increase; but many others report an increase in chronic dysentery, gallbladder disease and gastric ulcer. In view of the reputed relation of cancer of the stomach to the character of the diet, and especially the vegetarian's belief that this disease is the result of meat eating, it is interesting to report that a careful study by Janowitz¹ shows no evident alteration in either the number or the location of cancers of the digestive tract as observed in Berlin during the war, when compared with a similar group of population before the war.

INFANT MORTALITY IN THE UNITED STATES

Practical philanthropy applied in preventive medicine will not approach real success unless it is based on accurate facts and defensible premises. Human sympathy has often been accused of being misapplied. In the long run, the wisdom of procedures for human betterment must be measured by objective rather than purely subjective standards. This statement applies to the movements for the reduction of infant mortality, among other philanthropic enterprises. Raymond Pearl² remarked not long ago that one must have accurate birth statistics before infant mortality can be adequately discussed. These are at length available for a considerable area, in 1918 including 53 per cent. of the population of this country. On the basis of data secured for the U. S. birth registration area, Pearl has been able to ascertain for the first time with marked accuracy that infant mortality rates exhibit a relatively high degree of place variation in both rural and urban areas of the United States. There has been no significant decline in the mean rate of infant mortality in this registration area during the years 1916-1918, for which the dependable figures are now available. There is no significant difference in the mean infant mortality rates

in large cities (of more than 25,000 population) as compared with smaller ones; but the rates are notably smaller in the rural than in the urban areas, in both the white and the negro elements of the population. The mean rates of infant mortality are something like twice as high for the colored population as for the white population in each of the demographic units considered (large cities, small cities, rural areas), and at all times. According to Pearl, further, cities of more than 25,000 population in the birth registration area exhibit distinctly less variation in respect to rate of infant mortality than do either the smaller cities or the rural counties. The colored population exhibits a much higher degree of variation, however, measured in respect of infant mortality, than does the white population. Before control or ameliorative measures can be applied, the true facts must be known so that allowances can be made for possible influences of poverty, race, climate and other factors. Now that great and real variations of an indisputable sort have been brought to light, the problems of effective control and reduction of infant mortality are opened for discussion on a more rational basis.

IS FREE SALICYLIC ACID LIBERATED FROM SALICYLATE IN THE CIRCULATION?

Salicylates have long enjoyed a widespread vogue in drug therapy and particularly in certain diseases which, like rheumatism, are supposed to be associated with bacterial invasions of the blood and tissues. Salicylic acid is a protoplasmic poison scarcely less destructive to bacteria than are many well known germicides. This fact has raised the question whether the alleged therapeutic virtues of the less toxic salicylates are attributable to liberation of the acid itself in the organism. There is little probability that under ordinary conditions salicylic acid would be present as such in the circulation. Many years ago, however, Binz¹ demonstrated that the acid can be set free from its salts by suitable concentrations of carbon dioxide. Although the tension of the latter in normal tissues does not suffice for the purpose, it has been suggested that the higher concentration of carbonic acid found in inflamed areas may suffice to liberate salicylic acid so that it can exert a local antimicrobial action. Furthermore, it has been suggested that, in bacteremias treated with salicylates, the absence of a right-sided valvular endocarditis is due to the antiseptic qualities of free salicylic acid liberated there by virtue of the greater carbon dioxide content of the venous blood. The occurrence of mitral endocarditis, according to this view, would be associated with the greater alkalinity of the arterial blood, which cannot liberate free salicylic acid, and consequently does not possess antiseptic qualities. The question at issue is open to experimental tests. Although free salicylic acid is demonstrably liberated from sodium salicylate at a very low degree of acidity, namely, at a hydrogen ion concentration corresponding to p_H 6.5, Hanzlik² has found that the buffer substances in the blood prevent this even at higher acidities. Therefore it is improbable that free salicylic acid could be demonstrated in the circulation; in fact, none could be

1. Janowitz, Frieda: Ueber das Verhalten der malignen Tumoren des Verdauungstraktes während des Krieges, *Ztschr. f. Krebsforsch.* 18: 34, 1921.

2. Pearl, Raymond: Biometric Data on Infant Mortality in the U. S. Birth Registration Area, 1915-1918, *Am. J. Hyg.* 1: 419 (July) 1921.

1. Binz: *Arch. f. exper. Path. u. Pharmacol.* 10: 147, 1879.

2. Hanzlik, P. J.: The Salicylates, XIII, The Liberation of Free Salicylic Acid From Salicylate in the Circulation, *J. Pharmacol. & Exper. Therap.* 17: 385 (June) 1921.

detected by Hanzlik in the case of animals subjected to fatal asphyxia resulting in bloods that were actually slightly acid. He concludes, further, that fluids of joints and similarly enclosed regions would need to be more highly acid and freer from protein and other constituents than is probably ever the case in order to contain free salicylic acid and explain the therapeutic relief from salicylate medication according to the anti-septic theory.

PROFESSOR LORENZ AGAIN

Nineteen years ago Professor Lorenz came from Vienna to Chicago to give orthopedic treatment to the child of a millionaire. From the time he left his own city until he boarded the steamer for Europe, his trip was given publicity of an amount and kind that savored more of the circus performer than of the surgeon. That visit undoubtedly left in its wake blasted hopes and bitter disappointment in the hearts of poor cripples who, believing the newspaper reports that Professor Lorenz had well-nigh supernatural powers as an orthopedic surgeon, were for one reason or another unable to get the "miracle man" to treat them. The experience of 1902, it seems, is to be repeated. Professor Lorenz this time, according to press dispatches, comes to give free treatment to indigent American cripples. This at least is the ostensible reason. Recent reports indicate that not all the treatments are free but that fees are being accepted for the "private examinations." On this point the papers quote Professor Lorenz as saying:

Of course, when people come to see a physician or surgeon in a private office they expect to pay a fee for examination and treatment. The receipts for any single day were never as much as \$3,000. The most was about \$1,000.

To those with medical training, and therefore having knowledge of the facts, the publicity attending the present visit is nauseous. But that is its least indictment. The execrable taste of the whole matter might be forgiven if the public were to be the real beneficiaries. As a matter of fact, it is the public—the crippled public—that is suffering from this blatant advertising campaign. It is the refinement of cruelty for sensation-seeking newspapers to hold out to the crippled the false hope that Dr. Lorenz is a "miracle man" who will do for them what skilled orthopedic surgeons in this country have been unable to do. Medical men on both sides of the Atlantic know that the Austrian orthopedist has no phenomenal ability that places him in a class by himself. Professor Lorenz himself knows this—and admits it. The results accomplished on his previous trip were no better than the results of American orthopedic surgeons of that time. His most widely heralded "cure" was not a cure; it was a result as good as, but no better than, good orthopedic surgeons the world over constantly get. The accomplishments on the present trip will doubtless be those of any good orthopedic surgeon, with the usual proportion of good, bad and indifferent results. Perhaps one benefit will be the arousing of those crippled to seek competent medical attention. But behind and above it all will be the bitter resentment and despair of those poor unfortunates who, while hopelessly crippled and while getting from American surgeons the best that science has to offer, will be convinced that could they only reach the

"miracle man" their cure would be assured. Such publicity as the present pilgrimage is bringing forth is deprecated by the medical profession not because it is in bad taste but because in its effects, it is cruel.

THE RESISTANCE OF HUMAN INTESTINAL PROTOZOAN CYSTS TO HEAT

Within the cells of various types of bacteria, spores are formed to enable them to resist unfavorable conditions that might prove disastrous to the ordinary vegetative form. Whether spore formation occurs as a regular stage in the life history of an organism, or is produced only under the stimulus of an unfavorable environment, is still debated by bacteriologists. In any event, however, bacterial spores are exceptionally resistant to the destructive action of heat, light and many chemical reagents that easily destroy the bacteria themselves. Many protozoa are similarly able under unfavorable conditions to surround themselves by a resistant cyst and to enter on a resting stage of indefinite length. This power plays an important part in the life history of many parasitic protozoa, especially those which have become so specialized that multiplication or continuous existence independent of their appropriate host has become impossible for them.¹ Protozoan infection is often spread through the device of encystment. Boeck² of the School of Hygiene and Public Health at the Johns Hopkins University has determined the thermal death point of the different cysts of the parasitic intestinal protozoa of man as follows: *Endameba histolytica*, 68 C.; *Endameba coli*, 76 C.; *Iodameba bütschlii*, 64 C.; *Endolimax nana*, 64 C.; *Giardia intestinalis*, 64 C.; and *Chilomastix mesnili*, 72 C. This remarkable resistance of all these protozoan cysts to high temperature gives a clearer insight into their ability to survive and transmit trouble for mankind. It is, as Boeck points out, quite analogous to that of the spores of bacteria; in both cases the thermal death point is much higher than that of their respective vegetative and nonspore bearing stage.

PROPOSED INCREASE IN THE UNITED STATES PUBLIC HEALTH SERVICE

A bill has been introduced in the Senate and House of Representatives to "reorganize and promote the efficiency of the United States Public Health Service." It is known as the Watson-Dyer bill. The bill provides for 550 officers of the reserve corps of the Public Health Service, including fifty dental surgeons and fifty scientists other than medical officers, who may be transferred to and commissioned in the Regular Corps of commissioned officers of the Public Health Service by the President, in the grades of assistant surgeon, passed assistant surgeon, surgeon, senior surgeon, and assistant surgeon-general. Officers in the last grade will be known as Medical Directors. No officer will be commissioned or promoted until after passing an examination before a board of regular commissioned officers of the Public Health Service. The bill further provides that no reserve officer shall be commissioned in

1. Marshall, C. E.: Microbiology, 1921, p. 132.

2. Boeck, W. C.: The Thermal Death Point of the Human Intestinal Protozoan Cysts, Am. J. Hyg. 1: 365 (July) 1921.

the regular corps of the Public Health Service who has not had three years' satisfactory service in the army, navy or Public Health Service, a part of which service must have been between April 6, 1917, and Nov. 11, 1918. There are only 200 regular commissioned officers in the Public Health Service at present. They are largely engaged in administration, scientific research, industrial and child hygiene, neuropsychiatry, domestic and foreign quarantine, immigration, prevention of venereal diseases, public health education, and other matters pertaining to public health. There are about 1,000 commissioned officers of the reserve of the Public Health Service on active duty, caring for ex-service men. These officers are indispensable, yet they have no fixed tenure of appointment; they can be dismissed from active service by a stroke of the pen, regardless of the fact that the service and the country need them. The Watson-Dyer bill will transfer at least half of them to the regular service without any additional expense. It is hoped that this bill may speedily become a law so that the Public Health Service may have the increased permanent personnel which it needs to carry on its important work.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Gorgas Sanitation School.—It has been announced that the establishment of a school of sanitation at Tuscaloosa, in memory of the late Major General William C. Gorgas, will be undertaken by a group of southern physicians. Dr. Seale Harris, Birmingham, is chairman of a committee for formulating the plans. The site will be adjacent to the University of Alabama.

County Health Conference.—The annual conference of county health officers was held at Birmingham, December 12-17, in conjunction with the graduate school of medicine of the University of Alabama. Dr. William H. Park of the New York City Laboratories was the guest of honor, and read a paper on the use of antitoxin for the prevention of diphtheria. Dr. Park also conducted a clinic during which he explained the means of administering the treatment. Col. Frederick F. Russell, Washington, D. C., representative of the International Health Board, also delivered an address.

CALIFORNIA

Medical Scholarship for Women.—It has been announced that a memorial scholarship in medicine will be established at the University of California in memory of Dr. Sarah Shuey of the class of 1876, who was the first woman to graduate in medicine from the university.

Addition to County Hospital.—A building permit has been issued for a large addition to the County Hospital at Los Angeles, and the building will soon be erected. The permit calls for a building to contain 120 rooms, to be built at 1200 Mission Road, at an approximate cost of \$300,000.

Demonstration Clinic.—Dr. Udo J. Wile, professor of dermatology at the University of Michigan, Ann Arbor, held a special demonstration clinic at the public health center, Oakland, December 12. Dr. Wile gave a clinic to the physicians of the bay region at the University of California, December 16, and while a guest of the Academy of Medicine, San Francisco, December 17, Dr. Wile conducted a similar clinic at Stanford Hospital.

Children's Theater at Clinic.—The women's auxiliary to the children's clinic of the University of California is operating

a marionette theater in connection with the clinic. It is designed to entertain the children while they are waiting for a physician and at the same time teach them a health lesson. Dr. L. Emmett Holt, Sr., emeritus professor of pediatrics, Columbia University College of Physicians and Surgeons, New York City, was the guest of honor at the opening of the theater.

Lane Lectures.—The Lane series of medical lectures announced in THE JOURNAL, November 12, which is generally reserved for members of the medical profession and students, was open to the public for three lectures, December 5, 8 and 9. Dr. L. Emmett Holt, Columbia University College of Physicians and Surgeons, New York City, was the speaker. His subjects were, "Growth and Nutrition," "Vitamin" and a general discussion of practical problems of improving the nutrition of children, including the prevention and treatment of malnutrition.

Palo Alto U. S. Hospital.—There is now available \$1,400,000 for a soldiers' hospital at Palo Alto where ex-service men will be treated for mental and nervous ailments. The expenditure has been approved by Secretary of the Treasury A. W. Mellon. The new veterans' home will be built on a site of the present structure, and the capacity will be 550 beds. The tuberculosis group of permanent buildings, which it is expected will be built later, when a special appropriation for the purpose will be made, will have a capacity of 450 beds. This will make a total capacity of 1,000.

DISTRICT OF COLUMBIA

Bill to Control Optometry Practice.—Regulation of the practice of optometry in the District of Columbia is defined in a bill presented to the Senate this week by Senator Ball. Licenses are required of all opticians who must pass an examination. The proposed regulation is similar to the law now in existence controlling the practice of medicine.

Plea for Organized Medicine.—At a recent luncheon of the University Club, the membership of which includes about 100 physicians and surgeons of Washington, Dr. Hubert Work, President of the American Medical Association, made a strong plea for organized medicine. Dr. Work said, in part, that organization is at the foundation of success along practically all lines, and that men and women outside the medical profession engaged in other forms of the healing art, both honorable and otherwise, are organized and are drawing the people by their advertising methods.

HAWAII

Medical Society of Hawaii.—The annual meeting of the society was held, November 21, at Honolulu. The following officers were elected for the ensuing year: president, Dr. Grover A. Batten; vice president, Dr. Joseph E. Strode; secretary, Dr. Forrest J. Pinkerton; treasurer, Dr. Wah Kai Chang, all of Honolulu.

ILLINOIS

Public Health Institute in Chicago.—The state department of public health has completed arrangements for conducting a public health institute in Chicago, March 13-18, 1922. Complete programs for the institute have already been prepared and may be had upon request from the state department of public health at Springfield.

School of Instruction for Health Officers.—The state department of public health has just concluded a seven day session of a school of instruction for district health superintendents. The institute was held in Springfield and Chicago, three days being devoted to theoretical instruction and four to the observation of practical demonstrations.

Diphtheria Epidemics Cause Local Alarm.—During the past two or three months the prevalence of diphtheria in Illinois has been, and continues to be, unusually widespread. At many local points rather severe outbreaks have stimulated public alarm sufficiently to cause the closing of schools or the contemplation of such action in efforts to control the epidemic.

Typhoid Fever Carrier Identified.—Of more than usual interest are the results of a recent investigation by one of the field physicians of the state department of public health into a mild outbreak of typhoid fever at Mount Carroll in Carroll County. The chain of epidemiologic evidence pointed to a certain milk producer as the source of four or five cases. A laboratory examination showed that the dairyman is an active typhoid carrier, although forty-three years have elapsed since his attack of the disease.

Smallpox Incidence Increases.—The usual seasonal increase in smallpox has made its appearance in the state. Of more than usual interest, however, is the fact that many of the cases are reported to be of the virulent type. Drury Township in Rock Island County reported twenty-seven cases to the state department of public health within a week, and twelve of these were reported on a single day. From Tonica, in La Salle County, it is reported that fifteen cases of smallpox developed as a result of contact with a single patient who attended a local dance. The same patient is reported to have spread the disease throughout Leonore Township. From Dixon, in Lee County, ten cases, three of which are very malignant, were reported.

INDIANA

Conference on Mental Health.—A state conference on mental health was held at Indianapolis, December 15, under the auspices of the Indiana Society for Mental Hygiene.

Hospital News.—The Peru chamber of commerce has set aside \$2,000 as the beginning of a fund to be used in the erection of a new building for the Miami County Hospital, and has given the hospital association \$1,500 for immediate purposes of equipment.—Work has been started on the new south wing of St. Anthony's Hospital, Terre Haute. Building permits estimated the cost of the addition at \$75,000.—The hospital board of Vermilion County voted to make a conditional award for the contract for building the proposed county hospital at Clinton. Since there is a shortage to be made up of the building funds, the contract was awarded on condition that approximately \$26,000 be raised within a month by coal operators interested in the Clinton coal field or by other citizens. At least two coal companies have announced their intention of contributing to the fund. The citizens have promised to provide \$20,000 for the equipment of the institution.

KANSAS

Personal.—Dr. Frank G. Pedley, Montreal, Canada, has been appointed epidemiologist for the Kansas State Board of Health vice Dr. Thomas D. Tuttle, resigned.—Dr. Andrew J. Warren, Topeka, of the International Health Board, has been appointed chief of the division of communicable diseases and sanitary director of county health work, having been temporarily lent the International Health Board for that purpose.—Dr. Helen A. Moore, Wichita, assumed her duties as chief of the division of child hygiene, December 1.

Public Health Activities in Kansas.—The annual meeting of the Kansas Public Health Association was held in collaboration with the Kansas conference of social work in Topeka, December 6, 7 and 8.—Steps are being taken for organizing a section on laboratories, a section on public health nursing, and probably a section on mental hygiene. The next annual meeting will be held in October, 1922.—The Kansas State Board of Health has put on an extensive program during the last three months encouraging the immunization of schoolchildren to diphtheria by toxin-antitoxin.—The state board of health, in connection with the International Health Board, has offered assistance to six counties in the state for the purpose of putting on a full-time health demonstration, three counties having thus far been secured, and already there is widespread approval among the people of those counties for the full-time health organization work. These three counties, together with four others, previously operating, make a total of seven full-time health organizations in operation in the state.

MARYLAND

Opening of Public Health Unit.—The opening of the Washington County Public Health Unit took place, December 1, at Hagerstown. The building occupied by the association was thrown open to the public and the work of the clinical rooms explained to the visitors. The new laboratory was also visited and its workings illustrated.

Personal.—Dr. Howard A. Kelly has presented to the Babies' and Childrens' Clinic of the University Hospital a hand-carved bambino, a representation in art of the Infant Christ, which he brought from Florence, Italy. The presentation was made at a tea given in honor of the second anniversary of the clinic.—Award of the Distinguished Service Medal has been made to Dr. Elliott B. Edie, Connellsville, Pa., at Fort Howard. Dr. Edie was chief surgeon of the Eightieth Division when it was in action in the Meuse-

Argonne offensive in France, and the award is in recognition of his exceptional work in evacuating the wounded of his division from the front under trying conditions and under fire. He ranked as a lieutenant-colonel during the war.

School Health Work.—Health work in the schools, which has been transferred to the Baltimore City Health Department from the department of education, will follow the Strayer survey plan as closely as means at the disposal of Health Commissioner C. Hampson Jones and the general situation will permit. Dr. Jones will add to his staff of physicians for school work two or three women, who will be assigned to such teaching duty as may be found desirable or necessary. Dr. Humphrey Warren Buckler will have charge of all school medical work for the health department under the new plan. At present there are thirty-seven physicians and sixty-three nurses working under the supervision of Dr. Buckler in the schools. In transferring this work to the health department, it was decided to allow Dr. Jones twenty-four additional nurses.

MASSACHUSETTS

Improvements in Hospital.—Long Island Hospital, Boston Harbor, Boston, has just completed the installation of a sprinkler system at a cost of \$105,000.

Bureau to Aid Tuberculous Patients.—The executive committee of the Boston Tuberculosis Association has announced plans for the creation of a bureau for the purpose of providing work for persons discharged from the sanatorium as recovered from tuberculosis, but whose condition makes it imperative that they obtain suitable work. The association plans to seek out employers who are willing to give work to men and women on the understanding that such applicants will not be in a physical condition to jeopardize the health of their fellow workers.

Harvard Medical Unit.—A medical unit of the Reserve Officers' Training Corps is to be established at the Medical School of Harvard University, Boston. The course will cover four years. Instruction will also be given in a summer camp at the end of the first year, at which attendance will be voluntary, and another camp at the end of the third year, at which attendance will be requested for those who join the R. O. T. C. The camps will probably be held in connection with the Medical Field Service School, Carlisle, Pa., and will last a month. After four years' instruction and graduation as doctor of medicine, students will be eligible for appointment with the grade of first lieutenant. About twenty medical R. O. T. C. units similar to that at Harvard University already are established at other medical schools.

MICHIGAN

Mary Free Bed Guild.—Work on muscle reeducation, in connection with an orthopedic clinic at Blodgett Memorial Hospital, Grand Rapids, has been started by the Mary Free Bed Guild.

NEW HAMPSHIRE

Summary of New Hampshire Tuberculosis Clinics.—Under the management of the New Hampshire Tuberculosis Association, twenty-eight permanent clinic centers have been organized in the last sixteen months to which patients may go for examination and diagnosis. Three hundred and thirty clinics have been held, and a total of 6,730 patients have been examined, 161 of whom were sent to sanatoriums. Through exhibits and literature the work of the New Hampshire Tuberculosis Association has been introduced into 160 towns and cities.

NEW JERSEY

Personal.—Dr. Frederick H. Albee, Colonia, president of the state commission on rehabilitation, gave a demonstration of his work at the Cuban Medical Congress, held, December 12-17, at Havana.

Hospital News.—A new memorial hospital will be erected at a cost of from \$50,000 to \$100,000 at Ventnor.—The Memorial Hospital at Spring Lake will receive \$5,000 from the estate of Mrs. Bertha Achelis.

NEW YORK

New State Health Department Secretary.—Mr. Curtis E. Lakeman has been appointed secretary of the New York State Department of Health, to succeed Dr. John A. Smith, resigned. Mr. Lakeman was formerly secretary of the New

York State Water Supply Commission, and later served as secretary to Dr. Ernst J. Lederle during the latter's second term as commissioner of the New York City Department of Health.

New York State Society of Industrial Medicine Elects.—This organization, which held its first annual meeting in Syracuse, December 7, elected the following officers for the ensuing year: president, Dr. T. G. Smith, Schenectady; first vice president, Dr. C. H. Weston, New York City; second vice president, Dr. Ralph W. Chaffee, Syracuse; secretary, Dr. Myer S. Bloom, Binghamton; treasurer, Dr. S. M. Slater, Rochester.

Politics in Appointment of Medical Officers.—The Albany County Medical Society, at its meeting, December 7, passed resolutions requesting that politics be disregarded in the selection of medical officers for the city and county. Copies of these resolutions were sent to Mayor-Elect Hackett. The following officers were elected for the ensuing year: president, Dr. Thomas W. Jenkins (reelected); vice president, Dr. Nelson K. Fromm; secretary, Dr. Emmanuel M. Freund; treasurer, Dr. John E. Heslin.

New York City

Bronx Hospital Buys Site.—As a site for a two-story addition, the Bronx Hospital has purchased a plot on the west side of Fulton Avenue, adjoining the present hospital buildings.

The Association of Cardiac Clinics.—This organization held a meeting at the New York Academy of Medicine, December 13. The paper of the evening was read by Dr. William S. Thayer of Baltimore on "The Minimum Symptoms and Signs Necessary to Make a Diagnosis of Organic Heart Disease."

Surgical Fellowship Established.—A surgical fellowship amounting to \$600 has been established at the Lebanon Hospital Association at Westchester, Cauldwell and Trinity avenues, New York City. The fellowship was provided by Dr. Abraham J. Rongy and is awarded annually to the one of three graduate house surgeons who, in the opinion of the medical board, has had the best record during the entire term as a member of the house staff.

Association for Research in Nervous and Mental Diseases.—The second annual meeting of the association will be held, December 28-29, at the Hotel Commodore, New York City. The program consists of an investigation of multiple sclerosis, being the reports of research in etiology, pathogenesis, pathology, symptomatology and distribution of the disease. A supplementary report on last year's investigation of epidemic encephalitis will be made at the meeting.

American-Jewish Physicians Incorporate.—The American-Jewish Physicians' Committee has been granted the privilege of incorporating as a membership corporation by Supreme Court Justice William P. Burr. The organization aims to collect and expend funds for the establishment of a Jewish university in Palestine and for the upkeep of a medical unit of this university. Among the incorporators are Drs. Emil Altman, Joseph Bieber, Sigismund S. Goldwater, Israel Strauss and Israel S. Wechsler.

Chiropractic Causes Fatality.—David Lebish, a boy, aged 14, died shortly after admission to St. Mark's Hospital, December 9. Investigation into the cause of death revealed the fact that he had been treated for two days before his admission to the hospital by a chiropractor. Necropsy, performed by Dr. Charles R. Norris, chief medical examiner, verified the hospital diagnosis that death was due to a ruptured appendix, probably due to the manipulations of the chiropractor, Louis Glickman. Mr. George W. Whiteside, counsel for the Medical Society of the County of New York, and Dr. George Honan, assistant medical examiner, state that they have met many similar cases, several of which are under prosecution, but most of which have never been made public. Mr. Whiteside states that a chiropractor is under indictment for murder in the Borough of Richmond, that similar charges have been made against another in Queens, and there are two or three cases in New York County; the evidence in one has been submitted to the district attorney. Dr. Norris has also been investigating the case of Charles C. Rudolf, who died of blood poisoning and had been treated by three chiropractors. One of these admitted that he did not take temperatures or diagnose cases, but was merely interested in trying to locate any possible interference with the nerve supply that makes its exit from the spinal cord; another said the patient was "too far gone" when he first saw him to respond to chiropractor aid, while a third refused

to answer questions. Dr. Norris has requested that "in all cases resulting in death where it appears in the history of the case that, shortly before admission to the hospital and while the patient was suffering from the disease causing death, such patient had been under treatment by an unlicensed practitioner, you will forthwith notify the medical examiner of the city, in order that prompt and proper investigation may be made."

NORTH CAROLINA

Unveiling of Tablet.—In appreciation of the pioneer work of Dr. James E. Brooks, in his fight against tuberculosis in North Carolina, the District Nurse and Relief Committee of Greensboro presented a memorial tablet to the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium. The unveiling ceremony was held last month.

OHIO

Health Code Held Constitutional.—The supreme court has ruled that the Hughes-Griswold act, in force Jan. 1, 1920, providing for an effective system of health administration and health officers throughout the state, is constitutional. This law has been the target of bitter opposition. The present decision was brought about by a suit to compel the county auditor of Cuyahoga County to turn back to the municipalities of the village of Cuyahoga Heights and the village of West Park money raised for health administration under the Hughes-Griswold act.

Health Week.—In connection with announcements of a health week program, December 6-9, it is stated that for the first time in the history of Ohio state health work every one of the eighty-eight counties of the state has its own district health commissioner. To aid in improving the health work in the state, Director Snively has prepared a correspondence study course for health commissioners, which will be put into operation the first of the year. Ohio is said to be the first state to institute such a training course for health commissioners, New York being the only other state to have anything similar. The course will be known as a "correspondence study course in public health."

PENNSYLVANIA

Resolution of County Medical Society.—At a recent meeting in Uniontown, the Fayette County Medical Society unanimously adopted a resolution disapproving the use of beer and wine for medicinal purposes.

Personal.—Dr. Thomas D. Aiken, Berwyn, was recently elected physician-in-chief of the medical service in the Chester County Hospital, at West Chester.—Dr. John A. Diehl, Marion, has resigned as president of the board of directors of the Chambersburg Hospital. T. B. Kennedy, Chambersburg, was elected president to serve the unexpired term.

Shields to Designate Physicians' Automobiles.—Lycoming County Medical Society has received a number of metal shields to be used on the front of members' automobiles. The name of the Lycoming County Medical Society appears on the shield and also the emblem of the American Medical Association—a caduceus. Physicians when attending patients are not subject to all the traffic rules of the city, and this shield is designed for the information of the officer, and to avoid the need for explanations and subsequent delay.

Philadelphia

Police Physicians Organize.—Police and fire surgeons of this and other eastern cities of 100,000 population or more formed an organization at a meeting in the Racquet Club, December 14.

Personal.—Dr. John A. Ferrell of the International Health Board, Rockefeller Foundation, delivered the lecture on hygiene at the Laboratory of Hygiene, University of Pennsylvania, December 17.—Dr. Walter Roberts has been elected a member of the board of managers of Swarthmore College to fill the vacancy caused by the death of Isaac H. Clothier.

Hospital to Be Renamed.—As part of the program for the development of Garretson Hospital, the name of the institution has been changed to the Great-Heart Hospital. The hospital is indirectly a department of Temple University, and Russell H. Conwell, founder and president of Temple University, announces extensions including a training school for nurses' assistants at the hospital and an increase in the number of teaching beds in the hospital itself.

Six-Hour Quarantine for Smallpox.—Two hundred and fifty-three persons in the district from Sixteenth to Seventeenth streets, from Pine to Spruce streets, were vaccinated and 5,000 were placed under quarantine for six hours, December 13, following the discovery of a case of smallpox. The quarantine was started at 3 o'clock Tuesday morning, and 300 patrolmen were detailed to the neighborhood, which was roped off. The smallpox patient was taken to the Philadelphia Hospital for Contagious Diseases.

Children's Hospital Opens Disease Prevention Annex.—A new building, devoted exclusively to the prevention of disease, was opened by the Children's Hospital of Philadelphia, December 15. The department for the prevention of disease includes a health clinic, diphtheria clinic, preschool nutrition clinic, mothers' conference, school nutrition class, mothercraft, boys' health club, dental clinic and everything that can be taught a mother to help her in seeing that her children are healthy. The Associated Medical Clinic, which has been operated by the children's bureau, has been transferred to the department for the prevention of disease in charge of Dr. J. Prentice Murphy.

Symposium on Narcotics.—The stated meeting of the Philadelphia County Medical Society, December 14, was devoted to the discussion of alcohol in the form of a symposium arranged by the Committee on Foods, Beverages and Drugs and the Committee on Narcotics. Mr. Lloyd R. Craighill of Nanchang, China, delivered an address, his subject being "The Narcotic Situation in China; The Part the U. S. Army Is Playing in the Opium Traffic." Dr. George B. Wallace, professor of pharmacology, Department of Pharmacology, Bellevue Hospital Medical College, New York University, delivered an address, the subject of which was "Some Considerations of the Pharmacology and the Therapeutic Value of Alcohol."

Four Counties in New Health Association.—Members of boards of health in the boroughs and townships of Delaware, Chester, Montgomery and Bucks counties were organized by the state department of health as the District Board of Health Association No. 2. Approximately 200 members of local health boards in those counties elected Charles Stout, president of the Cheltenham township board of health, president of the new association. The association was formed at the call of Dr. Edward Martin, commissioner of health, for the purpose of bringing together the local health authorities into a compact organization which will work in cooperation with the state department of health.

TENNESSEE

Personal.—It has been announced that Dr. Hilliard Wood, who for thirty years has been teaching ophthalmology and otolaryngology in Nashville, has resigned from the faculty of the Vanderbilt University. Drs. Marvin M. Cullom and William G. Kennon will take up his work.

VIRGINIA

Annual Meeting of Medical Association.—At the twenty-sixth annual meeting of the Seaboard Medical Association, held recently at Norfolk, under the presidency of Dr. Edward C. S. Taliaferro, Hugh S. Cumming, Surgeon General, United States Public Health Service, spoke on "Pellagra as It Affects the Southern States."

WISCONSIN

Limitation of Health Board Power.—The city attorney of Milwaukee has passed adversely upon the question of department of health examination of children in the public schools. The question arose from the refusal of some parents to permit their children to be examined by visiting nurses or officials of the health department. It was held that there is no provision compelling the child to submit to such an examination, but there is express authority for excluding that child from the school until the health department is satisfied that such child is free from contagious diseases, in cases in which an epidemic exists in the locality of the school.

CANADA

Public Health News.—The new public health court, Toronto, held its first sitting, December 15, with Magistrate Cohen in charge.

Standard to Be Raised at McGill University.—The standard required of students desirous of entering the Faculty of

Medicine at McGill University will be raised next season, as announced recently. One year in arts, senior matriculation or its equivalent, will hereafter be imperative for all students.

Ontario Medical Association.—An advisory board consisting of three members has been appointed by the Ontario Medical Association to confer with the board of license commissioners and to assist in handling all charges against members of the medical profession of breach of the Ontario Temperance Act. The board members are, Drs. George S. Young, Toronto; Thomas C. Routley, Toronto, and Frank J. Farley, Trenton, Ont.

Personal.—At a recent meeting of the Academy of Medicine, Toronto, graduates of Trinity Medical College presented Dr. James A. Temple, Toronto, with a portrait of himself. Dr. Temple is the last and surviving dean of the college, and began his practice in Toronto in 1869, continuing until very recently.—Dr. Edgar N. Coutts, Agincourt, Ont., for a number of years the leading physician of Scarborough, has been recently appointed superintendent of the Freeport sanatorium, Preston, Ont. During the war, Dr. Coutts served with the Royal Army Medical Corps in Egypt.

GENERAL

Personal.—Dr. Hugh Wallace Bell, Crafton, Pa., formerly of Midway, Pa., who was decorated by the Greek government for services rendered its soldiers at Smyrna, has returned from Turkey, where he has spent two and a half years with the American Red Cross. Dr. Bell was director of the American Hospital at Smyrna and later at Narash.

Alaska Hospital to Be Retained by Government.—A bill introduced by Representative Sutherland provides for the retention of the government detention hospital building at Nome, Alaska. A law passed by Congress in 1916 instructed the Secretary of the Interior to sell the property. The measure stipulates that it be used for the U. S. Bureau of Education.

Fund for Medical Investigation.—The directors of the Fenger Memorial Fund have set aside \$500 for medical investigation. The work should have a clinical bearing and if possible it should be carried out in an institution that will furnish facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Dr. Ludvig Hektoen, 637 South Wood Street, Chicago, before Jan. 15, 1922.

New Officers of the Missouri Valley Medical Society.—At the joint meeting of the medical associations of the Southwest and the Missouri Valley, held recently at Kansas City, the following officers were elected for the Missouri Valley Medical Society: president, Dr. Paul E. Gardner, New Hampton, Iowa; vice presidents, Drs. Henry J. Lehnhoff, Lincoln, Neb., and Austin McMichael, Rockport, Mo.; treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo., and secretary, Dr. Charles Wood Fassett, Kansas City, Mo., reelected. The next meeting will be held at St. Joseph, Mo., in September, 1922.

Legislation Providing Medical Service for Coast Survey.—Provision for medical, surgical and hospital service for officers and seamen of the Coast and Geodetic Survey is the subject of a bill introduced in Congress by Representative Winslow. The measure directs the U. S. Public Health Service to take care of the sick and injured of the Geodetic Survey, and also provides that, whenever practicable, the detail of a medical officer to each of the vessels of the survey be made. The same service shall be furnished by the U. S. Public Health Service as is rendered by the medical corps of the Navy to its officers and men.

Nations Unite to Fight Epidemic Diseases.—The International Sanitary Congress, representing more than forty nations, has adopted the suggestion of the U. S. Public Health Service that plague, yellow fever and cholera be included among the so-called international notifiable diseases. It was decided that smallpox and influenza epidemics should also be a matter of diplomatic notification whenever they occur in the various countries. This suggestion was adopted at the recent International Sanitary Congress, which has just adjourned in Paris. Another meeting will be held in Paris next June, when diplomatic representatives of virtually all the nations of the world will meet to approve the work of the sanitary officers. The United States was represented at the recent meeting by Assist. Surg.-Gen. Rupert Blue, U. S. Public Health Service, Washington, D. C.

LATIN AMERICA

Twenty-fifth Anniversary of Havana Exchange.—The *Revista de Medicina y Cirugía* of Havana recently celebrated the silver anniversary of its foundation with a banquet. It was at the same time a testimonial to its founder, Dr. José Presno y Bastiony who had just before returned from a trip to Europe, in time to preside at the Fifth Cuban Medical Congress.

Memorial to Carrión.—The local medical society of Lima, Peru, and the organized medical students held a joint meeting, October 5, to commemorate the thirty-sixth anniversary of the death of Daniel A. Carrión who deliberately inoculated himself with the virus of a febrile disease in order to settle the question of its etiology and identity with Peruvian verruga.

Personal.—Dr. P. B. Bonelli of Guayama, Porto Rico, has returned to his country after spending several months in New York in postgraduate work.—Dr. Carlos Coello of Ecuador has returned to his country after attending the American Public Health Association meeting in New York.—Dr. Raúl Bermés of Cartagena, Colombia, has returned from New York to his country where he intends to open a modern and well equipped sanatorium.

FOREIGN

New Chair at Paris.—A chair of clinical propedeutics has recently been founded in the Paris medical school and conferred on Dr. E. Sergent without his having passed through the agrégé stage.

Swedish Journal and Money Exchange Difficulties.—The *Acta Oto-Laryngologica* announces to subscribers in lands with currency much depreciated at present that a certain number will be accepted as subscribers on signing an agreement to pay the subscription before 1930, with 4 per cent. interest, and in Swedish money.

Strike of Medical Officers.—The *Revista Española de Medicina y Cirugía* states that the health officers in Portugal have followed the initiative of the Associação de Medicos Provinciales and have announced that they will not fulfil their regular duties until some steps are taken toward considering the reorganization of the sanitary service, a bill to that effect having long been pending in the legislature.

Insurance for Laborers.—An appropriation of 10,000 yen (\$4,900) was obtained by the department of agriculture and commerce, Japan, for the investigation of facts on which to base an organization for insuring workingmen against accidents, disease and death. Statistics of accidents and deaths have already been completed. As there is no means of investigating the unemployed, the present contemplation is to confine investigations to health and injury insurance.

Foreign Members Elected by Swedish Medical Association During 1921.—Besides the honorary member, Prof. Bordet, the recipient of the Nobel prize in medicine last year, fourteen foreign members were elected by the association during the current year: Rollier of Leysin; the Italian professors Majocchi and Ducrey; the Brazilian, Werneck Machado, Terra and Rabello; the German, Reichardt, Penzoldt, Heffter and Pick; the Austrian, H. H. Meyer; the Christiania professors Holst and Poulsson, and Prof. R. Magnus of the Utrecht University.

Historical Tablets Unveiled at Naples.—On the occasion of the Italian medical and surgical congresses which convened the same week in October at Naples, two tablets were dedicated in the vestibule of the medical clinic commemorating the names of the internists who have taught there since the days of Cotugno to the present. The list includes Cirillo who died on the gallows for his devotion to ideals; Cotugno was persecuted, and Lanza and Tommasi were exiled. A historical exhibit of articles relating to the history of medical education at Naples was organized for the week of the congresses, and an illustrated parchment was presented to Maragliano who is a graduate of the Naples medical school. The *Riforma Medica* is published at Naples, and it has issued several special numbers in honor of the meetings.

Memorials to Gerhardt and Wurtz.—The two famous chemists to whom the introduction of the atomic theory is mainly credited, Gerhardt and Wurtz, were born or studied at Strasbourg, and on the occasion of the recent "congress week" at Strasbourg, a Gerhardt Foundation, to provide stipends for research in chemistry, was formally inaugurated and a Gerhardt tablet on the wall of the chemistry institute was

unveiled. The memorial to Wurtz, who was appointed professor of chemistry at Paris in 1853, is a statue in a public square. Gerhardt was professor of chemistry at Montpellier where he published the first work on chemistry written in atomic notation. He resigned this post and for six years had no official position, but in 1855 he was given the chair of chemistry at Strasbourg where he died the following year, at the age of 40. The sons of both the chemists took part in the ceremonies.

Deaths in Other Countries

Dr. José Aleman, a prominent physician of Havana, died in New York after a long illness.—Dr. E. Van Coillie of Brussels, long a prisoner of war in Germany.—Dr. P. De Ridder, also of Brussels, died of pernicious fever on a trip to the Congo to study eye diseases.—Dr. Koeppel of Berlin.—Dr. Adolph Sell, a Danish physician who succeeded in creating a colony for epileptics and getting the communities to pay the expenses for local epileptics. In the course of twenty years his colony, "Philadelphia," became a home for 450 epileptics and 100 insane women, all without any aid from the state. He early introduced occupation therapy and published a number of works, in one arraighing the medical profession as lacking in idealism.—Dr. F. M. Levy, formerly professor of gynecology at the University of Copenhagen, aged 74.—Dr. Simon Adler, surgical director of the Pankow hospital.—Dr. J. Trüper, Jena, publisher of the *Zeitschrift für Kinderforschung*, who is said to have done much to promote the medical-pedagogic care of psychopathic children.

Government Services

Public Health Service to Open New Hospitals

The U. S. Public Health Service is planning to open six new hospitals during the year 1922, all of which will be used for disabled war veterans. Included in the list are three tuberculosis hospitals, one at Dawson Springs, Ky., which cost the government over \$2,000,000, another at Excelsior Springs, Mo., and a third at Rutland, Mass. The total capacity of these hospitals is 920 beds. A general hospital will also be opened at Fort Walla Walla, Wash., near the junction of the coast wheat and fruit belts, with a total of 1,240 beds. The new neuropsychiatric hospital in the Bronx, New York City, with 1,000 beds will also be ready for service during the next year. Because of the change in the law the institutions will probably be placed under the jurisdiction of the U. S. Veterans' Bureau, although up to the present time the U. S. Public Health Service is still in control of most of the hospitals where ex-service men are being treated.

Board to Pass on Army Contracts

Secretary Weeks of the War Department has appointed a board of contracts and adjustments for the army which will meet in Washington to study contracts and make adjustments of contracts made by the army. The board is made up of a representative from every branch of the service. Col. Edwin P. Wolfe, Medical Corps, U. S. Army, is among the members representing the medical department of the army.

Public Health Service Announcement on Treatment of Leprosy

Because of the optimistic claims regarding the curative effects of chaulmoogra oil derivatives in the treatment of leprosy, the U. S. Public Health Service has issued a statement declaring that it is yet too soon for the medical profession to assume that a permanent remedy has been found. Of the patients paroled from the leprosy stations of the U. S. Public Health Service in the Hawaiian Islands, 8 per cent. have relapsed and returned for treatment. The statement declared that this was to be expected and that, on the whole, the results have been so favorable as to make the treatment of the disease hopeful. But it is said that while the ethyl ester of chaulmoogra oil, the use of which has now supplanted the oil itself, constitutes a most valuable agent in the treatment of leprosy, particularly in the early stages, the cure cannot be recorded as permanent.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 25, 1921.

The Medicine of Argentina as Seen by a French Professor

In a previous letter I mentioned that Dr. Marcel Labbé, professor in the medical department of the University of Paris, had gone to Buenos Aires to hold a series of lectures on biology as related to clinical medicine. In a recent letter from Argentina addressed to the *Temps* he gives his impressions of the country. Labbé begins by stating that from the intellectual standpoint he did not feel at all strange in Buenos Aires. In medicine, especially, he noted that the same fundamental textbooks on anatomy, physiology and pathology are used by the students of Argentina that are used in France, and that the same medical conceptions, the same admiration for scientific achievements, the same ideas with respect to therapeutics prevail in the minds of physicians in both countries. Professional usage does not differ much from that of France. The family life, however, is more completely separated from the professional life, owing to the fact that many practitioners have their consultation office distinct from their residence, which is rarely the case in France. Physicians of Buenos Aires cannot be accused of having antiquated ideas. They are acquainted with the most modern ideas and the most recent technic. The application of electricity and roentgen rays to medicine has been widely developed. Everything new awakens interest, and the enthusiasm for therapeutics is even greater than in France. The use of organotherapy and vaccinothrapy, together with arsphenamin, has increased to a great extent. There are numerous hospitals in Buenos Aires, and those that have been built lately, while not luxuriously equipped, are well adapted to the needs of present-day medicine. The laboratories connected with the hospitals of Buenos Aires are of a character to awaken the envy of the hospitals of Paris. Labbé admits that in the medical curriculum of Argentina laboratory work plays a more important part than in France. The reason for this is that everything connected with science awakens respect. Argentine physicians do not view laboratory researches with suspicion, such as is sometimes evident among French physicians. They are fond of mechanical accomplishments, and admire improved instruments and the wonderful installations of intricate mechanism, in which the North Americans excel. Labbé has only one criticism to make in regard to the course of study; namely, that the curriculum requires of students only two years of attendance on hospital services. Some students offset this insufficiency by voluntarily following the clinics of professors during their third and fourth year, but all do not show such zeal, and it is to be feared lest many young physicians may receive a somewhat superficial instruction from the practice side. In view of the extensive development of the hospital services in Buenos Aires, it would be easy to require of all students a period of clinical attendance, beginning at least with their third year. Perhaps, however, the students themselves, now that they have obtained through their chosen delegates a representation at faculty councils, may demand this improvement in clinical training, to which, in France, so great importance is attached.

Motion Pictures in the Teaching of Obstetrics

At the twenty-fifth congress of alienists and neurologists, Dr. Long of Geneva demonstrated the didactic value of motion pictures, not only for the comparison of various clinical types but also for the demonstration of rare cases (THE

JOURNAL, Sept. 24, 1921, p. 1033). Dr. Wallich, obstetric surgeon to the Paris hospitals, has recently called attention to the application of motion pictures to the teaching of obstetrics. As far back as 1916, Wallich had an obstetric film made, recording various interventions (forceps delivery, basiotripsy, embryotomy) carried out on the manikin, to give students an opportunity of observing something more of the operations than the exterior movements of the instruments and of the hands of the operator, as is the case when the operation is performed on the living subject. In order that all those who may wish to resort to this graphic aid to teaching may profit by his experience, Wallich explains certain points in regard to the manner of preparing an obstetric film and the best mode of exhibiting it.

To secure a satisfactory film of an operation, it does not suffice to call in an expert with his apparatus and to perform the operation before him. If we make no further preliminary preparations than this, we obtain only a film in which one may see various persons in aseptic uniforms moving about the patient, covered with sheets, through which, perchance, a wound may be perceived, sometimes very small and often black with blood, in which gloves and instruments may be seen going in and out. It is evident that this is not the sole aim of a kinetographic film. But by means of a better arrangement, with adequate natural or artificial illumination, with apparatus properly placed and well focused on the operative field, the region of interest can be shown and the precision and the succession of movements may be recorded; in other words, the surgeon's *form*, or style of operating, can be brought out. We shall thus be able to preserve the operative methods of various masters of our time, which may constitute for the present—and perhaps still more for future generations—a most interesting record. But we cannot expect that these films will teach us anything more than can be learned by witnessing an operation from the seats of the amphitheater. It is more a question of becoming acquainted with an operator than it is of learning the method of performing the operation. Still another method of preparing a film consists in confining one's attention to the operation itself, without troubling about the operative setting, the operator or the patient. It is evident that these conditions can only be realized when the operation is performed in the amphitheater and on the cadaver. In order that such a film may be instructive, all the conditions necessary for a demonstration must be met. Perfect lighting conditions are needed, and the operation must be performed directly in front of the camera, so as to allow the photographer an opportunity to change the position of his apparatus to suit each stage of the operation. It is also essential to request the operator to be careful not to veil the operative field either by his arm movements, or his body or head. A real scenario must be worked out as for an ordinary commercial film, and it will require patience and repeated trials and rehearsals if good results are to be secured. One must, in fact, be as good a stage manager as operator. A film thus obtained will stand a chance of depicting accurately the movements of the surgeon and the effects thereby produced.

A few suggestions in regard to the best method of displaying a film, Wallich thinks may not be out of place. He advises winding off a reel at medium speed, with a view to reproducing the original character of the movements, without trying to produce the illusion of an operation performed with marvelous rapidity. After having shown the operation at normal speed, it is well to break up the movements by showing them at reduced speed and by stopping the film now and then. This reduction in speed or stopping is not feasible without the use of an apparatus equipped with metal lamps, which throw out less heat and do not damage the celluloid

film. An apparatus with such equipment does not give quite as clear a picture as the ordinary machine. It is therefore reenforced by projecting it on a metallic screen.

If the attention is fixed too long on the luminous screen, the eyes get tired, and it is found helpful if the instructor gives a running commentary on the picture and indicates, with the aid of a pointer, the interesting features to be considered. This method has the advantage that it eliminates the number of explanatory subtitles, which cause, when numerous, too many interruptions in the succession of movements.

Furthermore, it may be well to note that films not only can be used for oral instruction, but also may be utilized in printed textbooks. The last edition of Wallich's *Éléments d'obstétrique* contains various illustrations showing different stages of an operative movement. By grouping together four or five such illustrations, the component parts of a movement are clearly shown, especially if each illustration is accompanied by a short and precise explanatory legend. In such a manner, we can demonstrate to the student better than with an ordinary illustration and more accurately than with a description the movements that he himself will be called on to execute when performing an operation.

LONDON

(From Our Regular Correspondent)
Nov. 21, 1921.

Damages Because Physician Did Not Use Roentgen Ray in Treating a Fracture of the Femur

A case in which a country general practitioner was mulcted in heavy damages should prove a warning not to undertake the treatment of a fracture, except in a very simple case, without using the roentgen rays. A woman while driving a dog-cart in the country was thrown out and sustained an injury to her right leg. A well-known local physician was sent for and diagnosed a fracture of the upper third of the femur. He treated her by a Thomas splint and extension, and had her removed to a hospital, where she was also examined by his partner, who agreed as to the diagnosis and treatment, and did not consider that the use of an anesthetic was advisable. No roentgenogram was taken, and it was elicited in court that the roentgen-ray apparatus at the hospital was out of order. About five weeks after the accident, the splint was removed and the weight removed. The physician found that union had taken place with only one-half inch (12.7 mm.) of shortening. He warned the patient against putting any weight on the leg for some time, and allowed her to go home about a fortnight later. Ten days after her return home the leg suddenly gave way. Her family physician was called in. He stated in evidence that the leg was $1\frac{3}{4}$ inches (44 mm.) shorter than the other, and that there was pain with swelling of the buttock and inability to raise the leg. He diagnosed fracture of the neck of the femur and advised a roentgen-ray examination, which confirmed his opinion. The patient was subsequently removed to a hospital in London, where an operation was performed. The medical evidence was contradictory. The patient's family physician stated that the fracture was in the neck of the femur and that an anesthetic should have been used at first. But Sir Hamilton Ballance, a well-known surgeon, said that he considered that an anesthetic was not indicated, as any struggling would have increased the damage round the fracture. He believed that refracture had occurred, owing to the patient's putting too much weight on the leg, and was satisfied with the treatment. His opinion was supported by Mr. H. E. Griffiths and Mr. Harold Wilson, surgeons of St. Bartholomew's Hospital. However, the jury awarded heavy

damages against the physician. Their verdict was largely influenced by his failure to have a roentgenogram of the fracture taken.

Municipal Medical Socialism

In the reports on the working of the national health insurance act which have appeared from time to time in previous letters, it has been pointed out that this form of socialism is not likely to stop at its present point and in time will be extended. The providing of socialistic dentistry and a consultant service under the insurance act is being advocated just now. But it is a local body which immediately threatens an extension of medical socialism. The Willissen Urban District Council, a body which controls a district on the confines of London, is attempting to set up a local medical service partly at the expense of the ratepayers (as the government set up a medical service at the expense of the taxpayers). They have circulated a leaflet giving the following charges: Registration fee, 50 cents for mothers and children under the age of 5 years and for children attending the public elementary schools. For these will be provided outpatient medical and dental care, including specialist consultations, prescriptions, home nursing and dental, eye, throat, nose, ear, mothers', babies' and other clinics. Spectacles, 50 cents. Midwife cases at the municipal hospital, \$10. Operative treatment of tonsils and adenoids, \$2. Diseases of women, 75 cents a day. Diseases of children up to school age, 36 cents a day. In the case of patients whose circumstances are below the council's scale, the whole of the charges, except the registration fee, may be remitted. The local physicians are opposing the scheme on the ground that it is the business of the council to provide an efficient preventive service, that they have not the means to provide also a treatment service, and that therefore if both be attempted the former will suffer.

The Prevention of Venereal Diseases

At the sixth annual meeting of the National Council for Combating Venereal Diseases, the chairman, Lord Gorell, said that the longer he held office the more impressed he was with the value of the organization. The constantly increasing attendances at the treatment centers proved that people were beginning to recognize that treatment to be successful must be continuous. The educational work was a very hopeful feature of the council's operations. The council had dispatched three commissions to certain colonies and seaports abroad to investigate the conditions obtaining there. Dr. A. F. Wright, one of the commissioners to the West Indies, urged that action be taken to prevent women boarding ships for prostitution. The conditions in many ports were beyond description. Treatment ought to be available in every ship putting to sea, and every ship's doctors ought to be competent to give injections. In some of the smaller West India islands the provisions for dealing with venereal diseases were disgracefully bad.

The General Medical Council

At the opening of the session of the General Medical Council, the president, Sir Donald Macalister, stated that no progress had been made in establishing medical reciprocity with Belgium. Belgian physicians registered here (a privilege granted to them during the war) retained their right to practice, but no corresponding privilege remained to British physicians registered in Belgium, unless they had independently acquired a local qualification there. As regards Spain, the former statute under which foreign physicians might individually obtain special permission to practice was still valid. The whole question was being reconsidered by the Spanish authorities, and it was possible that fresh legislation

might admit of reciprocal recognition of professional qualifications.

THE TRAINING OF HEALTH OFFICERS

The president pointed out that the rapid growth in the number and importance of functions of health officers made it necessary that the council should from time to time revise the conditions prescribed for their training and examination. For the modern public health service the qualification should be more than an academic certificate, attainable after nine months or so additional study by a graduate who had just obtained his license to practice. It should imply a greater maturity of outlook, a deeper knowledge of principles and a fuller practical acquaintance with administrative methods than an inexperienced physician could fairly be expected to compass within a year. Something equivalent to a short apprenticeship in a working public health department was needed to supplement the lectures and demonstrations of the class room and the laboratory.

Institute of Parasitologic Research Opened at Cambridge

The ceremony of the opening of the Molteno Institute of Parasitological Research at Cambridge was attended by many distinguished scientists, including Prof. R. M. Caullery of the Sorbonne, Paris, who said that as long as private enterprise was capable of creating such an institution for the benefit of the whole world, the preeminence of the Anglo-Saxon race was assured. The donor of the institute is Mr. P. M. Molteno, son of Sir John Molteno, first prime minister of the cape, and Mrs. P. M. Molteno, daughter of Sir Donald Currie, another of the great South African pioneers. Their knowledge of the research work at Cambridge led them to make a gift of \$150,000 to the university for the building of the new institute, and during the year they have supplemented this with a gift of \$18,000. It is hoped that the institute will play a great part in scientific progress, particularly in the investigation of tropical diseases.

MEXICO CITY

(From Our Regular Correspondent)

Nov. 20, 1921.

Second Congress of Biology

The Mexican Biological Society has just held its second annual meeting. Among the most interesting reports may be mentioned: that by Prof. Miguel Cordero regarding the results obtained in the determination of the caloric value of popular Mexican foods, it being found that pulque contains a large quantity of vitamins; Dr. Pous Cházaro's paper on the curability of liver cirrhosis of malarial origin; one by Dr. Izquierdo on the blood count of lepers; three by Dr. Eliseo Ramírez, one on the possible elimination of lipoids produced by corpora lutea in menstrual blood and the serologic reactions of this blood; another, on the elements composing menstrual blood, simple blood and those derived from genital mucosae, and still another on the location of neuron bodies and the direction of the nerve fibers in the brain cortex of the chameleon; a report by Drs. Varela and Vergara summarizing the status of our knowledge on non-specific protein therapy; a report by Dr. Gabriel Malda on practical, medical and surgical applications of the study of the anatomy of the leg; a report by Dr. F. Ocaranza, assisted by other workers, describing the result of total experimental thyroparathyroidectomy in the dog or double vagotomy in the same animal; another by Castillo Nájera, who, after weighing numerous viscera of healthy Mexicans who met accidental deaths, has determined that in these cases the brain is within the limits corresponding to superior races, while the size of the spleen is larger, which might be explained by the polycythemia of altitudes; another com-

munication sent from Spain by Dr. Muñoz Urra on a detailed histologic study of the origin and direction of the fibers of the motor oculi and establishing the relation of the anatomic findings with doubtful questions of neurotropism; another communication by Dr. Sylvio Bonansea on the biologic determination of sex, and finally a very thorough historical essay by Professor Arriola showing the knowledge possessed by some of the native races of Mexico on anatomy, physiology and psychology.

Yellow Fever Convention

In order to review the work accomplished since June, 1920, to date, to control yellow fever in Mexico and to formulate a program for the campaign to be carried out in 1922, the public health department called a meeting attended by the personnel of the special commission in charge of the campaign and the public health officers who carry out locally the measures approved. The meeting was presided over by the head of the department, Dr. Malda; Dr. Theodore C. Lyster acted as vice president. After listening to the reports submitted by the several physicians in charge of the campaign, it was determined that in comparison with the cases reported in 1920, the disease had decreased. While several cases had been discovered in towns considered immune, this is explained by the fact that they are investigated with more care. The most important endemic foci, such as Vera Cruz and Mérida, may be considered as cleared out, and now efforts must be centered on the small towns in which, because of the small number of nonimmune subjects, no attention has been paid to the disease heretofore. It came out that many cases of yellow fever are overlooked, thus endangering public health, being diagnosed as hemorrhagic malaria either through ignorance or through malice. *Gambusia affinis* and other larva-eating fish have proved in Mexico as elsewhere a splendid destroyer of *Stegomyia* larvae, and their use is the method most in favor in the antimosquito campaign. In the coming year an increase will be made in the personnel charged with the duty of fighting yellow fever, extending these operations to remote towns, and the prophylactic measures so far employed (isolation of patients, compulsory reporting of the disease, fumigation of infected places, use of Noguchi's vaccine and larva destruction by fish) will be continued, as well as therapeutic measures consisting in the use of Noguchi's serum or neo-arsphenamin if the serum cannot be obtained during the first three days of the disease. It was also decided to carry out some experiments to test the assertion of Dr. Caballero of Barcelona, who declares that the culture of the alga called *Chara foetida* is an efficient way to prevent the development of *Stegomyia* larva in water receptacles and also to prepare educational moving pictures in order to push the campaign of propaganda, so far carried out only by means of pamphlets, posters and lantern slides. During the present year the Mexican government has spent more than 600,000 pesos (\$300,000) in the yellow fever campaign, and the same policy will be followed next year, so far as public funds permit. The congress sent telegrams of greeting to General Gorgas' widow, to Dr. Noguchi and to the Rockefeller Foundation, and placed a wreath before Licéaga's monument.

Children's Week

During September there was celebrated all over the country the first centenary of the declaration of the National independence, accomplished in 1821 by the Mexican hero Agustín de Iturbide. The public health department did its share in the celebration, organizing the children's week. This was devoted to an educational campaign among all social classes as to the advantages and practice of infant hygiene. An exposition was held in which there were exhibited posters and statistical charts on infant morbidity and mortality. In

addition, there were given practical demonstrations on bathing, general cleaning, clothing and rearing of children, as well as lectures on sanitary questions by physicians who specialize in pediatrics. Finally, automobile excursions were offered to the children. Children's week was a success, as thousands of people, especially mothers, attended the lectures and demonstrations. The president himself participated, and it is now proposed to repeat the children's week in other parts of the republic.

BERLIN

(From Our Regular Correspondent)

Nov. 25, 1921.

New Regulations in Berlin in Regard to Disinfection and Fumigation

Last spring new, simplified regulations with regard to disinfection in infectious diseases were promulgated for Prussia, and recently new regulations for Old Berlin were established, with reference to which Prof. Dr. Seligmann, of the municipal health department, has issued an explanatory statement. In the future, in every case of a notifiable infectious disease, a city disinfector will call on the family and leave a blank for the physician to fill out, in which the latter will state whether he himself will see that the required disinfection is carried out during the course of the disease and at its termination or whether he will leave both forms of disinfection or fumigation to the health department (just as formerly was done in the case of diphtheria). If the physician agrees to assume all responsibility, the disinfector withdraws from the case and does not call again until toward the end of the course of the disease, at which time he consults the wishes of the physician with regard to the terminal disinfection. If, in the meantime, the patient is transferred to a hospital, or death ensues, the attending physician must assume the responsibility for the prompt application of the terminal disinfection (compulsory notification to the police department). But if the application of disinfection is left to the health department, the city disinfector procures the disinfectants, which are furnished gratuitously by the city, and by frequent visits sees to it that the supply does not give out and that the attending personnel is instructed as to the proper manner of using them. The terminal infection he will look after himself after the termination of the illness, in accord with the attending physician. Disinfection is carried out ordinarily in accordance with the simplified form, but in special cases; for example, in boarding houses and in crowded and insanitary dwellings, the old and more drastic measures are still employed. On every case he must render a report to the *kreis* physician (county physician) and must also state the wishes of the attending physician. According to law, the *kreis* physician is entrusted with the general oversight. If he sees fit, he can determine the form of disinfection to be employed—even contrary to the advice of the attending physician.

Effect of the War on the Population

From the reports of the Saxon bureau of statistics we glean the following data in regard to the changes in population brought about by the war: But for the war the population of the German Empire (in its old extent) would be now at least 72,000,000. The decrease in the birth rate plays a more important part than the increase in the deaths. The birth loss is estimated at 3,500,000 lives, which is considerably greater than the loss on the battle fields (almost 2,000,000). The birth loss may be partially compensated for by an upward trend in the number of marriages entered into annually and by an increase in the number of children born to each couple. Before the war, there were about 41,000 marriages contracted annually in Saxony. In the period from 1914 to 1918, however, only 141,000 marriages were entered upon, as compared

with the normal 205,000, which shows a shortage of 64,000. However, by the end of 1920 the number of marriages that, owing to war conditions, had not been consummated had been more than compensated for; in fact, there was an overrun of about 16,000, which by the middle of 1921 had been increased by 10,000 more. This sudden increase is explainable, in part, by the large number of early marriages entered into by young men who, under the old conditions, would not have married so young. And this epoch of eagerness to enter the married state does not seem to have reached its culmination. Whether a marked increase in births will follow this increase in the number of marriages per quarter remains to be seen. Before the war, there were from 9,000 to 10,000 births annually in Saxony; in November, 1918, however, there were only 3,000. Since the middle of 1919 the births have equaled the deaths, so that since then there has been a natural increase in population. Infant mortality during the war actually decreased, doubtless because greater care was given to both mother and child. Another peculiarity of the war period was the change in the relative proportion of boy births and girl births. Whereas formerly there were 106 girl babies to 100 male infants, there are now 100 boy babies to 100 female infants. As regards the increase in the number of deaths during the war, the statistical report states that in Saxony, under normal conditions, there would have been 175,000 deaths, whereas under the existing conditions, owing to the food blockade, there were 238,000 deaths, an increase of 63,000. For the whole German Empire the increase in deaths was 750,000.

Increase in Medical Fees

In keeping with the recent rapid depreciation of the German mark, the executive committee of the Berlin Aerzte-Kammer has established 20 marks as the ordinary fee in Berlin for a private office consultation, and 30 marks for a visit in the patient's home. This constitutes about a tenfold increase over the prewar tariff. This increase in fees will be understood when it is noted that, according to a statistical report, only 3.62 per cent. of the Berlin physicians on the panel of the health insurance societies derive from their health insurance practice an income in excess of the sum established as the minimum required for existence.

Death of Max Verworn

Max Verworn, the naturalist and philosopher, died recently at the age of 57. Since 1910 Verworn has occupied the chair of physiology at the university of Bonn. His works deal chiefly with scientific investigations on the fundamental processes of life. The study of the lowest (unicellular) forms of animals and plants—the so-called protista (Haeckel)—he regarded as the point of departure for his investigations. The life processes of these primitive forms of life he looked upon as the beginnings of reaction upon the external world, just as he recognized the significance of the cellular nucleus for the nutrition and development of the cell. His biogen hypothesis (1902)—the biogens are the active protoplasmic units, the mysterious chemical compound, from the catalytic metabolism of which Verworn derives all life processes—was the point of departure for his many attempts to demonstrate that organic life is a chemical process.

Besides many important works and articles on physiologic subjects, such as "Erregung und Lähmung" (excitation in relation to paralysis), he marked out in his "Allgemeine Physiologie" (general physiology) the present recognized relationships between anatomy, physiology, zoology and the theory of evolution. The philosophic deductions associated with his views on biology and the other natural sciences Verworn has grouped together in the form of an original monistic theory, which he has expounded in a number of volumes and pamphlets.

THE REFERENDUM ON THE USE OF ALCOHOL IN THE PRACTICE OF MEDICINE

During the first week of December the questionnaire given in full in THE JOURNAL, December 3, p. 1820, was sent to 53,900 physicians of the United States. The list included 43,900 names from the mailing list of THE JOURNAL, every other name being selected, and 10,000 from among those physicians who are neither members of the organization nor subscribers to THE JOURNAL, a similar method being adopted, using the American Medical Directory. The total number of returns is 32,585, or 60 per cent. of the number sent out. The analyzing and tabulating of the results is time-consuming, and it probably will be three or four weeks more before final figures can be published. No tabulation of disease conditions, of unnecessary deaths and suffering, or of the number of times a month that these beverages have been prescribed is included in the preliminary reports. These, however, will be analyzed in the final report. We publish this week the results in Illinois and Indiana. The results will be published by states, week by week, as the tabulations are completed.

ILLINOIS

The present Illinois law was passed by the legislature in May, 1919. It provides for complete prohibition but allows physicians who hold permits to write not more than 100 prescriptions for whisky or brandy for 1 pint each every three

agent in the practice of medicine; 954 were of the opinion that it was not necessary. Chicago physicians voted: yes, 535; no, 323. The vote in four other cities of more than 50,000 was: yes, 50; no, 51, giving a total vote for the cities of: yes, 585; no, 374. The rural part of the state voted: yes, 564; no, 580.

RESULTS IN ILLINOIS

ILLINOIS	Chicago	Peoria	Springfield	Rockford	East St. Louis	Total Cities	Rural and towns with population less than 50,000	Grand Total
Number of physicians.....	5,365	185	127	111	93	5,881	4,770	10,651
Questionnaires sent	1,983	76	59	56	45	2,219	2,026	4,245
Total questionnaires received.....	866	37	21	26	17	967	1,174	2,141
Percentage of returns.....	43	48	35	46	37	43	58	50
General practitioners	641	26	14	21	14	716	1,036	1,752
Surgeons	135	3	3	2	1	144	55	199
Specialists	90	8	4	3	2	107	53	190
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?								
Yes.....	535	22	10	9	9	585	564	1,149
No.....	323	15	11	17	8	374	580	954
Do you regard beer as a necessary therapeutic agent in the practice of medicine?								
Yes.....	330	11	5	5	6	357	311	668
No.....	510	26	15	20	10	581	847	1,428
Do you regard wine as a necessary therapeutic agent in the practice of medicine?								
Yes.....	413	13	5	4	7	442	362	804
No.....	423	23	16	21	10	493	795	1,288
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?								
Yes.....	158	4	3	1	3	169	236	405
No.....	622	29	17	23	14	705	884	1,589
How many times have you found it advisable to prescribe these liquors in a month?								
Whisky: Number of physicians stating times advisable.....	365	14	5	10	9	403	396	799
Number of physicians stating no times advisable.....	226	14	10	12	6	268	496	764
Beer: Number of physicians stating times advisable.....	91	3	..	1	3	98	106	204
Number of physicians stating no times advisable.....	371	19	13	18	12	433	658	1,091
Wine: Number of physicians stating times advisable.....	151	4	1	1	4	161	147	308
Number of physicians stating no times advisable.....	337	18	12	19	11	397	633	1,030
Do you hold a federal permit?								
Yes.....	520	22	9	11	11	573	463	1,036
No.....	232	12	9	10	5	268	505	773
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?								
Yes (limit not specified).....	75	3	3	2	2	85	150	235
Restricted absolutely	56	7	2	4	4	73	170	243
1 to 50 prescriptions.....	91	4	3	5	1	104	138	242
51 to 100 prescriptions.....	188	10	4	8	2	212	205	417
More than 100 prescriptions.....	29	1	..	..	1	31	30	61
Total	439	25	12	19	10	505	693	1,198
No restriction	367	12	8	6	6	399	428	827
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?								
Yes.....	415	25	15	19	9	483	630	1,163
No.....	415	12	5	6	7	445	446	891

months. The prescribing of beer or wine as medicines is forbidden. According to the American Medical Association Directory for 1921 there are in Illinois 10,651 physicians. Questionnaires were sent to 4,245; 2,141, or 50 per cent., were returned. Of these, a small number returned blank or filled out by medical students, hospital interns, etc., were not counted.

Is Whisky a Necessary Therapeutic Agent?

One thousand one hundred and forty-nine physicians in their replies held that whisky was a necessary therapeutic

Is Beer a Necessary Therapeutic Agent?

On this point, 668 voted yes, and 1,428 physicians voted no. In Chicago, the vote was : yes, 330; no, 510. The total city vote was: yes, 357; no, 581 and the rural vote was: yes, 311; no, 847.

Is Wine a Necessary Therapeutic Agent?

On this question 804 voted yes, and 1,288 voted no. The Chicago vote was 413 for and 423 against the use of wine. The total city vote was 442 for to 493 against. The country districts voted: yes, 362; no, 795.

Unnecessary Suffering or Death from Enforcement of Prohibition Laws

Four hundred and five physicians reported cases of unnecessary suffering or death from the prohibition of alcoholic liquors; 1,589 had not known any such cases. The detailed vote will be found in the table above as to towns and cities.

Times Per Month Prescribing Advisable

Seven hundred and ninety-nine physicians reported that they had found it advisable to prescribe whisky, the number of times ranging from once or twice to ten or more times a month; 764 reported that they had not found it advisable. Two hundred and four had found it advisable to prescribe beer; 1,091 had not found it advisable. Three hundred and eight physicians found it advisable to prescribe wine; 1,030 had not found it advisable.

Restriction of Prescriptions

Regarding the restriction of physicians in the number of prescriptions for alcoholic liquors, 827 physicians were opposed to any limit on the number of prescriptions which a physician might write; 1,198 were in favor of some kind of restriction. Of these, 235 simply voted in favor of restriction without specifying any limit; 243 were in favor of absolutely prohibiting the physician from prescribing; 242 were in favor of allowing the physician to prescribe from one to fifty times in three months; 417 favored a limit of from fifty-one to 100 prescriptions in three months, and sixty-one were in favor of allowing more than 100 prescriptions in three months.

Should Physicians Be Restricted in Prescribing Alcoholic Beverages?

One thousand one hundred and sixty-three were in favor of restriction, and 891 were opposed to restricting physicians in any form.

Suggestions as to Restrictions

Many interesting suggestions were made. It is possible to quote from only a few of the more representative ones.

All prescriptions should be filled by the government and not by druggists. If the matter of dollars was taken away from prescription writing for alcohol, ten prescriptions would be ample for three months' actual needs.—*Dupage County*.

I consider things as they are radically wrong. We have physicians who are using their quota of prescriptions asking no questions as to whether or not the applicant really needs the whisky, while other physicians who do not want to be bootleggers often have difficulty in obtaining alcoholic liquors they really need. I doubt if any man could use legitimately 100 prescriptions every three months.—*Pike County*.

Any physician should be allowed the privilege of prescribing whisky or beer in his practice without having a license. He should not be allowed to use it more than three times in three months. Then the privilege would not be abused as it is now.—*Whiteside County*.

In over thirty years of practice, I have prescribed whisky in every case in which I thought it would help the patient. In this time 3 gallons would cover the entire amount I have prescribed.—*Livingston County*.

I would a thousand times rather the state or federal government would appoint an officer or establish an office in each township and county whose whole function would be the honest distribution of beer, wine or whisky to those actually in need of it. In other words, take this power entirely out of our hands and put it under government control.—*Will County*.

A suggestion: Divide each state and city into certain sized districts. In each district have one physician to issue the required government prescriptions. Allow every physician in good standing to use his personal prescription blanks. Then the patient can take the prescription to the doctor who issues the required government permit.—*Kendall County*.

As matters stand today, I would favor putting alcoholics under restrictions similar to what the Harrison law does to narcotics.—*Champaign County*.

A physician should not be restricted or prohibited in the use of any agent for the alleviation of human suffering and the prolongation of human life.—*Champaign County*.

I am opposed to the internal use of alcohol in any and all diseases, and never advise its use.—*Clay County*.

The average physician is anxious to maintain the dignity of his profession. He must, however, realize the peril that awaits the profession if the present lax condition continues and the indiscriminate sale of alcohol is encouraged.—*Dewitt County*.

While I consider all alcoholic liquors, even alcohol itself, as entirely unnecessary in the practice of medicine, I do not believe that physicians should be restricted in their use of any substance which their judgment may indicate in any particular case.—*Chicago*.

I prescribe whisky because it seems I cannot help it with many old friends and patients. I wish they would take away permits from us.—*Chicago*.

Physicians should only be allowed to prescribe for bed patients so as to rid the profession of the physician who is practically running a saloon.—*Chicago*.

The present situation of restricting prescriptions to 100 in three months does not cover the situation. A physician who has a large number of patients is unable to treat a great many of them as he would like.—*Chicago*.

I have written only about fifteen prescriptions for whisky or brandy during the past year and a half, and I consider that 100 prescriptions in three months is enough; but I do not believe any group of lawmakers or laymen should have the right to tell physicians what they should do.—*Chicago*.

If whisky or brandy is necessary, why not issue them from a government dispensary instead of making barkeepers out of doctors?—*Chicago*.

Have we not enough regulations now? To encourage restrictions in one field is only to encourage them in others, and the doctor is regulated and permitted to death now.—*Chicago*.

This question involves practical measures. I would suggest the following: (1) high license to cover expense; (2) heavy penalties for breaking the law; (3) adequate medical inspection.—*Chicago*.

The Harrison Narcotic Law should apply to the liquor question and enforced in the same manner as it is on narcotics.—*Chicago*.

Whisky should be purchasable from the government warehouse by any applicant who brings proof that he is a reputable, law-abiding citizen and has never been convicted of a crime. It should be a penitentiary offense to dispose of whisky so obtained.—*Chicago*.

The American Medical Association should so restrict its members that the unethical use of prescriptions for alcohol would cease.—*Chicago*.

As a young physician I imagined that I could not treat certain diseases without the use of whisky or brandy, but after years of experience I find that my patients do as well if not better without them.—*Chicago*.

I would wipe alcohol off the menu of therapeutic agents. If this were done I am certain that the new generation of physicians accustomed to the use of better agents than alcohol would have as good results or better.—*Chicago*.

Freedom to prescribe alcohol will on the average cause more harm than good. It is better to restrict those who will prescribe whisky than to give free rein to the alcohol enthusiast.—*Chicago*.

I think the 100 limit should be cut down to fifty, and the quantity to 8 ounces instead of 16 for the next year, and thereafter a limit of twenty-five prescriptions of 4 ounces each every three months. This plan would let the toppers off gradually and would ultimately lead the medical profession out of the disgrace which has been shifted upon it.—*Chicago*.

We need higher standards for the practice of medicine.—*Chicago*.

Some such restriction in the number of prescriptions each physician may write helps to take away temptation from the weak physician to commercialize this part of his practice.—*Chicago*.

INDIANA

The Indiana Prohibition Act was adopted in February, 1917, and became effective, April 2, 1918. It took the place of the local option law which had previously been in force. The present law prohibits the manufacture and sale of any intoxicating beverages for any purpose whatsoever.

According to the American Medical Association Directory, 1921, there are 4,446 physicians in Indiana. Questionnaires were sent to 1,539; 966, or 63 per cent., were returned. Of these, a small number were thrown out as incomplete, from interns, dentists, etc.

Is Whisky a Necessary Therapeutic Agent?

Three hundred and sixty-two physicians stated that whisky is a necessary therapeutic agent in the practice of medicine; 598 physicians stated that it is not necessary. In Indianapolis, the vote was: yes, 75; no, 81. In five remaining cities of more than 50,000 population, the vote was: yes, 49; no, 80. In cities and villages under 50,000 population, the vote was: yes, 238; no, 437.

Listing the various conditions for which those voting yes found whisky necessary, by far the largest number cited pneumonia and similar infectious diseases; next came general debility in the aged, and following this colds, heart disease, toxemias, postoperative shock, diabetes and a large assortment of individual diseases.

Is Beer a Necessary Therapeutic Agent?

One hundred and eighty-seven physicians stated that beer is a necessary therapeutic agent in the practice of medicine, and 765 physicians voted "no." In Indianapolis, the vote was: yes, 43; no, 111; in five cities of more than 50,000 population, yes, 30; no, 99; in the rural districts, yes, 114; no, 555.

Among the conditions in which those voting yes considered beer as necessary, its use for promoting secretion of milk in

lactating women and its nutritious qualities in anemia, general debility, etc., are chiefly emphasized.

Is Wine a Necessary Therapeutic Agent?

Two hundred and eleven physicians considered wine a necessary therapeutic agent in the practice of medicine, whereas 740 did not. In Indianapolis, the vote was: yes, 45; no, 108; in five smaller cities, yes, 31; no, 99; in the rural districts, yes, 135; no, 533.

Those voting yes considered wine necessary chiefly for debilitated conditions, and as a substitute for whisky.

Unnecessary Suffering or Death from Enforcement of Prohibition Laws

One hundred and eighty-nine physicians had found cases of unnecessary suffering or death resulting from prohibition

dred and twenty-one physicians answered yes, but did not specify a limit; 249 stated that the number should be limited to absolutely none; eighty-nine considered fifty prescriptions for three months sufficient; 114 considered from fifty to 100 satisfactory; ten considered 100 insufficient.

Should Physicians Be Restricted in Prescribing Alcoholic Beverages?

Six hundred and fifty physicians stated that some restriction was necessary, and 275 stated that no restrictions were necessary.

The suggestions as to the restrictions which should be made showed that many physicians had been giving the problem much thought. Various plans were suggested for better control. These will be more thoroughly considered in the final analysis.

RESULTS IN INDIANA

INDIANA							Rural and towns with population less than 50,000		
	Indianapolis	Fort Wayne	Evansville	Terre Haute	South Bend	Gary	Total Cities	City and Rural	Total
Number of physicians.....	709	152	139	125	106	67	1,298	3,148	4,446
Questionnaires sent	304	65	49	45	35	27	525	1,014	1,539
Total questionnaires received.....	156	44	27	21	25	14	287	679	966
Percentage of returns.....	51	67	55	46	71	51	54	67	63
General practitioners	105	27	20	18	18	11	199	612	811
Surgeons	24	7	3	2	3	2	41	25	66
Specialists	27	10	4	1	4	1	47	42	89
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?									
Yes.....	75	16	6	11	10	6	124	238	362
No.....	81	28	21	10	13	8	161	437	598
Do you regard beer as a necessary therapeutic agent in the practice of medicine?									
Yes.....	43	10	3	5	8	4	73	114	187
No.....	111	34	24	15	16	10	210	555	765
Do you regard wine as a necessary therapeutic agent in the practice of medicine?									
Yes.....	45	11	3	6	7	4	76	135	211
No.....	108	33	24	15	17	10	207	533	740
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?									
Yes.....	39	10	4	4	6	3	66	122	188
No.....	113	24	18	16	18	11	210	527	737
How many times have you found it advisable to prescribe these liquors in a month?									
Whisky: Number of physicians stating times advisable.....	25	13	3	4	2	1	48	115	163
Number of physicians stating no times advisable.....	78	22	18	14	14	8	154	394	548
Beer: Number of physicians stating times advisable.....	16	5	..	2	3	..	20	45	65
Number of physicians stating no times advisable.....	92	31	22	16	14	8	183	481	664
Wine: Number of physicians stating times advisable.....	16	4	1	..	..	..	21	43	64
Number of physicians stating no times advisable.....	87	31	21	18	16	8	182	473	655
Do you hold a federal permit?									
Yes.....	8	2	..	..	1	1	12	15	27
No.....	46	10	10	4	11	1	82	198	280
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?									
Yes (limit not specified).....	28	4	4	2	2	1	41	80	121
Restricted absolutely	20	15	4	2	..	4	45	204	249
1 to 50 prescriptions.....	15	2	1	5	3	1	27	62	89
51 to 100 prescriptions.....	22	8	5	3	3	1	42	72	114
More than 100 prescriptions.....	..	..	1	..	..	..	1	9	10
Total	85	29	15	12	8	7	156	427	583
No restriction	54	12	9	8	15	6	104	187	291
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?									
Yes.....	104	29	19	12	11	7	182	468	650
No.....	45	12	8	8	13	6	92	183	275

of alcoholic liquors; 741 had found no such cases. A detailed statement as to the city and rural vote appears in the table.

Times per Month Prescribing Advisable

One hundred and sixty-three physicians had found it advisable to prescribe whisky, and 548 had not found it advisable, the number of times advisable varying from a few times a month to more than ten times, as reported by thirty physicians.

Sixty-five physicians had found it advisable to prescribe beer, five of them in more than ten cases, and 664 physicians had not found it advisable. Sixty-four had found it advisable to prescribe wine, seventeen of them in more than ten cases, and 654 had not found it advisable.

Restriction of Prescriptions

Five hundred and eighty-three physicians stated that physicians should be restricted in the number of prescriptions for alcoholic beverages which they might write, and 291 physicians did not believe such restrictions necessary. One hun-

Individual Comments

The intensity of feeling of many physicians on this question caused them to write extended comments on the backs of the questionnaires. Some of these comments follow, the selection of those quoted being on the basis of their general interest. Names are omitted, but county or town is given.

It is unfortunate that unprincipled men get into the medical profession, and that the honest doctor must suffer to some extent for the acts of the dishonest one. Therefore I am not in favor of permitting physicians to prescribe alcoholics, for the reason that the permission would be abused by the unscrupulous men.—Porter County.

I believe physicians should have the right to use spirituous, vinous and malt liquors as they would any other drug whose efficacy they desire for proper therapeutic effects.—Kosciusko County.

I do not believe in any set of men legislating to dictate to physicians what and how they should use therapeutic remedies. Next they will be telling us how much to charge and what we should wear. It smacks of "state medicine," and, I believe, is unconstitutional.—Clarke County.

There should be no limit to the number of prescriptions a fully qualified physician is permitted to write. Those who abuse the privilege should be dealt with as are offenders of the narcotic law. The honest, conscientious physician should not be handicapped either by lay reformers or dishonest, unscrupulous practitioners.—Madison County.

I have seen more cases of delirium tremens the past year than I have ever seen in all my experience before. Every second home I go into makes its own hooch; many of them are showing the results of it. There is absolutely no respect for the prohibition law, so far as I can see. Beer is made in this community wholesale, and people vie with one another as to who can make the one with the biggest kick.—*Jennings County.*

The present federal law is very good, but state laws that go beyond should be repealed, e. g., Indiana.—*Shelby County.*

In my practice, very much more good has been done by the "bone dry" law than the little harm. I would much sooner go without it for the few cases it would help than see it sold from drug stores or saloons again.—*Huntington County.*

I do not believe that physicians should be hampered in the use of any drug which they deem of therapeutic value, but I do not believe that any physicians can conscientiously believe that spirituous liquors are beneficial in any disease and cannot be replaced by an equally beneficial drug.—*Owen County.*

Prohibition, as is, is a failure. More illness is being caused by home drinks than was ever caused before prohibition. We do not want any saloons back, that is sure. Allow the alcoholic medicine to be taken care of along the lines of the narcotics.—*Benton County.*

I have enjoyed a good general practice for twenty-five years, and, while I have used whisky to some extent in my practice during that time, I cannot recall any time when it was an absolute necessity.—*Tippecanoe County.*

Have used no alcoholic liquors in my practice during the last twenty-five years, and am feeling proud of my results.—*Corydon.*

As far as I am concerned, I am satisfied with the present law in Indiana. Have had little inconvenience and much pleasure from the present conditions. No friends asking for prescriptions, no evasions. Here they get it from a bootlegger if at all and not on my prescription.—*Connersville.*

I have practiced medicine nearly forty-two years and have never found spirits, vinous or malt liquors of any benefit whatever as either food or fuel, but have found it very harmful.—*Clay County.*

The government should enforce the laws we have.—*Parke County.*

I see no reason why anything other than a physician's judgment and conscience should determine his methods. The so-called enforcement does not actually prohibit, but makes fulfillment of needs or desires of a patient vexatious and expensive, besides incurring the dangers of sophistication. My observation in general is that the law is generally unpopular and that a substantial part of those publicly in favor of it privately prefer that it be enforced only against the other man. The use of home-made mixtures is tremendously increased, and many more women are using these mixtures than ever used officially made liquors.—*Newcastle.*

I do not believe the physicians should be made the scapegoat for breweries and booze fighters. Renegade physicians disgrace the profession by writing prescriptions for revenue.—*Kokomo.*

I am opposed to getting the medical profession tangled up in the efforts to enforce the prohibition act until there has been a sincere effort on the part of the federal government to make the Volstead law effective.—*Clinton.*

If one is competent to practice medicine and surgery and to deal with the health of a locality and in doing his duty must and does use many dangerous drugs and resorts to and uses many dangerous methods, then why should this same person be restricted in the use of some particular remedy which he regards as necessary?—*South Bend.*

The restriction on alcohol in Indiana is worse than that on liquors. There should be no restriction of the use of alcohol by physicians.—*South Bend.*

I believe thoroughly in prohibition, but am disgusted with the laxity of the enforcement and with the clash between the federal and state law. Physicians should not be interfered with in the choice of therapeutic agents.—*Indianapolis.*

The present agitation for the legalizing of the use of alcohol as a medicine I regard simply as an effort on the part of the wet element to effect a breach in the prohibition act. Temperance I regard as impractical, for the American people are not temperate in what they do in any line.—*Indianapolis.*

For two years the Indianapolis City Hospital has not had or used any whisky, beer or wine in the treatment of its cases, and no fatalities or unnecessary suffering has occurred as a result of this prohibition.—*Indianapolis.*

Why continue the use of such liquors when the disadvantages offset the advantages a million to one? The ravages of liquor are so apparent in my work that it makes me shiver to think any one could ever touch the vile stuff, and I was not a teetotaler either.—*Fort Wayne.*

The question is an economic one first and an ethical one as to the moral and physical development of the race. Finally, it is a moral question in its application to our family life. Let us give the mother and the child a chance.—*Fort Wayne.*

Indiana does not forbid prescribing liquors, but it is impossible to get such prescriptions filled because very few druggists carry whisky in stock. In the treatment of epidemic influenza in the army, our commanding officer offered to procure whisky for the hospital staff; but the fear of attracting the fire of the prohibitionists operated to prevent those who really believed that whisky was the best treatment for the infection from expressing their honest convictions. It certainly seems subversive of the best interests of the profession and the public to restrict the doctor in the use of any agent which he thinks of value in the treatment of any disease.—*Fort Wayne.*

Marriages

IRBY HOWARD HOYLE, Henderson, N. C., to Miss Mildred Bryan Walton of Assumption, La., at Napoleonville, La., November 23.

JOHN WILLARD VANN, M. C., U. S. Army, Washington, D. C., to Mrs. Vera L. Davis, at Norfolk, Va., December 3.

OSWALD SWINNEY LOWSLEY, New York City, to Miss Eldiva Brown of Northampton, Mass., December 10.

HERMAN E. WANGLER, Syracuse, N. Y., to Miss Elizabeth Pomeroy Peters of Dover, Del., recently.

WARREN LINCOLN ADAMS, Melrose, Mass., to Miss Vivian Beaman of West Medford, December 3.

ARCHIBALD LEROY RICE, Calexico, Calif., to Mrs. Edna Powers of Los Angeles, November 11.

HARRIET NEVINS BALLANCE to Mr. Leslie Robison, both of Peoria, Ill., December 3.

Deaths

Green Vinbon Woollen ⊕ Indianapolis; Bellevue Hospital Medical College, New York City, 1865; practitioner for nearly half a century; secretary of the Indiana State Medical Association from 1865 to 1875; former president of the Marion County Medical Society; veteran of the Civil War; at one time professor of rhinology and laryngology, Central College of Physicians and Surgeons, Indianapolis; formerly superintendent and physician to the Indianapolis City Hospital for twenty-five years; died, December 10, from cerebral hemorrhage, aged 81.

Garrett Kouwenhoven Williamson Schenck ⊕ Far Rockaway, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1901; physician to the Bradford Street, Coney Island and the Kings County hospitals; shot himself through the head while suffering from carcinoma of the stomach, December 6, aged 44.

William Lafayette Baber, Winnsboro, Texas; Southern Medical College, Atlanta, 1894; city health officer; formerly assistant professor of anatomy at his alma mater; served during the World War as instructor at Fort Oglethorpe, Ga.; died, November 28, at the St. Paul Sanatorium, Dallas, from acute nephritis, aged 48.

William Lewellyn Baner ⊕ New York City; College of Physicians and Surgeons (Columbia University), New York City, 1885; member of the New York Academy of Medicine; for twenty-three years visiting physician to St. Vincent's Hospital, New York City; died, December 9, from cerebral hemorrhage, aged 60.

Charles T. King, Major, M. C., U. S. Army ⊕ Riverside, Calif.; Medico-Chirurgical College of Philadelphia, 1906; served as temporary lieutenant colonel during the World War; retired from active service, June 4, 1920, for physical disability; died, September 7, from acute nephritis, in San Francisco, aged 42.

William W. Burgett, Fultonham, N. Y.; New York University Medical College, New York City, 1882; member of the Medical Society of the State of New York; at one time president of the Schoharie County Medical Society; county coroner; died, November 9, from carcinoma of the lung, aged 61.

George H. Gorham ⊕ Bellows Falls, Vt.; New York University Medical College, New York City, 1882; formerly president of the Vermont State Medical Society; member of the state legislature; formerly secretary of the state board of medical examiners; died, November 28, from arteriosclerosis, aged 64.

Truman H. Cox, Lee Center, N. Y.; Cincinnati College of Medicine and Surgery, Cincinnati, 1875; member of the Medical Society of the State of New York; health officer for over

a quarter of a century; founder of a private sanatorium in Lee Center; died, December 2, aged 68.

Alexander Aloysius Drill ♂ Milwaukee; Marquette University School of Medicine, Milwaukee, 1916; chief surgeon of the Milwaukee Emergency Hospital; was instantly killed, December 11, aged 26, when the automobile in which he was riding collided with a street car.

Daniel Wunderlich Nead ♂ Reading, Pa.; University of Pennsylvania, Philadelphia, 1881; for thirty-two years medical examiner for the Pennsylvania Railroad; author of several historical works; died, December 1, at Chambersburg, Pa., aged 63.

George Henry Towle, Deerfield, N. H.; Bowdoin Medical School, Brunswick, Me., 1865; member of the New Hampshire Medical Society; practitioner for more than fifty years; member of the state legislature; died, November 30, aged 82.

Duncan D. Henderson, Caney, Okla.; Tulane University of Louisiana School of Medicine, New Orleans, 1899; formerly health officer, Jefferson County, Texas; died recently, following an operation for appendicitis, at Sherman, Texas, aged 46.

Albert Stone Garland, Gloucester, Mass.; Medical School of Harvard University, Boston, 1866; member of the Massachusetts Medical Society; practitioner for more than half a century; died, November 28, from heart disease, aged 81.

Wilmer Amos Hadley, Friendswood, Texas; University of Texas, Galveston, 1911; former surgeon, M. R. C., U. S. Army; was electrocuted, December 9, for the murder of his wife, in the penitentiary at Richmond, Va., aged 39.

William Homer Collins, Waterville, Wash.; Northwestern University Medical School, Chicago, 1909; died, November 4, at the Providence Hospital, Seattle, from uremia following an operation for stone in the bladder, aged 50.

William Reid Prime ♂ New York City; New York University Medical College, New York City, 1879; formerly medical inspector, U. S. Marine Hospital Service; died, December 5, from heart disease, aged 64.

Anton Sauer, LaCrosse, Wis.; University of Freiburg, Germany, 1897; formerly on the staff of the Mercy and St. Luke's hospitals, Davenport, Iowa; died, December 4, from chronic nephritis, aged 56.

Malcolm Macfarlan, Philadelphia; Medical Institute of Yale College, New Haven, Conn., 1865; Civil War veteran; practitioner for more than half a century; died, December 8, from senility, aged 80.

Oscar N. Thompson, Breckenridge, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; member of the Missouri State Medical Association; died, November 25, at Keokuk, aged 54.

George W. Glascock, Raleigh, Ill.; Beaumont Hospital Medical College, St. Louis, 1889; died, November 28, following an operation for appendicitis, at a hospital in Evansville, Ind., aged 69.

Pearl M. Sater, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1893; member of the Ohio State Medical Association; died, December 1, from cerebral hemorrhage, aged 52.

Vernon Marks Griswold ♂ Fredonia, N. Y.; University of Buffalo, N. Y., 1880; for fifteen years health officer of Pomfret; died, November 26, from cerebral hemorrhage, aged 67.

Robert Denniston ♂ Dobbs Ferry, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1895; died, November 18, from aneurysm of the heart, aged 51.

Henry E. Applebach, Philadelphia; University of Pennsylvania, Philadelphia, 1889; for many years surgeon at the Kensington Hospital for Women; died, November 16, aged 58.

Robert A. Craft, Sumner, Wash.; Queen's University Faculty of Medicine, Kingston, Ont., 1895; was found dead in his office, November 30, from heart disease, aged 59.

John A. Embry, Decatur, Texas; Missouri Medical College, St. Louis, 1884; member of the State Medical Association of Texas; died, November 24, from pneumonia, aged 73.

Cyrus F. Boyers, Fairmont, W. Va.; Baltimore Medical College, Baltimore, 1882; member of the West Virginia State Medical Association; died, November 18, aged 79.

William F. Conwell, Neligh, Neb.; Bellevue Hospital Medical College, New York City, 1886; Civil War veteran; died, November 9, from organic heart lesion, aged 74.

Eugene T. Hancock, Philadelphia; Jefferson Medical College, Philadelphia, 1891; major during the Spanish-American War; died, December 6, from influenza, aged 51.

Charles Hutchinson, Portland, Me.; Albany (N. Y.) Medical College, 1858; practitioner for nearly half a century; Civil War veteran; died, December 5, aged 90.

Thomas E. Krum, Reading, Pa.; College of Physicians and Surgeons, Baltimore, 1886; also a druggist; died, November 21, following a nervous breakdown, aged 61.

Frederick W. Groth, Chicago; Jenner Medical College, Chicago, 1904; member of the Illinois State Medical Society; died recently, from acute nephritis, aged 68.

Nicholas Bray, Los Angeles; State University of Iowa College of Homeopathic Medicine, Iowa City, 1885; died, November 22, at Glendale, Calif., aged 66.

John McGinnis, Springfield, Ill.; Rush Medical College, Chicago, 1869; veteran of the Civil War; died suddenly, November 30, from heart disease, aged 78.

Harry M. Toner, Shelbyville, Texas; University of Arkansas, Little Rock, 1895; died, November 19, from chronic nephritis, in a hospital at Austin, aged 57.

William Childs, Church Point, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1879; died, November 24, from pneumonia, aged 72.

Daniel McSwegan, San Diego, Calif.; Medical College of the Pacific, San Francisco, 1878; was found dead in his room, December 2, from heart disease, aged 75.

Abraham Glickstein, Brooklyn; New York University Medical College, New York City, 1897; was shot and killed by a woman, in his office, December 10.

Leander James Crooker, Jr., Augusta, Me.; Dartmouth Medical School, Hanover, N. H., 1891; died, November 27, from pneumonia, aged 52.

John Joseph McLaughlin, Philadelphia; Jefferson Medical College, Philadelphia, 1891; died suddenly, December 1, from heart disease, aged 58.

Bertha S. Hatfield Richardson ♂ Philadelphia; Women's Medical College of Pennsylvania, Philadelphia, 1893; died, November 19, aged 58.

John Paul Reynolds, Glenolden, Pa.; University of Pennsylvania, Philadelphia, 1878; died, November 26, from lobar pneumonia, aged 66.

William L. Lowder, McKinney, Ky.; Kentucky School of Medicine, Louisville, 1886; University of Louisville, 1887; died, November 24.

Samuel R. White, Laud, Ind.; Fort Wayne College of Medicine, Fort Wayne, 1886; died, November 28, from nephritis, aged 62.

James Robert Gant, Fort Smith, Ark.; St. Louis Medical College, St. Louis, 1891; died, November 12, after a long illness, aged 54.

Henry Eugene Wright, Sacramento, Calif.; University of California Medical School, San Francisco, 1894; died, November 24, aged 75.

John R. Purdum, Wetmore, Kan.; Lincoln Medical College, Lincoln, Neb., 1894; died in November, from heart disease, aged 57.

James Thomas Stone, Corona, N. M.; Tennessee Medical College, Knoxville, 1906; was shot and killed, November 18, aged 40.

Frederick W. McCrimmon ♂ Butte, Mont.; Western University, London, Ont., Canada, 1891; died, December 1, aged 50.

Elsha W. Holly, Hamlin, W. Va.; Kentucky School of Medicine, Louisville, 1882; died, November 30, aged 70.

Fanny Berlin, Boston; University of Berne, Switzerland, 1875; died, September 4, at Roxbury, Mass., aged 69.

George Sidney Smith, San Francisco; University of California, San Francisco, 1879; died, November 21.

Riley W. Drinnon, Luther, Tenn. (license, Tennessee, 1889); died recently, from acute dysentery, aged 60.

Reuben Thomas Greer, Malvina, Miss. (license, Mississippi, 1910); died, December 5, aged 43.

Robert Orr, Marfa, Texas (license, Texas, 1918); died, November 18, aged 56.

Correspondence

"THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS"

To the Editor:—The valuable and suggestive article of Dr. Carter on the Pirquet system of feeding children (*THE JOURNAL*, Nov. 12, 1921, p. 1541), which has already provoked discussion, presents still another angle for consideration. I sympathize with the principle of examination of schoolchildren not only in the matter of nutrition but also in regard to other remediable defects; it seems doubtful, however, if the sweeping statement that more than 50 per cent. of 1,200 representative San Francisco schoolchildren are undernourished, even if it be "mild malnutrition," will advance the object sought. To the general reader its improbability would at once raise a question as to the reliability of the standards set by the system under discussion. It would seem unwise to transfer bodily the height-weight ratio based on Austrian children to American schools without careful inquiry as to whether racial differences may not require a different factor than ten in the ratio $\frac{10 \times \text{weight}}{\text{Sitting height}^2} = 100$. A cursory examination of Hastings' Manual for Physical Measurements (1902), giving figures based on more than 11,000 boys and girls chiefly from Omaha schools, which have been generally accepted as reliable norms, shows a widely different ratio between sitting height and weight.

The following list shows the sitting height and weight for the different ages as given by Hastings, together with the pelidisi taken from Pirquet's figures, as given by Carter (Table 1, p. 1542). The average figures of 94 for girls and 94.5 for boys are too high, as the weights include clothing (except shoes), while Carter's "pelidisi" are corrected to stripped weight, a correction which, he states, amounts to from 1.5 to 3 kg. ($3\frac{1}{3}$ to $6\frac{2}{3}$ pounds):

Age	Boys			Girls		
	Sitting Height, Cm.	Weight, Kg.	Pelidisi	Sitting Height, Cm.	Weight, Kg.	Pelidisi
5	59.32	17.86	96	59.31	17.32	95
6	61.35	19.37	95	61.35	18.50	94
7	64.08	21.30	94	63.71	20.70	93
8	66.00	23.14	94	66.06	22.17	92
9	68.00	25.07	94	67.08	24.90	95
10	70.04	27.85	94	69.56	27.16	94
11	71.64	29.86	94	71.25	29.00	94
12	73.59	32.98	94	74.32	33.06	94
13	75.21	35.60	95	77.44	37.94	95
14	78.06	39.73	95	80.79	42.92	94
15	81.68	46.95	95	83.30	46.71	94
16	85.21	52.90	96	84.70	50.38	94
			94.5			94

It is obvious that the average American child is somewhat more slender than the Austrian child of the same height, an observation in accord with the observation of Peckham (1881), and that Pirquet's figures should be carefully revised to fit American conditions. If Hastings' figures are accepted as a standard, and they are in agreement with the earlier work of Bowditch and Porter, the pelidisi of about 94.25 would become normal, or 100 per cent., and the ratio would approximate $\frac{10.52 \times \text{weight}}{\text{Sitting height}^2} = 100$. If this is done, the corrected pelidisi of 94, representing Pirquet's lower limit of permissible variation, would correspond roughly with 89 in the published table, or even a lower figure if correction is made for the weight of clothing. Since Carter states that most of the cases constituting the 53 per cent. rated at 94 or less fall in the 94.93 and 92 column, it is clear that a correc-

tion of standards would exclude most of these from the class of malnutrition. A hasty and uncritical use of the standards of the Pirquet system will only tend to throw it into disrepute and retard the acceptance of its good features, a result sincerely to be regretted, as it appears to present a practical method of dealing with the general question of child nutrition which must, it seems to me, be handled by some such system, adapted to rapid and reasonably accurate application to large groups of children.

(Since the foregoing was written, a communication by Dr. Faber has appeared [*THE JOURNAL*, Dec. 3, 1921, p. 1837] covering, on the basis of more adequate data, many of the points here discussed. The results obtained from a direct check of Carter's examination of San Francisco children, showing that, according to the Wood tables, only one fifth are 7 per cent. underweight, and but one ninth 10 per cent., proves the essential accuracy of the necessarily less exact analysis here presented. It is to be hoped that the discussion aroused by Dr. Carter's paper will help to hasten the satisfactory revision of standards suited to American schoolchildren and lead to their more general use.)

FRANK W. WEYMOUTH, A.M.,
Stanford University, Calif.

Assistant Professor of Physiology, Leland Stanford
Junior University School of Medicine

GROUP PRACTICE; DIAGNOSTIC AND PAY CLINICS

To the Editor:—The editorial comment (*THE JOURNAL*, Nov. 26, 1921, p. 1740), anent the pay clinic and the practitioner is opportune because, in the readjustments in medical practice that are impending, it is just that the latter be not disregarded. He is at present and will be for some time "the most valuable arm of the profession."

From the increase of matter pertaining to group practice, diagnostic clinics and organized medicine in *THE JOURNAL*, in the sessions of medical educational bodies and in the talk when physicians meet, it seems obvious that we are on the eve of a "big push" in the evolution of medical practice. The advantages of group practice are wont to be sung loudly by the initiated, often with accents so much distributed on the notes of personal interest and so little on the leitmotif of public service as to mar seriously the performance for those discriminating practitioners who happen to be in the audience. It is evident that we shall soon experience a controversy on the respective rights of practitioner, group, diagnostic clinic and pay clinic. In the anticipation of such a controversy it might be well to consider two of the forces at work which must inevitably change the practice of medicine, viz., costs, and present day medical education. During the last fifty years, medical science has grown so big that one man can master only a limited field. It often requires several men to apply the methods and knowledge necessary for the best diagnosis and treatment of a single patient. The machinery for this service is necessarily costly because both the education of the physician and the equipment necessary for the application of special knowledge are expensive; in other words, quality production comes high. Conservation of resources and energy demands that this machinery be kept running on a quantity production basis in order to insure reasonable returns to the physician on his mental and physical investment and a minimum cost to the patient for the kind of service that is due him. To bring proved and future benefits of medical science to the patient at endurable costs compels organization.

It is not reasonable to assume that a physician educated in the best schools of today will tolerate the present constrained conditions of small town and rural practice with its neces-

sarily merger facilities and with much of his valuable time spent as a chauffeur in traveling from patient to patient. The present state of affairs might possibly continue did not the public refuse to tolerate it. Throughout the West, practitioners in the country are being rapidly forced into loosely or closely organized groups in self defense, for the public is insisting on up-to-date service, is going where it can get such service, and is rapidly learning where quality service can be obtained at minimum costs.

In approaching the problem with its manifold personal grievances and adjustments, one must not forget that basic law of the healing, and may I add, preventing art, namely, that with every advance in medical science comes a proportionate limitation of the activities of those practicing that science. With the evolution of medical science and practice along present lines, the general practitioner as he exists today must eventually become obsolete. The cost of making a physician is rapidly becoming too great to allow him to squander his time in a desultory sort of practice which brings dissatisfaction to him and defective service to the patient. The care of the sick must be centralized for reasons of economy and service. Unavoidable call work can be carried out from the group center; fully 75 per cent. of the present call work could be eliminated to the untold advantage of the patient by centralized care of the sick. The advent of group practice in some form is the result of forces that cannot be stopped. Methods must be devised to protect the rights of the general practitioner (the specialists will look out for themselves) either by absorption into the group or by his working in such an association with the group as will react best to the interest of the patient, practitioner and group. The decision of the Board of Trustees of the American Medical Association to study the problem of group practice, diagnostic clinics and pay clinics is timely. It is safe to say that there is no greater social problem before medical men for solution than this inevitable transition from individual to organized practice which is now beginning.

A. D. DUNN, M.D., Omaha.

To the Editor:—The prominence which has been given to "group practice" in recent years has been associated with certain misconceptions on the part of the profession in general, many of which are so well brought out by Dr. Frank Billings' letter (*THE JOURNAL*, December 10) that I merely wish to emphasize them.

The points which, in my judgment, should be emphasized are these:

1. Most of the patients seen by the general practitioner are suffering from uncomplicated complaints which can be diagnosed by the intelligent use of the senses and the simple laboratory tests at the command of every physician.

2. Many practitioners, either from indolence or an exaggerated idea of the diagnostic value of the more complicated laboratory tests, fail to take a careful history and make a thorough physical examination of their patients, and hence fail to diagnose their diseases and apply successful treatment.

3. A certain proportion of the patients who consult the general practitioner are suffering from obscure diseases the diagnosis of which requires consideration from every possible angle, and this survey can best be made by an associated group of specialists.

4. There are many patients who are quite unable to meet the expense which must be incurred in making such an elaborate investigation, but who are able and anxious to pay something, as they are in no sense paupers and do not wish to be treated as such.

5. The so-called "pay clinic" is a perfectly logical development to meet the needs of this particular group of patients.

The whole situation is largely in the hands of the general practitioner. If he does careful work, the number of his patients who will need the services of a diagnostic group will be small; and if he is open minded he will doubtless benefit professionally from the careful investigation of these obscure cases. If he is the type of physician who resents the insinuation that the individual physician is deficient in diagnostic skill, he will need to follow a series of his patients to the necropsy table in order to develop sufficient humility to learn how to profit by his errors.

GEORGE BLUMER, M.D., New Haven, Conn.

COSMOPOLITAN CANCER RESEARCH SOCIETY

To the Editor:—My attention has been called to the fact that there appears in a recent issue of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* a statement that the Cosmopolitan Cancer Research Society, located at 847 Union Street, Brooklyn, has the cooperation of the Brooklyn Bureau of Charities. In reply may I say that the Bureau of Charities has no connection, understanding, or relationship whatever, with the Cosmopolitan Cancer Research Society, and has never sent a patient to them.

T. J. RILEY, Brooklyn.
Secretary, Brooklyn Bureau of Charities.

RADICAL ANTRUM OPERATIONS, AND DAMAGE THAT MAY BE DONE TO THE NERVE AND BLOOD SUPPLY OF TEETH

To the Editor:—Luc, in 1891, and Caldwell, working independently, in 1893, published their plan for opening the maxillary sinus over the canine fossa. In 1906, Denker published a more radical method in operating on the maxillary sinus.

These operations were devised before any importance was laid on the teeth as foci of systemic infection. Most of us have advocated and performed these operations and have counted them the operation of choice, not considering that damage may be done to the teeth. It has been our observation that a certain number of these patients return for months after the operation, complaining of a numbness of the incisors and canine teeth on the side on which operation was performed.

In searching for an explanation for this symptom I have found that the direct nerve and blood supply of the incisor and canine teeth by these operations is destroyed. Most surgeons think that the nerve and blood supply of the upper teeth lies in close proximity to the roots, as is the case in the lower jaw, whereas there is a marked difference. The maxillary division of the fifth nerve gives off three branches which supply the upper teeth, the terminal branch, the anterior superior alveolar nerve, being the one that supplies the incisors and canine teeth. This nerve descends in bony canals in the front wall of the maxillary sinus in such a way that, in the performance of either of these operations, a large section of this nerve is removed. The direct blood supply of these teeth follows the course of the nerve, and is likewise severed and removed. The natural sequence is that patients who have undergone operation are returning to us with dental symptoms, e. g., numbness and seeming elongation of the teeth. Roentgenograms of these show, in a certain proportion of cases, apical abscesses. One patient, a graduate nurse, who came under observation had had a radical operation on each antrum during her service in France. Within a year she had lost all of her upper incisors, which she attributes to the operation. The cosmetic damage, which is the least to be considered, is irreparable.

Dentists, in testing the vitality of these teeth, have found them devitalized as much as two and a half years after the operation. It may be possible that the plexus of nerves and the abundant supply of capillary circulation in the cancellous tissue of the alveolar process saves some teeth from complete destruction. However, I am keeping patients under constant observation on this point, and, from time to time, testing their vitality and making pictures. These facts are called to the attention of the profession in the hope that by the cooperation of dentists, oral surgeons, roentgenologists and rhinologists, we may determine whether any permanent damage is done to the teeth which may, at a later date, cause constitutional symptoms.

J. L. MYERS, M.D., Kansas City, Mo.

HOSPITAL FOR SPEECH DISORDERS

To the Editor:—In THE JOURNAL, November 26, Dr. J. S. Greene, in an article entitled "A Departure in Hospitals: The National Hospital for Speech Disorders," describes the deplorable lack of interest shown by the medical profession in the important subject of defective speech. There is no doubt that persons with speech defects are definitely handicapped both industrially and socially, and his attempt to stimulate interest in their scientific treatment is praiseworthy. However, the statement that his institution is the first in America to cope with this problem is misleading. In January, 1920, a speech clinic was organized in the U. S. Public Health Service Hospital No. 37, Waukesha, Wis., for the special treatment of these cases in ex-service men. Dr. Smiley Blanton of the University of Wisconsin, acting as attending specialist in speech defects, organized the clinic and has since continued actively to supervise its work. At present all of the speech cases of the hospital are under the care of one neuropsychiatrist who has made a special study of speech defects. Working in conjunction with him are two psychologists, experienced in speech reeducation. The cases are treated very intensively by analytic and reeducative methods, both by the psychiatrist and the psychologists. Class work has been discarded, as it was found ineffectual, and the work is now entirely individual.

In addition, the patients receive, when indicated, physiotherapy, electrotherapy and occupational therapy, and may pursue studies in prevocational education. There are two dental officers on full time, a roentgenologist and consultants in ophthalmology, otology, rhinology and laryngology; in internal medicine; in surgery; in urology, and in orthopedics. There is, in addition, an efficient social service department which promptly establishes contact with the patient's family and keeps in touch with him after discharge.

The speech work in this hospital takes into account the educational, as well as the physical, needs of the individual, and the facilities of the clinic are open to any ex-service man suffering from a speech disorder.

LAWRENCE KOLB, M.D., Waukesha, Wis.

Medical Officer in Charge, U. S. P. H. S.

Hospital No. 37.

"A NEW METHOD OF TREATMENT FOR VARICOSE ULCERS OF THE LEG"

To the Editor:—Referring to the description of "A New Method of Treatment for Varicose Ulcers of the Leg" (THE JOURNAL, Dec. 10, 1921, p. 1890), verily "the old ones are the best." This method was old during the swaddling clothes period of my internship.

JOHN F. KUHN, M.D., Oklahoma City.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VON PIRQUET TEST IN TUBERCULOSIS.

To the Editor:—Is the von Pirquet test a reliable and conclusive proof of tuberculosis?
W. S. NORMAN, M.D., Hamburg, Ark.

ANSWER.—The von Pirquet cutaneous test is regarded as giving positive evidence if tuberculosis is present. Exceptions are cases which are overwhelmed by the infection in the late stages of the disease, as in generalized miliary tuberculosis and tuberculous meningitis; also during the height of some infections, as measles, pneumonia, scarlet fever, typhoid fever and erysipelas. In the presence of a negative reaction, if there is a strong suspicion that tuberculosis exists, the test should be repeated two or three times, as the patient becomes more sensitive to the reaction when the test is repeated. A proper interpretation of a positive reaction is of great importance, because its clinical significance is to a large extent dependent on the age of the patient. In infants under 1 year it may be considered as signifying an active process. During the second year of life, while indicating the presence of tuberculosis, the process may have advanced to the stage of healing. In older children and adults, while signifying the presence of tuberculosis, its importance must necessarily be determined by the findings on physical examination, and on laboratory and roentgenographic studies. In older children and adults a positive reaction should therefore not be regarded as ground for alarm unless active lesions can be demonstrated, as a healed focus in an individual with good reaction to the disease usually gives a strongly positive finding. A negative reaction when the test has been repeated indicates one of the following: an absence of infection, a healed infection, little or no antibody due to a healed infection, an overwhelming of the organism by the disease, too short an interval after infection to permit the building of antibody, or a suppression as seen during the course of some of the acute infections. In suspicious cases in the presence of a negative von Pirquet reaction, an intradermal (Mantoux) test should be made. This consists of the instillation between the layers of the epidermis of 0.05 mg. of old tuberculin, diluted with physiologic sodium chlorid solution to 0.12 c.c. (2 minims). This test is more sensitive than the von Pirquet.

WHITFIELD'S OINTMENT

To the Editor:—In THE JOURNAL, October 22, is an article on epidermophytosis in which reference is made to Whitfield's ointment. Please tell me the composition of this ointment.

M. A. STERN, M.D., Sioux Falls, S. D.

ANSWER.—Whitfield's ointment is composed of benzoic acid and salicylic acid incorporated in a petrolatum base. According to Sutton (Diseases of the Skin, Edition 4, p. 1018) it consists of:

	Gm.	
Salicylic acid	1	gr. xv
Benzoic acid	2	gr. xxx
Petrolatum	30	$\frac{3}{4}$ i

Goodman (Epidermophytosis Pedum et Manuum, *Arch. Dermat. & Syph.* 3:652 [May] 1921) gives this formula for Whitfield's ointment:

	Gm. or C.c.	
Salicylic acid	1	gr. xv
Benzoic acid	1	gr. xxv
Petrolatum	8	$\frac{5}{8}$ ii
Coconut oil	30	$\frac{3}{4}$ i

HARRISON NARCOTIC LAW REGULATIONS FOR RECORDING MORPHIN GIVEN HYPODERMICALLY

To the Editor:—Please inform me whether a physician is required to keep a record of the morphin which he administers hypodermically, when called to attend cases of gallstone colic, etc. There seems to be a difference of opinion in regard to this. Kindly omit my name.

H. H. D.

ANSWER.—The regulations under the Harrison Narcotic Law require physicians to keep a record of morphin administered hypodermically at the physician's office, but this is not required at the bedside or when the physician is away from his office.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 10-12. Director, Mr. W. H. H. Miller, Springfield.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, Syracuse and New York City, Jan. 23-26. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Jan. 3. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonsteel.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Maryland June-July Examination

Dr. J. McP. Scott, secretary, Maryland State Board of Medical Examiners, reports the written examination held at Baltimore, June 28 to July 1, 1921. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 111 candidates examined, 107 passed and 4 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1921)	92	
Rush Medical College	(1915)	89	
Johns Hopkins University	(1918) 84, 92, (1919) 84,		
	99, (1920) 79, 79, 80, 87, 90, (1921) 78, 79, 80,		
	82, 83, 83, 83, 84, 85, 85, 85, 85, 86, 86, 87,		
	87, 87, 87, 87, 87, 89, 89, 89, 89, 89, 90, 90, 90,		
	90, 90, 90, 90, 91, 91, 92, 92, 93, 93, 94		
University of Maryland	(1917) 84, (1919) 77,		
	(1920) 75, 87, (1921) 77, 78, 79, 79, 80, 81, 82, 83,		
	83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 85,		
	85, 85, 86, 86, 86, 86, 87, 87, 88, 88, 88, 88,		
	89, 89, 89, 90, 90, 90, 90, 90, 91, 91, 91, 91,		
	92, 93, 94		
Temple University	(1917)	76	
Mcharry Medical College	(1921)	89	

College	FAILED	Year Grad.	Number Failed
Howard University	(1920)		1
Jefferson Medical College	(1921)		1
University of Palermo	(1915)*		1
University of Zurich	(1917)*		1

Dr. J. McP. Scott also reports that 31 candidates were licensed by reciprocity, and 1 candidate was licensed by endorsement of credentials, from Jan. 15, 1921, to Sept. 5, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama	(1912)		Alabama
Georgetown University	(1903)		Dist. Colum.
George Washington University	(1908), (1916)		Dist. Colum.
Atlanta Medical College	(1914)		Georgia
Loyola University	(1917)		Illinois
Kcokuk Medical College	(1908)		Kansas
Kentucky School of Medicine	(1907)		W. Virginia

Kentucky University Medical Department	(1905)	Indiana
University of Louisville	(1920)	Kentucky
College of Physicians and Surgeons, Baltimore	(1909)	W. Virginia
Johns Hopkins University	(1919)	Virginia
Maryland Medical College	(1911)	Pennsylvania, (1913) W. Virginia
University of Maryland	(1889)	New York, (1890) Maryland
(1920) North Carolina		
St. Louis University	(1908)	Illinois
Washington University	(1912)	Missouri
Columbia University	(1915)	New York
Leonard Medical School	(1911)	Tennessee, (1912) Virginia
Eclectic Medical College, Cincinnati	(1915)	Ohio
Jefferson Medical College	(1919)	Delaware
University of Pennsylvania	(1898)	Delaware
Medical College of the State of South Carolina	(1907)	S. Carolina
Meharry Medical College	(1911), (1916)	Georgia
(1917) North Carolina, (1920) Tennessee		
University of Vermont	(1913)	Vermont

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Maryland	(1914)		Nat'l Bd. Med. Ex.
* Graduation not verified.			

Kansas June Examination

Dr. Albert S. Ross, secretary, Kansas State Board of Medical Registration and Examination, reports the written and practical examination held at Kansas City, June 23, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 39 passed and 1 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1921)		80
Rush Medical College	(1921)		86
University of Kansas School of Medicine	(1921)		76
	79, 80, 80, 80, 81, 81, 81, 81,* 82, 82, 82, 82,*		
	83, 83, 83, 83, 84, 84, 84, 84,* 85, 85, 85, 85, 86,		
	87, 87, 88, 89		
St. Louis University School of Medicine	(1921)	85, 86	
Washington University	(1920) 82, (1921)		78
Western Reserve University	(1921)		86
Jefferson Medical College	(1920)		87
University of Texas	(1917)		82

College	FAILED	Year Grad.	Reciprocity with
Mcharry Medical College	(1894)		63

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
American College of Medicine and Surgery	(1905)		Illinois
Rush Medical College	(1901)		Missouri, (1919) Illinois
Tulane University	(1907)		Tennessee
Eclectic Medical University, Kansas City, Mo.	(1904)		Missouri
Ensworth Medical College	(1905)		Missouri
St. Louis College of Physicians and Surgeons	(1919)		Tennessee
St. Louis University School of Medicine	(1905), (1912), (1921)		Missouri
University Medical College of Kansas City	(1898)		Oklahoma
Washington University	(1918)		Missouri
Medico-Chirurgical College of Philadelphia	(1909)		Penna.
Meharry Medical College	(1916)		Tennessee
Vanderbilt University	(1919)		Tennessee
Marquette University	(1913)		Wisconsin
* An official communication from the University of Kansas School of Medicine states that these candidates have not graduated.			

Idaho October Examination

Mr. Paul Davis, director, Department of Law Enforcement, reports the written examination held at Boise, Oct. 4, 1921. The examination covered 11 subjects and included 120 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1907)		77.2
Loyola University	(1918)		82.3
University of Illinois	(1919)		81.9
University of Louisville	(1921)		85.2
Harvard University	(1896)		83.8
Columbia University	(1920)		82.1
University of Oklahoma	(1918)		75
University of Pennsylvania	(1920)		83.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1903)		Montana
Rush Medical College	(1919)		Utah
Woman's Medical School of Northwestern Univ.	(1899)		Oregon
University of Kansas	(1906)		Washington
Baltimore Medical College	(1906)		Montana
Johns Hopkins University	(1905)		California
Tufts College Medical School	(1901)		Montana
University of Michigan Medical School	(1912)		Montana
John A. Creighton Medical College	(1920)		Utah

Book Notices

OPERATIVE SURGERY FOR STUDENTS AND PRACTITIONERS By John J. McGrath, M.D., F.A.C.S., Professor of Surgery, Fordham University. Sixth edition. Cloth. Price, \$8 net. Pp. 863, with 369 illustrations. Philadelphia: F. A. Davis Company, 1921.

The subject matter is divided into ten parts dealing with: general considerations; head and face; neck and tongue; thorax; abdomen and back; rectum; hernia, spermatic cord, testes, etc.; urinary system; upper extremity, and lower extremity. The facts presented are concisely stated, and the material is well worked up. A striking feature is the detailed description of surgical anatomy of the region given at the beginning of each of the chapters. In general, this is to be commended; but in the part dealing with the thorax, thirty-two pages are given up to a consideration of the surgical anatomy, whereas only twenty-one pages are left for presenting the operative surgery of the thorax, including the chest wall and the breast. Operations on the breast, excluding amputation of the breast, are compressed into one and one-half pages; the entire subject of amputation of the breast is compressed into five and one-half pages, and only the Halsted-Myer operation is described; operations on the heart cover eight pages; surgery of the pleura including pleurectomy cover six and one-half pages; and then one is most of all surprised to find that surgery of the lung is not taken up at all.

Besides this lack of proportion and sacrifice of presentation of operative technic resulting from the amount of space given over to surgical anatomy, one is impressed by the number of entirely obsolete methods and operations described and recommended, and a corresponding absence of presentation of much that is new and accepted as standard today. For example, in considering transfusion, direct transfusion is gone into at length, and its performance by the suture method with the Crile cannula, and with Brewer tubes described in detail. Surely today these are only of historical interest. Then the Unger method is taken up, and finally, the sodium citrate method. The latter is not adequately described, nor is it entirely accurately outlined. This method, together with the method using a Percy or similar tube, are unquestionably the most used methods today, and yet the latter method is not even mentioned.

Similarly, in considering the treatment of tic douloureux, the author describes the extirpation of the gasserian ganglion in detail, giving the method of Hartley-Krause, the method of Cushing, and the entirely obsolete method of Rose-Andrews. The Spiller-Frazier operation, on the other hand, which consists merely in the section of the sensory root, and is today unquestionably the operation of choice as a substitution for excision of the gasserian ganglion, is not even mentioned. Later, the author describes division of the second and third branches of the trifacial nerve at the base of the skull, and recommends dividing them at their foramina of exit or twisting them free. Instead of describing these methods in detail, he might well quote Cushing and state that deep extracranial injections of alcohol into the maxillary and mandibular nerve trunks near their foramina of exit from the skull have completely superseded peripheral neurectomies. In discussing the operations for varicose veins of the leg, he gives a detailed description of the entirely obsolete Schede operation, with two large illustrations (the only ones in connection with operations for varicose veins) showing how the incision is made circularly completely around the leg—a procedure that should be condemned most emphatically, as long ago it was found to be followed by constriction and consequent circulatory disturbance below. In amputation of the thigh, the circular flap method is considered the method of choice and is described in detail. Flap operations are merely referred to. No mention is made of methods to prevent neuroma formation, nor is any mention made of the Bunge method of aperiosteal treatment of the femoral stump, two factors of great value in obtaining painless and good end-bearing stumps. Surely this is no adequate teaching of thigh amputation.

All in all, while the book contains much that is valuable for a beginner in surgery, it cannot be regarded as a good textbook for students, since much that is antiquated is incorpo-

rated, and many procedures that are accepted as standard are not described or even referred to. For the surgeon of experience, the book has little to recommend it aside from the portions on surgical anatomy, which are very good.

UEBER DIE ENTWICKLUNG UND DEN AUSBAU DER SUPRASYPHYSÄREN SCHNITTENTBINDUNG AN DER UNIVERSITÄTS-FRAUENKLINIK TÜBINGEN. Von Dr. Emil Vogt, Oberarzt der Universitäts-Frauenklinik. Paper. Price, 36 marks. Pp. 113, with 8 illustrations. Berlin: S. Karger, 1921.

Vogt here discusses the development of the suprapubic cervical cesarean section in the Tübingen clinic. He has carefully described the anatomy and the surgical technic, and has also compared this with the technic of other extraperitoneal and transperitoneal cesarean sections. The operation is usually done under 5 per cent. procain solution lumbo-sacral anesthesia, with the patient in the Trendelenburg position. He points out that sterilization can be easily carried out at the end of the operation, if desired, without enlarging the incision. The greatest advantage claimed over the old classic operation is that this can be used in cases in which infection is suspected on account of numerous and careless vaginal examinations, or in which the membranes have been ruptured for a long time in the course of a complete test of labor. Under these conditions he claims that the classical operation cannot safely be done. However, cases of proved infection, he admits, should be otherwise delivered either by Porro cesarean section or by craniotomy. Among other indications he believes that placenta praevia is best handled by this operation, as opposed to the use of bags or Braxton Hicks version. The special reasons advanced are the better fetal prognosis and the ability to combat postpartum hemorrhage under the guidance of the eye, ligating the bleeding points if necessary. Less common indications for which the operation is advised are prolapse of the cord, carcinoma of the cervix, preceding extensive perineal repair, repaired fistulas, infections of the birth canal, and neglected transverse presentations. The results of various authors operating by this method are compared with those operating by different methods and, in the author's opinion, are found to be superior. From a study of the figures it is difficult to see the proof of the superiority of the operation over the extraperitoneal operation of Kustner, for example, who reports a series of 110 unselected cases with no primary mortality from infection, although half of the patients were either known or suspected to be infected at the time of operation.

LEHRBUCH DER LUNGENKRANKHEITEN. Von Dr. Adolf Bacmeister, a. o. Professor für innere Medizin in der Universität Freiburg i. Br. Paper. Price, 126 marks. Pp. 339, with 106 illustrations. Leipzig: Georg Thieme, 1921.

Those who know German will enjoy this book. The style is clear, crisp and simple. The author goes thoroughly into pathology and physical diagnosis. The chapters on bronchitis and "bronchiolitis" are most interesting; syphilis of the lung, however, is left somewhat in a haze of indefiniteness. One might spend much time on the chapter on pleurisy, with the certainty of being well repaid. While the author discusses the bacteriology of pneumonia thoroughly, he offers nothing new and makes no mention of the various types of *B. pneumoniae*. Nevertheless, he does discriminate between the various organisms that may produce pneumonia. While the therapy recommended in the book, is, as a rule, clean cut and practical, so many drugs are mentioned that the author could not be suspected of therapeutic nihilism. The use of the roentgen ray is considered secondary to physical diagnosis.

WHAT TO DO IN CASES OF POISONING. By William Murrell, M.D., F.R.C.P. Twelfth edition, revised by P. Hamill, M.D., D.Sc., F.R.C.P., Lecturer on Pharmacology and Therapeutics, St. Bartholomew's Hospital. Cloth. Price, \$1.25. Pp. 273. New York: Paul B. Hoeber, 1921.

This pocket manual is now in the twelfth edition, the present revision being by Dr. P. Hamill. The subjects are arranged in alphabetical order. The advice is based on personal experience and on the literature. There are brief discussions of multiple antidotes, legal aspects and the fees to be charged in handling such cases. It is a type of book which may lie for weeks or months on the physician's desk without consultation, but which is invaluable when needed.

Medicolegal

Court Refuses to Order a Blood Test

(*Hayt v. Brewster, Gordon & Co., Inc. (N. Y.), 189 N. Y. Supp. 907*)

The Supreme Court of New York, Special Term, Monroe County, says that this was an action for personal injuries, in which the defendant asked for an examination before trial and a physical examination, including a blood test. Under Section 873 of the New York Code of Civil Procedure, the defendant was entitled to the examination before trial as to the plaintiff's alleged injuries and physical condition, and also to a further physical examination, but not to the making of a blood test. The right to a physical examination is purely statutory, and should not be extended by construction beyond the intention of the legislature when the statute was enacted. A blood test invokes a puncturing of the human body; and, while it may not be attended with any appreciable pain or reasonable apprehension of danger to health, it cannot be said that such a test was within the contemplation of the legislature when the statute relating to physical examinations was enacted. If the examination is to be extended to something not ordinarily understood by that term, it should be left to the legislature to so provide.

Instruction of Patients and Contributory Negligence— Inexcusable Mistakes

(*Everts v. Worrell (Utah), 197 Pac. R. 1043*)

The Supreme Court of Utah says that when the plaintiff was between 17 and 18 years of age he was afflicted with acne, and arranged with the defendant for treatment. The treatment consisted of two injections of neo-arsphenamin. Paralysis of the lower portion of the plaintiff's body followed. The plaintiff sued for damages. The defendant alleged contributory negligence. She called the case a typical one of acneiform syphilid. The trial resulted in a judgment for the defendant, which is reversed, with directions to grant the plaintiff a new trial at defendant's cost, on account of errors in the instructions given the jury.

It is no doubt a wholesome law, the supreme court says, that a patient must obey the instructions of his physician, and if he fails to do so must suffer the consequences. Where the patient, however, is not informed of his actual condition and the dangers to which he may become exposed, and is left in ignorance respecting that matter, and by reason of such ignorance falls into error, or, figuratively speaking, walks from a precipice in the darkness of night, he should be judged only in the light of what he knew, or, in view of the facts and circumstances, should have known. The law charges him constantly with what he ought to have known in view of all the circumstances. But no hard or fast rule can be laid down respecting the form or character of the instructions a physician should give in all cases. In a case like the one at bar, in which the experts differ respecting the nature and character of the disease, and the patient may be wholly ignorant of the danger to which he is exposed, and his physician does know, before the physician can charge the patient with contributory negligence barring a recovery he should see that he fully advised the patient respecting his condition and the dangers to which he might be exposed, and how to avoid them. Moreover, the circumstances here were such that the jury should have been specifically told just what the duties of the defendant were in a case of this character, and that in determining whether the plaintiff was guilty of contributory negligence barring a recovery the jury should take into consideration his experience, his knowledge or want of knowledge, and the character of the disease, and all the facts and circumstances in evidence which would throw light on his negligence, if there was any.

In a case like the one at bar, the patient and his physician do not stand on an equality, and the patient is usually uninformed respecting the character of his disease, and thus necessarily must be directed what to do by his physician in order to avoid ill consequences, if any such may follow. If,

therefore, the physician relies on the contributory negligence of his patient to defeat a recovery in case of malpractice, the patient should be advised respecting the consequences of any act or omission on his part, and not be left in the dark with respect thereto. Otherwise he cannot act intelligently in the premises. The court, therefore, should instruct the jury that in determining the question of contributory negligence they should take into consideration all the facts and circumstances in evidence respecting the patient's age, experience or want thereof, and his knowledge or want of knowledge respecting his disease and condition, and the instructions that he received, if any, from his physician. This was not done in this case, and, in view of the peculiar circumstances, the supreme court has been forced to the conclusion that the plaintiff was prejudiced in a substantial right, and did not have that full, fair and impartial trial which our laws guarantee to every suitor.

A physician and surgeon is not excusable for every mistake, but only for his honest mistakes and when founded on some reasonable doubt. If he makes a mistake by reason of undue inadvertence, or for lack of diligence or attention, however carefully and skilfully he may have diagnosed and treated the case, he, nevertheless, cannot be excused for such a mistake if it results in injury to his patient.

Requires Submission to Operations Despite Danger

(*Strong v. Sonken-Galamba Iron & Metal Co. (Kan.), 198 Pac. R. 182*)

The Supreme Court of Kansas says that the principal question presented was, Did the court have power to reduce the amount of compensation that should be paid to the plaintiff if he refused to submit to an operation? He had been injured while in the employment of the defendant, his injury being a recurrence of a right inguinal hernia, for which he sought compensation under the workmen's compensation law of Kansas. The defendant offered him a surgical operation, by a surgeon of his own choosing, the defendant to defray all the expenses thereof. The plaintiff gave as reason for refusing to have the operation performed that he thought he was too old, being 54 years of age; that he did not think that he could stand the operation in the condition in which he was, his ribs having been pulled away from his breastbone, and his spine being numb; and because there was a chance of a man not living through it. The lower court held that the plaintiff should endeavor to effect a cure of his condition by submitting to the operation as tendered by the defendant, and, in case of his failure to do so, the compensation to be paid to him should cease at the end of twenty-five weeks. In affirming the judgment rendered on that basis, the supreme court holds that the unreasonable refusal of an injured employee to permit a surgical operation where the danger to life from the operation would be very small, and the probabilities of a permanent cure very large, justifies a court in refusing compensation under the workmen's compensation law and after the trial. The unreasonableness of the refusal of an injured employee, who is seeking to recover compensation under the workmen's compensation law, to permit an operation to be performed, is a question of fact to be determined from the evidence. Why should the plaintiff permit an operation to be performed? It might not result in his improvement; it would be painful; it was remotely possible that it might result in his death. Danger to life is everywhere, at all times; it cannot be escaped by any one. The most trifling accident to the person or the smallest scratch on the skin may result in death. The locomotive engineer and his fireman when they climb into the cab of their engine and start on their trip constantly face dangers that may, and often do, result in their death. The miner who goes into the earth to take therefrom ore or mineral faces death every day. These men are not deterred by danger, although they know that injury or death is liable to come at any time. They go because that is their field of labor, and it is their duty to go. The plaintiff was injured. The injury could be remedied, and he could be restored to his former condition. It was his duty to do whatever was necessary to restore him. If he refused to perform that duty, he should not ask the state or any person to assist him in

that refusal. He could not be compelled to undergo an operation, but he could be told that if he refused he should not receive compensation for that which he voluntarily continued.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.

SOUTHERN MEDICAL ASSOCIATION

Fifteenth Annual Meeting, held at Hot Springs, Ark., Nov. 14-17, 1921

(Concluded from page 1996)

Glossopyrosis

DR. K. HEBERDEN BEALL, Fort Worth, Texas: In four cases, constant burning of the tongue was the sole symptom. Physical examination was negative. In each case there was an absence from the dietary of meat and whole milk. Two patients were lost sight of; the other two were relieved of the burning of the tongue by the addition of meat and whole milk to the diet.

Significance and Diagnosis of Cardiac Anginal Pains

DR. D. D. PAULUS, Oklahoma City: Pain, often of a more or less paroxysmal character, is a frequent finding in heart disease independent of angina pectoris. These pains are really protests from an overworked, inflamed or degenerated heart, and may arise from the heart as well as from the aorta. Whatever the source, pain over the precordial area demands a thorough investigation of cardiac function, etc., unless the condition present is obvious.

Treatment of Cancer of Uterus by Radium

DR. LOUIS FRANK, Louisville, Ky.: Cancer of the uterine body treated by total obliteration of tubes, ovaries and uterus yields curative results which we cannot hope to surpass by any other form of treatment. All borderline cases should be treated with radium. Late cases may be improved and palliated by radium as by no other means at our command. If the five year period of curability is to be accepted as indicating a cure, then the results of radium treatment surpass by far those obtained by the profession at large in the treatment of cancer of the cervix by surgical means.

Retrodisplacement of the Uterus, with Suggestions Regarding Proper Treatment

DR. W. T. BLACK, Memphis, Tenn.: Congenital retrodisplacement rarely requires treatment. Simple displacement, following a recent pregnancy, can often be corrected by the wearing of a properly placed pessary. One should select with judgment the type of operation best suited to be used in the various conditions encountered in retrodisplacements. It is an unpardonable mistake to select the same technic for all cases. Many needless operations for this condition are being performed.

Surgery of Gallbladder

DR. W. H. GOODWIN, Charlottesville, Va.: The operative mortality in our hospital from cholecystostomy was 5 per cent., and in cholecystectomy 3.3 per cent. Of the patients traced who had cholecystostomy done, 71.5 per cent. were cured; 23 per cent. were improved and 5.2 per cent. unimproved. Of those who had cholecystectomy done, 88 per cent. were cured, 9 per cent. were improved, and 3 per cent. were unimproved. No one should dogmatically say that cholecystectomy ought to be the operation of choice in all gallbladder disease; but on account of the better immediate and final results and the shorter and more comfortable convalescence of cholecystectomy, that operation should be done in the vast majority of cases. Cholecystostomy certainly has a field of usefulness in the very ill patient with infected gall-

bladder complicated by jaundice. In the very ill patient with stone in the common duct and deep jaundice, cholecystostomy may be relied on to tide the patient over the emergency, and later the stone can be removed with much less risk to the patient.

Acute Intestinal Obstruction

DR. GEORGE A. HENDON, Louisville, Ky.: The percentage of mortality is in direct proportion to the number of hours that elapse between the onset of the symptoms and the performance of the operation. In cases obstructed one hour there is shown 1 per cent. mortality; two hours, 2 per cent.; three hours, 3 per cent., and so on. In searching for the obstructed bowel, not more than five minutes should be employed. The obstructed loop of intestine is almost invariably found in the pelvis. A condition in which a bowel is strangulated and becomes gangrenous outside the abdominal cavity is not so frequently fatal as a condition involving the same amount of intestine which has become gangrenous within the cavity. Hence the relatively low mortality rate of strangulated hernia. In every case morphin hypodermically, sufficient to control pain, should be administered. Under no circumstances should any effort at purgation be resorted to. All attempts in this direction should be limited to the use of a simple enema.

Exstrophy of Bladder

DR. W. W. GRANT, Denver: The extraperitoneal implantation of Bergenhem-Peters, modified by transplanting ureters and trigon intact and through one anterior rectal incision, is less dangerous and more quickly done and is the operation of choice. The two-stage operation is neither necessary nor desirable. In advanced malignant and tuberculous disease of the bladder, the Coffey-Mayo operation and technic is the operation of choice. Urinary control is essential to any successful operation on the bladder.

Roentgen Rays in Diagnosis of Pulmonary Tuberculosis

DR. JOHN D. MACRAE, Asheville, N. C.: Stereoscopic lung plates are the most valuable method of diagnosis. All other methods are secondary in value. Interpretation of the roentgenograms should be made independent of clinical findings in the case. Necropsies on tuberculous subjects will aid in correlating densities in the roentgenogram with actual lesions in the lungs.

Value of Blood Chemistry to the Surgeon

DR. WILLIAM H. BAILEY, Oklahoma City: The glucose tolerance test is of considerable assistance in establishing the diagnosis of cancer, especially of gastro-intestinal carcinoma, when the other conditions that give a similar blood sugar curve have been eliminated. Ether should not be the anesthetic of choice when the patient is found to show an acidosis by a low carbon dioxide combining power of his blood plasma. In gastro-intestinal cases showing a starvation acidosis, a two-stage operation may well be considered. A poorly functioning organ is to be feared more as a factor bearing on the operative risk of the patient than a diseased organ that is doing its work satisfactorily. Many deficient metabolic processes of the body may ultimately affect the functional ability of the kidneys. No one test for kidney function should be used to the exclusion of all others. Bloodchemical tests, like all other laboratory procedures, must be considered only as additional clinical evidence, and their value determined by weighing them with all the data available. Satisfactory results cannot be expected from these tests if their performance is left to some one not thoroughly conversant with the chemical procedures involved. The estimation of blood creatinin is the most valuable prognostic sign we have in cases of renal deficiency. Blood chemistry is of special value in cases of hypertrophied prostate and other mechanical chronic obstructions to the outflow of urine.

Gastroptosis

DRS. SEALE HARRIS and J. P. CHAPMAN, Birmingham, Ala.: Of 500 patients studied by the roentgen ray, in 55.6 per cent. the lower border of the stomach was more than 2 inches (5 cm.) below the umbilicus. The operation of fixation of the stomach for gastroptosis is irrational, meddlesome sur-

gery. The operation does not permanently elevate the stomach, and many cases have been reported in which the patient was in worse condition after the operation than before.

Lamblia Intestinalis Infestation and Its Treatment

DR. SIDNEY K. SIMON, New Orleans: The eradication of giardia infection, once it has become firmly entrenched in the intestinal tract, has proved in the past a signally unsuccessful undertaking. I have used arsphenamin in six cases. In one case the drug was introduced directly into the intestinal tract through the duodenal tube, while in the other cases the intravenous route was selected. In each instance there was a prompt disappearance of the cysts from the stools, and no further trace of the infection has been made out.

Hepatic Extract (Soluble) as a Remedial Agent

DR. A. L. LEVIN, New Orleans: Hepatic extract is a useful agent to stimulate liver function unless it is beyond repair. It must be used for a long period until definite good results have been obtained. It is of value in conjunction with non-surgical drainage, but has no power to influence pancreatic pathology. It can be used as a diagnostic agent to determine the hepatic origin of the trouble. Liver enlargements due to biliary stasis can be diminished in size in a reasonably short period, if used in conjunction with nonsurgical drainage. This includes acute catarrhal jaundice. The injection does not give rise to any unpleasant reactions, local or systemic.

Diphtheria and Hemolytic Streptococcus Carriers

DR. GEORGE E. ADKINS, Jackson, Miss.: One of the most essential things in reducing the prevalence of diphtheria over the country would be the removal of tonsils and adenoids or the clearing away of points of chronic focal infection in the upper respiratory tract of all diphtheria carriers (or rather all those cases that give a positive history) regardless of an examination made by swabs.

Treatment of Lung Abscess

DR. C. O. GIESE, Colorado Springs, Colo.: From 6 to 33 per cent. of all cases of lung abscess recover spontaneously. If spontaneous recovery does not occur within eight weeks, some type of operative procedure should be considered. The operation to be advised depends on the location of the suppurative process and the pathologic condition.

Tolerance of Children for Digitalis

DRS. HUGH McCULLOCH and WAYNE A. RUPE, St. Louis: The method of administering massive doses of digitalis to children should be the same in detail as for adults. The use of massive doses to children is entirely practical, and under proper supervision possesses no source of danger. That amount of digitalis necessary to produce clinical improvement coincides with the amount necessary to produce vomiting and a fall in heart rate. These two phenomena may be taken as criteria that an optimal therapeutic effect has been obtained. Children with heart disease require an amount of digitalis per kilogram ($2\frac{1}{2}$ pounds) of body weight which is about 50 per cent. greater than would be required for adults. There are two indications for the use of digitalis in children: (1) those who are suffering from heart disease and who are in a state of chronic cardiac failure, and (2) those who have a regular rapid heart rate when that heart rate cannot be slowed by other measures. Massive doses of digitalis are contraindicated in two groups of children with heart disease: (1) those who have an acute infectious or toxic myocarditis, and (2) those who are suffering from acute cardiac failure with hearts that are overloaded.

Classification of Birth Paralysis

DR. LEE BEN CLARKE, Atlanta, Ga.: Many cases showing mental or physical deficiency and birth paralysis are due to disordered functions of the ductless glands. No case showing mental or physical deficiency should be dismissed as hopeless until it has been definitely established that it does not belong to this group. It is probable that few, if any, infants who survive have been permanently injured at birth, and that the defectivity is entirely intra-uterine. Early recognition, fol-

lowed by early and thorough treatment, is necessary if the best results are to be obtained. Roentgen-ray studies of the sella turcica and complete study of the spinal fluid, including a Wassermann test, are invaluable in the differential diagnosis, since surgical conditions, i. e., pituitary tumors, etc., and syphilis must be excluded.

Intracranial Hemorrhage in the New-Born

DR. EUGENE ROSAMOND, Memphis, Tenn.: The points of interest in my case were the occurrence of an intracranial hemorrhage in a cesarean baby, the absence of all external bleeding, the severity of the convulsions, their duration of thirty-six hours before efforts to stop the hemorrhage were made, and the prompt cessation of the convulsions when the bleeding was stopped. Thirteen other cases of intracranial hemorrhage seen in the last twelve months all responded promptly to blood therapy. Several did not get beyond the stage of pallor and restlessness, when the coagulation time was taken, and the true condition discovered. Only six cases showed external bleeding. Since a routine determination of the blood coagulability would reduce the mortality of the new-born practically 50 per cent.; and, furthermore, since it would probably prevent a large number of the cases of birth palsies, it is well worth the extra time and care it would take to make this a universal, routine procedure.

Direct Exposure to Tuberculosis in Infancy and Childhood and Its Relation to Manifest Pulmonary Tuberculosis in the Adult

DRS. W. M. TAYLOR and L. J. MOORMAN, Oklahoma City: Routine history taking in our cases showed childhood exposure in 62 per cent. of 200 adult cases. This preponderance of childhood exposure in connection with adult cases strongly suggests reinfection from within rather than from without. We believe there must be many periods of mild tubercle toxemia between the date of infection and the discovery of clinical disease, and that many cases of so-called malnutrition, nervous instability, malaria, anemia, undetermined fever, etc., may be the result of such toxemia. In all probability there are many vague symptoms in childhood which arise from tubercle toxemia. After having done what we can to prevent early contact with open cases, we should employ every possible means to determine the degree of infection, especially in contact cases, in order that those showing heavy or even moderate infection may have special observation and supervision with the purpose of safeguarding the child by improving the environment and by the early recognition of symptoms and signs, should they develop.

Pulsus Alternans

DR. RANDOLPH LYONS, New Orleans: I have been impressed by the fact that if blood pressure readings were performed more carefully, bearing in mind the possibility of the presence of pulsus alternans, this symptom would be far more frequently detected by physicians in general practice than it is at present. The error of confusing the regular occurrence of late extrasystoles (pulsus bigeminus) with alternation of the pulse is the chief pitfall. According to White and Lunt, the error of confusing pseudo-alternation with true alternation, using the auscultatory blood pressure method, is about once in six times. It is possible that this error may be further reduced if we bear certain points in mind: 1. In pulsus alternans, on listening over the bend of the elbow at the time when all the beats are heard, the sounds are perfectly regular, whereas in cases of pulsus bigeminus there is always a delay after the weaker beat. 2. In pulsus alternans, on auscultating the heart, it is extremely rare to note any difference in intensity of the strong and weaker beats, while in the case of regular premature contractions, the premature beats are apt to be less intense. The auscultatory blood pressure method will, in a few instances, detect a slight alternation where tracings fail to reveal it. The delicacy of the method is demonstrated by the fact that an alternation of only 5 mm. of mercury can be detected. Furthermore, in two patients it was possible to recognize the diastolic pressure of the alternate strong and weak beats and thus determine their pulse pressure independently.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

Nov. 1, 1921, 58, No. 1

- *Comparative Effects of Parathyroid and Thyroid Feeding on Growth and Organ Hypertrophy in White Rat. A. T. Cameron and J. Carmichael, Winnipeg.—p. 1.
- *Effect of Thyroid Feeding on Growth and Organ-Hypertrophy in Adult White Rats. A. T. Cameron and F. A. Sedziak, Winnipeg.—p. 7.
- *Fat Soluble Vitamin. IX. Incidence of Ophthalmic Reaction in Dogs Fed Fat Soluble Vitamin Deficient Diet. H. Steenbock, E. M. Nelson and E. B. Hart, Madison.—p. 14.
- Pulmonary Circulation Time Quantity of Blood in Lungs and Output of Heart. G. N. Stewart, Cleveland.—p. 20.
- Possible Relations of Weight of Lungs and Other Organs to Body Weight and Surface Area (In Dogs). G. N. Stewart, Cleveland.—p. 45.
- Systemic Effects of Intravenous Injection of Solutions of Various Concentrations with Especial Reference to Cerebrospinal Fluid. L. H. Weed and W. Hughson, Baltimore.—p. 53.
- Cerebrospinal Fluid in Relation to Bony Encasement of Central Nervous System as a Rigid Container. L. H. Weed and W. Hughson, Baltimore.—p. 85.
- Intracranial Venous Pressure and Cerebrospinal Fluid Pressure as Affected by Intravenous Injection of Solutions of Various Concentrations. L. H. Weed and W. Hughson, Baltimore.—p. 101.
- *Studies in Physiology of Vitamins. I. Vitamin-B and Secretory Function of Glands. G. R. Cowgill and L. B. Mendel, New Haven, Conn.—p. 131.
- Studies of Sugar in Blood of Pigeons. H. E. Honeywell, New York.—p. 152.
- Studies of Visceral Sensory Nervous System. IX. Readjustment of Peripheral Lung Motor Mechanism After Bilateral Vagotomy in Frog. T. L. Patterson, Iowa City, Ia.—p. 169.
- *Studies in Dynamics of Histogenesis. Tension of Differential Growth as Stimulus to Myogenesis. VIII. Experimental Transformation of Smooth Bladder Muscle of Dog, Histologically, into Cross-Striated Muscle, and Physiologically, into an Organ Manifesting Rhythmicity. E. J. Carey, Milwaukee.—p. 182.
- Conditions Causing Unequal Distribution of Erythrocytes in Bloodstream. E. F. Bostrom, New York.—p. 195.

Effect on Growth of Feeding Parathyroid.—Taken as a whole the results obtained by Cameron and Carmichael indicate that even very heavy doses of parathyroid produce no definite effect on growth, and no organ hypertrophy.

Effect on Growth of Feeding Thyroid.—The resting condition of the thyroid gland in animals subjected to thyroid feeding suggests to Cameron and Sedziak that under normal conditions the output of thyroxin is determined by some factor in the blood passing through the gland—perhaps the thyroxin content of the blood itself—and as long as this remains above a certain level the setting free of thyroxin, presumably by the breakdown of idiothyroglobulin, is halted.

Result of Feeding Fat Soluble Vitamin Poor Diet.—Within a period of ninety-four days three out of five dogs fed on a fat soluble vitamin poor diet came down with an ophthalmia. Two dogs given a plentiful supply of this vitamin in the form of cod liver oil remained entirely normal. Of the affected animals, one died shortly after the incidence of the ophthalmia. The other two were completely cured, one by the daily administration of 20 c.c. of cod liver oil and the other by the administration of an ether extract of 30 gm. of saponified cod liver oil.

Physiology of Vitamins.—A number of solutions, such as extracts of rice polishings, wheat embryo, navy bean and yeast, Cowgill and Mendel found contain vitamin B. All of these products were without any noticeable effect on the rate of flow of pancreatic juice, bile and saliva. The hypothesis that vitamin B functions to stimulate these glands to secretory activity therefore is not supported.

Experimental Transformation of Smooth Muscle Into Striated Muscle.—The evidence presented by Carey proves that the structure of striated muscle is determined by the function it performs and the work it does, and that cross-striated muscle is not formed in anticipation to a future function. The pale bladder musculature may be transformed histologically into the red, cross-striated type by increasing the tensional stimulus to a degree comparable with that which

the cardiac mesenchyme experiences normally and physiologically, into an organ manifesting rhythmicity as long as the hydrodynamic stimulus is applied.

American Review of Tuberculosis, Baltimore

November, 1921, 5, No. 9

- *Musculature of Finer Divisions of Bronchial Tree and Its Relation to Certain Pathologic Conditions. W. S. Miller, Madison, Wis.—p. 689.
- Chemical Problems in Bacteriology of Tubercle Bacillus. E. R. Long, Chicago.—p. 705.
- Method of Following Reaction Changes in Cultures of Acid-Fast Bacteria. E. R. Long and A. L. Major, Chicago.—p. 715.
- *Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. Investigation of Their Clinical Significance and Hypothetical Explanation of Mechanism of Their Formation. J. B. Amberson, Jr., New York City.—p. 723.
- Undergraduate Instruction in Tuberculosis. W. C. Klotz, Charlottesville, Va.—p. 751.
- Some Problems of Medical Education in Tuberculosis. A. K. Krause, Baltimore.—p. 755.

Musculature of Bronchi.—Miller asserts that the bronchial musculature is not arranged in the form of distinct bands which encircle the bronchi and bronchioli, neither is it in the form of a continuous sheet, but it is in the form of a network. This network is made up of geodesic bands which prevent any tangential motion, and in this way provide for the greatest amount of strength and at the same time permit the greatest amount of extension and contraction of the bronchioli and their subsequent subdivisions. The muscle bands form a sphincter about the openings of the alveoli into the bronchioli respiratorii and ductuli alveolares; they also form a sphincter about the openings leading into the atria. These bands belong to the musculature of the bronchial tree and no to the air spaces. Distal to the openings leading into the atria no muscle has been found. There is no muscle in the walls of the air spaces. The size and position of the lungs is constantly changing with the respiratory movements. If the condition of the lungs at the end of a normal expiration be taken as a starting point it will be found that in the act of inspiration they increase in extent, especially that portion of each lung that is directly influenced by the descent of the diaphragm. This increase in size has its influence on the bronchial tree and especially on the smaller bronchi, the bronchioli, and their subdivision. In extreme expiration the dorsal and lateral branches form an acute angle with the main stem bronchus, while in inspiration they open out, the angle becomes wider and at the same time they elongate. This change is necessary in order that provision may be made for the expansion of the air spaces. The action of the bronchial musculature in expiration is active rather than passive.

Nature of Annular Shadows in Pulmonary Tuberculosis.—An investigation of roentgenographic pleural annular shadows at the Loomis Sanatorium has shown that these peculiar densities appeared and increased in size as accompaniments of active or progressive pulmonary tuberculosis, and that they decreased in size or disappeared only after the intrapulmonary lesions became quiescent or retrogressive; the converse of these propositions has not been observed. The shadows seem to have no other prognostic significance. A consideration of clinical, pathologic and roentgenographic factors Amberson says opens to serious doubt the validity of the theory that pleural annular shadows represent localized pneumothoraces secondary to lung rupture. A hypothesis is proposed to explain a majority of the shadows as the roentgenographic counterparts of simple chronic or subacute localized pleuritis, with or without localized retraction and separation of the pleural layers, and evidence is presented in support of this.

Boston Medical and Surgical Journal

Dec. 1, 1921, 185, No. 22

- *Action of Quinidin Sulphate in Heart Disease to Abolish Circus Movement of Auricular Flutter and Fibrillation. P. D. White, H. M. Marvin and C. S. Burwell, Boston.—p. 647.
- *Factors in Suicide. A. H. Ring, Arlington Heights, Mass.—p. 650.
- *Appendicular Lithiasis. H. Packard, Boston.—p. 656.
- Preservation of Cells in Spinal Fluid as Measured by Cell Count. C. J. Campbell, L. M. Davidoff and G. P. Grabfield, Boston.—p. 657.
- *Case of Bronchial Asthma, Possibly Due to Sporothrix. O. H. Stansfield, Worcester, Mass.—p. 658.
- Case of Recurrent Spontaneous Pneumothorax. H. Morrison, Boston.—p. 659.

Dec. 8, 1921, 185, No. 23

- Osteitis Fibrosa. C. F. Painter, Boston.—p. 677.
Hip Fractures: Report of Forty-Two Cases Treated with Flexed Spica. G. A. Moore, Brockton, Mass.—p. 683.
Lateral Sinus Infection: Diagnosis, Treatment and Complications. G. L. Tobey, Jr., Boston.—p. 688.
Hospitalization of Syphilitic Patient. H. Goodman, New York.—p. 694.

Quinidin Sulphate in Heart Disease.—Quinidin sulphate has been used in thirty-five cases at the Massachusetts General Hospital, thirty-three cases of fibrillation and two of flutter. Of this number twenty-five cases, including one of the flutter patients, have shown at least a temporary restoration to normal rhythm. The duration of the normal rhythm has varied from a few hours to over four months, in the latter case still continuing. In several cases repeated courses have been given, in two cases a third course of quinidin succeeding when the first two courses had failed. The dosage has consisted of 0.2 gm. quinidin sulphate, given at 2 and at 4 p. m., on the first day (usually in capsule), and then if the patient has shown no toxic symptoms or signs from these test doses, 0.4 gm. is given five times on the second day (10 a. m., 12 m., 2, 4 and 6 p. m.), and on each succeeding day until normal rhythm has been restored or until toxic symptoms or signs have arisen. The total course dose has varied from 0.8 gm. in a successful case to 15.6 gm. in an unsuccessful case. Experience to date suggests that the digitalized cases are more apt to respond to the quinidin and that it is better not to give both drugs together.

Factors in Suicide.—While disease may be, perhaps usually is, the final determining factor in Ring's opinion in suicide, the underlying substrata of inherited tendencies is, however, most important. It has been said that normally human beings desire life above all things. Ring does not believe that this is true. Of course, no one desires to suffer, but there are many persons otherwise normal who would gladly "lay them down in their last sleep," if they could but learn of an easy way of thus evading "the slings and arrows of outrageous fortune." The type of person who has a fundamentally self-abusive temperament is much more likely, under stress of adverse environment or disease, to wish himself out of the world. If he has no belief in a future life with its punishments and rewards, this is still another reason for hastening that annihilation which will rid him of the conflict of life and bring everlasting sleep.

Calculus of Appendix.—Packard cites the case of a man, aged 51 years, who had suffered recurring attacks of abdominal pain, very mild in character, transient, and not necessitating absence from business nor the advice of a physician. Then he had an attack which continued five days showed no signs of abatement. Immediate operation was advised and accepted on the diagnosis of probably some unusual departure from normal in or about the appendix. The cecum was quickly exposed and was found bound down in the depths of the pelvic fossa in the midst of an indeterminate mass of adhesions. Enlargement of the incision and exposure of the parts with broad, deep retractors finally cleared the doubt by demonstrating an enormous appendix densely adherent in the depths of the fossa. On palpating it carefully and separating the adhesions it became apparent that some kind of an extremely hard substance was associated with the appendix. Careful finger dissection finally delivered the appendix which showed a ragged hole in one side through which protruded a large stone of irregular shape and with apparently the hardness of porcelain. Strangely no pus was encountered in the course of the manipulation—the ragged hole in the side of the appendix was apparently caused by pressure necrosis. Examination of the stone which weighed 8 gm. showed a fanglike portion such as might come from the jaw of a lion or tiger and a shapeless portion in a somewhat angular relation which might be compared to a fragment of alveola. The stone consisted of inspissated fecal material and an amorphous crystal deposit of bile salts in an irregularly concentric arrangement.

Bronchial Asthma Caused by Sporothrix.—Stansfield cites the case of a girl, aged 18 years, who had had, since infancy, attacks of shortness of breathing and wheezing, appearing suddenly, usually at night and without apparent cause. Each

attack had lasted one or two days, but the most recent attack had lasted four days. No cause could be ascribed for the first attack in infancy. A roentgenogram of her chest showed some thickening at the lung roots and larger bronchi, but no further evidence of pulmonary disease. The sputum was water thin, colorless, with many white or pale yellow pin-head sized flakes in it. Many of these flakes were examined microscopically, and all were found to be made up of mycelia and yeastlike cells. The yeastlike organism grew rapidly at room temperature and at 37 C., the growth being that described as characteristic of a sporothrix. The patient was given sodium iodid, 45 grains a day at first, and the dose increased 3 grains a day until 90 grains were being taken. The dose was held at this level for three months. She is now well.

California State Journal of Medicine, San Francisco

December, 1921, 19, No. 12

- Return to Work After Injury. M. K. Gibbons, San Francisco.—p. 458.
Occupational Diseases of Skin and Hands in California Industry. R. T. Legge, Berkeley.—p. 461.
Development of Modern Medical Service for Industrial Injured and Sick at Hehnmann Hospital of University of California. E. L. Gilreest, San Francisco.—p. 462.
Service of Neuropsychiatry to Industrial Medicine. H. W. Wright, San Francisco.—p. 464.
Posttraumatic Neuroses; Their Mechanism. J. Catton, San Francisco.—p. 468.
Clinical Experience as to Several Kinds of Physiotherapy Employed in Reconstruction Work. J. T. Watkins, San Francisco.—p. 471.
Fractured Femurs. C. E. Early, Los Angeles.—p. 474.
Efficient Record Making in Treatment of Industrial Disabilities. H. L. Langnecker, San Francisco.—p. 477.

Canadian Medical Association Journal, Toronto

November, 1921, 11, No. 11

- Smallpox in Edmonton. T. H. Whitelaw, Edmonton.—p. 805.
Abatement of Venereal Disease. G. G. Melvin, Fredricton, N. B.—p. 808.
Eye as Signal of Disease. W. G. M. Byers, Montreal.—p. 811.
Value of Expert Anesthesia to All Concerned. S. Johnson, Toronto.—p. 813.
*Ambulatory Treatment for Chronic Ulcers of Leg. F. B. Gurd, Montreal.—p. 815.
Nitrous Oxid-Oxygen Analgesia and Anesthesia in Obstetrics. W. Bourne, Montreal.—p. 818.
Recent Progress of Mental Hygiene Movement in Canada. C. M. Hincks, Toronto.—p. 823.
Unsuspected Syphilis of Nervous System: Its Laboratory Diagnosis. H. B. Maitland, Toronto.—p. 823.
Case of Giardiasis (Lamblia) Intestinalis. F. G. Pedley, Montreal.—p. 829.
Considerations Regarding Surgical Treatment of Malpositions of Uterus. C. H. Gilmour, Toronto.—p. 831.
Treatment of Irreparable Nerve Injuries. R. I. Harris, Toronto.—p. 833.
Surgical Treatment of Gastric and Duodenal Ulcer. J. B. Deaver, Philadelphia.—p. 842.
Clinical Study of Pathology of Osteomyelitis. A. Gibson, Winnipeg.—p. 844.
Syphilis, Its Relation to Infant Mortality and Child Welfare with Discussion of Present Day Methods for Its Control. E. A. Morgan, Toronto.—p. 849.

Ambulatory Treatment of Chronic Ulcers of Leg.—The method described by Gurd is not original, in so far as it refers to the treatment of ulcers, with adhesive strappings. However, for the method of application and the exact procedures employed originality is claimed. The leg is bathed in washing soda solution, and thoroughly cleansed with soap suds and a soft brush. Any sloughing material is excised with scissors. After prolonged and thorough bathing, the leg is washed with petroleic ether. Occasionally alcohol may be profitably employed following the water bath for purposes of dehydration of the superficial layers of the skin. The patient then lies on his back with his leg in a nearly vertical position against the wall. This posture is maintained for from thirty minutes to two hours, at the end of which time the edema should have entirely disappeared. The leg is by this time thoroughly dry and is ready for strapping. The leg is retained in a somewhat elevated position, in order that the veins may remain collapsed, and the strapping is applied. Strips of adhesive plaster are torn, about 2.5 to 3.5 centimeters in width, and sufficiently long to overlap when placed circularly around the leg. Starting from the base of the toes, the foot is encircled by the straps up to the head of the fibula, each layer of strapping overlaps that already in position by

at least 1.5 c.c. If the ulcer be discharging freely, it is wise to apply a gauze dressing and bandage on the outside of the adhesive, in order that the discharge which exudes between the layers of strapping may be taken up. This should be changed as often as is necessary by the patient himself. The strapping need not be removed unless discharge becomes distinctly foul. As a rule, the first dressing is changed at the end of from four to ten days. Thereafter from two to three weeks between dressings usually suffices.

Journal of Industrial Hygiene, Boston

December, 1921, 3, No. 8

- Problem of Heart Disease in Industrial Worker. P. D. White, Boston.—p. 219.
Cardiac Disease and Its Relation to Industrial Efficiency. C. F. Coombs, London.—p. 227.
Chronic Manganese Poisoning: Two Cases. G. G. Davis, Chicago, and W. B. Huey, Joliet.—p. 231.
Trinitrotoluene Poisoning. C. Voegtlin, C. W. Hooper and J. M. Johnson.—p. 239.

Journal of Laboratory and Clinical Medicine, St. Louis

November, 1921, 7, No. 2

- *Pharmacology of Benzyl Compounds. C. Nielsen and J. A. Higgins, Chicago.—p. 69.
*Technic for Making Biliary Fistula. F. C. Mann, Rochester, Minn.—p. 84.
*Technic for Establishment of Permanent Pancreatic Fistula with Secretion of Inactive Proteolytic Ferment. W. DeP. Inlow, Rochester, Minn.—p. 86.
Sources of Error in Determining Respiratory Quotient in Baby Respiration Apparatus. F. B. Talbot and M. E. Moriarty, Boston.—p. 91.
*Case of Tuberculoma of Spinal Cord. J. J. Waring, Denver, Colo.—p. 96.
*Isolation of Tetanus Bacilli from Cerebrospinal Fluid. Report of Case. G. R. Lacy and C. Murdock, Pittsburgh.—p. 100.
Differences in Response to Atropin in White and Colored Races. H. A. Paskind, Chicago.—p. 104.
Preliminary Report on Method of Determining Number of Complement Binding Units in Serums Giving Positive Wassermann Reactions. A. McNeil, New York.—p. 109.
Rapid Method of Preparing Tissues for Microscopic Examination. H. D. Melton, Richmond, Va.—p. 114.

Pharmacology of Benzyl Esters.—All the benzyl esters investigated by Nielsen and Higgins produced relaxation of intestinal muscles, lowered the blood pressure and depressed the respiration in a manner corresponding, in a general way, to the action of benzyl benzoate as demonstrated by Macht. The power to relax smooth muscles and thereby relieve spasmoidic pain seems, in the cases of simple benzyl esters, to be proportional to their rates of hydrolysis; but in the cases of benzyl esters containing substituting groups such as in benzyl salicylate and benzyl acetylsalicylate, rate of hydrolysis to give benzyl alcohol is not a criterion of pharmacologic action. Of the twelve benzyl compounds tested, benzyl acetylsalicylate appears to be the most powerful intestinal relaxant. Benzyl salicylate is also very efficient.

Technic for Making Biliary Fistula.—The essentials of the technic described by Mann are, first, definite fixation of the common bile duct in a superficial position before its relation to the duodenum is disturbed and, second, draining the duct to the exterior. The operative procedure is carried out in two stages. In the first stage the duodenum is immobilized just under the skin in a manner so that the common bile duct is close to the surface. After complete healing has taken place, the duct is exposed, the distal end ligated, and the proximal end left open, flush with the skin.

Technic for Making Pancreatic Fistula.—A technic for the formation of pancreatic fistulas is described by Inlow which he believes offers certain advantages over those heretofore suggested. The duodenum is located, delivered into the wound, and turned to the right. The blood vessels in the immediate neighborhood of the entrance of the major pancreatic duct into the intestine are ligated and severed, the pancreas is separated from the duodenum in this region, and the duct itself isolated. The transplantation of the duodenum is accomplished by rotating its axis to the right, and approximating the two edges of the abdominal wall under the duodenum by means of four single mattress sutures. In the rotation of the duodenum a small portion of the pancreas is brought out of the abdomen and thereby the entrance of the duct into the gut becomes very superficial. The pancreatic

duct is dissected free for the short distance which it runs obliquely beneath the serosa of the gut and is partially served at the point where it enters the muscular layer.

Tuberculoma of Spinal Cord.—A case of pulmonary tuberculosis complicated by prostatic abscess and a macroscopic intramedullary tuberculoma of the spinal cord is reported by Waring. The tumor was removed, but little improvement in the patient's condition followed. He died four months after the operation.

Infection with Low Grade Tetanus Spores.—The possibility that many may be inoculated with low grade tetanus spores which are rapidly phagocyted and carried to distant parts of the body where they may lie dormant until some factor arises which will permit them to develop is suggested by the case reported by Lacy and Murdock. The patient came to the hospital because of enlargement of the scrotum. The right testicle was removed. The pathologic report was tuberculous orchitis and epididymitis. Twelve days after operation, he began to complain of severe pains in the back and back of the neck. He was given 10,000 units of tetanus antitoxin subcutaneously. The following day he showed well-developed clinical tetanus and was given two intravenous and one intramuscular injection of 10,000 units of antitoxin, making a total of 30,000 units in twenty-four hours. The next day he was given two injections of antitoxin, 10,000 units each, and a similar amount the third day. The fifth day lumbar puncture was done and 10,000 units of antitoxin were administered intraspinaly. Antitoxin (10,000 units intramuscularly) on the two subsequent days failed to give immediate relief of symptoms. At this time, the patient developed hypersensitiveness to the serum and such treatment was discontinued. During the course of antitoxin treatment, a period of seven days, the patient had received 110,000 units. Sedatives were administered to alleviate the severe pain throughout the period of infection. Improvement was gradual and uninterrupted from the cessation of serum therapy until the time of complete recovery.

Journal of Mental and Nervous Diseases, New York

October, 1921, 54, No. 4

- Case of Spinal Spastic Paralysis (Primary Lateral Sclerosis). I. T. Broadwin, New York.—p. 289.
Case of Progressive Muscular Dystrophy. E. D. Friedman, New York.—p. 294.
Emotional Episodes Among Psychopathic Delinquent Women. E. R. Spaulding, New York.—p. 298.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1921, 18, No. 5

- Effect of Hydrogen Ion Concentration on Toxicity of Alkaloids for Paramecium. M. M. Crane, St. Louis.—p. 319.
Chemotherapy of Antimony, Comparison of Antimonyl Tartrates with Organic Compounds of Antimony. R. G. Fargher and W. H. Gray, London, England.—p. 341.
*Experimental Inquiry into Sedative Properties of Some Aromatic Drugs and Fumes. D. I. Macht and G. C. Ting, Baltimore.—p. 361.
*Effect of Antispasmodic Drugs on Bronchus. D. I. Macht and G. C. Ting, Baltimore.—p. 373.

Sedative Properties of Aromatics.—The effects of a number of odoriferous substances were studied by Macht and Ting on the behavior of rats in the circular maze. It was found that valerian and asafetida exert a distinctly sedative effect when studied in this way. The inhalation of fumes of various samples of incense was not found to produce any depressant effect unless the fumes were so heavy as to render intoxication with poisonous gases probable. It is interesting to note that of the two principal constituents of biblical incense, olibanum and galbanum, neither one produced any physiological effect, by the methods studied. The lack of depression after the use of other incense is also surprising but agrees well with the statements of some orientals, that the inhalation of the fumes of certain specimens of incense are actually stimulating to the mental processes. Finally, it is said that the inhalation of tobacco smoke is by no means as innocuous as that of incense. A few experiments were made with such smoke and the toxic effects were so marked that further experimentation was discontinued.

Effect of Antispasmodic Drugs on Bronchus.—The method employed by Macht and Ting was the so-called direct one, namely the study of various drugs on the excised and surviving bronchial muscle. The most powerful bronchodilators determined were firstly papaverin and various benzyl compounds which act on the muscle cells; secondly, atropin which exerts its action through paralysis of the parasympathetic myoneural junctions, and thirdly, epinephrin which produces active stimulation of the true sympathetic dilator terminals. The iodid, bromid, and nitrate ions analytically studied produced a relaxation of the bronchial muscle. This effect, however, is probably considerably minimized in the intact body. An interesting chemico-pharmacodynamic relationship which is of practical interest has been traced in connection with the action of various xanthin derivatives on the bronchial muscle. The action of various antispasmodic drugs on bronchial muscle varies in intensity to some extent with the previous tonic or spasticity of the bronchus. A distinct difference in response to their reaction to drugs has been found to exist between the fresh surviving bronchi from healthy lungs on the one hand and lungs showing more or less pathological change on the other hand.

Medical Record, New York

Dec. 3, 1921, 100, No. 23

- Case of Progressive Muscular Atrophy with Compensatory Mental Reactions. N. D. C. Lewis, Washington, D. C.—p. 969.
- Use of Potassium Nitrate in Osteomyelitis and Other Chronic Infections. J. R. Pennington, Chicago.—p. 975.
- Whispered Voice Sound in Lung Conditions Other Than Pneumonia. H. H. Lissner, Los Angeles.—p. 977.
- Hypernephroma of Sternum. J. A. MacLeod and W. F. Jacobs, Buffalo.—p. 979.
- Carcinoma of Lung; Report of Case. G. A. Friedman, New York.—p. 980.
- Röntgen-Ray Dermatitis. M. L. H. A. Snow, New York.—p. 981.
- Neglect of Narcotic Drug Problem. E. S. Bishop, New York.—p. 985.

Potassium Nitrate in Osteomyelitis.—Pennington makes a brief preliminary report on the use of potassium nitrate in various types of infection and emphasizes the importance of using it just as he indicates although he is not able to give a concrete reason for its action. The nitrate is not antiseptic; when added to a culture the growth is greater than the control. Again, the number of bacteria in the discharge increases in a few days' time, instead of decreasing, and yet it seems to influence favorably infection of many kinds. The solution of potassium nitrate is applied through a dressing of rolled oats. The salt is mixed with the oats and to this combination is added hot sufficient water to reduce it to a poultice-like mass. (The dose is governed by the reaction desired and ranges from 10 to 60 grains to the ounce of oats.) The poultice is spread on the affected area to the thickness of about three-sixteenths inch, then covered with oiled silk, paraffin paper, rubber dam, etc., and over this a bandage. By aid of the roentgen ray and by palpation of the soft tissues the affected area is approximately mapped out; the dressing of oats and nitrate is then applied well beyond the boundaries of the area involved. Treatment of the sinuses directly by injection of the nitrate has no influence whatever, and mixing with rolled oats is the only way in which any effect is produced.

Hypernephroma of Sternum.—Two cases of this condition are reported by MacLeod and Jacobs at one time or other. Each of these cases was regarded as an aneurysm of the aorta; in the second case, up to the time of the postmortem examination.

Military Surgeon, Washington, D. C.

December, 1921, 49, No. 6

- History of Military Medicine. F. H. Garrison.—p. 601.
- Bilateral Pneumothorax in Case of Pulmonary Tuberculosis. E. D. Kremers, J. F. Hammond and R. E. Scott.—p. 626.
- Reports and Records of Communicable Disease. H. Emerson, New York.—p. 632.
- Minor Communicable Diseases in A. E. F. H. Emerson, New York.—p. 642.
- Sanitary Reports, Monthly and Special. H. Emerson, New York.—p. 652.
- Opinions Based on Intelligence Tests at Station Hospital, Fort McPherson, Georgia. A. T. Cooper.—p. 660.
- Statistics of Venereal Disease in Navy. M. A. Clark.—p. 665.

- Venereal Diseases in United States Army. M. A. Clark.—p. 672.
- Importance of Arthritis and Rheumatoid Conditions from Military Standpoint. R. Pemberton.—p. 681.
- New Philippine Mosquito (Diptera, Culicidae). C. S. Ludlow.—p. 690.

Minnesota Medicine, St. Paul

December, 1921, 4, No. 12

- Painful Scars. J. F. Corbett, Minneapolis.—p. 682.
- Some Practical Experience with Injuries with Special Reference to Fractures. C. W. More, Eveleth.—p. 687.
- Cystocele and Prolapse. R. Earl, St. Paul.—p. 696.
- Submucous Ulcer of Bladder and Its Surgical Treatment. V. C. Hunt, Rochester, Minn.—p. 703.
- Duodenal Ulcer. T. R. Martin, Duluth.—p. 708.
- Appendicitis, Diverticulitis, and Ectopic Pregnancy; Differential Diagnosis. E. R. Hare, Minneapolis.—p. 714.
- *Sciatica; Treated by Epidural Injections and Removal of Foci of Infection. W. O. Ott, Rochester, Minn.—p. 718.
- *Vital Capacity of Lungs in Cardiac Disease. H. L. Ulrich and M. H. Nathanson, Minneapolis.—p. 721.

Epidural Injections in Sciatica.—In thirty-four cases of sciatica in which a definite removable cause could not be found, the removal of possible foci of infection in 62 per cent. combined with repeated epidural injection gave a permanent cure in 27 per cent., and permanent amelioration of symptoms; in 40 per cent., the patients were able to continue their occupation with a fair degree of comfort. Thirty-three per cent. did not obtain permanent beneficial results. The technic of epidural injection has been described quite fully by Cathelin, Strauss, and others. Of the thirty-four patients, fourteen received one injection, thirteen two injections, four three injections, two four injections, and one five injections. Nine patients received complete and permanent relief; fourteen received partial relief, which allowed them to return to work; eleven did not receive any permanent benefit from the injection. Temporary relief, that is, for from two days to two weeks, either complete or partial, was obtained by thirty-one patients.

Vital Capacity of Lungs in Heart Disease.—Of 120 cases studied by Ulrich and Nathanson cardiac disease was found in only eighty-four. The remaining thirty-six cases were diagnosed as neurasthenia, effort syndrome or cardiac neurosis. In the cardiacs, the vital capacities as read on the gasometer were definitely reduced as compared with the calculated normal figures. In the noncardiacs, there was a much greater approximation of the two curves. In the cardiacs the average reading was 2,303 c.c. as compared with an average calculated figure of 3,842 c.c. In the noncardiacs the average vital capacity reading was 3,586 c.c. as compared with the average estimated normal figure of 3,938 c.c. In each case, the percentage of the normal vital capacity was calculated. It was quite evident that cardiac impairment is accompanied by reduction in vital capacity which is neither slight nor questionable, but very definite and unmistakable. The authors have found the determination of the patient's vital capacity of value in two different types of cases. In the first place, in an individual presenting symptoms which might be referable to an impaired cardiac function, the vital capacity assists in determining whether or not any cardiac involvement is present. Secondly, in cases in which the presence of a cardiac lesion is definitely known, it gives a fairly accurate index of the functional capacity of the heart. As a rule, the lower the vital capacity, the poorer the prognosis. Vital capacity determination also gives a measure of the results of treatment and shows whether cardiac tolerance for work is increasing or diminishing. The most probable explanation of the reduced vital capacity is a loss of the normal lung elasticity, due to stasis in the pulmonary circulation.

Nebraska State Medical Journal, Norfolk

December, 1921, 6, No. 12

- Management of Heart in Pneumonia. G. P. Pratt, Omaha.—p. 365.
- Sudden Death in Infantile Eczema. A. Sinamark, Fremont.—p. 369.
- Acquired Splanchnoptosis. M. J. Breuer, Lincoln.—p. 371.
- Indications for Cesarean Section; Its Promiscuous Misuse. D. C. Sigworth, Norfolk.—p. 375.
- Case of Dextrocardia. F. X. Rudolff, Battle Creek.—p. 377.
- Prolapse of Uterus. C. A. Roeder, Omaha.—p. 378.
- Basal Metabolism and Its Practical Significance. M. G. Wohl, Omaha.—p. 383.
- Standardization of Nebraska Hospitals. F. Conlin, Omaha.—p. 388.
- Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 391.

New Jersey Medical Society Journal, OrangeDecember, 1921, **18**, No. 12

- Dangers and Duties of the Hour. H. A. Hare, Philadelphia.—p. 360.
 Important Clinical Features of Goiter. J. P. Reilly, Elizabeth.—p. 366.
 Treatment of Constipation During First Year of Life. F. H. von Hofe, South Orange.—p. 374.
 Control of Cancer. J. F. Hagerty, Newark, N. J.—p. 382.
 Cancer of Stomach. C. A. Hofer, Metuchen, N. J.—p. 385.

New York Medical JournalDec. 7, 1921, **114**, No. 11

- Difficult Case of Bronchoscopic Foreign Body Extraction Complicated by Pyopneumothorax. H. L. Lynah, New York.—p. 617.
 Mucocoele of Nasal Accessory Sinuses; Two Cases of Pansinus Involvement with Recovery After Interval Operations. V. Dabney, Washington, D. C.—p. 619.
 *Treatment of Recurrent Pleurisy by Injection of Oxygen. A. MacFarlane, Albany, N. Y.—p. 623.
 Rôle Played by Physical Exercise in Respiratory Gymnastics. P. Kouindjy, Paris, France.—p. 627.
 Aspergillosis and Pulmonary Pseudotuberculosis. V. A. Lapenta, Indianapolis.—p. 629.
 Practical Points in Treatment of Pulmonary Hemorrhage. H. Schwatt, New York.—p. 631.
 Significance of Tracheobronchial Node Tuberculosis and Its Diagnosis. L. Frischman, New York.—p. 634.
 Laryngeal Tuberculosis. S. Cohen, Philadelphia.—p. 636.
 Tonsil Enucleation and Tonsil Enucleator. C. B. Meding, New York.—p. 638.
 Peritonsillar Abscess and Its Radical Treatment. I. M. Heller, New York.—p. 642.
 Tonsillar and Adenoid Tissue Under Roentgen-Ray Treatment. W. G. Herrman, Asbury Park, N. J.—p. 646.
 Tonsil Thyroid Syndrome in Female. J. H. Barach, Pittsburgh.—p. 648.
 Diseased Tonsil. M. S. Ittelson, Brooklyn.—p. 649.
 Influenza as Primary Edema of Respiratory Mucous Membranes and Adnexa. I. M. Brenner, New York.—p. 651.
 Symptomatology of Influenza. J. C. Regan, Brooklyn.—p. 656.

Oxygen Injection in Recurrent Pleurisy.—MacFarlane recommends the injection of oxygen into the pleural cavity in these cases of recurrent pleurisy and cites two instances in which the method was used. He says that there is no record of its use for this purpose in the United States.

Ohio State Medical Journal, ColumbusDec. 1, 1921, **17**, No. 12

- Treatment of Simple Compound Fractures. W. G. Stern, Cleveland.—p. 813.
 Bone Grafting and Its Clinical Application. J. J. Kurlander, Cleveland.—p. 816.
 Relations of Pediatrics and Obstetrics. R. E. Krigbaum, Columbus.—p. 819.
 Incidence and Mortality of Congenital Syphilis at Babies' Dispensary and Hospital of Cleveland. C. W. Burhans, Cleveland.—p. 821.
 Cooperation and Correlation Between Laboratory and Clinic. H. T. Karsner, Cleveland.—p. 823.
 Prediabetic Stage. H. J. John, Cleveland.—p. 826.
 When Shall We Do An Ethmoid Operation? W. Mithoefer, Cincinnati.—p. 831.
 Use of Radium in General Surgical Conditions with Special Reference to Uterine Conditions. L. G. Bowers and E. R. Arn, Dayton.—p. 834.
 Preoperative and Postoperative Radium Therapy: Report of Cases, Dosage and Methods. B. R. Kirkendall, Columbus.—p. 837.
 Radium in Dermatology. C. J. Broeman, Cincinnati.—p. 841.

Pennsylvania Medical Journal, HarrisburgDecember, 1921, **25**, No. 3

- Obscure Forms of Posterior Uveitis; Their Relation to Sinus Disease. L. C. Peter, Philadelphia.—p. 151.
 *Primary Thrombosis of Pulmonary Artery. F. T. Billings, Pittsburgh.—p. 152.
 Fractured Long Bones; Their Replacement and Treatment. H. C. Masland, Philadelphia.—p. 161.
 Recent Tendencies in Infant Feeding. J. L. Morse, Boston.—p. 167.
 Postgraduate Instruction in Pennsylvania. D. A. Webb, Scranton.—p. 173.
 Peril of Wood Alcohol Toxemia and Remedy. S. L. Ziegler, Philadelphia.—p. 177.
 Mechanical Aspects of Acquired Chronic Valvular Heart Disease. A. P. D'Mura, Pittsburgh.—p. 182.
 *Posterolateral Sclerosis Seen in Cases of Severe Anemia. G. Wilson and J. McIver, Philadelphia.—p. 189.
 Removal of Foreign Bodies from Cornea. G. H. Shuman, Pittsburgh.—p. 194.
 Report of Case of Cranial Defect. J. S. Rodman, Philadelphia.—p. 196.

Primary Thrombosis of Pulmonary Artery.—Among 6,200 necropsies on which Billings has data there were sixteen cases of primary thrombosis of the pulmonary artery, an incidence of 0.26 per cent. Four cases from the clinical

records of the Western Pennsylvania Hospital, are reported in detail.

Posterolateral Sclerosis in Anemia.—Spinal cord changes in anemia are seen frequently and often rather late in life. Most of the patients whose cases are reported by Wilson and McIver were past 50 years of age. The onset of the disease is gradual and the symptoms are much the same in every case. Paresthesia in the hands and feet has been an early and constant complaint and with this goes a gradual increasing weakness more marked in the lower extremities. The characteristic motor and sensory losses are as follows: The lower limbs show the signs of pyramidal tract involvement with the loss of the sense of position and of vibration. The other forms of sensation remain intact until late in the disease. The spinal cord symptoms are frequently present when the blood picture is almost normal. This is due to the toxin which, in many cases, causes spinal cord degeneration before the blood is affected.

Texas State Journal of Medicine, Fort WorthNovember, 1921, **17**, No. 7

- Curability of Cancer; Report of Four Hundred Cases Treated by Cautery. A. C. Scott, Temple.—p. 334.
 Comparative Value of Surgery and Radium in Carcinoma of Cervix. J. T. Moore, Houston.—p. 339.
 Radium Therapy in Cancer of Uterus. M. W. Sherwood, Temple.—p. 341.
 Diagnosis of Cancer of Colon. F. C. Beall, Fort Worth.—p. 343.
 Interpretation of Gastric Deformities Produced by Ulcer and Carcinoma. R. T. Wilson, Temple.—p. 348.
 Tumors of Alveolar Border of Jaws. H. L. D. Kirkham, Houston.—p. 351.
 Surgical Backache. R. W. Knox, Houston.—p. 355.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, LondonNov. 19, 1921, **2**, No. 3177

- Drug Habit. W. E. Dixon.—p. 819.
 *Pyrogenic Therapy. A. G. Auld.—p. 822.
 *Iliotibial Band Grafts for Radical Cure of Large Inguinal Hernia. D. W. Hume.—p. 824.
 Ionic Medication in Treatment of Neuritic and Rheumatic Pains. W. F. Somerville.—p. 825.
 Case of Cholecystgastrostomy. C. A. Moore.—p. 826.
 Diagnosis and Treatment of Borderland Cases. G. M. Robertson.—p. 827.
 Blood and Nervous Diathesis. H. Campbell.—p. 831.
 Management and Treatment of Paraplegia. G. Riddoch.—p. 834.
 Physiology of Symptom Production in Disease and Injury of Nervous System. F. M. R. Walshe.—p. 837.
 *Epilepsy from Psychologic Standpoint. A. Carver.—p. 840.
 Early Diagnosis and Treatment of Disseminated Sclerosis. D. K. Adams.—p. 841.
 Case of Traumatic Aniridia. W. B. Hunter.—p. 843.
 Iodine Treatment of Goiter. R. Stewart.—p. 843.
 Torsion of Testis Occurring During or Immediately After Birth. R. C. Begg.—p. 843.

Pyrogenic Therapy.—The cases in which reactions were produced by Auld by the protein-protected colloidal metals were chiefly those of delayed resolution in pneumonias and pleurisies, with rises of temperatures to 100 and 101 F. for some considerable time. Recovery seemed complete at the end of the reaction; the temperature remained normal and the local lesions gradually cleared up. Some cases of acute pneumonia were then tried, but the results were by no means favorable. Certainly a fall of temperature soon occurred; but this proved to be a negative phase effect, as it always rose again to about the original level. These trials indicated that with a high temperature the defenses of the body are already fully engaged, and the introduction of pyrogenic substance is illogical, and merely adds to an already heavy burden. This treatment is therefore indicated in subacute or chronic conditions, wherein the defensive reserves are quiescent or only partially called out. Cases of arthritis of various kinds have mainly been treated, with on the whole very favorable results; but skin affections and many infective disorders have also been laid under contribution. Where the response is good no other treatment gives such rapid or complete relief. Auld records some results obtained in certain functional

neuroses presenting pain or paresthesia or both, and probably of toxic origin. Though not serious, these disorders are very persistent and often entail intolerable discomfort, being more or less refractory to ordinary methods of treatment. In one case pyrogenesis was induced with alfalfa seed proteose. In another caseose was the pyrogen, and in the other cases lecitho-protein was used. The object of pyrogenic therapy is to induce a temperature between 102 and 105 F. in those infective or toxic conditions wherein a sufficient stimulus for the induction of pyrexia is naturally lacking or else is weakened, though capable of producing a ready response if artificially roused. The details are discussed.

Iliotibial Band Grafts in Herniotomy.—Hume transplants a piece of iliotibial band of such a size and shape that, when folded diagonally, it fills the triangular space between Poupart's ligament, the outer border of the rectus sheath, and the exit of the cord through the fascia transversalis. The graft is sutured with silk to the deep edge of Poupart's ligament from the attachment of the conjoined tendon to the pubic spine to a point a little external to the exit of the cord, and the inner edge was also stitched with silk to the outer border of the rectus sheath (conjoined tendon). The upper and outer edge is passed beneath the fibers of the internal oblique and transversalis muscles, and anchored to the deep surface of these by two or more mattress sutures of chromicized catgut, so that when contraction occurred during some effort requiring the use of the muscles of the abdominal wall, the graft should be drawn tight, and so offer the greatest possible resistance to the exit of any of the abdominal contents. The cord is replaced on the graft, and the external oblique and superficial structures are closed over it in the usual manner.

Nature of Epilepsy.—Epilepsy, Carver says, is a syndrome conditioned by a multiplicity of factors. Each epileptic personality requires intensive individual study. In a majority of cases the psychologic factors are by far the most important, and an understanding of these is, for therapeutic reasons, essential.

China Medical Journal, Shanghai

September, 1921, 35, No. 5

- *Ray's "Hemolytic" Test in Kala-Azar. R. H. P. Sai.—p. 397.
- Agglutination Titer Following Repeated Intravenous Injections of Tab Vaccine. C. H. Han and C. W. Young.—p. 400.
- Present State of the Schistosome Problem. E. C. Faust.—p. 405.
- Teaching of Surgical Technic. C. C. Elliott.—p. 411.
- Cholera at Tzeliutzing. W. Crawford.—p. 417.
- *Investigation of Some Chinese Foods. H. Embrey.—p. 420.
- Relations Between Native and Foreign Physicians. W. H. Dobson.—p. 448.
- Liver Abscess Following Amebic Dysentery. F. R. McDonald.—p. 453.
- Adenoids and Tonsils, with Special Relation to Pharyngitis and Otitis Media, Treatment and Operation.—p. 454.
- Use of Fine Silk in Surgery. A. S. Taylor.—p. 467.
- Ectopic Gestation. W. E. Robertson and S. Shi-Hwei.—p. 479.

Ray's Test for Kala-Azar.—This test was described in THE JOURNAL, March 12, 1921, p. 753. Sia employed the test on eighty-six patients suffering from various diseases and ten normal individuals. The positive tests were obtained only in kala-azar patients. Furthermore, all the cases of kala-azar gave a positive result. In every instance, the diagnosis was proved by finding the Leishman-Donovan bodies in the stained films made from spleen puncture. In cases of kala-azar which showed a clinical improvement under treatment, there was a decided change in the character of the "hemolytic" test. The turbidity became progressively less as the patient improved, until finally the test was only faintly positive.

Chinese Foods.—Embry reports the results of feeding experiments on white mice using mung beans, mung bean sprouts, red kaoliang, white kaoliang and Chinese persimmon to determine their food value.

Dublin Journal of Medical Science

November, 1921, 4, No. 21

- Menstruation and Ovulation. O. Frankl.—p. 481.
- Early Diagnosis of Carcinoma of Uterus.—p. 491.
- Roentgen Ray and Radium Treatment in Gynecology.—p. 500.
- Modern Investigations on Breaking Down of Urca by Enzyme Urease. E. A. Werner.—p. 512.

Edinburgh Medical Journal

December, 1921, 27, No. 6

- Clinical Aspects of Air Swallowing and Some Other "Bad Habits", in Infants and Young Children. J. Thomson.—p. 313.
- Physical Education in Universities of United States of America. R. T. M'Kenzie.—p. 328.
- Relation of Art to Modern Medicine. D. Duckworth.—p. 353.
- Surgery of Nasal Deformities. D. Guthrie.—p. 365.

International Journal of Public Health, Geneva, Switzerland

November-December, 1921, 2, No. 6

- State Action in Prevention of Tuberculosis. G. Newman.—p. 558.
- Health Education of Children. L. E. Holt.—p. 573.
- Preventive Medicine and Eugenics. L. Darwin.—p. 581.
- Self-Disinfection in Campaign Against Venereal Diseases. G. A. Reid.—p. 591.
- The Case Against. O. May.—p. 599.
- Anopheles Claviger. M. Sella.—p. 605.

Journal of Tropical Medicine and Hygiene, London

Nov. 15, 1921, 24, No. 22

- *Charcot-Leyden Crystals in Stools as Aid to Diagnosis of Endamebic Dysentery. J. G. Thomson and A. Robertson.—p. 289.
- Experimental Pulmonary Mycosis in Guinea-Pigs. R. W. McDonald.—p. 292.

Value of Finding Charcot-Leyden Crystals in Stool in Amebic Dysentery.—From their observations on this subject Thomson and Robertson are certain that Charcot-Leyden crystals occur in the stools of cases of endamebiasis, from which all possibility of a superimposed helminthic infection has been excluded but it remains to be proved that they may occur in helminthiasis per se. The percentage of cases showing these crystals in amebic stools was twenty-five. Nearly all the cases were of the chronic type.

Lancet, London

Nov. 19, 1921, 2, No. 5125

- Permeability in Physiology and Pathology. H. J. Hamburger.—p. 1039.
- Craniotabes of Fetus and Infant. E. Hughes.—p. 1045.
- *Antimony and Emetin in Bilharzia Disease. F. G. Cawston.—p. 1049.
- Outbreak of Bacillary Dysentery in Boys' School. W. E. Fitz-Gerald.—p. 1051.
- Case of Moral Imbecility. W. N. East.—p. 1052.
- Case of Melanoma of Choroid. A. E. Keown.—p. 1056.

Antimony and Emetin in Bilharziasis.—Cawston has obtained the best results by giving an intramuscular injection of emetin hydrochlorid daily for three days and then three times a week for three weeks. He generally commences with an initial dose of one-half grain for an adult and one-third grain for a child. A dose of 1 grain is a sufficiently large one to work up to in a child of 12. Vomiting may occur if the injection is given shortly after a meal. The maximum regular dose for an adult may be regarded as 2 grains but larger doses appear to cause toxic effects and to cure more rapidly. The cumulative action of emetin is almost as marked as the acquired tolerance for antimony, and the dose should be lessened or given less frequently toward the close of treatment. The aim should be to keep the patient well under the influence of ipecacuanha without producing undesirable toxic effects. A slight return of albuminuria after the urine has cleared sometimes indicates toxemia, and—as with the antimony treatment—suggests that the injections must be given less frequently or the dose lessened. It is generally necessary to continue treatment for about twenty-five days.

Tubercle, London

November, 1921, 3, No. 2

- Dispensary Case Records and the Traveling Dossier. G. T. Hebert.—p. 49.
- *Treatment of Tuberculosis in London in 1914 and 1915; Position of the Sanatorium. N. Bardswell.—p. 60.

Prognostic Value of Tubercle Bacilli in Sputum.—Significance of tubercle bacilli in sputum in the course of an inquiry made by Bardswell bearing on this point, one fact impressed itself on all who were engaged in the work, when a death was reported, the original case papers nearly always gave a record of a positive sputum; whereas, when the return gave the satisfactory intimation that the patient was alive and in full work, reference to the files rarely showed that tubercle bacilli had been found.

Bulletin de l'Académie de Médecine, ParisOct. 25, 1921, **86**, No. 34

- Cancer Anemia. A. Robin and Bournigault.—p. 198.
 Asthma from Echinococcosis. L. Rénon and A. Jacquelin.—p. 204.
 *Sympathectomy for Angina Pectoris. T. Jonnesco.—p. 208.
 The Post Partum Shock. P. Guéniot.—p. 210.
 Long Guides for Forceps. Demelin.—p. 213.

Surgical Treatment of Angina Pectoris.—Jonnesco relates the progressive improvement in his second case of recurring precordial pain treated by resection of the left cervicothoracic sympathetic last June. The patient is a man of 54, and the sensations of constriction in the upper part of the chest and suffocation were first experienced eight years before. They had been growing worse, and for the last year frequently recurring pains in the precordial region had been very severe, with sensations of suffocation for ten or fifteen minutes at a time. There was also chronic bronchitis and a positive Wassermann reaction.

Bulletin Médical, ParisNov. 5, 1921, **35**, No. 45

- The Post Partum Shock. P. Guéniot.—p. 883.

Bulletins de la Société Médicale des Hôpitaux, ParisOct. 28, 1921, **45**, No. 30

- Hypertrophic Tuberculous Cirrhosis. P. Merklen et al.—p. 1380.
 Pigmented Syphilids. Milian.—p. 1383.
 Otitis in Young Infants. M. Renaud.—p. 1384.
 *Surface Tension of Urine. J. Troisier.—p. 1390.
 Prophylaxis of By-Effects of Arsenicals. C. Flandin, A. Tzanck and Roberti.—p. 1402.
 *Transient Hyperthyroidism after Bronchoscopy. E. Rist and M. Weiss.—p. 1405.
 *Artificial Emphysema for Roentgenography of Kidney. H. H. Carelli.—p. 1409.

Surface Tension and Liver Functioning.—This report of extensive research in Chauffard's laboratory establishes that the surface tension of the urine varies with its content of many different substances—each of which has an individual action in raising or lowering the surface tension. The modification of surface tension during digestion of a peptone test meal was studied in dogs in blood drawn directly from the portal vein, and in the urine from cases of liver disease, etc.

Transient Hyperthyroidism from Tracheobronchoscopy.—Rist and Weiss have noted symptoms resembling those of exophthalmic goiter developing at once after endoscopy of the air passages. The symptoms were transient, all subsiding without a trace in twenty-four hours.

Injection of Gas to Outline the Kidney.—Carelli's method was reviewed editorially, Oct. 1, 1921, p. 1108, when published elsewhere.

Lyon MédicalOct. 25, 1921, **130**, No. 20

- *Plastic Tuberculous Pericollitis. M. Durand and A. Cade.—p. 889.
 Cholecystectomy for Gallstones; Fifty Cases. R. Leriche.—p. 894.
 Medical Impressions of Poland.—p. 917.

Adhesive Pericollitis.—Durand and Cade ascribe to tuberculosis the chronic adhesive pericollitis of probably thirty years' standing in the man of 55. Acute pancreatitis finally proved fatal, superposed on old cirrhosis of the pancreas.

Revue Médicale de la Suisse Romande, GenevaMarch, 1921, **41**, No. 3

- Diagnosis and Treatment of Syphilitic Aortitis. M. Roch.—p. 137.
 *Technic for Artificial Pneumothorax. R. Burnand.—p. 148.
 *Duration of Artificial Pneumothorax. M. Jaquerod.—p. 153.
 The Hemoclastic Crisis. P. Gautier.—p. 156.
 Recurring Hemoptysis from Irritation from Calculus. M. Jaquerod.—p. 166.
 Pleuritic Effusion with Artificial Pneumothorax. L. de Reynier and G. Rossel.—p. 169.
 Opiates in Treatment of Pathologic Anxiety. A. Starobinsky.—p. 175.
 *The Liver in Mercuric Chlorid Poisoning. G. Turrettini and Piotrowski.—p. 178.
 *Insomnia Following Epidemic Encephalitis. T. Reh.—p. 184.

Examination of Pleural Cavity for Artificial Pneumothorax.—Burnand's experience at Leysin confirms that if the needle in the pleural cavity becomes plugged, it is extremely dan-

gerous to try to open up the lumen by forcing in air, compressing the tube or otherwise. Even spontaneous aspiration of the air already in the needle or tube may prove immediately fatal. To open up the plugged needle, the guide must be used. If the pleura is free and the lung elastic, the needle as it pierces the pleura stops of itself in the cavity; the hand holding it feels that the tip is free. The vacuum in the pleura aspirates a little air from the needle, and this pushes back the lung from the tip. If the manometer then does not vary, the needle must be plugged. If the guide does not open it up, it is better to change the needle; viscous blood inside prevents manometer readings and the guide cannot expel it. If the pleura is tough and leathery so that the needle cannot penetrate it, there is no need to insist, as this always testifies that there must be adhesions. If the tip has run into lung tissue, the sensation may be that of pushing a needle into cheese; in this case the parenchyma is infiltrated or cheesy. If the tissue feels dry there is fibrous induration. In either event, these sensations show that the needle has penetrated both layers of the pleura, and the assumption is that they are adherent and that the pneumothorax is impracticable at this point, although it may be well to withdraw the needle a little and try again, to keep the tip in the pleural cavity. The tip of the needle may be not quite free, but still no resistant obstacle is felt. The guide is instructive here; pushing it through the needle for 1 or 2 mm. beyond the tip, it may meet with slight vague resistance, membranous and elastic. This is a sign that the pleura is almost normal but that there are slight adhesions, and only a very small amount of the gas, if any, can be injected. He describes further the sensation as if a straw were being pushed through willow pith, which is felt when the projecting guide is in the probably sound lung tissue. The guide is breaking into alveoli, the needle having pierced both layers of the pleura, adherent at this point.

Duration of Artificial Pneumothorax.—Jaquerod concludes from his twenty-two cases that artificial pneumothorax does not seem capable of curing definitely a tuberculous process in the lung; the foci tend to resume a progressive course when the compression is arrested. He advises therefore to continue the artificial pneumothorax as long as possible, in some cases even throughout the entire life. "We never will regret having kept it up too long, but we often may have to regret that we stopped it too soon."

The Liver Factor in Prognosis of Mercuric Chlorid Poisoning.—In the two cases described, the patients seemed to be recovering from the effects of the poison on the kidneys but succumbed to the effect on the liver.

Insomnia in Children After Epidemic Encephalitis.—In Reh's two cases the insomnia and agitation at night had persisted for seven and for eleven months when the children contracted measles. As they recovered from this, the normal rhythm of sleep returned, and there has been no recurrence of the agrypnia during the three months to date.

Schweizerische medizinische Wochenschrift, BaselOct. 27, 1921, **51**, No. 43

- Action on Stomach of Certain Opium Derivatives. Gysi and Sahli.—p. 985.
 *The Intradermal Tuberculin Reaction. C. Fischer.—p. 992.
 *Both Lungs Compressed by Unilateral Pneumothorax. N. Betchov.—p. 994.
 *The Auto-Urine Reaction in the Tuberculous. R. Schmid.—p. 996.
 Iron in Treatment of Anemia in Infants. H. von Schulthess.—p. 998.

The Intradermal Tuberculin Reaction.—Fischer applied the intradermal tuberculin test at monthly intervals to 200 tuberculous subjects of different ages. In a few instances a similar injection of distilled water elicited the same reaction. In some others, the same test applied to arm and leg elicited a different response at these different points. The test becomes more sensitive when the diluted tuberculin is mixed with the patient's own blood serum. He thus applied the test to 40 patients, injecting by the Mantoux technic half of a mixture of 0.1 c.c. of the patient's own blood serum with 0.1 c.c. of a 1:5,000 or 1:500 solution of tuberculin. There was no lung focal or general reaction to this, but the skin reaction

was a papule from 1 to 20 mm. in diameter, the same or a little smaller than if the tuberculin alone had been injected at 1:10,000 or 1:1,000. But the skin reaction corresponded better to the course of the case, and seemed to be less dependent on the condition of the skin and the location of the injection. He regards this autoserum technic for the intradermal test as an improvement, rendering the response much more specific, the tuberculin being thus sensitized, as it were. He adds that the test becomes still more specific when, instead of the autoserum and the tuberculin, a corresponding mixture of autoserum and auto-urine is used. The patient's own urine, evaporated to one tenth, and injected intradermally, generally elicits a reaction corresponding to that with 1:10,000 tuberculin, but, mixed with the autoserum, the reaction is more pronounced than with the tuberculin. The mixture of autoserum and tuberculin elicited particularly striking responses in the very earliest stages of acute pulmonary tuberculosis in soldiers whose general health had not begun to show impairment. Everything thus tends, he says, to confirm the value of this technic, and invite further research with it.

The Other Lung with Artificial Pneumothorax.—Betchov concludes from his clinical and experimental research that the artificial pneumothorax is never restricted to one side alone; the other lung always feels the effect to some extent as the soft, yielding pleura is pushed over on it. The consequent partial collapse of the other lung may exert a healing influence on this second lung also. A special factor in this seems to be the reduction of the stasis of lymph in the lung.

The Auto-Urine Reaction.—Schmid states that the Wildbolz technic for the auto-urine reaction elicited a positive response only in forty-nine of sixty cases with unmistakable signs of active tuberculosis. In the eleven negative, the intradermal tuberculin test at 1:1,000 and mostly at 1:10,000 yielded a positive reaction. In three of the cases several repetitions of the own urine test finally induced a positive reaction. These experiences and those with ninety other patients free from or suspected of tuberculosis show that the urine in active tuberculosis may be transiently unable to give the specific reaction, but that by repeating the test the reaction may finally be elicited. Analysis of the small group of contradictory findings indicates that the salt content of the urine may modify the response. Hence, the urine should be made free from salt before applying the test, without altering the antigen.

Archivos Latino-Amer. de Pediatría, Buenos Aires

September-October, 1921, 15, No. 5

*Preventive Vaccination Against Typhoid Fever. L. Morquio.—p. 365.

*Pure Mitral Stenosis. R. Cibils Aguirre.—p. 369.

Rheumatismal Endocarditis with Pseudopleurisy. Alice Armand Ugón.—p. 376

*Nephritis in Children. E. Beretervide.—p. 382.

Serotherapy in Epidemic Poliomyelitis. L. Velasco Blanco.—p. 402.

Case of Diphtheria with Nasal Onset. R. Fernández.—p. 409.

*The Teaching of the Care of Infants. A. Mola.—p. 411.

Idem. Maria Armand Ugón.—p. 419.

*Acid Hyperfat Milk in Infant Feeding. E. Gaing.—p. 429. Conc'n.

*Infant Welfare Work in S. Paulo. C. Ferreira.—p. 460. Cont'n.

Preventive Vaccination Against Typhoid.—Morquio's experience warns against the danger of typhoid fever developing in healthy carriers when they are injected with the vaccine, in prophylaxis, as another member of the family presents the disease. Some of his experiences in this line were mentioned recently. Among those related here is the case of a family of seven children and six adults, all vaccinated when one child developed typhoid of unknown origin. One of the other children developed symptoms of typhoid directly after the first injection of the vaccine, and two of the other children directly after the second injection of the vaccine. These three children had all been apparently healthy, and he is confident that they would not have developed the disease if they had not been vaccinated. His conclusion is that it evidently is unwise to vaccinate the contacts in a focus at the moment of an epidemic.

Pure Mitral Stenosis.—The case reported is a typical example of infantilism with pure mitral stenosis in a girl of 13 with inherited syphilis.

Nephritis in Children.—Beretervide discusses nine cases of nephritis in children recently encountered. It followed scarlet fever in one; ordinary infectious sore throat in four, in impetigo in two. In more than 80 per cent. of all cases of nephritis in children there is retention of chlorids, and improvement follows at once when the intake of salt and water is restricted, without any need for drugs. This improvement is enhanced if the child is given daily, in addition, from 20 to 200 gm. of raw or very rare meat if there are no signs of uremia. He did not find it necessary to resort to theobromin or other drug in any of these cases. The course is generally mild and clinical recovery complete. One of the children has passed through some acute infections during the year since, without any recurrence of the kidney disturbance. One boy of 12 presented extreme dropsy, without fever. It had been developing for two months, with no history of a preceding acute infectious disease, and the anasarca had only grown worse on restriction to milk. After the albumin in the urine had been reduced to 4 gm. in the course of six months of treatment with the usual measures, and the weight had been reduced from 46.5 to 38 kg., the albumin ran up suddenly to 11 gm., and this suggested a possible syphilitic origin. Prompt and durable improvement followed neo-arsphenamin treatment. He was careful to refrain from mercurial treatment as he once had a child patient in this category develop anuria after mercurial treatment.

Teaching Puericulture.—Mola's communication is an appeal to the authorities to introduce courses of puericulture for girls in the fourth, fifth and sixth year of school, and as a regular course in the normal schools for teachers. There is already a course in maternology in the Uruguay normal school, but it is not in charge of a physician, as he thinks should be the case.

Modified Buttermilk in Infant Feeding.—Gaing's favorable experience with acid buttermilk, to which fat has been added, has already been mentioned in these columns. He here tabulates under eleven headings the 160 cases in which he had used it at date of writing, with photographs of some of the children. Only seven of the infants were normal; eighteen were just born or up to 1 month old. Several in this group were in the congenital debility class, and their weight increased from 2,420 gm. to 5980; 2,300 to 6,990; 2,300 to 7,000 under 177, 266 or 270 days of this acid, hyperfat buttermilk feeding.

Child Welfare Work in S. Paulo.—This is the annual report made by Ferreira on this department of the public health service for 1920.

Brazil-Medico, Rio de Janeiro

Sept. 24, 1921, 2, No. 11

The Normal Arterial Blood Count in S. Paulo. Ascanio Paiva Reis.—p. 147.

The Ship Doctor. J. Drummond.—p. 155.

Oct. 1, 1921, 2, No. 12

*Radium Treatment of Precancer Lesions. A. F. da Costa Junior.—p. 163.

*Rupture of Iris Without Trauma. E. Campos.—p. 166.

*Helminthiasis in Children in Northern Brazil. A. da Matta.—p. 167.

Classification of Leeches. C. Pinto.—p. 169.

Radium Treatment of Precancerous Conditions.—Da Costa says that every persisting wart, nevus, papilloma, senile keratosis, leukoplakia, etc., should be carefully watched, and at the slightest sign of aggravation, suggesting possible malignant degeneration, they should be given radium therapy or be excised. In 300 cases of cancer no preexisting factors were known in 46.33 per cent., but in 18 per cent. there was a history of excessive use of tobacco; in 10.66 per cent. a trauma; in 8 per cent. a wart; in 7.33 per cent. some other predisposing dermatosis; in 6.33 prolonged irritation from some cause, and in 3.33 per cent. the previous history was not known. There was thus quite a large proportion of cases in which greater vigilance and prompt radium exposures would probably have warded off the malignant disease. Radium is the best means for this, not on account of being less painful and mutilating than surgical measures, but because the effect is radical and durable. He describes 10 cases of the kind, some in children. In one child a keloid had developed after

a burn on the cheek that had required excision of tissue. Under 50 exposures to radium, to a total of 154 cent. hours, the keloid permanently disappeared. In another child a large disfiguring angiomatous nevus on the cheek subsided without leaving a trace, except a somewhat paler area of the skin, after 21 sittings to a total of 32 cent. hours.

Radial Rupture of the Iris.—In Campos' case the rupture occurred without traumatism, the iris being the seat of progressive atrophy in the woman of 45. She was sitting quietly, making no effort, when the sudden pain in the eye and disturbance in vision announced the rupture, confirmed by the blood in the front of the anterior chamber. Campos says that he has been unable to find an analogous case on record. A syphilitic basis is probable, and there is a history of influenza and infected glands. The intra-ocular tension seems normal.

Helminths in Children in Northern Brazil.—Da Matta found 88.64 per cent. infested of 1,850 children examined, but 53.83 per cent. of them seemed to be merely carriers, without clinical manifestations traceable to their helminthiasis. The hookworm was found in over 78 per cent.; the trichocephalus in 49.34, and ascarids in 45.1 per cent.

Revista de Medicina y Cirugía, Havana

Oct. 10, 1921, 26, No. 19

*Cholecystitis and Appendicitis. E. Stincer.—p. 787.
Laryngeal Diphtheria. J. M. Buch.—p. 790.

Cholecystitis and Appendicitis.—In the two cases reported by Stincer the symptoms were mainly those of acute appendicitis, but the gallbladder was found inflamed and large, and the appendectomy had to be supplemented by cholecystectomy. He comments on the frequent coincidence of disease in appendix and gallbladder, and declares that the same principles for treatment apply to both.

Semana Médica, Buenos Aires

Oct. 6, 1921, 28, No. 40

*Ether in Treatment of Whooping Cough. R. F. Vaccarezza and F. F. Inda.—p. 445.
Operative Treatment of Paralysis of Brachial Plexus. W. Sharpe (New York).—p. 450.
*Chronic Rheumatism Plus Disseminated Sclerosis. O. Wernicke.—p. 455.
*Dystocia from Fecal Tumor. F. Etcheverry Boneo.—p. 462.
Sacralization of Fifth Lumbar Vertebra. M. V. Pozzo.—p. 466.
"Influenzal Croup." N. D. Rosso and R. Denis.—p. 469.

Ether in Treatment of Whooping Cough.—Vaccarezza and Inda relate that their two years of experience with intramuscular injections of ether in the treatment of pertussis has convinced them that this is superior to all other symptomatic measures for this disease. Its course seems to be shortened and the cough loses its spasmodic character in the favorable cases, but in some cases no effect is apparent. Comby has had about 50 per cent. refractory cases, but Audrain, the father of this ether treatment, has never found it to fail. He insists that something besides pertussis must be incriminated for the spasms when ether fails to attenuate the disease. The amount to be injected varies from 0.5 to 2 c.c. according to age. The intragluteal injections are given on alternate days, and more than five or six are seldom required. Three is often all that is necessary. They give one every day for three days and then on alternate days. Sometimes the heart beat is accelerated a little for about an hour. They give no details of their experience, but cite a number of favorable reports on ether treatment of pertussis in recent Italian and French literature.

Chronic Rheumatism.—Wernicke is convinced that disseminated sclerosis is more common than generally supposed. We assume that it is restricted to the nervous system, and we assume that chronic rheumatism is restricted to the muscles, but in actual fact we have no right to assume in any disease that only one organ or tissue is affected by it. It is conceivable that chronic rheumatism might affect the brain, and also that insular sclerosis might affect the muscles. When the two occur together, this suggests the possibility that both are the work of one disease. Both attack tissue the main function of which is support, the connective tissue and the neuroglia. Both produce destructive foci without much inflammation, and without cicatricial retraction or a

definite microscopic picture. Both develop in attacks and a wave-like course, and both are aggravated by cold. Both may fuse with diabetes; the nervous and the ocular symptoms of diabetes coincide almost perfectly with those of disseminated sclerosis. There are three points in the body where the nerve tissue and the connective tissue are intimately blended. These are the olfactory bulb, the auditory bulb and the optic disk. Only the latter is accessible to examination, but this confirms, he asserts, the fusion of chronic rheumatism with disseminated sclerosis. The foci in each of these diseases cause no disturbance unless in important tissues, and they scarcely alter the transparency of a tissue. He presents an array of arguments to sustain the view of the fusion of disseminated sclerosis with chronic rheumatism. Disseminated rheumatism, he says, is recognizable by its hereditary features, the frequent involvement of the cornea, crystalline lens and optic papilla, and by the pluriglandular endocrine insufficiency. Less frequent manifestations are keratoconus, glaucoma, high myopia and pigmented retinitis. He urges others to study these ocular anomalies from this standpoint, saying that this will throw light on many questions of neurology and psychiatry as well as of dermatology.

Dystocia from Fecal Tumor.—The case reported teaches that whenever there is dystocia from impacted feces, the sigmoid flexure loop can be counted on to be the responsible segment of the intestine. Its mesentery is so long that this loop can be pushed by the gravid uterus to almost any part of the lower abdomen. In this case it was in the right flank.

Siglo Médico, Madrid

Aug. 20, 1921, 68, No. 3532

*Tansini's Technic for Amputation of Mamma. G. Aperle.—p. 789.
*Ophthalmoplegic Migraine. M. Marin Amat.—p. 793.
*Treatment of Syphilis. J. Minet (Lille).—p. 797.

Tansini's Method of Amputation of Breast.—Aperle gives an illustrated description of Tansini's technic for swinging around from the back a flap to cover the defect left after amputating the breast. The skin of the entire breast up into the axilla is excised. The dorsal autoplasmic flap that fits into its place is much less liable to develop recurrence. With this technic, he says, healing is by primary intention regardless of the extent of the defect to be covered, and there is no cicatricial retraction, no adhesion to the vein, scarcely any interference with the movements of the arm. The method has stood the test of time as the preferable technic since Tansini first published it in 1896.

Ophthalmoplegic Migraine.—The woman of 29 had been experiencing pain in the left side of the head and eye for three months, with occasional vomiting. The pain returned mornings between 9 and 10 and finally became almost continuous. Vision in this eye became less distinct and the pupil was dilated, and there was ptosis of the eyelid, the complete picture of ophthalmoplegia. Vision rapidly declined in both eyes to total blindness in two months, and in the course of the following three years she became practically imbecile, with tendency to contractions and finally heart disease. In a second case, parenteral injection of milk was followed by total subsidence of the pain and of the oculomotor paresis. This patient is still under treatment.

Daily Injection of an Arsenical.—Minet advocates treatment of syphilis by daily subcutaneous injections of neoarsphenamin throughout all the periods of the disease.

Beiträge zur klinischen Chirurgie, Tübingen

1921, 123, No. 3

*Trephining for Rupture of Meningeal Artery. C. Brunner.—p. 485.
Architectonic Structure of Connective Tissue in Solc. Tietze.—p. 493.
*Formation of Gallbladder After Cystectomy. O. Specht.—p. 507.
*Experimental Study of Callus Production. E. Wehner.—p. 541.
*Carcinosarcoma. M. Claessen and E. Mathias.—p. 584.
*Colloid Cancer of the Ovary. L. Frankenthal.—p. 600.
*Treatment of Pulsion Diverticulum of Esophagus. K. Deis.—p. 623.
Nonspecific Epididymitis and Orchitis. M. Flesch-Thebesius.—p. 633.
Hemangioma of the Joint Capsule. F. C. Hilgenberg.—p. 645.
Operative Mobilization of Elbow. W. Sudhoff.—p. 655.
Experiences with Median S Incision. E. E. Pribram.—p. 668.
Experimental Luxation in Radio-Ulnar Joint. F. v. d. Hütten.—p. 685.
Lumbar Abscess from Necrosis of Pancreas. M. Schüle.—p. 691.
Megastoma with Anal Fissure. H. Kästner.—p. 697.
Pectineal Hernia (Cloquet's). F. J. Kaiser.—p. 704.

Trephining for Rupture of Middle Meningeal Artery.—Brunner has operated in eight cases of meningeal hemorrhage. In one case he had to trephine on one side for this cause, and a year later on the other side, as the man had ruptured the artery on the second side. When it is impossible to discover the bleeding point and ligate the vessel, tamponing is the only resource. He warns that this must not be tight enough to induce symptoms from the pressure on the brain.

Formation of Gallbladder After Cholecystectomy.—Specht reviews the 3,704 operations on the biliary apparatus at the Giessen clinic since 1899. After cystectomy, the cystic duct became enlarged—thus forming a receptacle for the bile, without a calculus—only in 0.24 per thousand of the cases. In the 196 cases in which the duct had been cut close to the neck, a second laparotomy was required later in six, but only in one of them on account of a new receptacle forming and a calculus developing. He reports further a number of experiments on dogs. All his data sustain the extreme rarity of formation of a receptacle, and its comparative harmlessness. There is no need for exposing the patient to danger in difficult operations by insisting on cutting the duct close to the common bile duct.

Callus Production.—The results of Wehner's experimental research confirm that the functional stimulus is the best means to promote production of callus. It is produced not as a mere cement, but in shape and structure it is adapted to the functional use to which it is put. This can be traced from the very first in series of radiograms.

Carcinosarcoma.—Another case is added to the seventy-three compiled from the literature.

Relations Between Ovarian and Gastric Cancers.—Frankenthal warns that with bilateral colloid cancer of the ovaries, of the Krukenberg type, special search should be made for malignant disease in the stomach. He reports an instructive and encouraging case in which both ovaries were removed for this cause in March, 1920, three months after the first symptoms, pain and a hard mass. The patient was a woman of 36. There were no symptoms from the stomach, but roentgenoscopy showed an outline suggesting a tumor in the greater curvature, not modified by palpation, and the stomach was resected and sutured to the jejunum by Krönlein's technic. The woman now looks and feels perfectly well, has gained 18 pounds, and has had no symptoms of the artificial menopause beyond the loss of menstruation. The cancer in the stomach was of the same type as the mucocellular carcinoma in the ovaries. The case teaches that the primary tumor can be successfully removed even after it has induced metastasis. Payr has reported a case in which several months had elapsed after the ovarian tumors had been extirpated before the primary tumor in the stomach was discovered and removed, with the best of results. In fifty-five cases of Krukenberg tumors on record, only two instances are known in which the tumors in the ovaries were apparently the primary growth.

Treatment of Pulsion Diverticulum of the Esophagus.—One of Deis' nine cases emphasizes the necessity for not delaying the operation too long, the patient dying from aspiration pneumonia. The others were all cured by ligation of the base of the diverticulum. It was drawn up into the incision and the space around loosely tamponed and drained. By the eighth to tenth day the diverticulum dropped off.

Deutsche medizinische Wochenschrift, Berlin

Oct. 6, 1921, 47, No. 40, Virchow Number

- *Rudolf Virchow; a Retrospect. L. Aschoff.—p. 1185.
- Virchow's Contribution to Knowledge of Tuberculosis. Orth.—p. 1188.
- The Importance of Virchow's Work on Tumors. C. Kaiserling.—p. 1191.
- Virchow as an Apostle of Public Welfare. R. Beneke.—p. 1192.
- Virchow as Seen by His Contemporaries. G. Mamlock.—p. 1195.
- Anatomic Study of Healed Radius Fractures. H. Virchow.—p. 1195.
- Present-Day Conception of Inflammation. F. Marchand.—p. 1197.
- *Pharmacologic Observations. A. Bornstein.—p. 1200.
- Distribution of Quinin in the Organism. E. Boecker.—p. 1201.
- Determination of Cure in Gonorrheal Infection of the Female. A. Blaschko.—p. 1202.
- The Psycho-Analytic Interpretation of Dreams. Seelert.—p. 1203.
- Modern Conception of Hypertonia. H. Rosin.—p. 1204. Cont'd.
- Hemostasis. G. Ledderhose.—p. 1206.

Rudolf Virchow.—In his biographic sketch, Aschoff refers to Virchow as the keenest and clearest thinker of the previous century in the field of pure medical biology. General pathology owes to Virchow a more precise definition of the terms: irritant, irritation, pathologic disturbance, affection, disease process, etc. Virchow expressed very clearly that an elementary pathologic process as conceived of in cellular pathology may be interpreted thus: Some external substance acts upon a living cell and changes it chemically or mechanically. Such external substance is the external or the pathologic cause. The changed condition is the affection (*leiden*). If in the living cell, in consequence of the change it has undergone, an action or a reaction occurs, the change is called an irritation and the pathologic cause is called an irritant. If, however, no such action or reaction takes place; if the condition is expressed merely by the change that the cell has undergone, then we recognize a mere disturbance (*laesio*) or a paralysis. But since the same external cause exerts on one cell an irritating effect, on another a disturbing effect and on still another a paralyzing effect, we must assume a certain differentiation in the internal condition of the cells as the basis of this varying behavior, which leads up to the conception of the inner cause, which we may term the "predisposition." Virchow emphasized, furthermore, that not every pathologic condition constitutes a "disease"; in fact, it does not necessarily have any relation to a disease. A bone fracture is no more a disease than is a kyphosis. We cannot speak of a disease unless, owing to a pathologic condition, further disturbances of life processes are brought about which constitute a danger to the organism. Aschoff adds that Virchow's definitions of terms are not taken sufficiently into account, and that general pathology is not yet purified by Virchow's acuity of perception to the extent that would be desirable.

Pharmacologic Observations on the Sick and Well.—Bornstein reports that, in about 25 per cent. of the cases of diabetes investigated by him, atropin effected a decrease in the content of blood sugar.

Medizinische Klinik, Berlin

Oct. 9, 1921, 17, No. 41

- *Sclerodermic Dystrophy. H. Curschmann.—p. 1223.
- *Progressive Paralysis in the Aged. H. Herschmann.—p. 1225.
- *Associated Internal Diseases. J. Löwy.—p. 1227. Conc'n No. 42, p. 1259.
- *Prophylaxis of Measles with Convalescents' Serum. Manchot and Reiche.—p. 1230.
- Injury from Foreign Body in Vagina. H. Koopmann.—p. 1231.
- Eosinophilia in Migraine. M. Gänsslen.—p. 1232.
- Silversalvarsan. H. Boas.—p. 1233.
- Large Aneurysm of Axillary Artery. F. W. Kloeppel.—p. 1235.
- Gunshot Wound Ignored by Subject. C. Lapp.—p. 1236.
- Prevention of Roentgen Ray Injuries. Schwarz and Czepa.—p. 1237.
- *The Bone Marrow in Acute Infections. E. F. Müller.—p. 1238.
- Ear Disease from Practitioner's Standpoint. K. Grahe.—p. 1240. Conc'n in No. 42, p. 1270.

Sclerodermic Dystrophy.—Curschmann comments on the pluriglandular disturbances manifest in the six cases of scleroderma he describes in men and women of all ages. He remarks that there is much evidence to sustain the assumption that the skin itself is an endocrine organ. The sclerodermic dystrophies are particularly instructive from this point of view. They and the predominantly neuromuscular forms of dystrophia, and the primary vasomotor neuroses will repay study along this line.

General Paresis in the Aged.—The process of involution already installed in the elderly imprints special features on progressive paralysis when it does not develop till late in life. The infection in 21 of 84 such cases in Jauregg's service at Vienna was of from twelve to over forty years' standing. In 27 per cent. of the total cases the mental derangement was of the persecution type. This paranoid form of general paresis seems to be peculiar to the aged. The optic illusions often took the form of animals, although there was no alcoholic basis. The hallucinations occurred mostly nights, and were often an occupational delirium. In short, the senile general paresis bears the impress of senile psychoses in general.

Associated Diseases.—The first part of Löwy's study of the influence exerted by diseases on each other was reviewed as it appeared. He here discusses the cases in which malaria or erysipelas, etc., have apparently exerted a curative influence

on cancer. It has been asserted that malaria and cancer are antagonistic, and this has been cited as a reason for the rarity of cancer in the tropics. The infection index of persons who develop cancer was found exceptionally small by R. Schmidt in his research in 1913. In 44 per cent. of his gastric cancer cases, there was no infectious disease known in the anamnesis, and in 74 per cent. none of the usual children's diseases. This is a promising field for research, Löwy adds, although the simultaneous occurrence in an organ of both cancer and tuberculosis has been recently reported. Bier's recent success with blood injected into cancers probably owed its effect to the hyperemia induced, which transformed the chronic into an acute inflammation, and the acutely inflamed tissue was loosened up and resorbed, although there was not a complete cure in any instance. Trauma, vaccination, a new infection may induce not only focal reactions but may mobilize the pathogenic germs anew. He cites some of the rare instances in which one disease seemed to cure another. With malaria, this seems to be a form of parenteral protein therapy. Secondary streptococcus infection generally renders the prognosis graver, but a few instances are on record in which chronic nephritis showed marked benefit after intercurrent erysipelas. Constitutional diseases scarcely modify each other, but with superposed infectious diseases, the more acute makes its impress predominantly on the clinical picture.

Convalescents' Serum in Prophylaxis of Measles.—Manchot and Reiche report gratifying results from practical application of this measure to 155 children from 1 month to 5 years old who had been exposed to measles. Only eleven developed the disease thereafter, and it was exceptionally mild in all except in the three oldest children.

The Bone Marrow in Acute Infectious Diseases.—Müller agrees with Naegeli that leukocytosis is the morphologic expression of an extreme biologic change in the functioning of the bone marrow. In 104 cases of acute general infection, no bacteria were found in the bone marrow in 12; in 56 none were found in the femur marrow, but the same bacteria circulating in the blood were found in the marrow of the vertebrae, and, in 36, in both vertebra and femur marrow. In 23 children with various acute infections, the same bacteria were found in the vertebra marrow in 91 per cent., but in the femur only in 17.5 per cent. All these acute diseases are usually accompanied by leukocytosis. Further research on the diseases accompanied by leukopenia showed bacteria in both vertebrae and femurs in 100 per cent. of the 16 cases examined. This constant finding of bacteria in these cases—mostly typhoid—amply explains the leukopenia, and demonstrates the great importance of the bone marrow in the defence against acute infectious diseases. As the vertebra marrow suffers from the presence of the bacteria, new marrow forms rapidly in the long bones, and this new and sterile marrow produces larger numbers of leukocytes.

Münchener medizinische Wochenschrift, Munich

Sept. 23, 1921, 68, No. 38

- Importance of Early Diagnosis of Cancer of the Uterus. P. Zweifel.—p. 1207.
- *Rectal Examination in Obstetric Practice. E. Kchrer.—p. 1208.
- Spinal Fluid Findings in Normal and Syphilitic Rabbits. F. Plaut and P. Mulzer.—p. 1211.
- Vaccine Therapy in General Practice. W. Rimpau and A. Kcck.—p. 1213.
- Pseudo-Protein Therapy by the Mouth. A. Prinz.—p. 1215.
- Domestication Phenomena in Man. Paulsen.—p. 1218.
- The Hysteria Problem. F. Moerchen.—p. 1220.
- Luxation of Hip-Joint in New-Born. P. Sippel.—p. 1221.
- *Prophylaxis of Ophthalmia Neonatorum. R. Hirsch.—p. 1223.
- "Amnesia Sleep." K. J. Wederhake.—p. 1224.
- Physiologic Substitution for Paralyzed Quadriceps Femoris. K. Löwenstein.—p. 1225.
- Titration of Urea in the Urine. E. Friedländer.—p. 1225.
- Congenital Fistula of the Neck. L. Detzel.—p. 1227.
- Historical Data on the Question of Heterobacteriotherapy and Protein Therapy. R. Kraus.—p. 1228.
- Occultism. J. Böhm.—p. 1229.
- Diagnosis of Extra-Uterine Pregnancy. W. S. Flatau.—p. 1229.

Value of Rectal Examination in Obstetric Practice.—Kchrer emphasizes the danger of infection from the vaginal examination, and urges that ordinarily the rectal examination be substituted for it. The rectal examination reveals conditions just about as well, although the technic requires

a little more practice. The objections raised against rectal examination are due to lack of knowledge of the subject.

Effect of Obligatory Prophylaxis on Ophthalmia Neonatorum.—Hirsch states that since the introduction of prophylactic treatment (silver nitrate) of the new-born in obstetric clinics, the morbidity rate for ophthalmoblennorrhea in those clinics has dropped from 10 to 0.09 per cent. A corresponding decrease could not be noted in children born outside of the clinics, as the use of the silver nitrate or other solution was often neglected. In September, 1920, the prophylactic treatment of the eyes of the new-born and the compulsory notification of cases of ophthalmoblennorrhea were established in Prussia.

Therapeutische Halbmonatshefte, Berlin

Aug. 1, 1921, 35, No. 15

- Transfusion of Relatives' Blood. Bürger.—p. 457. Conc'n.
- Treatment of Burns. H. Flörcken.—p. 460.
- Burns and Their Treatment. H. Harttung.—p. 464.
- By-Effects of Phenobarbital. H. Weber.—p. 467.
- *Open Air Treatment in Tuberculosis. E. Aschenheim.—p. 470.

Constant Open Air Treatment in Tuberculosis.—Aschenheim reports, in the main, favorable results from open air treatment of 19 tuberculous children in the children's hospital in Düsseldorf. The children were kept day and night, summer and winter, on the veranda with southern exposure. There were 11 cases of pulmonary tuberculosis, 6 cases of tuberculosis of the bones, joint and serous membranes, and 2 cases of tuberculosis in nursing infants aged 10 and 8 months, respectively. The latter terminated in death. In 4 cases the improvement was marked, in 4 it was good, in 8 it was at least noticeable, and in 1 case there was no change either way. Even though the disease process progressed, the children looked ruddy. The appetite improved. The children themselves were enthusiastic, as they could see they were being benefited. There was some increase in weight, but nothing remarkable. Aschenheim considers the open air treatment, if continued for several months, as a valuable therapeutic aid, but it must not be regarded as a sovereign remedy in all cases. No "colds" developed during treatment.

Wiener klinische Wochenschrift, Vienna

Sept. 22, 1921, 34, No. 38

- Experimental Typhus and Immunity. E. Weil et al.—p. 459.
 - Avitaminosis in Children. W. Knöpfelmacher.—p. 460.
 - Management of Liver Wounds from Contusion. O. M. Chiari.—p. 460.
 - Transplantation of Urethra. E. Remete.—p. 461.
 - Radium Treatment for Leukoplakia. E. Lekisch.—p. 462.
- Sept. 29, 1921, 34, No. 39
- Tuberculosis Infection. F. Hamburger.—p. 471.
 - Roentgen-Ray Diagnosis of Tumors, and of Bone and Joint Affections. R. Kienböck.—p. 472.
 - Sprengel's Deformity. S. Maurer.—p. 473.
 - Combined Collargol and Peptone Therapy. A. Kirch.—p. 475.
 - Differential Diagnosis of Psychogenic Stuttering and Retarded Flow of Ideas. G. Lehner.—p. 476.
 - When Can Syphilitics Marry? M. Hesse.—p. 476.

Zeitschrift für Kinderheilkunde, Berlin

Nov. 8, 1921, 30, No. 5-6

- *Influencing of Growth by Feeding. K. Kassowitz.—p. 275.
- *Development of a Prematurely Born Child. O. Huber.—p. 281.
- Desiccated Milk in Infant Feeding. Nobel and Wagner.—p. 291.
- *Butter-Flour Mixture in Infant Feeding. A. Mendelssohn.—p. 302.
- *Acute Nutritional Disturbances in Infants. S. Engel.—p. 310.
- *Occult Blood in Infants' Stools. Erna Fürstenau.—p. 319.
- *Detection of Adulteration of Breast Milk. F. Edelstein.—p. 326.
- *Swelling of Mammary Glands in the New-Born. G. B. Gruber.—p. 336.
- *Concentrated Foods for Infants. E. Heimreich and B. Schick.—p. 363.

Influencing Growth by Feeding.—Kassowitz reports from Pirquet's service at Vienna a series of experiments carried on for six years aiming to promote growth by the method of feeding. The children were in an orphan asylum, and the details are given of fourteen under observation constantly for five years. The ration was calculated at 7 decinems of the surface area unit, and neuropathic loss of appetite was effectually combated. The children are above normal in height and weight, although the parents of some were below the average size.

Fate of Prematurely Born Child.—In the case illustrated by Huber, the infant was born at the sixth month of the pregnancy and she weighed only 790 gm. The child was kept in the clinic until it was a year old and weighed 5,080 gm.

Now, at 8 years of age the child is of normal height, but 5,500 gm. below the normal weight for this age. This under-nourishment, however, he adds, it shares with thousands of other Vienna children born at term.

Butter-Flour Mixture in Infant Feeding.—Mendelssohn says that the infants in a hospital service are generally too sick for this form of infant feeding. For stronger children, he regards it as a welcome addition to the means at our disposal.

Acute Nutritive Disturbance in Infants.—Engel declares that vomiting of hematin may occur early and sometimes in quite mild forms of nutritive disturbance. Necropsy in infants that had succumbed to a toxicosis with hematin vomiting showed constantly hemorrhagic erosions in the stomach, while the mucosa was coated with thick and tenacious mucus. The fact that the hemoglobin had been transformed into hematin testified to vigorous secretion of hydrochloric acid. These three findings, the erosions, the profuse mucus production and the profuse production of hydrochloric acid, are all manifestations evidently of overexcitability of the vagus. All of them can be reproduced experimentally by stimulation of the vagus.

Occult Hemorrhage in Infants.—Fürstenau found invisible blood in the stools of 15 infants with nutritional disturbance of a mild type. The oldest was 8 months old. Viewed in connection with hematin in the vomit and other findings incriminating overexcitability of the vegetative system in chronic gastric ulcer, the assumption is plausible that the vegetative nervous system behaves differently in infancy from later in life. To test this, pilocarpin was given to 45 infants, healthy or convalescing from various affections, and the stools were examined for blood thereafter. Tests for several days beforehand had shown the stools free from visible or invisible blood. The younger infants were given 5 mg., the older ones up to 7 or 8 mg. Blood appeared in the stool thereafter in all the infants less than 7 months old and in one recovering from toxicosis—a total of 26 infants. In 22 others no blood was found but a few had diarrhea after the pilocarpin. The stools showing the occult hemorrhage were not modified in any other respect. With larger doses of pilocarpin there was a stormy reaction, profuse sweating or diarrhea and vomiting but no blood in the stools. In a number of the children the stomach content was tested for blood but without results, except in one child with rachitis. The source of the pilocarpin occult hemorrhage therefore must be sought below the stomach. The pilocarpin probably dilates the vessels, and the walls of the capillaries become permeable for blood. These pilocarpin experiments correspond to the clinical observation of occult bleeding in dyspeptic infants, and the stormy reaction to pilocarpin corresponds to toxicosis in infants. Some experiments on guinea-pigs confirmed this isolated action of small doses of pilocarpin on the blood vessels in the intestines in the predisposed. Infants under 7 months old seem to be all predisposed; later than this the vegetative system becomes less susceptible to the action of pilocarpin. The objection that muscular spasm might be responsible for the occult blood is refuted by the fact that in the tests on guinea-pigs the action of the muscles was abolished by giving opium with the pilocarpin.

Test for Adulteration of Breast Milk.—The high lactose content and the low albumin content of breast milk enable detection of adulteration by change of color during reduction of a copper solution, and the amount of ferric oxid required to precipitate the albumin. Edelstein gives a color scale of the findings in samples of breast and cows' milk.

Swelling of Mammary Glands in the New-Born.—Gruber's fourteen photomicrograms sustain his assertion that the mammary glands in the fetus and newly born may serve for proliferation of cells as a kind of blood production.

Concentrated Food for Infants.—Helmreich and Schick's experience with doubly and trebly concentrated food in small compass has been previously described. The report issues from Pirquet's service at Vienna, and this communication reports results in 218 new-born infants given the doubly concentrated sweetened whole milk or other mixtures. The best results were obtained with unmodified whole milk and with sweetened whole milk concentrated once and a half.

Zeitschrift für urologische Chirurgie, Berlin

March 14, 1921, 6, No. 3-4

*Kidney Tumors. E. Heppner.—p. 145.

*Congenital Absence of One Kidney. G. Venzmer.—p. 162.

*Bladder Tumors. O. Egger.—p. 175.

*Tardy Hemorrhage After Ureter Lithotomy. R. Bonn.—p. 218.

*Surgical Treatment of Nephritis. H. Rubritius.—p. 225.

Kidney Tumors.—Heppner states that in the 53 operative cases reviewed, sudden hematuria or the accidental discovery of a tumor was the first sign of trouble. The dull pains sometimes noted had usually been ascribed to rheumatism or a purely nervous origin. Fever sometimes aids in the detection of malignant disease in the kidney, but the urine is of no use for the differential diagnosis. Pain in the shoulder on that side is instructive. There was recurrence of the tumor in 6 of the 53 cases, and the total mortality to date has been 45.4 per cent. The tumors were of nine different kinds.

Congenital Absence of One Kidney.—Venzmer summarizes the literature on this subject, and a recent compilation of 17 cases in which the kidney was removed in ignorance of the fact that it had no mate. To this list he adds 2 more cases, from Kümmell's service at Hamburg. In one, the young man had lacerated the kidney in a fall, and in the other case a large tumor called for nephrectomy. Six other cases have been recorded in former years in the history of the hospital, but modern methods of investigation now reveal the absence of the second kidney. The most instructive means for this is comparison of the freezing point of the blood and of the urine. With even one kidney, functioning approximately normally, the freezing point of blood and urine is about the same, but with a diseased solitary kidney, the increasing concentration of the blood, and hence lower freezing point, warn against nephrectomy. It has been calculated that over a third of the cases of solitary kidney are pathologic, but they often allow removal of calculi or other palliative operation.

Bladder Tumors.—Egger gives the details of 38 operative cases of bladder papillomas from Kümmell's service and one of myxoma, one adenoma, 42 of cancer, and 5 of carcinomatous recurrence of a benign papilloma. He concludes the list with a case of hypernephroma in the bladder—a total of 83 cases, all but 15 in men, except 2 boys of 10 and 11. The prognosis, he says, is always grave, although early and radical removal of a pedunculated tumor, especially if there have been profuse hemorrhages, is most promising. He regards the suprapubic incision as the best to date; this alone allows a radical removal of the growth. The bladder was removed in 8 cases, but the patients did not long survive. Of the benign cases, 2 terminated fatally soon after the operation, and 3 from malignant degeneration later.

Surgical Treatment of Nephritis.—Rubritius agrees with those who think that the evil consequences sometimes observed after nephrotomy are due to the lack of care in restoring the kidney to its bed. It might be well to supplement the nephrotomy with a fixation operation, as for a wandering kidney, except when there has been suppuration and hence danger of adhesions. If the ureter gets plugged with a blood clot, the urine will accumulate, and this may wash off the thrombi and start a hemorrhage. Surgical treatment of nephritis may be indicated in certain forms of acute nephritis, in the anuria of mercuric chlorid poisoning, in nephritis with an abscess, in rebellious sheet hemorrhage from one kidney, in cases of unbearable pain, and with anuria and uremia in course of chronic nephritis, especially the cases without edema as giving the least favorable prognosis. The benefit from operative measures in these conditions is somewhat of a mystery, but the literature shows that benefit has certainly been derived in many instances. The surgeons must strive to simplify decapsulation, and physicians must learn to call on the surgeon oftener in rebellious kidney disease.

Zentralblatt für Gynäkologie, Leipzig

Sept. 10, 1921, 45, No. 36

Hypnosis in Vaginal Examination of Gravidæ for Instruction Purposes. J. Raefler and F. Schultze-Rhonhof.—p. 1270.

Hypnosis in Gynecology. J. Raefler.—p. 1274.

Aorta Clamp for General Practice. K. Hoffmann.—p. 1279.

Ventrofixation of the Uterus. C. Knoop.—p. 1281.

Procedure for Fixation of Uterus. M. J. García de la Serrana.—p. 1283.

- *Etiology of Anal Fissures in Women. F. Kossmann.—p. 1286.
Healing of Bilateral Hematosalpinx by Roentgen Irradiation. S. Sie-
dentopf.—p. 1288.
Terminology for Size of External Os Uteri. W. Liepmann.—p. 1289.

Etiology of Anal Fissures in Women.—Kossmann's investigations lead him to believe that the primary injury in anal fissures in women is often produced during childbirth; more especially is this true of primiparas. And fissures may be readily differentiated from hemorrhoids by the fact that the pain frequently continues for hours after defecation, whereas in the case of hemorrhoids and other inflammatory affections of the rectum the pain usually ceases soon after defecation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 24, 1921, 2, No. 13

- *Malaria in the Netherlands. B. Eisendrath.—p. 1531.
Hydrocyanic Acid in Vermin Extermination. Boland.—p. 1541.
*Quinidin in Auricular Fibrillation. J. van Tilburg.—p. 1555.
Silversalvarsan-Natrium. J. Papegaay.—p. 1564.
Case of "Hysteric Gangrene." G. C. Bolten.—p. 1570.
*Publications of the American Medical Association. W. S. Stekhoven.
—p. 1601.

Malaria in the Netherlands.—Eisendrath discusses ways and means to stamp out the endemic malaria in the northern part of the Netherlands. He estimates that at least 10 per cent. of all the inhabitants north of the IJ have the disease.

Quinidin in Treatment of Auricular Fibrillation.—Van Tilburg reports success from treatment with quinidin in 8 of 10 cases of total arrhythmia, including some with valvular disease and some with nephritis and arteriosclerosis. Necropsy in the two refractory cases showed far advanced mitral and tricuspid stenosis or mitral stenosis alone; one died from uremia, one from exhaustion. In 5 cases the favorable effect was durable. His experience testifies to the advantage of beginning with small doses, 200 mg. the first day; the second day, two 200 mg. doses; the third day, four, and the fourth day three 400 mg. doses. Jenny has reported giving up to 2 or 3 gm. daily without harm, but it is not certain yet that better results are obtained with large doses. Injurious action from long continued use is not known. The drug has to be kept up. The patients think they cannot get along without a certain amount afterward. He has found addition of a little caffeine useful. Both digitalis and quinidin seem to retard conduction of the impulse, and a cumulative action might be feared, but, on the other hand, digitalis reinforces the contraction of the heart which quinidin tends to check. He thus found it possible, after arresting the fibrillation with quinidin, to check with digitalis the tachysystolia that followed. It may be well to give digitalis to bring the heart into better condition before beginning with the quinidin. Van Tilburg describes the course in detail of some of his cases, showing the need for careful steering, the hand constantly on the tiller.

The Publications of the American Medical Association from a Netherlands Point of View.—This is Stekhoven's fourth article on various new and long established medical journals. In this one he reproduces the list of the Association's publications. His compilation fills six pages as he quotes a few lines from the description of each of the eight periodical publications, the fourteen "books for the practitioner," the numerous publications of the Council on Pharmacy and Chemistry, on Health and Public Instruction, Propaganda Department, etc. He remarks, "The fear of being accused of lack of appreciation of the efforts of the Netherlands medical press, and of estimating too highly the value of American medical journalism, shall not deter me from calling attention to the publications of the American Medical Association, which merit attention in every respect. Those who have enriched their library with the principal ones of these publications, which excel by their practical and scientific value, their excellent get-up and low price, will be amazed—as I am—that they are almost unknown in the Netherlands, and consequently they are not appreciated. And this notwithstanding the fact that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has quite a number of subscribers and readers in this country." His concluding comment on the long list is: "This distinguished series of publications forms a library in itself. For every physician and on every medical

topic something is to be found. Every time I looked through this treasure of publications I discovered something new. Hence I make no apologies for offering the readers of the *Tijdschrift* this 'dry' compilation of books, emblems, prices, etc. I am confident that they will share my enthusiasm for these examples of high grade medical journalism in America. The time has passed when America could not be named without some one's muttering 'humbug business'. . . . A small land like ours can make itself great by appreciating the great."

Acta Medica Scandinavica, Stockholm

Nov. 7, 1921, 55, No. 5 and Supplement

- *Measurement of the Blood Pressure During Sleep. C. Müller.—p. 443.
Total Aphasia with Temporal Lobe Focus. H. Marcus.—p. 486.
*Diabetic Coma with Renal Insufficiency. S. K. Mördre.—p. 511.
Case of Atypical Tuberculous Meningitis. N. Johansen.—p. 518.
*The Arterial Pressure Preceding Nephritis. E. Kylin.—p. 525.
*Effects of Alcohol on Digestion in the Stomach. A. O. Haneborg.—
Supplement, pp. 1-124.

The Blood Pressure During Sleep.—Müller's records of the blood pressure measurements on the sleeping subject supply a basis for adopting this as a clinical method of investigation. His tests were made on normal persons of all ages, and on twenty-seven with high blood pressure, and eighteen with acute or chronic glomerular nephritis. During sleep the systolic pressure in men is 94 mm. and in women 88 mm. in normal conditions. A pressure 15 mm. higher than this indicates pathologic conditions. In children between 3 and 14, the pressure is usually 6 mm. less than in adults. His research tends to demonstrate that the constant drop in the pressure in deep sleep is due to the relaxation of the tonus of the small peripheral arteries in slumber. The individual differences in the blood pressure in different normal persons during the day are wiped out in sleep, and hence these differences must be conditioned mainly by merely functional variations in the tonus of the arteries—the expression of vasomotor instability. The average pressure during sleep rises after the age of 45 as a rule, but many of his elderly subjects had a normal pressure in sleep. This testifies that age alone does not necessarily raise the blood pressure. The pressure during sleep thus throws light on the nature of the hypertonia while awake. A pathologic sleep pressure was found in one case with only 115 mm. waking pressure, while the sleep pressure was sometimes found normal with day pressures up to 135 mm. in men and 130 in women. Consequently, he reiterates, the blood pressure in waking hours does not reveal whether it is conditioned by normal or pathologic factors until it is compared with the pressure during sleep. The subjects were given a little barbitol before the test measurement to insure sound sleep. The article is in German.

Diabetic Coma with Renal Insufficiency.—Mördre discusses a case of fatal diabetic coma in a young woman with ketonemia, hyperglycemia of 0.9 per cent.; urea, 2.57 per thousand in the blood; glycosuria 4 per cent.; but no ketonuria, no Gerhardt reaction. (In English.)

The Arterial Pressure Before Onset of Nephritis.—Kylin calls attention to the rise in blood pressure which may precede by a few days the appearance of albumin, casts and blood in the urine. He makes a practice of recording the blood pressure daily in scarlet fever, tonsillitis, etc., and is thus able to foretell and possibly ward off impending nephritis. Three blood pressure charts illustrate this, and demonstrate that peripheral symptoms precede those in the kidney in acute glomerular nephritis. (In French.)

Effects of Alcohol on Digestion.—Haneborg gives the details of experiments in this line on ninety-two persons given various test meals with and without brandy, wine or beer. The 124 page report is in English. The general conclusion is, "Taking everything into consideration, it may be said that the ancient reputation of alcohol as a stomachicum has received a blow, although a conditional one, in the investigations under consideration." . . . "The psychic influence of alcohol appears to be of less importance than had been expected." . . . "A small dose of alcohol (15 c.c. brandy) with a meal increased in a number of healthy persons the quantity of gastric juice, its HCl content and its digestive capacity."

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, No. 27

CHICAGO, ILLINOIS

DECEMBER 31, 1921

TYPE I PNEUMONIA AND ITS SERUM TREATMENT *

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NEW YORK

Four years ago, Avery, Chickering, Cole and Dochez,¹ of the Rockefeller Institute, published the results of their important investigations in acute lobar pneumonia and gave to the profession a specific serum for the treatment of those cases of the disease caused by the Type I pneumococcus. So convincing are their statistics in favor of the use of Type I serum, and so striking are its effects on certain patients, that it is employed, in this country at least, in nearly all cases when it is obtainable and wherever there exist facilities for determining the types of pneumonia cases under treatment.

Cole² has recently stated that the mortality rate in cases of Type I pneumonia not treated with serum is from 25 to 30 per cent., or even higher. On the other hand, he adds, "among 195 cases treated with the serum in the Hospital of the Rockefeller Institute, only eighteen deaths have occurred, or 9.2 per cent." He then states that "reports of 300 additional cases treated with serum have been collected from the literature, making a total of 495 cases, with a mortality rate of 10.5 per cent."

In an endeavor to bring to date the statistics and other information concerning certain clinical features of acute lobar pneumonia in general and of Type I in particular, I have here recorded findings from a study of cases observed in the services of Drs. Austin W. Hollis and Samuel W. Lambert, in St. Luke's Hospital, New York, and of cases described in the literature since 1916, exclusive of the Rockefeller Institute series, already reported by Cole and others. The figures in the literature quoted here appear for the most part in reports from American base hospitals during the late war.³ The consideration of pneumonia cases associated in any way with influenza has been omitted.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of a table describing cases treated with serum at St. Luke's Hospital. The complete article appears in the author's reprints.

1. Avery, Chickering, Cole and Dochez: Acute Lobar Pneumonia and Its Serum Treatment, Monograph 7, Rockefeller Inst., November, 1918.

2. Cole, Rufus: Antipneumococcus Serum, J. A. M. A. 76: 111 (Jan. 8) 1921.

3. An eminent authority writes me as follows, in this connection: "I feel that we gain very little information regarding the efficacy of antipneumococcus serum from the experience obtained in these camps, and that the matter can only be settled by further study of the use of serum in general hospitals under satisfactory conditions. My own experience taught me that under the conditions prevailing in the camps, it was very difficult to determine accurately between the various kinds of cases."

INCIDENCE

In the four and a half years since Jan. 1, 1917, there have been 306 cases of acute lobar pneumonia treated in our adult wards. The methods of typing and of specific treatment employed have been those described by the Rockefeller Institute group of workers. Two hundred and thirty-nine cases have been typed.

The figures given in Table 1 vary somewhat from Cole's statistics of incidence published in 1917. The incidence in this hospital of each of the four types fluctuates from season to season, so that it has been thought worth while to record, in Table 2, their chronological occurrence by half years.

The salient features in this table appear to be:

1. The relatively large number of Type I cases occurring in the first half of 1921.
2. The absence of Type II cases during a period of a year and a half in 1918-1919, including the period covered by the influenza epidemics.
3. The continuous predominance in frequency of Type IV cases. Pneumonia caused by this heterogeneous group of pneumococci appears to be endemic, in contrast to that due to the Type I coccus, which shows a tendency to be epidemic in its appearance at times.

MORTALITY

The relative mortality of Type I pneumonia as compared with that of the other three types due to pneumococci, under various methods of treatment in St. Luke's Hospital during the last four and a half years, is shown in Table 3. Acute lobar pneumonia patients, admitted to the wards of a general hospital, are brought in at all stages of the disease and many of them already hopelessly ill. Consequently, the mortality rate in such institutions is higher than that in military hospitals, where the patients, previously healthy young men, are usually admitted early in the disease, when treatment may be more effectual.

The high mortality rate among the cases of undetermined type is accounted for by the fact that many of the patients were moribund on admission to the hospital.

The mortality rate of acute lobar pneumonia appears to vary with the time and place of its occurrence. Therefore, in order to estimate accurately the results of any method of treatment, it would be desirable to employ it in a large number of cases and for a long period of time, in conjunction with control cases by which to check the results. So far as I know, no such system of checking the result of the specific serum treatment of Type I pneumonia has yet been employed. In comparing the results of serum treatment with those of nonserum treatment, I have based my figures

on all the material available to me, aggregating 610 cases from the literature and from the records of St. Luke's Hospital, as summarized in Table 4. A large majority of these patients received serum. The 177 cases treated without it were doubtless, mild cases, but must serve for what they are worth as a basis for study.

TABLE 1.—INCIDENCE OF PNEUMONIA TYPES IN ST. LUKE'S HOSPITAL, 1917-1921

Type	Cases	
	Number	Per Cent.
I.....	60	25.1
II.....	26	10.9
III.....	35	14.6
IV.....	118	49

The reason for the omission of serum in the majority of the St. Luke's Hospital cases treated without it was that patients were admitted late in the disease and were doing well.

BLOOD CULTURE

Among those who recovered, the blood culture was positive for Type I pneumococcus in thirteen cases and negative in twenty-two of the serum-treated patients. Among those treated without serum, blood culture was negative in four cases and positive in one. Among the nine who died, there was a positive blood culture in four and a negative in one. In the remaining four cases, no culture was made.

EFFECTS OF INTRAVENOUS ADMINISTRATION OF TYPE I SERUM

The impression of most observers who have used Type I serum extensively appears to be that its administration is followed in many cases by amelioration of symptoms and by convalescence, especially if begun early in the disease. Careful analysis of the recorded results of this treatment, in this series of fifty cases, may modify one's impressions, perhaps, but it cannot be doubted that some patients have been greatly benefited by it.

TABLE 2.—INCIDENCE OF TYPES IN ST. LUKE'S HOSPITAL BY HALF YEARS, 1917-1921

Type	1917		1918		1919		1920		1921
	Jan. to June	July to Dec.	Jan. to June	July to Dec.	Jan. to June	July to Dec.	Jan. to June	July to Dec.	Jan. to June
I	7	4	10	1	4	2	5	2	25
II	9	5	6	0	0	0	1	2	3
III	3	1	3	3	5	2	12	2	4
IV	11	7	29	8	6	7	25	9	15

In four of the St. Luke's Hospital cases, the administration of serum appeared to cut short the disease. In one case, a favorable crisis on the fourth day of illness followed two injections, each of 100 c.c. of serum. In another instance its administration was succeeded by crisis on the third day of illness, but eleven days after the patient was discharged from the ward, he was taken with a second and severe attack of Type I pneumonia, which ran a typical course of eight days of fever. During this second attack, unsuccessful efforts were made to desensitize him against the anaphylactic effect of horse serum due to its previous administration. In several cases the immediate reaction to serum was followed by a drop of the temperature and general improvement, but with subsequent

relapse and continuance of the disease, with termination similar to that usually observed without serum administration.

Chill, with rise of temperature, occurred after intravenous injection of serum in fourteen of the fifty cases of this series, and a rise of fever without chill was seen in six of them. The remaining thirty patients experienced no thermal reaction after the injection of serum, nor was there apparent demonstrable effect on the course of the disease. Seven of the serum-treated patients had delayed resolution. The average duration of fever among them was nine and a half days, while among the few patients who did not receive serum it was eight and two-tenths days.

Several of our patients suffered relapses during which the Type I pneumococci were supplanted in the sputum by pneumococci of Types II, III or IV.

TABLE 3.—MORTALITY OF THE FOUR TYPES OF ACUTE LOBAR PNEUMONIA IN ST. LUKE'S HOSPITAL, 1917-1921

Type	Cases	Deaths	
		Number	Per Cent.
I.....	60	9	15.0*
II.....	26	9	34.8
III.....	35	21	60.0
IV.....	118	22	18.6
Undetermined.....	67	31	46.2
Average mortality.....			30

* Under all treatments.

Among the nine fatal cases, serum treatment was begun on the third day of illness in three, and on the fourth, fifth, sixth and seventh days in one each. In two of the cases, the day of first administration was not recorded.

TABLE 4.—MORTALITY OF TYPE I PNEUMONIA CASES TREATED WITH AND WITHOUT SERUM, EXCLUSIVE OF THE ROCKEFELLER INSTITUTE SERIES

Author and Publication	Treated With Serum		Treated Without Serum	
	Cases	Deaths	Cases	Deaths
Bloomfield: Bull. Johns Hopkins Hosp. 28: 301 (Oct.) 1917.....	11	4	0	0
Alexander: Boston M. & S. J. 177: 874 (Dec. 20) 1917.....	11	2	14	6
Nichols: Mil. Surgeon 41: 149 (Aug.) 1917..	63	5	18	7
Thomas, H. M.: J. A. M. A. 71: 1307 (Oct. 19) 1918.....	50	3	7	0
Stone: Arch. Int. Med. 22: 409 (Oct.) 1918..	27	4	5	1
Jones: Therap. Gaz. 42: 846 (Dec.) 1918....	0	0	26	1
Hamburger: M. Clin. N. America 2: 321 (Sept.) 1918.....	0	0	4	0
Miller: J. A. M. A. 71: 702 (Aug. 31) 1918...	0	0	63	2
McClelland: Cleveland M. J. 17: 226 (April) 1918.....	31	4	2	0
Cecil: M. Clin. N. America 2: 567 (Sept.) 1918	20	2	9	2
Hart: M. Rec. 95: 895 (May 31) 1919.....	30	7	0	0
Tenney: Arch. Int. Med. 24: 545 (Nov.) 1919	61	9	5	0
Chickering: J. A. M. A. 73: 183 (July 19) 1919.....	33	2	2	0
Leopold: New York M. J. 110: 578 (Oct. 4) 1919.....	24	2	10	1
Henson: South. M. J. 13: 178 (March) 1920..	22	3	0	0
John: Am. J. M. Sc. 160: 244 (Aug.) 1920..	0	0	2	0
Thomas, W. S.	50	9	10	0
Total.....	433	56	177	20
Mortality rate	12.9%		11.3%	

The largest amount of serum used in any case was 1,400 c.c., the average amount was 385 c.c.

ANAPHYLAXIS

The possibility of the occurrence of anaphylactic shock exists whenever horse serum is administered intravenously. Three deaths from this cause are reported among the cases in the literature⁴ referred to

4. Cecil, R. L.: Pneumonia and Empyema at Camp Upton, M. Clin. N. America 2: 567 (Sept.) 1918. Henson, G. E.: Serum Therapy in Lobar Pneumonia, South. M. J. 13: 178 (March) 1920.

herein. That the usual dermal and subcutaneous tests for sensitiveness to horse serum are not always sufficient to give adequate warning is shown by the fact that out of the ten patients in the present series who suffered anaphylactic effects from Type I serum, six were poisoned in spite of their having previously responded negatively to the customary tests. Fortunately, all of these ten shocked patients recovered from their anaphylaxis after the subcutaneous administration of epinephrin, but the two deaths mentioned above indicate grave possibilities. Desensitization to the harmful effects of serum is sometimes difficult or impracticable. Walker⁵ has shown that a considerable proportion of patients who give positive skin reactions to horse dander protein react negatively to horse serum in the skin. Yet these patients would possibly suffer from anaphylaxis after the intravenous injection of a large amount of horse serum. It is therefore urged that, in addition to the customary precautions taken to ascertain the presence of sensitiveness to horse serum in each patient, the intravenous administration of this foreign protein should be preceded by a dermal test with the protein of horse epidermis. Should the test give a positive result, the usual steps toward desensitization may then be taken before specific treatment is begun.

TABLE 5.—TYPE I PNEUMONIA PATIENTS TREATED WITHOUT SERUM IN ST. LUKE'S HOSPITAL

Case	Sex*	Age	Day Adm.	Complication	Days Fever	Blood Culture	Comment †
A 626	♂	50	3	Chronic alcoholic	9	Pos.	Before serum was available
2600	♀	64	10	.....	12	Neg.	Admitted late in disease
2752	♂	50	3	Alcoholic	8	....	Mild; lysis, fourth to eighth days
4551	♀	29	2	.....	4	Neg.	Mild; lysis, third and fourth days
4586	♀	84	8	Senile	9	....	Mild; admitted late in disease
4772	♀	62	3	Gallstones	8	....	Positive skin reaction to serum
B 915	♀	12	3	Pleural effusion	5	Neg.	Mild
1788	♀	21	5	.....	7	Neg.	Mild; lysis sixth and seventh days
2600	♂	18	5	.....	9	Neg.	Mild; lysis sixth to ninth days
2884	♂	40	8	.....	11	....	Severe; dyspnea and cyanosis; lysis ninth to eleventh days

* In this column ♂ indicates male, ♀ female.
† All patients recovered.

SERUM SICKNESS

Serum sickness followed the therapeutic use of Type I serum in thirty-six of our fifty cases. It bore no apparent relation to the amount of serum employed, and appeared at the earliest on the fourth day after the initial intravenous injection, and latest on the eleventh day. In fifteen of the patients, or one third of the total number affected, the symptoms were severe and consisted of eruption, joint pains, and in some cases nausea and vomiting. Epinephrin allayed the discomfort accompanying the eruption, and caused it to fade temporarily, but had no permanent effect. The duration of serum sickness was from two to fourteen days, and averaged six days.

TERMINATION OF CASES IN WHICH PATIENTS RECOVERED

Eight of the patients who recovered without serum did so by lysis, and two of them by crisis. Among the serum-treated patients who recovered, lysis

occurred in twenty-eight cases and crisis in thirteen. A permanent drop of temperature to normal within the space of twenty-four hours is considered as crisis.

CASES TREATED WITHOUT SERUM

Table 5 summarizes some of the features observed among the patients in the present series who were treated without serum. In all these patients, cultures of Type I pneumococci were obtained from the sputum.

SUMMARY

1. The present paper is based on a series of sixty cases of Type I pneumonia treated in St. Luke's Hospital, New York (fifty of them with, and ten without serum) and on 550 cases reported in the literature exclusive of the Rockefeller Institute series.
2. The material collected indicates that Type I pneumonia, however treated, varies in its mortality rate with the time and place of its occurrence, and suggests that it may perhaps be not so frequently fatal as is generally believed to be the case.
3. Administration of specific serum in Type I pneumonia appeared to shorten the disease in four of the fifty treated cases of the present series. In eight of them, the use of serum, though followed by improvement in the symptoms, appeared to have only a transitory effect. Among the remaining thirty-eight patients, the duration and outcome of the disease do not appear to have been demonstrably affected by the serum.
4. The average duration of fever among the fifty serum-treated cases was nine and one-half days; among those not treated specifically (ten cases) it was eight and two-tenths days.
5. Two deaths from anaphylaxis due to antipneumococcic serum are reported in the literature. Ten patients of the present series suffered from anaphylaxis and were relieved by epinephrin. Of these ten shocked patients, six had previously showed no reaction to dermal tests for sensitiveness to horse serum.
6. Skin tests with the protein of horse epidermis, as well as with that of horse serum, should precede the intravenous injection of the latter.
7. Serum sickness followed the therapeutic use of Type I serum in thirty-six of fifty cases. In fifteen, the symptoms were severe. Epinephrin allays the discomfort of the eruption temporarily.⁶

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6. The reader is referred to a pertinent article by Richardson in the *Journal of Laboratory and Clinical Medicine* (4:484 [May] 1919), which contains valuable bibliographic references, used in compiling the Rockefeller Institute series of cases of pneumonia, referred to above.

Diagnostic Value of Wassermann Test.—So much emphasis has been placed on the Wassermann test that the public is apt to acquire a distorted view of its value. It should be understood that the meaning of the Wassermann test depends quite largely on the technic and care used by the laboratory where it is performed. Where the test is accurately adjusted to conservative technic and performed with great precision and care, a positive Wassermann nearly always means syphilis. In laboratories where less conservative technic is employed, the meaning of a positive Wassermann is less definite. In any case a negative Wassermann does not exclude syphilis. A certain number of active cases of syphilis in the third or tertiary stage will give negative Wassermanns. This is especially true if the patients have had partial antisyphilitic treatment and have relapsed because the treatment was not completed.—Millard Knowlton, *Pub. Health Rep.* 36:2310 (Sept. 23) 1921.

5. John, H. J.: Pneumonia at a Base Hospital, 1918-1919, *Am. J. M. Sc.* 160:244 (Aug.) 1920. Walker, I. C.: Studies on the Sensitization of Patients with Bronchial Asthma, *J. M. Res.* 35:497 (Jan.) 1917.

THE MODE OF PRODUCTION OF THE SO-CALLED VESICULAR MURMUR OF RESPIRATION

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The question as to the mode of production of the breath sounds, as heard over the chest, is one that has been much debated. It is now generally agreed that the sounds of expiration originate in the larynx. Two views have been held with respect to the origin of the sound of inspiration: first, that this sound is also produced in the larynx; second, that it originates in the chest. The name vesicular murmur was given this sound in the belief that it was produced in the air vesicles, and this is the view that is generally taught at the present time.

Desiring to obtain further light on this question, I conceived the idea of attempting to acquire control of the muscles that open the glottis, and after considerable practice became able to open the glottis more widely during inspiration than takes place automatically, and to hold it open during expiration.

The glottis opens during normal inspiration, the movement being due to contraction of the posterior crico-arytenoid muscles which rotate the bases of the arytenoid cartilages outward and backward. In expiration these muscles relax, and the vocal cords fall back passively to their position of rest. Normally the vocal cords in all of their positions interpose a sufficient obstruction to the passage of air to produce audible sounds in both inspiration and expiration. These sounds are harsh and loud when heard over the larynx. But when the larynx is opened to its fullest extent, both inspiratory and expiratory sounds cease. There is no doubt but that the laryngeal elements of the breath sounds may be caused to disappear if the glottis is opened as widely as possible. The further interesting question is what relation this experiment may have to the vesicular murmur as heard over the lung. It seemed to me on self-auscultation that it also disappeared. In view of the importance of this observation, it was thought best to repeat the experiment in such a way that it might be confirmed or disproved by the simultaneous observation of several physicians. This was done at the office of Dr. William F. Knowles, who kindly consented to inspect the larynx while Drs. Joseph H. Pratt and G. P. Grabfield auscultated the lungs. After a few normal breaths, during which vesicular inspiration was heard at the places selected for auscultation, the larynx was widely opened and, the observers affirm, the vesicular murmur disappeared. In the meantime Dr. Knowles observed the vocal cords and reported that they became widely separated and that they remained in this position during the time that the vesicular murmur was absent over the chest.

The experiment would seem to decide the question as to the origin of the inspiratory sound usually called the vesicular murmur. The only possible objection to this conclusion, the credibility of the witnesses being of course taken for granted, is that when the larynx was opened the subject in his desire to avoid the production of sound may have restrained his breathing to such an extent that the vesicular murmur became inaudible because the flow of air had practically ceased.

This objection was foreseen and was guarded against by requesting the auscultators to give heed particularly to the force of the respirations. The respirations were more than normally deep, and were made largely with the diaphragm in order that their amplitude might be more readily observed while the lower part of the chest was auscultated. When the larynx was opened, I took pains to continue to breathe with the same force as before. Now, opening the larynx is essentially an inspiratory function. It is therefore not very difficult to open the glottis in inspiration; the problem is to keep it open in expiration. It is impossible to do this in forced expiration. In performing this experiment, the tendency is to take full inspirations and to exhale to a less extent, with the natural result that after a few breaths the lungs become overfull. To prevent this, the expirations were considerably prolonged. The procedure is a fatiguing one, and after it had been continued through several respirations the vocal cords began to quiver. I was conscious of this, Dr. Knowles observed it in the laryngoscopic mirror, and the quivering resulted in faint expiratory sounds which were audible for the auscultators.

This observation shows two things: (1) What sound there was in respiration was produced in the larynx; (2) the force of expiration was sufficient to produce expiratory sounds whenever the vocal cords were in the least approximated. The breathing was therefore sufficiently forcible to have elicited the vesicular murmur if this sound originates in the lungs.

On a later occasion the cooperation of Surgeon Nathan Barlow of the United States Public Health Service was secured in continuance of the investigations. The special point studied was the relation of laryngeal to thoracic breath sounds. The writer, who was also the subject, placed the stethoscope against the larynx and devoted his attention to the laryngeal sounds while Dr. Barlow auscultated the lungs. Inspiration alone was considered. It is extremely difficult to effect an absolutely noiseless inspiration as heard over the larynx. During the greater number of inspirations a trace of aspirate sound was audible, and what was undoubtedly the same sound was heard over the chest. But with special effort in opening the glottis, an occasional breath was found to be entirely without sound both over the larynx and over the chest, which seems to demonstrate again the fact that the sound of "vesicular" inspiration originates in the larynx.

A contribution was also made toward the decision of another important question, the subject not being strictly within the limits of this paper. I have an old and dry tuberculous lesion of the right upper lobe over which bronchovesicular respiration is usually to be heard. Dr. Barlow, having obtained bronchovesicular breathing at this place during normal respiration, observed that when the glottis was fully opened all respiratory sound ceased, which of course shows that, in this case at least, the bronchovesicular quality did not originate in the lesion.

Since it is to be hoped that the experiment will be repeated and the findings verified by others, a few words as to the best manner of performing it would not be out of place. It is very easy to open the glottis to a considerable extent; several physicians have succeeded in doing this with little practice. But while the harsher and higher-pitched sounds are eliminated in this way, some aspirate sound still remains. Before

the possibilities of the procedure were realized, I was of the opinion that the laryngeal elements of the sound had been done away with and that the sound which still persisted in the lungs was the vesicular murmur, perhaps slightly modified. Further practice, however, enabled me occasionally to remove all sound from the respiration, as I myself heard it without any external aid. When it occurred to me to auscultate the larynx, all doubts as to the success with which breath sounds were eliminated in a given respiratory act were removed. The sounds of breathing are, of course, very loud in this method, which was carried out with the aid of a Ford stethoscope, and there is no difficulty in deciding whether or not the breathing is noiseless. I inhale deeply, with wide open mouth. If the breathing as heard over the larynx is without sound, the sound of vesicular breathing disappears over the chest; and, conversely, when there is no inspiratory sound over the chest, no sound is heard over the larynx. No special instruction can be given as to attaining the absolute appression of the vocal cords to the sides of the larynx, which evidently alone secures the entire elimination of sound. There is simply the impression of extra and successful effort. So much effort is required, that success is attained only occasionally, and the glottis cannot be kept open to its fullest extent during successive breaths. With more practice and perhaps with a larynx under better control, it is, however, quite possible that better results are obtainable.

The place of origin of the inspiratory sound having been established, at least to my satisfaction, it seems desirable to consider, as briefly as possible, how it comes about that a harsh and relatively high-pitched laryngeal sound can be transformed into the soft and low-pitched sound which is heard over the lung.

According to Friederich von Müller,¹ the percussion note of the sound lung, vesicular breathing and the deepest tones of a bass voice all correspond to a pitch in the large octave or in the upper portion of the contra-octave.² For the same thorax, therefore, vesicular breathing and the percussion note are of the same pitch, the pitch varying according to the size of the cavity of the thorax. The fact that the deepest notes of a bass voice best produce fremitus is sufficient proof that the pitch of such tones corresponds to that to which the thorax of the individual is attuned as a resonator. We may say, then, that the percussion note of the normal thorax and vesicular inspiration have as their deepest and predominating note a tone which is capable of calling forth a response from the thorax functioning as a resonator.

Both percussion note and breath sounds are noises composed of a large number of tones of a varying pitch. Gerhardt³ analyzed the sounds of rapid and deep vesicular respiration with the aid of numerous

small Helmholtz resonators and found that they were composed of very many tones, all of them weak. There was, he says, no one predominating tone. But he probably did not use the tube length which corresponds with the deepest tone of the breath sound for which Müller has recently found that a tube of the length of from 2 to 3 meters (6 feet, 6¾ inches to 9 feet, 10 inches) is necessary. Selling⁴ found that when a noiseless pleximeter of soft rubber was used, resonators responded to the sound of percussion in an almost continuous series up to the two-lined octave. The higher the tones, the weaker they were. With an ordinary ivory pleximeter or with finger-finger percussion, a further series of high-pitched resonators responded (about to a'''), these being evidently due to the vibrations of the pleximeter. It has been objected that the note of the pleximeter must be too high-pitched to contain the fundamental tone of the thorax. This may be true of the free pleximeter, but in percussion the pleximeter is firmly pressed against the chest and becomes acoustically a part of it, the function of the instrument being to compress the soft parts and to furnish an unyielding surface for the blow of percussion rather than to give sound. The high-pitched vibrations of the pleximeter (or of the finger) are damped to some extent when pressed against the chest by this intimate contact, but in return the vibrations of a greater or smaller portion of the chest wall, according to the degree of pressure and the force of the blow, are aroused. These vibrations are not only sound waves but also those arising from the direct disturbance of the elastic equilibrium of the structures of the chest wall by the force of the blow. Selling's findings, just detailed, show clearly that resonance of the pleximeter is not necessary for the production of the percussion note. There can be no doubt, therefore, that the sound of percussion, as it reaches the lung, contains the fundamental note. This tone is, as it were, magnified and predominates in the percussion note, not because it was the predominating sound of the struck pleximeter, but because, being of the proper pitch, it arouses the vibrations of the whole thorax. This is a noteworthy phenomenon, for it illustrates the fact, so important to be borne in mind in the study of the acoustics of the chest, that sounds that reach our ears in auscultation and percussion are what they are mainly by virtue of the selective action of resonators on initially inconspicuous elements of a "noise."

What undoubtedly applies to the percussion note applies equally to the breath sounds. An aspiration made up of numerous faint tones of varying pitch results from the passage of air through the larynx in either direction. There is no more difficulty in assuming a tone among the sounds originating in the glottis which corresponds to the fundamental note of the thorax than in making the same assumption, as we are obliged to do, to account for the phenomena of percussion. Whether plainly audible as the tone characteristic of vesicular inspiration or so overshadowed by higher tones in expiration as to be practically inaudible over the larynx, deep-pitched tones are always present in both phases of the respiration. It was formerly supposed that the vesicular murmur is confined to inspiration, but Müller has found that, the higher tones being excluded by auscultation through a

1. Von Müller, Friederich: *Verhandl. d. Deutsch. Kong. f. inn. Med.* 28: 184, 1911.

2. For the convenience of readers who are not familiar with musical terminology, it may be well to state that, beginning from the left or bass end of the keyboard of the piano, the first C is the first note of the contra-octave. The octaves above the contra-octave are named, respectively, the large, small, one-lined, two-lined, three-lined and four-lined octaves, the notes of these last four octaves being indicated by accents, one, two, three and four in number, respectively. Middle C, which is the first note of the one-lined octave, is assumed to have 256 vibrations per second, though in practice the pitch is usually somewhat higher. Each C on the keyboard has double the number of vibrations of the C of the octave below and, of course, one half of the number of vibrations of the C of the octave above. With this as a guide it is easy to calculate the number of vibrations of the other notes of the various octaves.

3. Gerhardt: *Auskultation und Perkussion*, p. 197.

4. Selling: *Deutsch. Arch. f. klin. Med.* 90: 163, 1907.

long rubber tube, the deep respiratory murmur is plainly to be heard over the larynx in expiration. In fact, a well-trained ear can detect this sound in expiration without the aid of special appliances.

Just as the mass of air-bearing cells cannot respond to the higher pitched tones, so the same tissues when solidified no longer vibrate to tones of deep pitch. In bronchial breathing the bronchi are the resonators, not the thoracic cavity, and the sounds to which they are attuned are of much higher pitch. Müller constructed tube systems to imitate the arrangement of the bronchial tree from the bifurcation to the bronchi of the second and third order. When air was blown through such a system by means of a tube the width of which corresponded to a bronchus of the third order, a tone was produced the pitch of which lay in the uppermost part of the two-lined octave or in the three-lined octave. With a tube corresponding to bronchi of the second order, the pitch lay in the lower part of the two-lined octave. He also found that pure bronchial breathing has a pitch from d'' to d''' . These findings do not prove that the sounds of bronchial breathing are produced in the bronchi. They are of importance, however, as showing that these tubes may act as resonators for sounds of the pitch of bronchial breathing. It is to be remembered, moreover, that these tubes function in normal breathing also, the sounds produced being very poorly conducted through the lung parenchyma so long as it contains air in normal quantity. In disease as well as in health, the breath sounds have originated in the larynx, a number of feeble tones of varying pitch, only those becoming distinctly appreciable over the lungs which are magnified by the sympathetic vibrations of a resonator. But many sounds thus magnified are lost in passage through the air cells; which sounds will dominate in the ear of the observer depends on the power of the lung tissues to transmit sound.

High-pitched sounds receive their reinforcement in the mouth and nasopharynx; the tones of medium pitch have as resonators the trachea and the larger bronchi, and the lowest tones call forth the resonance of the thorax. In massive consolidations of any kind, the deep and medium-pitched tones are suppressed; only high tones can pass through the lungs. The result is bronchial breathing of a pure type, pectoriloquy and whispered pectoriloquy. The transmission of certain selected tones imparts a peculiar quality to the sounds as the observer hears them which, so far as relates to the breath sounds, has been considered to be due directly to morbid processes in or about the bronchi. That is, in this view bronchial breathing is what it is because of sounds not present in health which are created locally in the parts diseased. It is altogether probable, however, that the modifications of this class of sounds are analogous to those of the voice sounds, with regard to which there can be no question of a local origin. The conduction, not the mode of production, of these sounds is changed in disease.

In imperfect or partial consolidations and in fibrous indurations, sounds of medium pitch are conducted more perfectly than in health, the result being a higher pitched percussion note and bronchovesicular breathing. The voice sounds pass through the chest with increased force, but the high-pitched consonantal sounds that accompany them when they leave the lips are suppressed in passage through the lungs. We have

bronchophony, not pectoriloquy, when consolidations are not complete.

The individual tones of the breath sounds have been spoken of as originally inconspicuous but as acquiring prominence so far as they are of a pitch which corresponds to some one of the numerous resonators connected with the respiratory apparatus. The aspirate sounds of the larynx are very like the sounds produced by air which emerges from any tube, the characteristic quality of vesicular breathing, so-called, being due to the resonance of the chest. If, therefore, vesicular breathing has been heard when a tube has been inserted into the larynx, thus excluding the action of the vocal cords, or when the trachea has been incised, so that air no longer passes through the larynx, these facts do not disprove the laryngeal origin of the sounds of normal respiration. They simply show that other "noises", besides those produced in the larynx, if at all comparable to the latter, may contain sounds capable of exciting the chest resonance.

Sahli's case of lung hernia has been considered to decide the question as to the place of origination of vesicular breathing. In this case the lung protruded through a sternal fissure. When the subject strained, the glottis being closed and respiration suspended, distinct vesicular breathing, it is said, was heard.

This process can be easily imitated by "reciprocating breathing" in which the air contained in the lungs is driven back and forth as the result of local changes of pressure. The glottis being tightly closed, the subject first raises his thorax and allows his abdomen to sink in, then depresses the thorax and protrudes the abdomen by contraction of the diaphragm. This procedure, which causes a rapid interchange of air between the parts concerned, creates a sound audible over the lung which resembles respiration and has the pitch of vesicular breathing, being of the same pitch in both of the phases corresponding to the expiration and inspiration of the normal respiratory act. The resemblance to the low-pitched sounds of inspiration is due to the fact that, as in other noises of a similar character, an element is present which is sufficiently low in pitch to call forth the thoracic resonance.

SUMMARY

1. The selective action of resonators plays an important part in determining the characteristics of sound within the respiratory apparatus.

2. The specific character of vesicular breathing is due to the resonator, the thoracic cavity, the sound at the place of origin being merely a noise, some element of which is capable of exciting the sympathetic resonance of the thorax. Hence sounds produced without the aid of the larynx may imitate vesicular inspiration.

3. Reciprocating breathing shows that sounds may be produced by currents of air within the lung. The pitch of these sounds is the same as that of vesicular breathing, the audible vibrations of both sounds being those which the thorax as a resonator reinforces and which the lung substance, a poor conductor of sound, is able to transmit.

4. Experiment in which the sounds of respiration over the chest disappear when the glottis is opened wide seems to prove that the sound of inspiration as well as that of expiration originates in the larynx.

THE DELETERIOUS EFFECT OF SODIUM
CITRATE EMPLOYED IN BLOOD
TRANSFUSION*

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The therapeutic value of blood transfusion is so well established and its indications have so broadened, that it is now a measure of common use. The relative merits of whole unmodified blood and of blood modified by means of an anticoagulant have been, however, aspects of keen interest ever since the introduction of the citrate method of transfusion. It is of great importance to determine the comparative value of these two methods and to define the conditions in which each is indicated.

The position which I took some years ago¹ was that, from a biologic point of view, the delicate blood tissue has been changed because of the chemical and physical alterations brought about by the addition of sodium citrate and by its sojourn outside the vessels. Whole unmodified blood, however, flows almost from vessel to vessel and is given to the patient in an unchanged condition. For diseases, therefore, in which the transfer of blood is indicated for itself, that is, where it is required as a tissue—as in various anemias, blood diseases and infections—there can be no question as to the superiority of whole unmodified blood. In cases of hemorrhage, on the other hand, when the purpose is not so much to replace pathologic with normal blood, but rather to replenish the impoverished circulation or to bring about cessation of hemorrhage, citrated blood may serve as a substitute.

This position was based solely on the clinical experience that reactions followed unmodified blood transfusions less often than citrate transfusions. By the method described in previous papers,² a chill occurs in about 3 per cent. and a febrile reaction in about 10 per cent. of cases, whereas in citrate transfusions a chill occurs in about 57 per cent. and febrile reactions in 60 per cent. of cases. Drinker and Brittingham³ have shown that these reactions are due to changes in the blood platelets which have undergone alterations coincident with early coagulation. Such changes are almost unavoidable in the course of citrate transfusions. These authors also demonstrated that the mere addition of sodium citrate to blood causes slight abnormality of the red cells, as evidenced by an increased fragility and tendency to hemolysis. It has been maintained by some that, because of its simplicity, the citrate method rendered all other methods superfluous. Dr. Bernheim of Johns Hopkins Hospital, who not long ago strongly maintained this position, has recently expressed quite the opposite opinion.⁴ He writes:

In the light of our more mature experience, it is utterly ridiculous to pretend any longer that the reactions that follow the giving of citrated blood are harmless and susceptible of being ignored. Chills and fever and profound shock have

never helped any one, and to ignore the danger of these sequelae . . . is little more than admitting a mind closed to certain embarrassing features connected with the procedure. . . . The dread reactions still persist . . . despite the most carefully planned and executed citrate transfusions carried out by men whose long experience with general blood transfusion would preclude the possibility of technical error. . . . Deaths following reactions from citrate transfusion cannot longer be considered as accidental and unrelated to the reaction. . . . I have had two deaths from this method of transfusion and I have personal knowledge of about four additional unreported deaths, not to mention numerous other miraculous escapes from death, and I feel quite sure that the experience of many others has been not unlike my own.

Because of such clinical evidence, laboratory experiments were undertaken to investigate the differences between unmodified and citrated blood. Blood was obtained from seventeen normal individuals. In each instance the specimen was divided into two parts—one was untreated and therefore represented blood given in a transfusion of unmodified blood—whereas to the other a 2 per cent. solution of sodium citrate was added, in the ratio used for a citrate transfusion. Wassermann tests were then carried out on each specimen of serum from the unmodified bloods, as well as on the specimens of plasma from the citrated bloods. In every case the serum was negative, whereas the citrated plasma was anticomplementary. An anticomplementary reaction signifies that a substance is present which of itself is able to inactivate complement. These results show, therefore, that the plasma of blood used in citrate transfusions contains a substance which deviates complement, and which is not found in the serum of unmodified blood from the same donor. This substance is not the sodium citrate itself, nor is it derived from the direct action of sodium citrate on serum. These two possibilities were eliminated by control Wassermann tests with the citrate alone and also with the serum to which the proper amount of sodium citrate had been added. All these control tests resulted negatively. The inference, therefore, is that *this unfavorable action of sodium citrate took place directly on the cellular elements of blood*. To test this conclusion by another method, a measured amount of blood was obtained from five donors, and all the fluid washed away and replaced by an equal amount of physiologic sodium chlorid solution so that only the cells remained. To these washed cells the proper amount of a 2 per cent. solution of sodium citrate was added. Wassermann tests performed on the supernatant fluid were anticomplementary in all five cases; the control tests of the saline solution and of the sodium citrate were negative.

In order to determine further which blood cells furnished the anticomplementary substance, these tests were repeated after removing not only the supernatant fluid but also the white blood cells and platelets—leaving only red blood corpuscles. The results were again anticomplementary. The test was once more modified by hemolyzing the red blood cells by means of distilled water, washing them entirely free of hemoglobin and then bringing them back to the original blood volume by the addition of physiologic sodium chlorid solution. This mixture of saline solution and ruptured red cells free of hemoglobin was then citrated. Again the anticomplementary substance was obtained.

These experiments prove that a 2 per cent. solution of sodium citrate added to blood in the proportion used

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1. Unger, L. J.: The Therapeutic Aspect of Blood Transfusion, *J. A. M. A.* **73**: 815 (Sept. 13) 1919.

2. Unger, L. J.: A New Method of Syringe Transfusion, *J. A. M. A.* **64**: 582 (Feb. 13) 1915; Recent Simplifications of the Syringe Method of Transfusion, *ibid.* **65**: 1029 (Sept. 18) 1915; Transfusions of Unmodified Blood, An Analysis of One Hundred and Sixty-Five Cases, *ibid.* **69**: 2159 (Dec. 29) 1917.

3. Drinker, C. K., and Brittingham, H. H.: Transfusion Reactions, *Arch. Int. Med.* **23**: 133 (Feb.) 1919.

4. Bernheim, B. M.: Whole Blood Transfusion and Citrated Blood Transfusion, *J. A. M. A.* **77**: 275 (July 23) 1921.

for citrate transfusions acts directly on the bodies of red blood cells and extracts from them a substance which is itself able to inactivate complement.

Because of this action on the cell, it was thought worth while to test the fragility of the red blood cells of these donors before and after the cells had been subjected to the influence of the anticoagulant. Drinker and Brittingham have reported that red blood cells are made more fragile by the mere addition of sodium citrate. Our results confirm this observation. This test is performed by adding to a series of test tubes containing saline solution, equal in amounts but of increasing strengths, a constant quantity of red cells obtained from citrated blood. To a similar series were added cells from the same donor to which, however, no citrate had been added and which therefore represented unmodified blood. Both series were then incubated for one hour and the tube was noted containing the weakest saline solution, which did not bring about hemolysis. In three out of eight cases tested in this manner, no difference between the unmodified and citrated cells was observed. In the five others the tests showed that sodium citrate rendered the cells more fragile. This fact is of vital importance in diseases of hemolytic nature such as pernicious anemia, the less fragile cells, as furnished by unmodified blood, being clearly of greater benefit to the patient.

Having ascertained that sodium citrate diminished complement in blood by inactivating some of it by means of the anticomplementary substance obtained from red blood cells, experiments were performed to determine whether this salt acted directly on complement. Human serum was first titrated for its complement content, and again titrated after sodium citrate had been added in an amount equal to that used in transfusions. Such tests demonstrated that sodium citrate affects complement directly, diminishing its amount.

When a citrate transfusion is performed, therefore, blood is being given in which complement has been diminished in two ways—first by the production of an anticomplementary substance which inactivates some of the available complement, and second by a direct destructive action. This is of clinical importance since one of the indications for blood transfusion is infection, local and general, and complement is a vital factor in the defense against pathogenic organisms. It plays an important rôle in destroying bacteria. The experiment of Wassermann may be recalled which showed that anticomplement may unite with complement, rendering the individual susceptible to certain infectious diseases.

Another well recognized method of defense against pathogenic organisms is the phagocytic power of white blood cells. As is well known, blood cells free of serum have very little ability to ingest bacteria. After, however, bacteria have been acted on by the opsonins in serum, they can be ingested by leukocytes. Tests were performed to compare the phagocytic power of white blood cells, as given in a transfusion of unmodified blood, with similar cells given in a citrate transfusion. To this end a measured amount of blood was diluted with a very large volume of physiologic sodium chlorid solution in order to prevent coagulation and dispense with the use of sodium citrate. This specimen was centrifuged to recover all the cells free of serum, and was then brought back to the original volume by the addition of physiologic sodium chlorid solution. It was next divided into two parts. One was retained

unmodified, and to the other sodium citrate was added in the proper amount and two series of phagocytic index tests were performed. In both sets the serum of the donor who had supplied the cells and *Staphylococcus pyogenes-aureus* were used. As the result of tests of normal untreated white cells—that is, cells corresponding to those given in a whole unmodified blood transfusion—it was found that donors can be divided into two groups: those whose cells ingest an average of about eighteen bacteria, and those ingesting about six. If cells of the former group of donors are treated with sodium citrate, the number of bacteria ingested is reduced to about five; and if cells of the latter group are similarly treated, the average is reduced to about three. This shows that sodium citrate markedly diminishes the phagocytic power of white blood cells.

Opsonins in serum were next tested in a similar manner. In one series serum was employed, and in the other citrated plasma, normal unmodified white blood cells being employed in both. Cells which with normal serum can ingest an average of about eighteen bacteria can ingest only about four when citrated plasma is employed. Cells which with normal serum can ingest an average of about six bacteria can ingest only about two when citrated plasma is substituted. The opsonins in blood are greatly interfered with, therefore, by the addition of sodium citrate. This marked reduction of the power of blood plasma to prepare bacteria for ingestion, and the great destruction of the inherent power of white cells to ingest bacteria, render citrated blood of less value than unmodified blood when transfusion is employed in an attempt to combat infection.

This experiment brings to light another point of prime importance. As is well known, prior to transfusion the blood group of both donor and recipient is established in addition to determining that the donor has no blood disease and that the hemoglobin and red cell count are normal. By giving blood of a donor belonging to the same group as the patient, gross incompatibilities are avoided and immediate and fatal accidents eliminated. It has been shown⁵ recently that there are still finer incompatibilities of cells and serums; that occasionally agglutination may occur even though donor and patient belong to the same group. To eliminate this possibility, in addition to determining the "group," the blood of patient and donor should be tested directly against each other. Clinical experience based on the observation of a very large number of transfusions shows that the blood of one donor is of distinctly greater value than another, notwithstanding the fact that they both belong to the same iso-agglutinin group. Attention should therefore be directed to tests which establish finer qualitative differences in the blood of donors so that the patient will receive blood which is not merely compatible but which will bring about the best result. For example, we have just noted that the phagocytic index of one donor may differ considerably from that of another. This difference can be ascertained by performing the simple test which has been outlined. It should be borne in mind that coagulation must be prevented by collecting the blood in a large amount of saline solution instead of using any of the customary anticoagulants. In cases in which transfusion is indicated because of infection, unmodified blood should be given and a donor should be used whose phagocytic index is high.

5. Unger, L. J.: Precautions Necessary in the Selection of a Donor for Blood Transfusion, J. A. M. A. 76: 9 (Jan. 1) 1921.

CONCLUSION

Biologic tests demonstrate that the transfusion of unmodified blood is of far greater value than blood modified by the addition of sodium citrate.

Sodium citrate, even in the low percentage employed in a citrate transfusion, affects the red blood cells, rendering them more fragile. The value of such blood to a patient suffering from a hemolytic disease, such as pernicious anemia, is lessened to that extent.

Sodium citrate diminishes the available quantity of complement in two ways: by its direct action on complement itself and by introducing into plasma an anti-complementary substance which inactivates complement. This substance is derived directly from the bodies of red blood cells.

Sodium citrate also reduces almost to nil the function of opsonins, and practically destroys the phagocytic power of white blood cells. Furthermore, the phagocytic index of the blood of various donors differs. Since complement and the phagocytic power are of prime importance in the protective action against pathogenic organisms, unmodified blood from a donor with high phagocytic index should be employed when attempting to combat local or general infections by means of transfusion. In selecting a donor, attention should be paid to the finer qualitative differences in the blood.

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RATIO BETWEEN DEATHS FROM TRAUMATIC FRACTURE OF CRANIAL BONES AND FROM ALCOHOL*

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On account of the widespread interest in the result of the measures now being taken to prohibit the use of alcohol in beverages, and in order to disclose as far as possible in a limited field the outcome of such procedures, it has seemed worth while to compare over a considerable period of time the death rate due to the poisonous action of alcohol alone (including delirium tremens) with the death rate from traumatic fracture of the cranial bones, to be referred to subsequently, as is so generally the usage, as skull fracture. On the accompanying chart the numbers of such deaths have been plotted from February, 1914, to and including August, 1921.

The material for one curve has accumulated because during and previous to this period, all deaths in which, so far as known, alcohol has been a probable factor have been investigated by the coroner, inquests and necropsies held to ascertain all the facts, and in a large and growing number conclusions have been arrived at from both the chemical examinations made by the coroner's chemist, William D. McNally, and his assistants, and the conditions found by the postmortem examinations. This is an outcome of the establishment in 1913 by the coroner of a chemical department for the analysis of material removed from dead bodies or other sources. Since this date the number of chemical analyses made each year has gradually increased and improved the efficiency of the medical work, so that more with regard to the rôle of alcohol as a cause of

death has been learned recently than in the first years here dealt with.

In one group (alcohol cases, on the chart) are included all deaths from alcohol including delirium tremens, and these deaths were unassociated with injuries except in a few instances in which delirium tremens developed following an injury, care being taken to distinguish the delirium from fat embolism from that of delirium tremens. Deaths from wood alcohol and other substitutes are also included in this group. A few deaths from poisons such as cyanid, mercuric chlorid and arsenic with alcohol also found chemically are not included.

The second group comprises deaths from skull fracture, and this type of injury was chosen simply because it seemed to afford a better opportunity for comparison than deaths from other injuries, such as bullet wounds or fractures of other bones. Only deaths from skull fracture have been chosen in which the fracture was found either during life by operation or by postmortem examination. Most of these injuries were sustained by accidents in factories, by falls on streets, down stairways, from windows or porches, or in other ways not ascertained. Deaths from skull fractures received in automobile and surface railway accidents have greatly increased in recent years; in many of them no postmortem examinations have been made, and for this reason they are not included. It is believed that if these skull fractures had also been incorporated in the summary made for comparison with deaths from alcohol alone, the correspondence in the curves would still exist, but with the skull fracture curves at higher levels. Chemical examination was also made of material removed from the dead bodies of these people dying from skull fractures with the result that alcohol was frequently found, but this factor has not been dwelt on in any way either in the selection of cases for comparison or in the discussion which follows.

SIGNIFICANCE OF THE CURVES

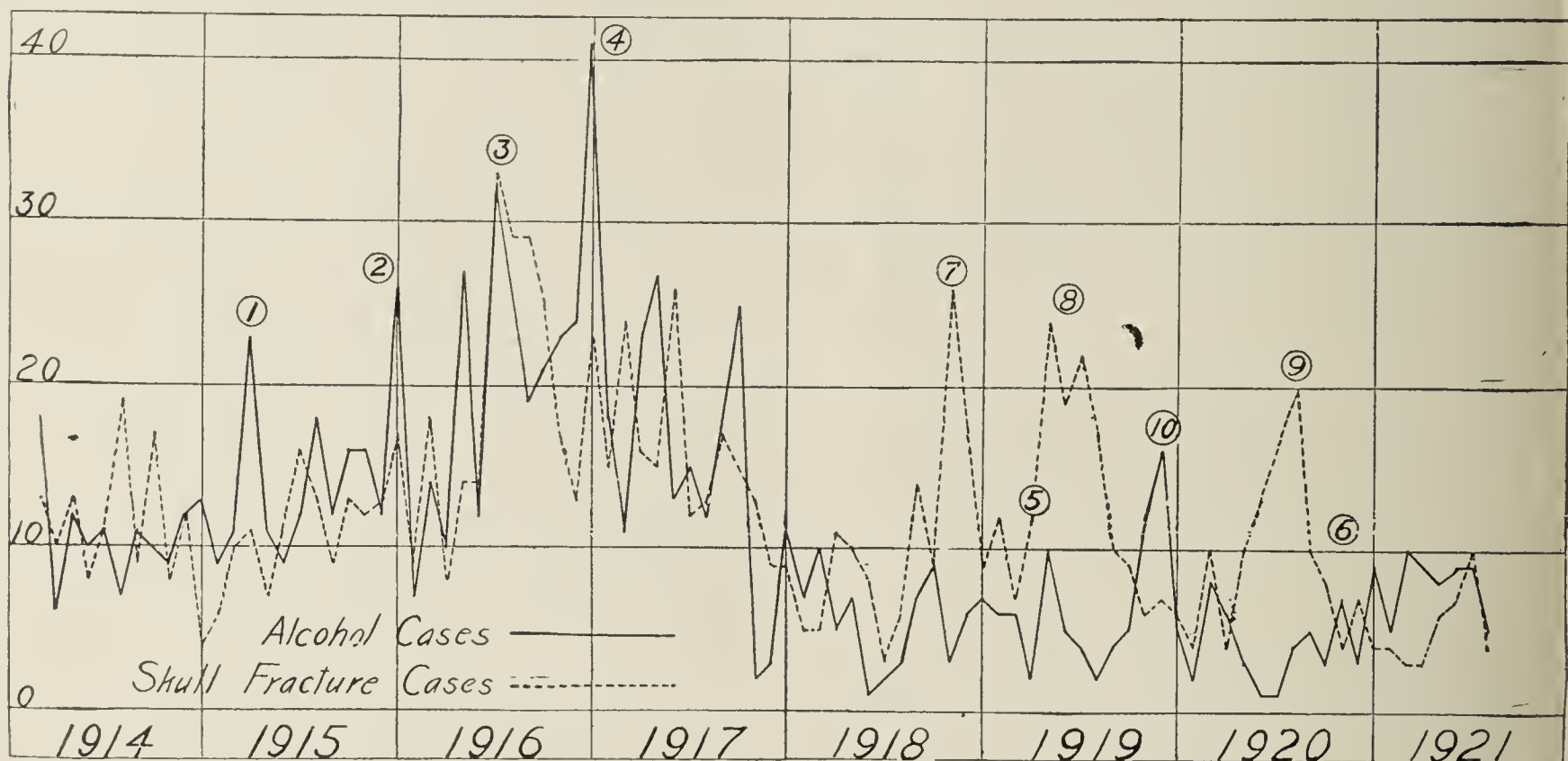
Aside from occasional very notable variations, the parallelism of the skull fracture and alcohol curves is unquestionable. Both curves gradually ascend during the years 1914 to 1917, inclusive, and reach their maximum early in 1917. At the end of 1917 both drop abruptly to a new and low level, and, except for three high peaks in the skull fracture curve, maintain their parallel course up to the present low level of deaths per month. In attempting to associate the variations in these curves with contemporaneous events, it is necessary to remember that the United States entered the World War early in 1917 and that, as a result of its war activities, an early and extensive food conservation program was launched curtailing the use of grain for the manufacture of alcoholic beverages, and this was followed by the passage of the Lever Act, Sept. 9, 1917. Not only was less manufactured but, because of increasing prices, consumption was reduced. It was not until July 1, 1919, that the manufacture and sale of alcohol-containing beverages was forbidden as a war time measure, and this continued in force up to the date for enforcement of the constitutional amendment. The big drop in both curves occurs late in 1917, and its progress downward corresponds clearly with the increase of activities directed at curtailment of the consumption of alcoholic beverages.

It is also true that association of both alcohol poisonings and skull fracture deaths with events which were formerly accompanied by excessive drinking is strik-

* From the Medical Service of the Coroner's Office, Chicago, Illinois, a report made at the suggestion of Hon. Peter M. Hoffman, coroner.

ingly shown in these curves. The peak at 1 in the chart is at the time of the 1915 city election (mayor, city council and city officials). At 2, another peak followed the Christmas holiday season at the end of 1915. The high point at 3 occurred during the very hot summer of 1916; and such possibilities as the following suggest themselves in connection with this combination: that a number of heat cases were mistaken for alcohol poisoning; that the consumption of alcoholic beverages was increased on account of the heat, or that a combination of both factors resulted in some deaths. At 4, the presidential election of 1916 and the succeeding holiday season are found associated with the highest point in the curve of the alcoholic deaths. On the other hand, the presidential election of 1920 and the city election of 1919 (6 and 5 on the chart) are not followed or accompanied by any elevation in the curve

The reduction in the average death rate per month is much more striking in the alcoholic poisoning group, namely, from 15.6 to 5.9 per month. As the deaths included in these two groups are only a small fraction of the total number of violent deaths in Cook County, it may be assumed that there are other corresponding decreases in the death rate due to violence or injuries; this opinion is fortified by the decrease in the average number of coroner's inquests held per month since 1918, because there has been no noteworthy change either in the method of administration or in the personnel within the period covered by this summary. While it is true that during the years 1914-1917 the number of inquests held by the coroner of Cook County gradually increased, yet this growth is not out of proportion to the rapidly growing population, and the increasing number of automobile deaths as well as



In this chart each vertical space represents ten deaths and each longitudinal space twelve months. The figures at the left indicate the number of deaths in each instance per month, and the large figures at the bottom, the year. The variation in the number of deaths the result of alcoholic poisoning is represented by the continuous line, and the skull fracture deaths by the broken line. The small figures on the chart correspond to references in the text.

of the alcoholic death rate. But in 1919, there is a marked peak at the time of the Christmas and New Year holidays (10); fourteen out of the sixteen deaths here credited to alcohol are the result of the ingestion of wood alcohol as a beverage. The slight increase in the curve of deaths due to alcohol in 1921 seems to be due, with little exception, to grain alcohol poisoning, the result of the consumption of large amounts of home-brewed or illicitly distilled beverages. However, four out of the nine July, 1921, alcohol deaths are due to drinking wine of colchicum.

There are three peaks of skull fracture deaths in 1918, 1919 and 1920 that are not readily accounted for (7, 8 and 9 in chart). They seem, as far as can be ascertained, to be connected with such events as icy and slippery sidewalks, stairways and porches; and with warm weather, during which, accidents occasioned by falling from open windows, over porch railings, and down stairways are more numerous.

In the forty-four months since Jan. 1, 1918, in the two groups as plotted on the chart, there are represented 693 deaths; had the pre-1918 averages prevailed these would have been 1,330, almost twice as many.

those from other street accidents the outcome of greater congestion. The average number of inquests held per month in 1914 is 340; in 1915, 358; in 1916, 390; in 1917, 396. On the other hand, in 1918 the average number is 350; in 1919, 325; in 1920, 300; and in 1921 (eight months only), 311.

COMMENT

It does not seem possible to associate these variations in the death rate in these two groups as shown on the accompanying chart with economic or social factors, such as the conditions of employment and general prosperity of the last few years, or with such movements as "safety first" crusades. On the other hand, the abrupt drop of both curves late in 1917 and the remarkable association of the high peaks in the death rate curves with times of known general excesses in the consumption of alcoholic beverages have only one convincing explanation. Each reduction in the amount of alcohol consumed in beverages has been followed by a drop in the death rate curves of the two groups sum-

1. The 812 deaths in the Eastland (a large excursion boat which capsized in the Chicago river) disaster are not included in these averages.

marized on the chart: so that long before the advent of attempted complete prohibition of the manufacture and sale of alcohol-containing beverages, the reduction of the death rate due to acute alcoholic poisonings had almost reached the record low level, to rise again in the last year with activity in the illicit manufacture and traffic in alcoholic liquors.

1747 West Harrison Street.

SPONTANEOUS CLOSURE OF INTESTINAL PERFORATION

REPORT OF CASE OF DOUBLE INFECTION WITH
TYPHOID AND PARATYPHOID B

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AND

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History.—A man, aged 24, white, employed in the U. S. service, had had a brother who had died of typhoid; otherwise the family history was not pertinent. The patient had had measles, pertussis and mumps in childhood, and an operation had been performed on the nasal septum six years before. He had had tonsillitis, for which tonsillectomy was performed, in 1917. There was no venereal infection. The patient was given typhoid prophylaxis while in the Army, in September, 1918. His habits were good. Though of slender build, he had always been robust and vigorous. He was first seen, Jan. 19, 1921. He came to Washington, January 14, having been engaged in field work in Oklahoma. Up to three weeks prior to this consultation he had enjoyed good health. At that time he had had an arduous experience fighting a fire, when he became overheated and exhausted, and thought he caught cold. He developed malaise, chilly sensations, a tendency to perspire, loss of appetite, and some constipation. Since arriving in Washington, he had been worse, rather than better.

Physical Examination.—This was made at the office and a manifest toxic appearance was noted. The pulse was 81; the temperature, 100.4 F. There was no acceleration of respiration. The breathing was rather harsh and coarse over the right upper lobe. The heart showed no abnormality. The abdomen was soft, and showed no eruption. The spleen was moderately enlarged; the liver normal in outline. The leukocytes numbered 9,000. The patient was sent to his apartment and ordered to bed. The following morning he still had fever, and he was sent to the George Washington University Hospital, January 20.

Examination on admission gave findings practically identical with those of the first examination. At a second examination, January 22, no eruptions were seen on the chest or abdomen; the spleen was slightly enlarged, apparently less so than on admission; the liver was not enlarged.

The heart showed no enlargement or other abnormality. The right lung showed limitation of excursion of the diaphragm, and resonance impaired over an area the size of a silver half dollar below the inner end of the clavicle. Breathing was suppressed and whisper transmission increased over this area. The adjacent area gave coarse granular breathing, increased whisper transmission, and occasional medium moist râles. Behind, there was impaired resonance in the supraspinous space, with increased whisper and coarse granular breathing over the whole upper lobe area. The patient noted occasional pain in the right lower thorax on deep inspiration. This passed off after a few deep respirations. The left lung gave coarse breathing over the upper lobe.

Laboratory Examinations.—The urine showed no abnormality except occasional traces of albumin and some leukocytes. The Widal test was strongly positive at all examina-

tions. The blood cultures were negative throughout. Cultures of stools gave organisms that were not promptly identified, owing to complications introduced by the presence of a double infection. Finally both typhoid and paratyphoid B. bacilli were isolated. Roentgen-ray examination of the chest revealed no disease of heart or lungs. Except on one occasion, noted below, differential counts showed a lowering of polymorphonuclears (44 to 63 per cent.), and an increase of lymphocytes (30 to 46 per cent.); other varieties were within normal limits.

Diagnosis.—This was not, at the beginning, as simple as would appear from the record. The aspect of the patient strongly suggested typhoid, and this was reinforced by the positive Widal reaction. Typhoid precautions in nursing were ordered from the outset. But the persistent absence of eruption, the negative blood cultures, and delayed identification of the organisms in the stools prevented a positive diagnosis for a time. The possibility of miliary tuberculosis was suggested by the early pulmonary findings. Cholangitis was considered, as such cases occur with much delayed jaundice. The positive agglutination test was not accepted as sufficient evidence, because the patient had had typhoid prophylaxis.

Clinical Course.—January 23, the patient began to be very restless. At 7 p. m., he complained of pain in the abdomen, and an hour later he vomited brownish fluid.

January 24, at 1 a. m., there was severe pain in the abdomen referred especially to the right upper quadrant, in which area was found tenderness and some muscular resistance. In connection with this phase, an early rise of a degree in temperature was followed by an abrupt fall to normal, and the leukocyte count rose to 12,500, with 82 per cent. of polymorphonuclears. Of course, the signs pointed to perforation, and repeated surgical consultations were held with Dr. D. L. Borden. There was lacking to complete the picture of perforation the characteristic pulse, the evidence of shock, and the usual expression. We decided that the indications did not warrant operation, and the immediate sequel convinced us that there had been no perforation.

January 25, the patient was improved. For the next week he seemed to make satisfactory progress, and the leukocytosis receded.

February 1, he again began to complain of restlessness, of irregular abdominal pain, and of nausea and headache at times. From that time on, there was progressive increase of the toxic state, indicated by sweats, increasing weakness, hebetude and intermittent delirium.

February 13, there was hemorrhage from the bowel.

February 14, there was recurrence of the intestinal hemorrhage. At 11:30 p. m., the patient complained of sharp pain in the abdomen. The pain was transient.

February 15, early in the morning, the abdomen was tender. About 8 a. m., the pulse became, abruptly, very weak and thready, but without much increase in rate. The presence of perforation was recognized by the resident physician, and an operation was performed by Dr. Borden at 10 a. m.

Operation.—Under local and gas anesthesia the abdomen was opened, and a pin-head sized perforation was found in the small bowel, with evidence of effort to close by omental adhesion. The bowel was infiltrated and necrotic. The perforation was closed by circular suture and inversion. Owing to the extremely bad condition of the patient, no further examination was made. The abdomen was closed. Intravenous infusion of salt solution was given while the patient was on the table.

He reacted from the operation better than we had expected; but at 2 p. m. he began to show a condition of increased shock, and died at 5 p. m., February 15.

Necropsy Findings (Dr. Hunter).—The abdominal cavity showed a general peritonitis, with free fecal matter present. The blood vessels were injected. The ileum, with the omentum, was firmly bound down in the right iliac fossa in a mass of adhesions. The free portion was markedly congested and coated with a flaky exudate. Two small venous thromboses of mesenteric veins were noted.

Six inches (15 cm.) above the ileocecal junction was a large ulceration 3 inches by 1½ inches (7.5 by 3.8 cm.). In the floor of this ulcer, there was a perforation of the diameter

of the tip of the little finger, walled off by adhesions, the pocket of which contained fecal matter. The edges were eroded and gave evidence of granulation.

Eleven inches (28 cm.) above the cecum a small perforation, exuding free fecal matter, without adhesions, was noted.

Fifteen inches (38 cm.) above the cecum, there was a small perforation closed by overlapping and sutures.

The interior of the ileum showed twelve well defined ulcers.

The spleen, liver and mesenteric glands gave evidence of an acute toxic process.

Anatomic Diagnosis.—Typhoid fever; multiple ulcerations and perforations and general peritonitis were diagnosed.

COMMENT

Three factors in this case are of interest:

1. The effect produced, if any, on the course of the disease by the typhoid and paratyphoid prophylaxis of two and a quarter years before. There seems little doubt that the patient had been suffering from active typhoid for two or more weeks before coming under observation. It is not unlikely that the period during which bacilli could be found in the blood stream, as well as the eruptive stage of the disease, had passed before he sought medical advice. One of us¹ has, however, observed typhoid in an immunized person, in whose case the blood cultures were negative throughout, and the diagnosis was established only at necropsy, by recovery of the bacilli from the spleen.

2. The occurrence of a simultaneous infection by typhoid and paratyphoid, which is an uncommon finding, though not unprecedented. McCrae² states that "in some instances typhoid and paratyphoid bacilli have been obtained from the same patient."

3. What is regarded as the most important feature of this case: the anatomic demonstration at necropsy of the spontaneous closure of a perforating typhoid ulcer. It is noted that three perforations were found: (a) one that closed at operation; (b) another, patent, which from the absence of any appearance of local reaction, evidently occurred subsequent to the operation, and which, by reason of its situation could not have been overlooked, had it existed at the time of the operation; (c) a third, which was firmly closed by abundant adhesions, and which, from the evidences of repair shown about its margins, evidently occurred some time before death. It seems obvious that this perforation took place at the time (January 24) when our concern was aroused over the question.

It is not improbable that spontaneous closure of typhoid perforation occurs more often than we realize, but it is rare to have the opportunity of demonstration, as presented by this case.

The case is reported entirely on account of its pathologic interest, and no attempt is made to discuss the therapy employed.

2010 R Street N.W.

THE CAUSES AND DIAGNOSIS OF THE VARIOUS FORMS OF COMA

A FURTHER CONSIDERATION*

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Two previous analyses of the causes of the various forms of coma at the Cook County Hospital in Chicago have been made.¹ This further analysis has been made

to determine whether there has been any marked improvement in the diagnosis and to see whether the relative frequency of the various causes of coma in a third summary, after some years, would offer any noteworthy differences.

A plan similar to the one used in the previous reports has been followed and concerns only coma followed by death and by postmortem examination. The cases chosen are those of patients who entered the hospital in coma of obscure origin and who died without regaining consciousness. They cover the period between the years 1916 and 1920, inclusive.

Deaths in coma from such causes as illuminating gas, phenol (carbolic acid) and heat stroke have been omitted, as well as many of acute fulminating influenza during the two epidemics of this disease. The details as to other patients in coma are not included because the clinical observation extended for some time, the disease was well understood, for some recovery occurred, and for others no postmortem examination was made.

Chart 1 deals with all the 346 deaths except twenty-seven which took place between the sixth and the fifty-first days, inclusive. In the charts the days are divided into tenths instead of four hour periods as in the charts

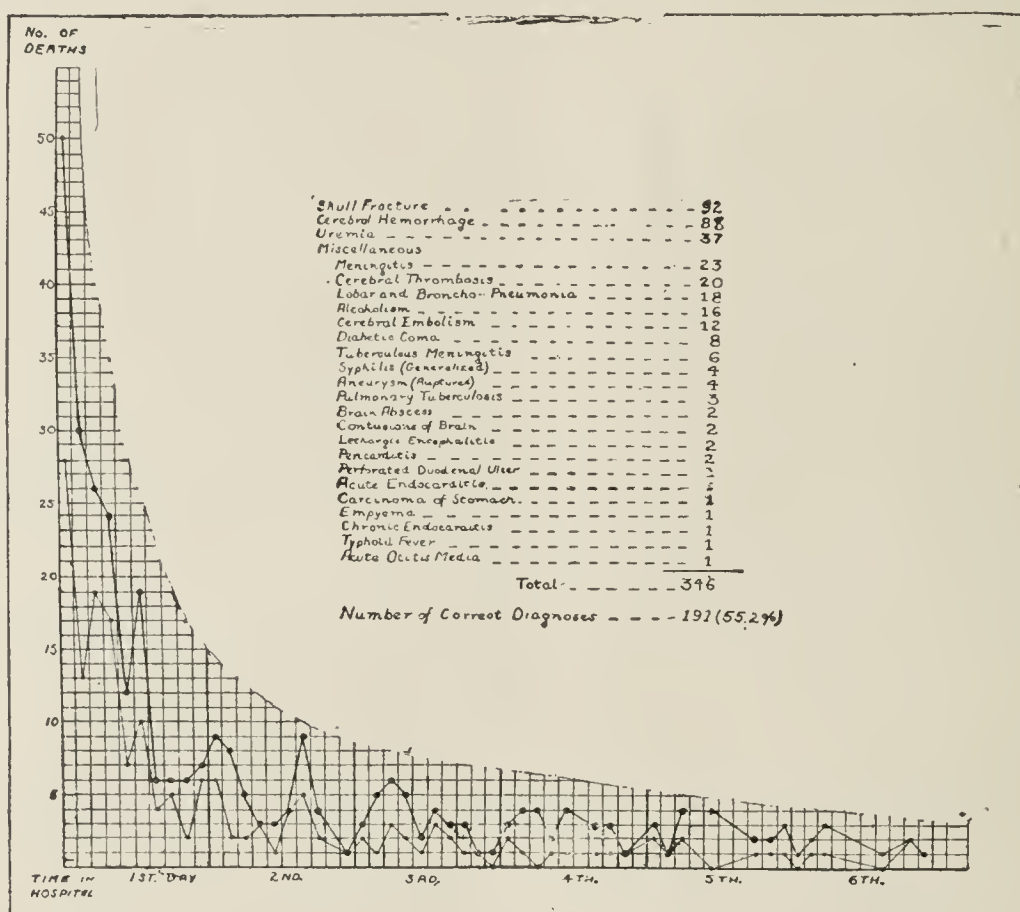


Chart 1.—Correct and incorrect diagnoses in 346 deaths in coma: heavy line, deaths; light line, number correctly diagnosed. Twenty-seven deaths are not plotted. Six occurred on the seventh day; three on the eighth; three on the ninth; three on the tenth; two on the eleventh; one on the twelfth; three on the thirteenth; three on the fourteenth; one on the nineteenth; one on the thirty-first, and one on the fifty-first day. Fifteen of these were correctly diagnosed.

* From the Cook County Hospital, Chicago; a report made at the regular monthly staff meeting, March, 1921.

1. Bissell, W. W., and LeCount, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma, with Special Reference to Uremia, J. A. M. A. 64: 1041 (March 27) 1915; The Relative Frequency of the Various Causes of Coma, *ibid.* 68: 500 (Feb. 17) 1917

1. Randolph, B. M.: New York M. J. 110: 441 (Sept. 13) 1919.

2. Osler and McCrae: Modern Medicine, Ed. 2, 1: 160.

of the former reports. On the upper line are plotted the total number of deaths and the time when they occurred; the lower, the number of these correctly diagnosed. Fifty deaths occurred in the first 2.4 hours, and of these twenty-eight, or 55 per cent., were correctly diagnosed. In the second period, ending at 4.8 hours, thirteen, or 43 per cent., of the thirty deaths were accurately diagnosed. In nineteen, or 76 per cent., of twenty-six deaths in the third period the diag-

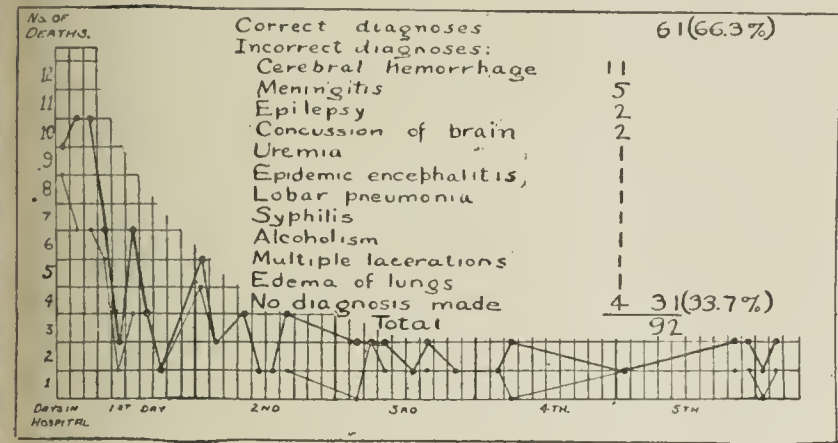


Chart 2.—Correct and incorrect diagnoses in ninety-two deaths from skull fracture: heavy line, deaths; light line, number correctly diagnosed. Nine deaths are not plotted. Two occurred on the seventh day; two on the eighth; one on the ninth; two on the tenth; one on the eleventh, and one on the fourteenth day. Six of these were correctly diagnosed.

nosis was correct. Of the twenty-four deaths during the fourth period, seventeen, or 70 per cent., bore correct clinical diagnoses. In the first twenty-four hours, 186 deaths occurred, and 111, or 59 per cent., were correctly diagnosed. In the second day are forty deaths, and the causes were correctly foreseen in twenty-eight, or 70 per cent. The third day, thirty-three died, with seventeen, or 51 per cent., accurately accounted for. Twenty-four patients died in coma on the fourth day, and of these the causes of coma were recognized in still fewer—33 per cent. Of the remainder, fifty-six, dying from the sixth to the fifty-first day, inclusive, 50 per cent. of the cases were correctly diagnosed.

Comparing this with the report of 1915 (200 cases), only a slight improvement is noted in the correctness of diagnosis for the first day period, 50.7 for that report and 59 per cent. in this summary. A more marked variation exists for the second day, the recent work an improvement over that first reported of 33 per cent.; the third day, however, there was an improvement of only 8.2 per cent. Still comparing with the first review, that of 1915, the accuracy curve falls 11.4 per cent. in the fourth day period in this summary, and still more in the remainder of the time, 20 per cent.

This study also confirms the conclusions arrived at in the previous reports—that the accuracy of the clinical diagnosis does not improve with lengthened observation but rather declines up to the fifth day and then slowly rises, with the exception that, in this summary, it never attained a level comparable with that noted in the previous reports for the latter periods of longer observation. At first glance this appears to minimize the value of clinical observation in the wards; but such a conclusion is not permissible. Many factors demand consideration, such as the obvious nature of many forms of coma recognized at the time of entrance, the increased efficiency of such examinations as a natural sequence of the two former studies of this subject, and, perhaps of more weight than all others, that with an increased ratio for any part of these calculations, a correspondingly lessened ratio results for the remain-

der. It should also be emphasized that relatively few of these patients lived longer than a few days.

On account of the constant departure of numbers of the resident staff, to enter the service of the government during 1916, 1917 and 1918, the wards were frequently without a full quota of men, and daily observations were not carried out as in prewar times. This also applies to a scarcity of and frequent changes of attending physicians.

On the upper line of Chart 2 are plotted the deaths from skull fracture, variously diagnosed clinically, with the ones correctly diagnosed on the lower line. Closer approximation of the two lines compared to those of Chart 1 reveals a greater accuracy in recognition of the cause of unconsciousness.

Forty-seven deaths occurred during the first twenty-four hours, and of these thirty-three, or 70.2 per cent., were correctly diagnosed. During the second day fifteen died, and the cause of death for twelve, or 80 per cent., was recognized. Six, or 60 per cent., of the ten dying on the third day were accurately diagnosed. Postmortem examinations corroborated the clinical diagnosis in 55 per cent. of eleven of the twenty dying between the fourth and fourteenth days.

Except for those who died on the second day from skull fracture, the diagnosis was made far less accurately in the work for the period covered by this summary than in those of the two previous reports.

The greater accuracy with which skull fracture is diagnosed, compared with the causes of other forms of coma, is due to the presence of some form of scalp injury, laceration, abrasion or hematoma (present in sixty-seven patients). Blood issued from the nose, ears or mouth in forty-three cases, and spinal fluid from the ear in thirteen. Blood was present in the

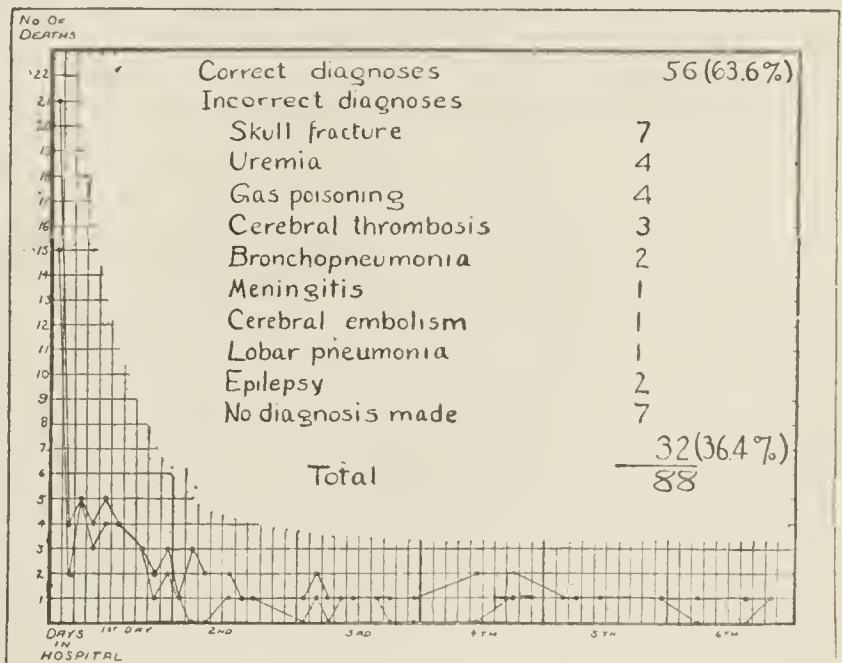


Chart 3.—Correct and incorrect diagnoses in eighty-eight deaths from cerebral hemorrhage: heavy line, deaths; light line, number correctly diagnosed. Seven deaths are not plotted. Three occurred on the seventh day; one on the tenth; one on the eleventh; one on the seventeenth, and one on the thirty-first day. Three of these were correctly diagnosed.

spinal fluid in twenty-one. The number of patients showing scalp injury, sixty-seven, corresponds well with the sixty-two correct clinical diagnoses, conditions which closely duplicate those in the previous analysis.

On Chart 3 are plotted eighty-eight deaths from cerebral hemorrhage, 63.6 per cent. of which were diagnosed correctly. For thirty-nine, or 76.4 per cent., with death on the first day, the diagnosis was correct; 40 per cent.

on the second; 33.3 per cent. on the third; 25 per cent. on the fourth, and for the balance of the time, 64.2 per cent.

The diagnosis of cerebral hemorrhage, then, has improved 27.8 per cent. in all patients who died during the first twenty-four hours, 26.6 per cent. decrease on the second day, 13.3 per cent. increase during the third day period, and a 77.4 per cent. decrease during the remainder of the time. Taking it all in all, the diagnosis of cerebral hemorrhage has improved 12.6 per cent., this all being accounted for during the first and third day periods.

It is interesting to note that there was evidence of a cerebral lesion, such as facial paralysis, hemiplegia, in fifty-four patients, or 61 per cent., and blood in the spinal fluid in fifty-five, or 62.5 per cent. This probably accounts for the relatively greater accuracy in recognizing cerebral hemorrhage as compared to the miscellaneous causes of coma.

The frequency with which the diagnosis of uremia is incorrectly made has often been the subject of discussion, and in reality formed the chief reason for the previous reports. Comparison of all three of these summaries, altogether 746 cases, indicates a most gratifying improvement in the correct diagnosis of uremic coma. The incorrect diagnosis of uremia was made for the cases summarized here in only 3.4 per cent.

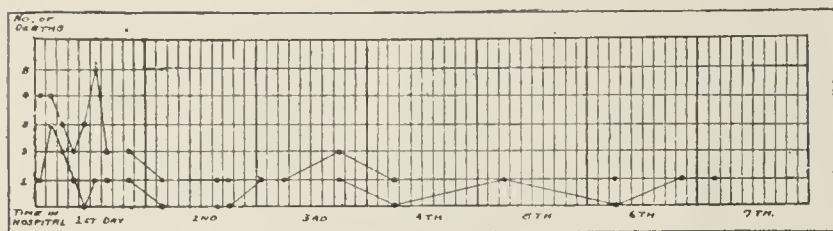


Chart 4.—Correct and incorrect diagnoses in thirty-seven deaths from uremia: upper line, anatomic diagnoses; lower, correct clinical diagnoses; all are plotted. The correct diagnoses totaled 16 (43 per cent.), the incorrect diagnoses, 21 (57 per cent.), thus distributed: cerebral hemorrhage, 4; meningitis, 3; chronic nephritis, 2; tabes, 1; epilepsy, 1; sarcoma, 1; urinary retention, 1; basal skull fracture, 1; cystitis, 1; alcoholism, 1; tuberculous meningitis, 1; urinary extravasation, 1; cerebrospinal syphilis, 1; no diagnosis, 2.

A further analysis attempted in this work, not considered in the previous reports, is the relation of the receiving room diagnosis to the anatomic diagnosis. All patients entering the Cook County Hospital are first seen by an intern in the examining room, where variable degrees of a history and examination are made before assignment to a ward. Because of the time or other conditions, this examination was often cursory; but, despite this, the diagnoses were correct in 40 per cent., compared with 55.2 per cent. made after the patients reached the ward, with skull fracture, correct in seventy of 100 patients, 3.7 per cent. more frequently than following observation in the ward. On the other hand, cerebral hemorrhage was recognized in 25.9 per cent. fewer patients than after more extended observation; uremia in the examining room correctly in 35 per cent., compared to 43.2 per cent. in the ward.

A difference in the relative frequency of the causes of coma is seen when comparing this with the other series. Skull fracture is responsible for death in 9.5 per cent. fewer patients in this last analysis; a few more died of cerebral hemorrhage (1.4 per cent.), and uremia ranks third as a cause of death, with a 5 per cent. increase. Pneumonia drops from fourth to sixth place, owing in some measure to the disappearance of lobar pneumonia when influenza prevailed, and because influenzal deaths have not been included in this study.

DISSECTING ANEURYSMS OF THE AORTA

REPORT OF CASES AND REVIEW OF THE LITERATURE

P. D. CROWELL

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There have been reported about 273 dissecting aneurysms of the aorta. According to Peacock,¹ Manno, in 1802, first gave the name of dissecting aneurysm to this condition. Yates,² a century later, found that in only two of these cases³ had the nature of the disease been recognized during life. In two others,⁴ the diagnosis was aneurysm of the aorta.

In 35 per cent. of the reports that I have reviewed (215), in which the condition of the aortic lining was described, there was advanced sclerosis with ulceration and calcification; in 42 per cent., a marked or moderate amount of fatty change or fibrous plaques, and in 9 per cent. such patches were few. In about one third of the remaining 14 per cent., the aorta had a thin wall or dilated lumen or both; in sixteen the vessel was thought to be normal. The wide discrepancies in the descriptions do not admit of precise statements as to the usual condition of the wall at the point of rupture; but the accounts indicate that either because of a general thinning (atrophy) or localized disease, a weak place is present where the blood escapes from the channel. There are a number of reports of rupture caused by bacterial embolism into the aortic wall.⁵ Usually, when dissection of the wall has begun, death follows in a short time or abruptly. Among other factors, such as valvular disease of the heart, old age, chronic nephritis, and increased arterial tension, the last probably is the most important. As an unusual cause of increased blood pressure in the proximal part of the aorta, narrowing or complete obliteration (coarctation) at the isthmus has been reported.⁶ Although most writers mention exertion at the time of the onset of symptoms, in only a few instances has the exertion been unusual. Generally, the attack has occurred with moderate exercise, such as walking. As regards the age, in 80 per cent. of the 215 reports examined, it was 40 years or more, the entire range being from 13 to 95 years. This form of aortic disease is 1.64 times more prevalent in men than in women. In fifty-two cases, the condition of the kidneys was commented on, and chronic nephritis was found in 66 per cent. of these.

Kelynack⁷ divides dissecting aneurysms into three classes: first, those in which the blood remains in the dissected aortic wall; a second variety in which the blood is forced into the surrounding tissues or cavities, and finally, those in which the blood reenters the aorta or, as has been the case in some instances, the iliac or other branches. Occasionally (6 per cent.) the last two are combined. Only 13 per cent. of the cases fall in the first class. Unless death results from local pressure, interference with the circulation or causes remotely related to the aneurysm, organization of the

1. Peacock: *Tr. Path. Soc. London*, 1863, p. 87.

2. Yates: *Wisconsin M. J.* 2: 418, 1903-1904.

3. Prescott: *J. Boston M. Soc.* 2: 134, 1897. Swaine: *Tr. Path. Soc. London* 7: 106, 1855.

4. Borger: *Ztschr. f. klin. Med.* 58: 282, 1905. Wyss: *Arch. d. Heilk.* 10: 490, 1869.

5. McCrae: *J. Path. & Bacteriol.* 10: 373, 1905.

6. Wise: *Tr. Med. and Phys. Soc. of Calcutta* 8: 384. Barker: *Med.-Chir. Tr. (n. s.)* 25: 131, 1860. Legg: *Tr. Path. Soc. London* 29: 65, 1878.

7. Kelynack: *Edinburgh M. J.* 4: 162, 1898.

intramural thrombus (fifteen cases) usually results. Kellynack's second group includes most of the cases (61 per cent.), and the perforation of the outer wall of the aneurysm into the pericardial sac, with sudden death as its result,⁸ commonly occurs. Hematopericardium was the cause of death in 47 per cent. of the reports reviewed. There may be hemorrhage into the pleural cavities or more rarely into the peritoneal cavity. Rupture into the trachea was found by Hoffman.⁹ Occasionally, the blood infiltrates the periaortic or retroperitoneal tissue.¹⁰ In the third class are 20 per cent of these cases. Almost always, canalization takes place, and the lining of the new channel may be sclerosed, even when the intima of the aorta is smooth.¹¹ Striking examples of this class resemble double aortas.¹² The point of reentrance is usually a tear in the inner wall of the sac; but it may also be at the site of aneurysmal amputation of one of the aortic branches.¹³ The blood may reenter the aorta in several places along the course of the aneurysm. Peacock¹⁴ divides the progress of the disease into three stages: first, rupture of the internal coats of the aorta; second, dissection and possible rupture externally, and third, recanalization. According to this division, 86 per cent. of the cases reviewed end in the second stage, and 14

FREQUENCY OF INVOLVEMENT

Artery	Number of Cases
Ascending part	150
Transverse part	106
Descending part	103
Thoracic part	97
Abdominal part	84
Innominate	19
Right common carotid.....	5
Left common carotid.....	11
Right subclavian	1
Left subclavian	11
Celiac	4
Superior mesenteric	4
Inferior mesenteric	1
Right renal	4
Left renal	3
Right common iliac.....	24
Left common iliac.....	41
External iliac	8
Internal iliac	6
Femoral	2
Popliteal	1

per cent. in the third stage. The origin of the aneurysm is almost always in the ascending portion or arch, usually just above the aortic cusps. In a few instances, there have been multiple tears in which the aneurysm arose. Rarely, the primary rupture is found in the other portions of the aorta. These tears in the intima are most often from 1 to 3 cm. long; but they may involve almost the entire circumference.¹⁵ When they occur in the ascending portion of the aorta they are usually transverse. Chiari¹⁶ found a huge flap reflected from the inner wall of the aorta at its beginning, closing the mouths of the large branches of the arch. The primary rupture is of the intima, and most, or all, of the layers of the media. The dissection takes place in the outer layers of the media or between the media and adventitia. The branches of the aorta may be similarly dissected or cut across at their origins so as to arise from the outer wall of the aneurysm. The

intercostal arteries are commonly cut off, and external pressure is the usual cause of interference with circulation in the large branches. The frequency of involvement by dissection in the various parts of the aorta and its branches is shown in the accompanying table. There are thirty-five cases reported in which the dissection involves practically the whole length of the aorta.

Very little attention has been paid to the interference with the circulation in the branches of the aorta, caused by the splitting of the walls at the places where such branches have their mouths; and it may be safely assumed that the failure to recognize dissecting aneurysms of the aorta during life is at least in part due to failure to appreciate the fact that symptoms of this condition may be produced by interference with the blood supply in these branches. Only a few of the reports examined refer to the amount of the circumference of the aorta dissected at different distances in its length or to the location of such circumferential splitting. The following reports, however, consider this matter rather carefully. Boestrum¹⁷ gives measurements of the width of the dissection at four different levels in his report of aneurysms involving most of the length of the aorta. Yates¹⁸ shows by a drawing the area dissected. MacCallum,¹⁹ describing one case, presents an excellent drawing, giving an accurate idea of the amount of circumferential dissection, and in another he simply states that almost all the circumference was involved. Shede²⁰ says that in his case all but the region between the intercostals was involved. Adami²¹ presents a drawing which gives some idea of the area dissected, and his descriptions contain one or two transverse measurements. In thirty-one other reports in which mention was made of the width of the aneurysm, actual measurements made at one or two different levels were found in those by Luttick,²² Geisler,²³ Clark,²⁴ Peacock and Schneckenbach.²⁵ In seven instances, the entire circumference was involved; in the remaining nineteen, the approximate amount of circumference involved is mentioned. Peacock says, "Generally, the sac occupies one half to two thirds of the circumference of the artery; but occasionally, and especially when the separation is continued from the trunk to its branches, the whole circumference of the artery is separated so that the canal is found entirely surrounding the original vessel."

With rupture into the pericardial sac (47 per cent.), the onset consists of a sudden severe pain in the chest and collapse. Following this attack, the patient may or may not rally. If death does not follow in a few minutes, a partial recovery is made; but a feeling of weakness, pressure or pain in the chest or fear of impending death usually remains. Then within a few hours or days, a second similar pain is followed by almost immediate cardiac and respiratory failure.

If, however, rupture occurs into a cavity, signs of a large hemorrhage replace those of cardiac failure, and death is not so abrupt. Death from a widespread dissection with no external rupture may be sudden, the patient not recovering from the primary shock and

8. Broca (Bull. Soc. anat. de Par. 1852, p. 275), Hayden (Proc. Path. Soc. Dublin 5: 1, 1871) and others.

9. Hoffman: Arch. f. klin. Med. 7: 590, 1869.

10. Bahrdt: Arch. d. Heilk. 13: 473, 1872. Boyd: Lancet, 1840-1841, p. 611.

11. Busse: Deutsch. Arch. f. path. Anat. u. Phys. 183: 440, 1906.

12. Williams: Tr. Path. Soc. Philadelphia 18: 151, 1898. Bouillaud: Arch. gén. de méd. 15: 248, 1847.

13. Lebert: Traité d'anatomie pathologique, 1857, p. 752. Freibich: Ueber einen Fall von Aneurysma, Diss., welches ohne Sympt. wenigsten einige Woch. bestand, Würzburg, 1867.

14. Peacock: Tr. Path. Soc. London 14: 87, 1863.

15. Stewart: J. Path. & Bacteriol. 18: 116, 1913-1914.

16. Chiari: Verhandl. d. deutsch. path. Gesellsch., 1909, pp. 207-209.

17. Boestrum: Deutsch. Arch. f. klin. Med. 42: 1, 1887

18. Yates: Wisconsin M. J. 2: 418, 1903-1904.

19. MacCallum: Bull. Johns Hopkins Hosp. 20: 9, 1909.

20. Shede: Virchows Arch. f. path. Anat. 192: 52, 1908.

21. Adami: Montreal M. J. 24: 945, 1895, 1896.

22. Luttick: Virchows Arch. f. path. Anat. 100: 180, 1885.

23. Geisler: Arb. a. d. path. Inst. zu Berlin, 1906, 282.

24. Clark: New York M. J. 7: 92, 1859.

25. Schneckenbach, G.: Ueber einen Fall von diss. Aneurysma der Aorta, München, 1907.

coma; or it may be a matter of days of gradually weakening heart action.

Cases in which there was paralysis which might have been due to the interference with the blood supply of the spinal cord are reported by Dickenson,²⁶ MacCallum,²⁷ Barhdt,²⁸ Todd²⁹ and in this contribution. In those of Dickenson and Barhdt, there was paraplegia; in that of MacCallum, paralysis of the bowel and softening of the brain, and in Todd's case, hemiplegia. In one of those here reported, there was hemiplegia, and in another, paralysis of one leg. There was also severe abdominal pain in Barhdt's case, and this symptom is ascribed to interference with the blood supply to the intestines, in cases reported by Thompson,³⁰ Adami,³¹ Edwards and Stone,³¹ Freundlich,³² Mandron,³³ Bludau³⁴ and Kaiser.³⁵ In the last two, abdominal operations were performed because of the diagnosis of "surgical abdomen."

In two cases in which the iliac arteries were involved, there was pain in the leg.³⁶ In four cases with interference of the subclavian circulation, there was pain in the arm.³⁷ In a case in which both iliacs were affected, Swaine³⁸ noticed

absence of pulsation in the femorals, while Draper³⁹ found loss of pulsation in the right radial artery in a case in which the innominate artery was plugged by a dissected flap from the ascending portion of the aorta. Flockman⁴⁰ states that in his case in which there was pressure at the origins of the large branches of the arch, death resulted in a manner similar to that occurring in dogs in which both carotids were tied off.

REPORT OF CASES

CASE 1.—History.—H. P., man, aged 50, was taken to the Cook County Hospital by the police, May 23, 1918, after he

had been removed in coma from a street car, with symptoms which led to the diagnosis of probable cerebral hemorrhage or uremia (service of Dr. Koessler). Examination revealed coma; respirations, 24, stertorous and of the Cheyne-Stokes type; deviation of the eyes to the right; flaccid paralysis of the legs and right arm; spastic paralysis of the left arm;

irregular pulse of 62; systolic blood pressure, 105, diastolic, 65; systolic murmur heard at the apex; clear heart tones; moderate sclerosis of the radial arteries; slight edema of the right leg; vasomotor changes of the right leg and abdomen; albumin in the urine; leukocytosis of 29,500; temperature, 98.2 F. Five hundred cubic centimeters of Fischer's solution was given intravenously after the withdrawal of 100 c.c. of blood, and stimulants were administered; but he died in six hours.



Fig. 2 (Case 1).—Innominate artery: A, ulcers of the intima.



Fig. 3 (Case 1).—Left common carotid artery.

Necropsy (Dr. E. R. LeCount).—This revealed: marked syphilitic sclerosis of the aorta, iliac, common carotid, subclavian, axillary, vertebral and cerebral arteries; huge dissecting aneurysm of the aorta and the innominate, common carotid and iliac arteries; compression of the channels of the common carotid arteries; miliary gummas of the liver; syphilitic scars of the leptomeninges; venesection wound of the right cubital fossa; anemia of the brain; edema of the brain and leptomeninges; foramen magnum pressure-furrow of the brain-stem; marked sclerosis of the coronary arteries; chronic diffuse nephritis, red, granular kidneys; marked hypertrophy of the left ventricle of the heart; clot-distended right heart chambers; marked edema of the lungs; enlarged superficial veins of the abdomen, thighs and legs; varix of the right spermatic vein; chronic purulent left frontal sinusitis, and disseminated focal atrophy of the cerebral cortex.

The dissecting aneurysm, starting in the edge of a plaque at the mouth of the right coronary artery where there was a transverse slit in the intima, 1 cm. long, ran in the right posterior portion involving one third of the circumference. As it reached the arch of the aorta, it narrowed to 2 cm. and came to lie on top of the vessel, passing to the left as it reached the descending portion. It involved the mouths of the innominate, left carotid and subclavian vessels, and from the arch, passed down to lie in the posterior half of the thoracic portion. Before reaching the abdominal portion, it curved again to involve more of the left side and then in the abdominal portion came to include more of the right side and less of the left (Fig. 1⁴¹). At the mouth of the superior mesenteric artery, it was 3.5 cm. wide, at the bifurcation 2.5 cm. It dissected the back half of the wall of the left

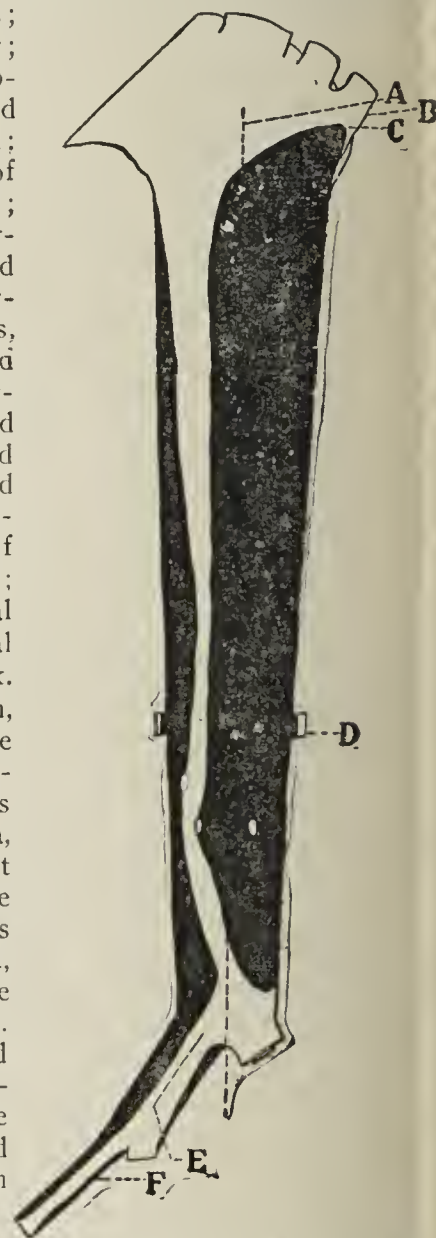


Fig. 4.—Conditions in Case 2: A, midline of the aorta behind; B, subclavian artery; C, rupture of intima; D, celiac axis; E, midline of right common iliac behind; and F, external iliac artery.

41. The black regions in this chart, as in subsequent charts, indicate the location of the dissection of the aorta and its branches.

26. Dickenson: Tr. Path. Soc. London **13**: 48, 1862.
27. MacCallum: Footnote 19, Case 5.
28. Barhdt: Arch. d. Heilk. **13**: 473, 1872.
29. Todd: Tr. Med.-Chir. **17**: 301, 1844.
30. Thompson: Med. Gazz. London **37**: 584, 1846.
31. Edwards and Stone: Tr. Path. Soc., Philadelphia **6**: 38, 1878.
32. Freundlich: Zwei Fälle v. aneur. diss. aortae, Würzburg, 1893.
33. Mandron: Bull. Soc. Anat. **39**: 388, 1864.
34. Bludau: Ein Fall v. Aneur. diss. Aortae, Halle a. S., Dresden, 1909.
35. Kaiser: Ein Aneur. diss. der Brust und Bauchorta als Ursache eines paralytischen dünnarm-Ileus, Berlin, 1913.
36. Oliver: Lancet **1**: 1068, 1892. Freundlich: Footnote 32.
37. Barker: Tr. Med.-Chir. n. e. **25**: 131, 1860. Leggat: Tr. Path. Soc., London **20**: 130, 1869. Hayden: Proc. Path. Soc., n. s., Dublin **6**: 1, 1871. Peabody: Med. Rec. **8**: 326, 1880.
38. Swaine: Tr. Path. Soc., London **7**: 106, 1855.
39. Draper: Med. Rec., 1866.
40. Flockman: München. med. Wchnschr., 1898.

iliac artery for 5 cm. It also extended up both common carotid arteries to their bifurcations, involving the left half of the circumference in the left, the front left quarter in the right. Only about 1 sq. cm. of the wall of the left subclavian at its origin and a similar place of the left external iliac were involved. In that part of the aneurysm in the left carotid, there was an adherent thrombus completely filling it. The right subclavian artery was not involved. At the bifurcation of the innominate were two ulcers of the intima, each 5 mm. in diameter. The microscope showed syphilitic changes in the aorta and a dissection of some media with the adventitia to form the outer wall of the sac.

CASE 2.—History.—L. T., a negress, aged 71, was taken to the Cook County Hospital after an illness of two days, with symptoms which led to the diagnosis of cerebrospinal syphilis (service of Dr. Grinker). Examination revealed shortness of breath, slight nausea and vomiting, pain in the abdomen, spastic paresis of the right leg, pulse 108, diastolic, and 131, systolic, and a history of chronic headaches and sudden coma of two hours' duration on the day preceding admission. Two weeks after admission, there was profuse bleeding from the bowel, lasting two days, after which she gradually weakened and died, twenty-three days after the onset of her illness.

Necropsy (E. R. LeCount).—This disclosed: marked generalized senile arteriosclerosis; huge dissecting aneurysm of the thoracic and abdominal portions of the aorta, left common and external iliac artery; aneurysmal dissection of the beginnings of the celiac axis, left renal and superior mesenteric arteries; fusiform aneurysm of the celiac axis; aneurysmal amputation of the inferior mesenteric artery in the aortic wall; partial pressure occlusion of the mouths of the left common carotid and subclavian arteries by mural aortic thrombi; mural thrombosis of the aorta, celiac axis and left middle cerebral artery; extensive spontaneous hemorrhage into the retroperitoneal tissues, beneath the peritoneum of the mesentery, lesser omental cavity and small pelvis; anemia of the brain; edema of the leptomeninges; clot-distended heart chambers and large blood vessels; hypostatic hyperemia of the lungs; moderate generalized icterus; disseminated atrophy of the cerebral cortex; chronic diffuse nephritis and arteriosclerotic kidneys.

The aneurysm, starting at the distal margin of the mouth of the left subclavian artery in a slit 5 by 1 mm., involved the posterior three fourths of the thoracic portion, the posterior four fifths of the abdominal portion, the front half of the right common iliac and 6 cm. of the front half of the external iliac. The proximal 1 cm. of the celiac axis was entirely involved, and the adjacent 2 cm. to a lesser extent. The proximal 1 cm. of the left renal and superior mesenteric artery was similarly affected. The inside of the aneurysm was rough, irregular and nodular from fibrin deposits which had undergone organization. Along the entire aorta, but less in the proximal 10 cm., there were marked sclerotic changes and many lime deposits. Grossly, the splitting had occurred between the media and adventitia.

CASE 3.—History.—A teamster, aged 61, was taken to the Cook County Hospital with symptoms which led to the diagnosis of epilepsy and pneumonia (service of Dr. Hall). Examination revealed irrationality, stupor, impaired resonance over the

right lower lobe, blood-stained sputum, temperature of 102 F., increased area of cardiac dullness and loud systolic murmur at the apex. Preceding death, which occurred in thirty-six hours, there were left hemiplegia, involuntary urination and defecation and Cheyne-Stokes respiration.

Necropsy (E. R. LeCount).—This revealed: syphilitic and senile sclerosis of the aorta, dissecting aneurysm of the entire aorta and rupture of this aneurysm into the pericardium; hemopericardium; fibrous pleuritis, and partial atelectasis of the right lung.

The aneurysm, starting in a transverse slit, 2.1 cm. long, and 2 cm. above the aortic cusps, involved about a third of the circumference of the ascending portion and almost two thirds of the remaining portions. It involved the posterior half more than the anterior, and cut off most of the intercostal and lumbar vessels at their origins, but none of the large branches, and ended at the bifurcation.

The dissection also extended back to the intrapericardial portion of the aorta, where the rupture into the pericardium occurred. There were marked changes in the intima of the entire aorta, least in the proximal 10 cm. and distal half. The roughening in the ascending portion and arch was typical of syphilis, and elsewhere there were many ulcers and calcareous plaques. The dissection where examined microscopically was in the outer edge of the media.

CASE 4.—History.—N. H., a woman, aged 60, entered the Cook County Hospital, Jan. 2, 1902, and died the same day. No further clinical history was obtainable.

Necropsy (Dr. W. H. Hunter).—Only the heart and aorta were described. The wall of the left ventricle was 2 cm. thick, the endocardium negative. The aortic cusps were slightly thickened and stiffened by small calcareous plaques. The pericardium was filled with partially clotted blood. Hematopericardium was stated as the cause of death.

The dissecting aneurysm, starting in a transverse slit through the intima and media, 2 cm. long, 4 cm. above the valve attachments, extended in both directions to take somewhat the shape of a canoe paddle. The splitting was up as far as the origin of the subclavian artery and proximally so as to involve about 1 cm. of the base of the heart where a rupture into the pericardium had taken place. Grossly, the dissection was between the media and adventitia. At the site of rupture of the intima were several athromatous nodules, while the entire arch and descending portion of the aorta were the seat of marked sclerosis, in many places cartilage-like in firmness.

Tuberculosis in the Philippines.—According to a statement by the Tuberculosis Association of the Philippines, the death rate from tuberculosis has shown a steady increase during the last few years. The number of deaths went up from 18,710 in 1910 to 19,977 in 1911; 19,839 in 1912; 18,392 in 1913; 19,467 in 1914; 19,948 in 1915; 20,806 in 1916; 22,957 in 1917; 29,318 in 1918; 29,653 in 1919, and 25,936 in 1920. The Tuberculosis Association was organized in the Philippines in 1910. During that time there have been inaugurated three tuberculosis dispensaries in Manila and eight in the provinces. The tuberculosis colony was established in 1918 at Santol (Caloocan, Rizal), just outside Manila, and two pavilions of 100 beds were added in 1920.

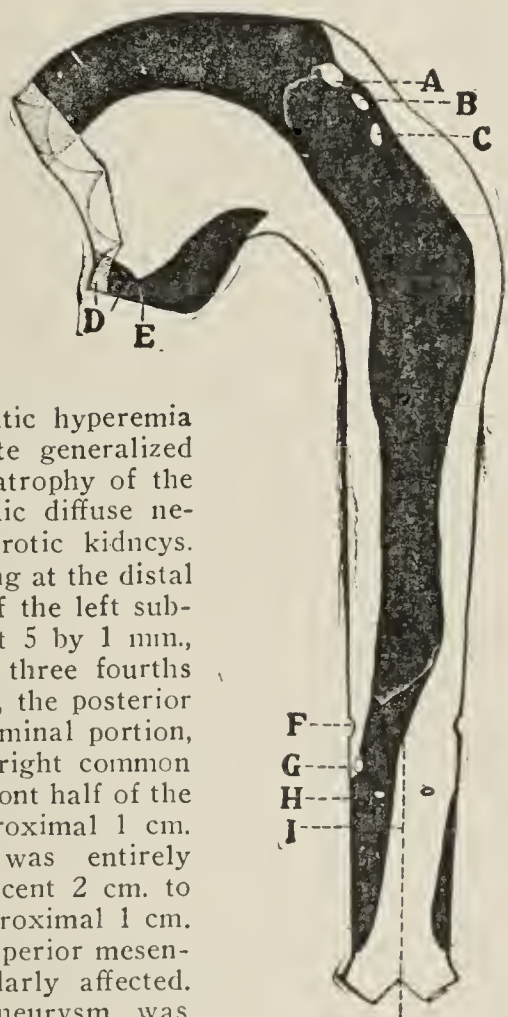


Fig. 5.—Conditions in Case 3: A, innominate artery; B, common carotid artery; C, subclavian artery; D, aneurysm; E, half of slit in intima; F, celiac axis; G, mesenteric artery; H, renal arteries, and I, midline of aorta behind.

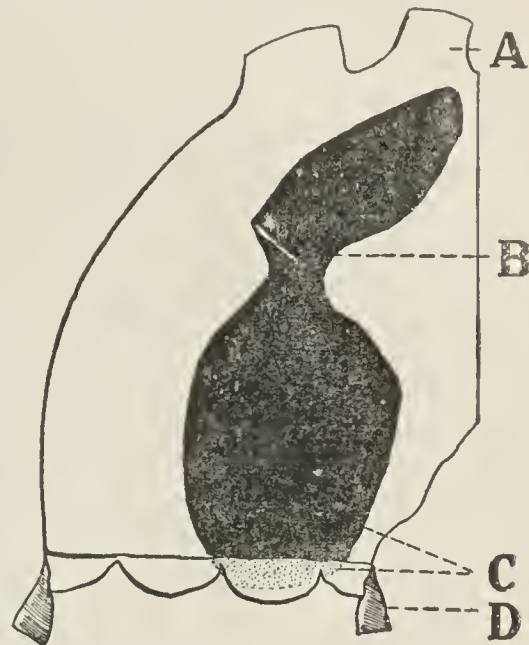


Fig. 6.—Conditions in Case 4: A, common carotid artery; B, slit in intima; C, dissected region, and D, heart wall.

GASTRIC ANALYSIS

IV. THE GASTRIC EQUILIBRIUM ZONE*

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In the course of our gastric studies, we have introduced into the human stomach a considerable number of fluid substances of widely divergent character. The accompanying chart embraces data which are typical of the response secured. In the case in question, ten different fluids were introduced into the empty normal stomach, and samples of gastric contents were removed at intervals of ten minutes, until the stomach was empty, and analyzed for total acidity. It was found that the stomach contents assumed a strikingly uniform acid concentration within a half hour, entirely irrespective of the chemical character of the fluids introduced. In the case of Subject "S," whose data we have charted, the stomach contents assumed an acidity ranging from 50 to 75 in a thirty minute interval. Substances of as divergent character as vinegar, with an acidity of 190, and sodium bicarbonate, with an alkalinity of 50, were so manipulated by the stomach as to yield a gastric response which was uniform at about 50 for the two fluids.

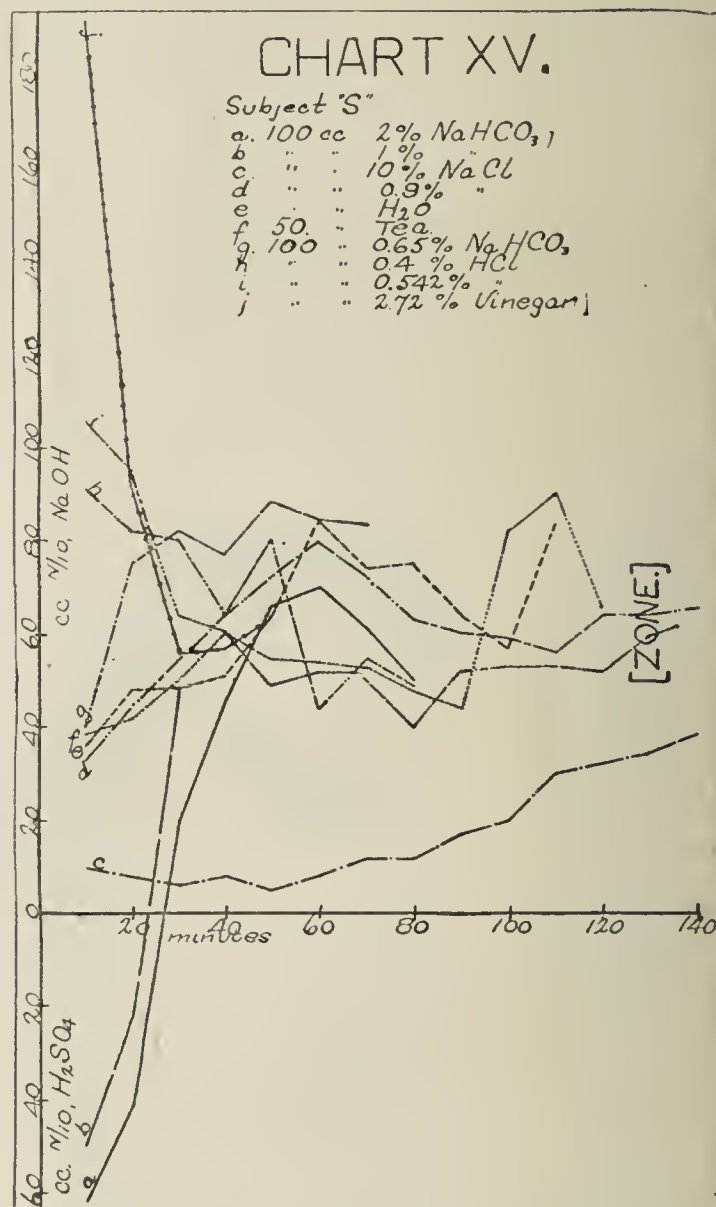
The mechanism by which the stomach brings all fluids to an optimum acid level before permitting their evacuation into the intestine is a most remarkable one. It is closely associated with Boldyreff's¹ mechanism, which is involved in the "automatic regulation of gastric acidity," to which reference has already been made in a previous article from this laboratory.² This author asserts that the juice as secreted by the gastric cells has an acidity in the neighborhood of 0.5 per cent. hydrochloric acid. This high acid concentration has an irritant action on the gastric mucosa and is consequently partly neutralized and rendered nonirritant through the automatic regurgitation of alkaline material from the intestine. That this phenomenon does actually exert an important influence on gastric acidities has been repeatedly demonstrated in this laboratory.

In the case of from 1 to 2 per cent. sodium bicarbonate, this, too, apparently has an irritant action and is, therefore, quickly neutralized by an outpouring of highly acid gastric juice and brought within the range of optimum acidity for the individual in question.

The area in which the gastric acidity values fall after the ingestion of fluids of widely divergent character, we have called the gastric equilibrium zone. This zone varies for different individuals, being relatively high for high acid stomachs and relatively low for low acid stomachs. Meunier³ apparently studied this mechanism from the standpoint of the cryoscopic index. In the subacidities and achylas, this mechanism is

partially or totally lost, while in the opposing series of cases, namely, those associated with pylorospasm, hypersecretion, and delay in gastric digestion, we see again a mechanism in which the sequence of digestion is seriously impaired. The excessive secretion is not properly regulated by the automatic regurgitant factor from the duodenum, and is consequently not brought to an optimum but maintained above that point, engendering a vicious circle in which spasm, hypersecretion and delay are succeeding manifestations.

That the establishment of the gastric equilibrium zone is closely associated with pyloric function is immediately apparent. We cannot, however, from our studies of normal and pathologic digestion subscribe to



The curves a to j represent the total acid response of the stomach after the introduction of the various fluids listed on the face of the chart. The abscissas represent the time intervals, whereas the ordinates represent the number of cubic centimeters of the tenth normal sodium hydroxid or sulphuric acid solution required to neutralize 100 c.c. of the gastric contents. Samples of gastric content were recovered at intervals of ten minutes.

Cannon's conception of the pyloric mechanism. This is not the place for a discussion of this mechanism, which we shall resume at a later date.

CONCLUSIONS

When fluid substances of widely varying character (water, hydrochloric acid, sodium bicarbonate, sodium chlorid, tea, vinegar, etc.) are introduced into the normal human stomach, the secretory response ultimately reaches a uniform optimum level before evacuation occurs. This rather definitely defined area, which varies for different individuals, we would call the gastric equilibrium zone. This mechanism is partially or totally lost in disease.

* From the Laboratory of Physiological Chemistry, Jefferson Medical College.

* The expenses of the investigation on which this article is based were defrayed by funds furnished by Mrs. M. H. Henderson.

1. Boldyreff, W.: Arch. f. d. ges. Physiol. (Pflüger's) **121**: 13, 1907. Noorden's Centralbl., 1908, No. 6. Trans. 11th Pirogoff's Congress of Physicians, St. Petersburg, 1910 (Russian), "The Self Regulation of the Acidity of the Stomach."

2. Spencer, W. H.; Meyer, G. P.; Rehfuß, M. E., and Hawk, P. B.: Am. J. Physiol. **39**: 459 (Feb.) 1916.

3. Meunier, L.: Bull. d. Sc. pharmacol. **25**: 341-345, 1918.

MECHANICS OF FRACTURES AT THE WRIST*

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During the past year or so I have reduced a number of fractures caused by the back kick of an automobile crank. These I will designate as chauffeurs' fracture, classifying the Colles as that type of wrist fracture generally caused by a fall on the heel of the hand, with the arm more or less rigid. This classification, based on etiology, is arbitrary and to facilitate discussion.

I was impressed by the fact that the majority of so-called fractures of the chauffeur type occurring in my own work showed the line of fracture extending into the wrist joint, while this occurred more rarely in the Colles type.

The consistency with which this phenomenon occurred suggested the advisability of further investigation, to endeavor to secure a postulate on which to work.

The records of the Cottage Hospital roentgen-ray laboratory, as compiled by the roentgenologist, Dr. J. G. Ware, reveal that of forty-one cases investigated, sixteen were of the chauffeur type and twenty-five were of the Colles type. Of the sixteen chauffeur type, in twelve, or 75 per cent., the fracture extended into the joint. Of the Colles, six, or 24 per cent., extended into the joint.

These statistics show a rather definite preponderance of intra-articular fractures occurring in the chauffeur type.

In an endeavor to account for this fact, I had several roentgenograms made, showing the hand first in the position assumed in cranking a car and then in the position in which the typical Colles type of fracture occurs.

MECHANICS OF COLLES' FRACTURE

It might not be inapropos to state at this point the main mechanical factors in the Colles type of fracture. This is generally caused by a fall which is broken by an outstretched arm with the hand in extension, slightly abducted, and dorsally flexed; and further, the scaphoid bone opposes a somewhat broad and rounded surface to the articular head of the radius. This is also a low velocity blow.

The anterior radiocarpal ligament arises from a prominently projecting anterior lip at the lower end of the radius, the origin of these fibers extending one-quarter inch (6.35 mm.) above the articular margin. These fibers are very strong and their insertion is the plantar surface of the scaphoid, semilunar, cuneiform and pisiform bones.

The carpal and metacarpal bones are joined together so firmly that in movements of flexion and extension of the wrist they act as one bone. Therefore it may be readily seen that, in a fall with the hand extended, tremendous leverage is exerted by the pull of the radiocarpal ligament as the carpal bones into which it is inserted are carried back in extension of the hand, and further, the prominently projecting anterior lip at the lower end of the radius accentuates this leverage.

In consequence, the head of the radius is fractured by the avulsive force exerted by the radiocarpal ligament. Synchronously, the first row of carpal bones

in contact with the cup-shaped radio-articulation transmits the force into a cross-breaking strain against the radial head.

Two other lines of stress must be considered in this fracture: (1) the sudden impingement of the carpal bones against the articular surface of the radius just before the avulsive force of the radiocarpal ligament has had time to luxate the radial head out of continuity with the shaft, and (2) the splitting of the lower fragment by descent into it of the lower end of the upper fragment.

In both of these cases, longitudinal lines of fracture occur into the head of the radius, producing the so-called intra-articular fracture. As to whether or not this occurs is dependent on the rapidity with which the radiocarpal ligament is able to displace the head dorsally. I believe that the two latter described forces of cleavage will account for the majority of the intra-articular fractures in the Colles group.

MECHANICS OF CHAUFFEURS' FRACTURE

In chauffeurs' fracture, as has been shown by the foregoing figures, 75 per cent. are intra-articular. I believe that this is caused by the following facts: The hand is held rigidly parallel with the arm in abduction, no dorsal flexion being present. The lines of stress are through a point just ulnad to the thenar eminence, and are transmitted by the scaphoid bone, which in that position opposes a comparatively sharp, wedge-shaped edge to the articular surface of the radius. The lines of stress run parallel with the hand and arm, which in turn are parallel one with the other.

To recapitulate, we have in this type:

1. A high velocity blow; force transmitted by scaphoid with direct impingement into articular radius.
2. Adduction of the hand with apposition of sharp, wedge-shaped scaphoid instead of broad, rounded surface, as shown in the abducted position, Colles.
3. Hand parallel with arm, no dorsal flexion, and no avulsive force as in the Colles.

I believe that these differences in mechanical force and lines of stress, as just stated, are responsible for and will account for the predominance of intra-articular fractures in the chauffeur type of trauma.

The French Losses During the War.—Our Paris exchanges are publishing the corrected statistics to date of the losses in the war. For the first time in history, it is reiterated, the fire of the enemy killed nearly seven times as many victims as died from disease. The total number was 1,325,000. This figure includes 674,700 killed on the field of battle and 250,000 who succumbed to their wounds. Also 225,300 missing and presumably killed by the firing, and 175,000 who died from disease. The proportion was about one killed to four wounded. About 20 per cent. of all the wounded had multiple lesions. Up to 1918, shells accounted for 76 per cent. of the wounds and bullets for 16 per cent. In 1918 the proportions were fifty-eight and twenty, with 12 per cent. of the mortality due to other causes. During 1916, the mortality of the wounded in the hospitals of the front was 4.61 per cent.; in the hospitals at the rear, 7.18 per cent. In 1917, front, 5.12, and rear, 0.73. In 1918, 7.36, front, and 1.29, rear. In the home zone, the mortality during 1914 and 1915 was 2.25 per cent. of all the wounded treated; in 1916, 1917 and 1918, it was 0.94 per cent. During the years 1916, 1917 and 1918, 79 per cent. of the wounded returned to service after recovery. From August, 1917, to November, 1918, there were recorded 5,920 amputations for 251,414 wounded, that is, one thus mutilated to forty-two wounded. By the end of 1919, 40,824 of the wounded had been fitted with an artificial leg, and 54,156 had been fitted with vocational prostheses.

* From the Clinic of the Santa Barbara Cottage Hospital.

OCCURRENCE OF VIRULENT ANTHRAX BACILLI IN CHEAP SHAVING BRUSHES

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In the six years elapsing between October, 1915, and November, 1921, thirty-six cases of cutaneous anthrax were admitted to the isolation pavilion of Bellevue Hospital and, of this number, ten, or approximately 28 per cent., followed the use of shaving brushes. During a period of one year and nine months ending Oct. 1, 1920, thirty-four cases of cutaneous anthrax were reported to the New York Department of Health and, of this number, seventeen, or 50 per cent., were traceable to shaving brushes.¹ From these figures it appears not only that infested shaving brushes are to be incriminated as carriers of anthrax in an astonishing percentage of cases, but also that this method of conveyance is becoming increasingly common.

A patient recently presented himself at Bellevue Hospital with an extensive area of swelling in the region of the chin surrounding a large, centrally placed, brownish eschar. The lesion lacked the silvery vesicles which usually attend the fully developed anthrax pustule, but was otherwise highly suspicious, and was said to have followed the use of a new shaving brush eight days previously. Smears from the pustule revealed innumerable gram-positive staphylococci, and *Staphylococcus aureus* was isolated in pure culture. Anthrax bacilli were not to be found either in smear or in culture. The shaving brush that the patient had used was submitted to us and was of the cheap variety with horsehair bristles. The bristles were dusted over the exposed surface of agar plates and, after twenty-four hours' incubation, numbers of colonies appeared that presented the medusa arrangement of the anthrax bacillus. A few drops of an emulsion of one of these colonies in sterile salt solution were injected into the subcutaneous tissues of the abdominal wall of a guinea-pig. The pig died in forty-two hours, and necropsy revealed gelatinous infiltration of the tissues of the chest and abdomen with areas of hemorrhage and necrosis—changes which are characteristic of the anthrax bacillus—and from the gelatinous infiltrate and from the heart's blood, anthrax bacilli were stained in smears and grown in pure culture.

Following this experience, we purchased a series of forty shaving brushes from peddlers in the streets of New York and from shops, and submitted the bristles to bacteriologic examination in order to test the incidence of infestation by anthrax bacilli in a commodity against which clinical experience seems to draw a strong indictment. The brushes cost from 10 to 75 cents, the average price being about 20 cents, and the bristles were invariably coarse and appeared to consist of horsehair. The method of examination that we employed as a routine measure differed in no essential from that already outlined, suspicious colonies being tested in every instance by guinea-pig inoculation.

Out of a total of forty-one brushes thus investigated, virulent anthrax bacilli were isolated in three instances, or 7.3 per cent. In thirty-two brushes, or 78 per cent., bacilli were grown that presented morphologic and cultural features closely resembling those of the anthrax bacillus, but guinea-pig inoculation was attended by uniformly negative results—so-called anthracoid bacilli. From the remaining six brushes, no suspicious colonies developed.

These results show that shaving brushes of the sort that we examined are all too often harbingers of anthrax bacilli of exalted virulence, and the wonder is, not that so high a percentage of cheap brushes is infested, but that cutaneous anthrax following their use is not more common. No doubt man's relatively high degree of immunity to anthrax, and the possession of an unbroken skin by the users of contaminated brushes serve as a protection in many cases. On the other hand, it is possible that anthrax contracted from cheap brushes is even more common than hospital experience would indicate—that the nature of the disease is not always recognized and that death in these circumstances is erroneously attributed to some other variety of infection. The victim of cutaneous anthrax frequently makes light of his affliction and regards the pustule as an annoying disfigurement rather than something that may threaten his life. Commonly enough, in neglected cases, this false sense of security capitulates abruptly to symptoms that presage death from disseminated infection. However true this may be, the fact remains that shaving brushes made of horsehair and similar materials constitute a source of danger, and that their manufacture should be subjected to more rigid supervision by the state. The spore-bearing anthrax bacillus is notoriously resistant to ordinary methods of disinfection, and the application to the cheaply finished shaving brush of the more efficient methods of sterilization is almost certain to result in damage to or destruction of the brush. Any method that is aimed at the elimination of anthrax bacilli from shaving brushes should be applied to the bristles before they are incorporated into the brush. Even in these circumstances, however, it remains to be shown whether any of the several methods devised for the sterilization of anthrax-infested hair is really efficient without, at the same time, impairing the value and usefulness of the material acted on. It appears to us that the only reliable safeguard against the spread of anthrax by brushes is through bacteriologic examination of every batch of bristles intended for use in the manufacture of such articles, all infested supplies being destroyed. Moreover, the importation of cheap shaving brushes made of horsehair and the like should be more stringently regulated. For example, it is reported that horsehair shaving brushes made in Japan have been shown to convey anthrax to such an extent that the British government has recently forbidden their entrance.²

CONCLUSIONS

1. Cheap shaving brushes bought in the open market in the city of New York have been shown to harbor virulent anthrax bacilli in three out of forty-one instances, or 7.3 per cent.

2. In 78 per cent. of forty-one brushes examined bacteriologically, anthracoid bacilli were found—that is

1. Month. Bull. Dept. Health, New York City 10:249, 1920.

2. Anthrax from Shaving Brushes, London Letter, J. A. M. A. 77: 1585 (Nov. 12) 1921.

to say, micro-organisms presenting much the same morphologic and cultural characteristics as anthrax bacilli but which, when injected into guinea-pigs, are noninfective. The ubiquitous hay bacillus is, perhaps, the most vexatious member of this group. In the bacteriologic investigation of hair and other substances supposed to contain anthrax bacilli, it follows that the infectivity of all suspicious micro-organisms should be determined by animal inoculation.

Clinical Notes, Suggestions, and New Instruments

REPORT OF A CASE OF LATERAL SINUS THROMBOSIS WITHOUT THE USUAL EAR AND MASTOID SIGNS

MORRIS H. NEWTON, M.D., LITTLE FALLS, N. Y.

History.—Mr. J. W., white, wood-worker, aged 39, referred by Dr. Blum, Oct. 18, 1921, had had a cold in the head of a week's duration. Three days prior to his first visit, intense pain had developed in the right ear and had been constant since.

Examination.—The temperature was 102.5 F., the pulse 95, and respirations 22. The right tympanum bulged in the upper posterior quadrant, but there was no sagging of the posterior canal wall. There was no tenderness over the antrum or mastoid. The patient was removed to the hospital, and a paracentesis of the right tympanum was performed. Only a very small amount of hemorrhagic serum exuded from the incision.

Clinical Course.—October 19, the fourth day after the onset, pain was still acute in the right ear, and the patient said that during the night the same intense pain had developed in the left ear. The temperature ranged from 103 to 104 F. The right tympanum was red; but there was no bulging. The left tympanum bulged in the upper posterior quadrant. The white blood count was 18,000, with 90 per cent. polymorphonuclears. The patient was perspiring profusely but had had no chills nor had he vomited. He looked septic. The left tympanum was incised under local anesthesia but there was no discharge from the incision.

October 20, the temperature was 104 F., the pulse 100, and the respirations 24. The pain in both ears was almost unbearable. The patient did not look so well; the face was flushed, and the facial muscles twitched constantly. There was no discharge from the ears; the drum was red but did not bulge. There was no mastoid or antrum tenderness or edema. (Blood culture was not taken because of lack of facilities.)

October 21, the patient was no better. He looked septic. There was constant facial twitching. The tongue protruded in midline; the reflexes were sluggish; the eyegrounds were normal. There was no aural discharge or mastoid tenderness.

October 22, the temperature was 102 F., the pulse 90 and respirations 26. The patient said he had no pain; but when asked why he cringed he said that occasionally sharp pains went through the left side of his head. When left undisturbed, he became delirious and muttered in low tones. The pulse was poor; the left pupil was larger than the right, and the nurse reported that the left eye seemed to bulge. Examination revealed partial paralysis of the left upper lid. No tenderness was elicited over the antrum or mastoid. There was no aural discharge.

Operation and Results.—Under ether anesthesia, the left mastoid was opened. The cortex was firm; but the entire bone, from the first chiseling, bled abnormally, so much so that the operation was delayed at times because of the extreme hemorrhage. The bone around the antrum was soft, but no pus was encountered. Directly on the floor of the antrum, the lateral sinus was uncovered, its wall being grayish and lusterless. The lateral sinus was opened. Blood flowed freely from the sigmoid portion but not from the horizontal portion until a ring curet had been introduced and portions of blood clot removed. The sinus and mastoid were packed with iodoform gauze and closed.

October 23, the temperature was 103.2, the pulse 100 and respirations 25. There was less twitching of the face, and no paralysis of the lid. The pupils were equal. The patient said he had very slight and only occasional pain in the left ear. There was no pain in the right ear, and no discharge from the right ear.

October 24, the patient looked better and said he had no pain. The temperature was 101.3 F., the pulse 80, and respirations 22.

October 25, the condition was good. The temperature was 99, pulse 84, and respirations 20.

October 26, the patient was continuing to improve. The temperature was 99 F.

October 27, the dressing was changed, and the packing removed. The wound was clean.

November 2, eleven days after operation, the patient left the hospital.

November 14, twenty-three days after operation, the patient returned to work. The mastoid wound was almost entirely healed. Recovery was uneventful.

Comment.—This case is unusually interesting because of the apparent severity of the infection and the rapid development of left lateral sinus thrombosis without either an aural discharge or mastoid or antrum tenderness. Usually there are evidences of an acute purulent otitis media or mastoid involvement preceding lateral sinus thrombosis. The proximity of the sinus to the mastoid antrum in this case accounts for the rapid extension of infection directly from the middle ear.

• 202 Burrell Building.

REMOVAL OF BREAD CRUMBS FROM TRACHEA BY SUCTION

REPORT OF CASE

WILLIAM B. McWHORTER, M.D., ANDERSON, S. C.

A 10 months old child was brought to my office because of constant labored breathing for three days. The initial attack came on suddenly while the child was lying on the back eating a piece of dry bread. The mother stated that the child coughed and sucked bread into the windpipe. Examination revealed no evidence of diphtheria or other acute infection. The child was covered with perspiration and seemed almost exhausted from labored breathing. It was wrapped in a sheet, and an attempt was made to examine the larynx with a direct laryngoscope. This was unsuccessful, owing to vomiting and spasm of the glottis. Ether was then given, and a small direct laryngeal speculum was passed down to the larynx. Through the laryngoscope, a 5 millimeter bronchoscope was passed. A soft white mass was seen below the vocal cords, almost entirely closing the trachea and moving up and down with each respiration. A small aspirating tube was passed through the bronchoscope. The aspirating tube was then connected with an electric suction apparatus and the entire mass was aspirated. The tube was passed on down to the bifurcation of the trachea, where another mass was found and removed. The mass was of doughy consistency and about the size of two grains of corn. Relief was immediate and complete.

Ligon-Ledbetter Building.

A Cigaret Drain.—Rubber dam cigaret drains have been in use for a long time, and various methods of preparing them have been used. The method here described requires but little time and gives a neat drain that does not dry up. A piece of rubber dam 2 or 3 inches (from 5 to 7.5 cm.) long and about 1½ inches (4 cm.) wide is rolled between the fingers as tightly as possible and the outside edge cemented to the body of roll with rubber cement in the same manner that a cigaret is pasted shut. A few holes punched in the roll with the punch used for Dakin tubes is of advantage. Either old rubber tissue gloves or new rubber dam may be used. These drains possess the power of capillary attraction to a high degree, and are superior to gauze wicks, the faults of which are familiar to all surgeons.—WILTON H. ROBINSON, M.D., Pittsburgh.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, DECEMBER 31, 1921

MORE ABOUT COD LIVER OIL IN THERAPY

Although cod liver oil has long had an assured place in therapy, the indications for its use have until recently been defined by the sheerest empiricism, and the explanation of its apparent remedial effects has been difficult to secure. It marked a distinct step in advance, therefore, when Osborne and Mendel¹ demonstrated in 1914 that cod liver oil contains what is now usually designated as vitamin A—the fat-soluble vitamin or accessory food factor found in milk fat, egg fat and many green leaves. This discovery tended to focus attention on possible potencies of the cod liver product that were not explicable in terms of its easy emulsification or more ready digestibility to which some writers have long attributed the superior virtues of the oil.² The importance of the product is further enhanced by the recent announcement of Zilva and Miura³ that cod liver oil may be something like 200 times as rich in vitamin A as is butter fat, an acknowledged excellent source of this factor.

Cod liver oil has long been employed in the treatment of rickets in children. The complications involved in the interpretation of the causes of this disease, so lately the subject of extensive experimental investigation by scientific methods, have been referred to in previous issues of THE JOURNAL.⁴ Vitamins, calcium, phosphorus, sunlight, exercise and other dietary and hygienic items have become momentary topics for discussion in relation to the etiology of the disease. It is too early to speak the final word, although the progress now being made in the study of rickets is indeed most encouraging. Although rational therapy of a disease must frequently await the discovery of the causative agents, in the case of rickets successful cure seems to be assured almost in advance of the complete demonstration of the etiologic background. Park and How-

land⁵ have lately pointed out that, although cod liver oil has been used very largely in the treatment of rickets, there has not been complete unanimity of opinion regarding its curative properties. Some have regarded it as most effective. Perhaps it is fair to say, they add, that the majority have looked on cod liver oil as a substance which was of some value in rickets but in no way to be considered as a specific.

It would not be difficult today to marshal a considerable amount of clinical evidence recorded by competent observers to show definitely that cod liver oil is actually of value in rickets. Hess has been emphatic in this regard, while he maintains that this remedy is not replaceable by other rich sources of vitamin A. However, many of these reports are not sufficiently objective to be entirely convincing. Park and Howland have therefore furnished the direct ocular proof of the effect of cod liver oil which roentgenograms afford. Their results in many cases have been so consistent that they feel justified in stating definitely that cod liver oil brings about a change in the bones which, if the diet is not too faulty, amounts to complete cure. The change is not noticeable at once, but is readily demonstrable in almost all cases by the end of a month. In two or three months so much infiltration with salts has taken place that the extremities of the bones, except for deformities, are practically normal, and only differences in the finer architecture of the ends of the bones indicate the previous existence of a rachitic process. When skilled observers are willing to state that they have not seen cod liver oil fail in any single instance and that they know of scarcely another drug which in disease exerts so regular, certain and specific an effect as does cod liver oil in rickets, therapy has unquestionably recorded a commendable step in advance. It by no means excludes other therapeutic possibilities, such as sunlight and ultraviolet rays, which have lately won more than passing recognition.

THE SIGNIFICANCE OF ALBUMINURIA

Just as small amounts of glucose or some closely related carbohydrate may be found in almost every specimen of urine if suitably delicate tests are applied, so also it has been asserted that protein is an ever present constituent detectable by special procedures. Albuminuria in the clinical sense, however, is represented by a condition in which protein can be demonstrated in the urine by the tests in common use by physicians. Accordingly, the question of albuminuria is similar to that of glycosuria; small quantities of protein and sugar can be found in confessedly normal urines and may probably be disregarded unless the amounts present become more conspicuous. The line of distinction between so-called physiologic and patho-

1. Osborne, T. B., and Mendel, L. B.: The Influence of Cod Liver Oil and Some Other Fats on Growth, *J. Biol. Chem.* **17**: 401, 1914.

2. Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie als Grundlage der Arzneibehandlung, Berlin, Urban and Schwarzenberg, 1921, p. 192.

3. Zilva, S. S., and Miura, M.: A Note on the Relative Activity of the Fat-Soluble Accessory Factor in Cod Liver Oil and Butter, *Lancet* **1**: 323 (Feb. 12) 1921.

4. Experimental Rickets, editorial, *J. A. M. A.* **76**: 933 (April 2) 1921; Further Facts About Rickets, *ibid.* **76**: 1844 (June 25) 1921.

5. Park, E. A., and Howland, J.: The Radiographic Evidence of the Influence of Cod Liver Oil in Rickets, *Bull. Johns Hopkins Hosp.* **32**: 341 (Nov.) 1921.

logic albuminurias thus becomes somewhat artificial. Some years ago it was customary to follow the lead of Pavy in contrasting what he termed "functional" albuminuria with "structural" albuminuria. In the latter case the phenomena observed were supposed to be associated with anatomic changes in the kidneys.

Considerable importance is attached in a practical way to the more exact decision as to the borderline between the physiologic or transitory albuminurias and those pathologically more significant. The life insurance examiner, in particular, is frequently brought face to face with the difficulty of determining the meaning of persistent presence of albumin and other related components in the urine. He must decide where the risk lies and what the proper criteria for rejection shall be. The problems raised in connection with this subject have been debated repeatedly, and the answers have ranged from extreme conservatism to liberal indifference toward small traces of protein in the urine. A recent writer,¹ for example, states that a diagnosis of "essential" or similar albuminurias is possible only after a long, careful study of the individual case—including the history, a careful physical examination especially of the circulation and eyes, and an accurate study of the urine with especial reference to its specific gravity, amount, sediment, etc.—has failed to disclose any other evidence of renal disease; and even then a necropsy may reveal a true nephritis. The fact that the albuminuria is intermittent, or is orthostatic, or is, or is not, accompanied by a cylindruria, does not help to exclude a latent acute nephritis during convalescence.

This subject is one to which good statistics are certain to contribute helpful information. The difficulty of securing them lies obviously in the inability of most investigators to follow the renal history of the same person over a sufficiently long period to indicate the prognosis which may be attached to albuminurias of different types and degrees of severity. Dublin² of the Metropolitan Life Insurance Company has undertaken a study of the possible importance of persistent presence of protein in the urine and of protein with casts as a physical defect measured in terms of mortality. His conclusions, which are based on the after-life history of more than 5,000 persons who had been rejected for life insurance because of albuminuria, deserve careful consideration. The data attest the seriousness of albuminurias of all grades of severity, including those of the "faint trace" and "trace" variety, as a factor in mortality. Dublin states that the death rate has been almost doubled during the few years succeeding the examination, but there is some variation according to the amount of albumin found and the age of the persons. The excess mortality results primarily from an increase in the death rates from chronic

interstitial nephritis, tuberculosis and organic heart disease. Furthermore, Dublin's studies show that the seriousness of the presence of albumin with casts is reflected also in the death rates for the various diseases. The mortality rate is high for virtually every important cause of death. The rate for cancer is twice that found among ordinary policy holders, who are in every way comparable to this group except for the absence of urinary impairment at the time of their examination and acceptance by the company. For diabetes the rate is almost three times as high; for tuberculosis it is more than three times as high as in the ordinary experience. The extra mortality from this disease is not influenced so much by age as by the amount of albumin. Most significant is the picture presented by Dublin for the complex of the cardiovascular-renal diseases. Apoplexy and cerebral hemorrhage occur four times as frequently as in the company's ordinary experience; organic heart disease more than four times, and chronic interstitial nephritis twelve times.

LUNG CANCER AS AN OCCUPATIONAL DISEASE

Recently we discussed¹ the occurrence of carcinoma of the urinary bladder as an occupational disease, observed with remarkable frequency in men who are engaged in the manufacture or use of anilin dyes. The German surgeons, chemists and pathologists who have investigated this condition have not been able to decide which of the many organic compounds produced or used in the dye industry is to be considered as responsible for the development of the cancer, some incriminating the anilin itself, others finding evidence that tends to incriminate certain groups of dyes. More recently, Alice Hamilton² has discussed the subject at length, and suggests the possibility that arsenic, present as impurities in the chemicals used in the dye works, may be the exciting agent. It is, of course, well known that arsenic in small amounts for long periods stimulates epithelial growth, as seen in arsenical keratosis, and such hyperplasia may eventually become malignant.

This suggestion brings to mind the interesting story of the "Schneeberg lung cancer," a form of epidemic lung disease observed among the workers in the cobalt mines of Saxony.³ In this district, Uhlig tells us, it is common to find men, still in the prime of life, condemned to light and unremunerative forms of work, finished with and by the mines in which they have worked since youth. They usually end their lives with the diagnosis of "bergfertig," which means nothing more or less than cancer of the lung. The long history of this condition is attested by the existence of a book published in Chemnitz in the year 1770 by C. L.

1. Emerson, C. P.: *Clinical Diagnosis*, Philadelphia, J. B. Lippincott Company, 1921.

2. Dublin, L. I.: *The Significance of Albumin and of Albumin with Casts in the Urine*, *Am. J. Hyg.* 1: 301 (May) 1921.

1. *Dye Workers' Cancer, an Important Industrial Disease*, editorial, *J. A. M. A.* 75: 321 (July 31) 1920.

2. Hamilton, Alice: *J. Indust. Hyg.* 3: 16, 1921.

3. Uhlig, Margaret: *Ueber den Schneeberger Lungenkrebs*, *Virchows Arch. f. path. Anat.* 230: 76, 1921.

Scheffler, which recognizes the existence of health conditions different in the miners from other people, and rightly attributes this to the inhalation of much dust laden with arsenic, cobalt, and perhaps other less poisonous elements. Apparently at that early time there was not a little interest in improving conditions for these unfortunate people, destined to a premature and unpleasant death in return for their services in performing a necessary but unenjoyable task, but it is another hundred years before there appears in the literature any further consideration of the subject. In 1879, Hesse and Härting described this miners' disease as a pulmonary cancer, and recommended the installation of measures to reduce the amount of respirable dust. Necropsy findings were now available which showed that the disease in question was a cancer arising in the hilum of the lung, sometimes distinctly carcinomatous and sometimes of a round cell character suggesting an origin in the peribronchial lymph glands. In response to the report of Hesse and Härting, an improvement in working conditions seems to have been made, and the statistics indicate that the incidence of the disease is now much reduced. From the relatively high figure of from ten to sixteen cases of lung cancer a year among a force of about 600 miners, the number has been reduced to about one in 200 miners.

These examples of cancers the result of protracted stimulation to cell growth by chemical irritants are of much significance in our consideration of the etiology of cancer, and they gain especial force from the recent experimental demonstration that cancers may be produced at will in animals by stimulating growth with chemical agents. But more important is the recognition that cancer may sometimes be an industrial hazard that may be controlled by proper precautions. Arsenic-containing ores are mined in other places than Schneeberg, but we do not hear of lung cancer among the miners. Is the disease being overlooked in these places? We also are uninformed as to how important a factor in the production of lung cancer the inhalation of dusts which are merely mechanically irritating may be. There is an impression that lung cancer is a more common disease than it once was. Is there actually such an increase, or does it merely indicate more post-mortem examinations? If there is an increase, is the increased amount of pneumoconiosis of city and industrial life in any way responsible? Schmorl has said that lung cancer is relatively frequent in Dresden, attributing it to the number of sandstone industries in this vicinity. There is no doubt that inhalation of dust, as well as of toxic gases, leads to marked proliferation in the tissues of the lungs and the mediastinal glands, and hence we have reason to assume that such irritants may favor malignancy. The only question is how important a factor they are in cancer production, and the relation of this menace to dusty trades and urban life.

Current Comment

THE BASAL METABOLISM OF MAN IN THE TROPICS

If extraneous heat were capable of replacing the chemical energy of the nutrients in supporting the processes of life, tropical temperatures should reduce the fundamental metabolic changes in the body to a low level in comparison with that which obtains in the temperate zones. So far as climate involves temperature differences, however, it has never been regarded as altering the metabolism of man in any noticeable degree. In a warm environment, the efforts to remove heat by perspiration and other physical regulative devices with which the organism is endowed may become pronounced; furthermore, the necessity for heat production through so-called "chemical regulation" to maintain the normal body temperature may be entirely obviated. Not long ago, however, a Brazilian physiologist¹ announced, on the basis of direct observations, that the inhabitants of warm climates have a much lower basal metabolism than that of persons living in cold or temperate regions. Whereas the American investigators who have been pioneers in this domain of research rate the basal metabolism at approximately 39 calories per square meter of body surface per hour, with a maximum variation of ± 10 per cent. in normal persons, de Almeida has reported 30 calories as the corresponding figure for Rio de Janeiro. If this had been correct, a new and significant factor in climatology would have been discovered, unless it is assumed that certain much discussed endocrine functions are notably disturbed by life in the tropics. However, the Dutch hygienist Eijkman long ago reported the usual figures (about 40 calories per hour) for the metabolic rate of white and colored persons in Java, and he² has since substantiated his earlier data. It seems probable, therefore, that the basal metabolism is not essentially altered under the influence of a tropical climate. Accordingly, the regulation of body temperature in such an environment results in greater physical eliminative activity, through radiation, conduction and evaporation, rather than in a suppression of the usual heat production that attends the chemical cell activities essential to life anywhere.

POTENTIAL DIABETES

In view of the large number of persons afflicted with diabetes in this country, it would represent a great advance in preventive medicine if some way were discovered to avert the onset of the disease. For this reason alone, aside from the obvious scientific importance of adequate prophylactic measures, any serious attention devoted to the detection of a prediabetic condition is well worth while. Numerous investigations of the last few years point to the recent methods for the determination of sugar tolerance as not only the most promising but also the most practicable procedure to detect a latent or potential case of diabetes. In a

1. Ozorio de Almeida, A.: *J. de physiol.*, March, 1920, p. 713.
2. Eijkman, C.: *Le métabolisme de l'homme tropicale*, *J. de physiol.* 29: 33, 1921.

recent issue of THE JOURNAL, Sherrill¹ has pointed out anew on the basis of numerous clinical tests made in the Physiatrie Institute at Morristown, N. J., that when there is distinctly abnormal hyperglycemia after mixed meals, and when the ingestion of 100 gm. of glucose produces an elevation of blood sugar which exceeds the normal in both height and duration, a definite diagnosis of diabetes is afforded. His conclusion is based on the number of positive tests of this character in families having diabetic members, the insensible gradations by which the slighter degrees of impaired assimilation are merged with the cases of alimentary glycosuria and of frank diabetes, and the existence of mild diabetic symptoms in a high proportion of the cases which react positively, which clear up under anti-diabetic diet and under no other treatment. Before too great emphasis is placed on the outcome of sugar tolerance tests, however, it must be recalled that a variety of classes of patients who never develop diabetes may nevertheless have an abnormally low sugar tolerance. One need merely recall recent findings in the case of chronic rheumatism, hyperthyroidism and cancer. As Allen has contended, however, the glucose tolerance test is to be interpreted in connection with other clinical facts. Various infections and toxic states may, he says, result in abnormal curves; but such states are usually transitory and capable of diagnosis by the usual means. When, however, a patient, apparently free from any other abnormality, regularly and repeatedly shows abnormal height and duration of the elevation of blood sugar after glucose ingestion, and marked hyperglycemia after full, mixed meals, the condition may be regarded as a potential diabetes. Incidentally it is interesting to learn, on the authority of Joslin, that during the last year, for perhaps the first time in a generation, the mortality of diabetes in this country has been diminishing.

SALT, GASTRIC JUICE AND HEALTH

The assumed need for each of the various inorganic constituents commonly regarded as dietary indispensables has usually been based on a number of considerations which differ in the case of the individual elements. Phosphates are concerned in the neutrality regulation of the organism. Calcium is indispensable for the integrity of the bony structures, and doubtless has an important function in other physiologic ways. For common salt—sodium chlorid—the argument of necessity has involved the requirement of chlorin for the production of the hydrochloric acid of the gastric juice. A few years ago it was often stated that, as soon as the intake of common salt is reduced, the quantity and quality of the gastric juice will be promptly affected. Subsequently, however, it was noted that, when the supply of salt is omitted from the ration, the body thereupon conserves its chlorid resources. In “salt hunger” there is virtually no loss of chlorids through either urine or feces. The store in the blood and tissues thus remains practically intact, so that all physiologic functions in which chlorids are

concerned can proceed in a manner essentially like normal. Only when gastric juice is withdrawn from the body does the chlorid balance become seriously menaced in these conditions, as was shown by Rosemann.¹ Recently this view has been called into question in Japan;² but it has been satisfactorily defended anew.³ It becomes evident from the experimental facts now available that whenever the depletion of the bodily store of chlorin reaches a certain stage, complete loss of appetite, cessation of gastric secretion and severe damage to the gastric mucosa are almost certain to ensue. Anyone who studies the dietary behavior of most Americans is likely to gain the impression that they are overliberal in their use of common salt. That the other extreme, involving actual deprivation of this condiment, occurs except in the rarest instances seems improbable. The nature of the possible consequences deserve to be clearly appreciated, however; for during protracted illness, in particular, sickroom dietaries may sometimes exhibit astounding divergence from the “normal” regimen.

PHAGOCYTOSIS IN TERMINAL INFECTIONS

The resistance of the body to the encroachment of infectious diseases involves both cellular and humoral defenses. The latter are frequently interrelated, so that the supposed contradiction between these two modes of effecting immunity in the organism no longer is justified. Which group of defensive mechanisms—the purely chemical bactericidal immunologic factors or the phagocytic cells—breaks down first when a severe collapse of resistance occurs has not been clearly ascertained. In so-called “terminal infections” the body seems to be so weakened as to become defenseless against bacteria which cannot gain any headway so long as the protective mechanisms remain intact. Is this failure of resistance due to a decrease in the phagocytic functions of the organism concerned? According to the new studies of Cross⁴ at the Johns Hopkins Hospital, a negative answer must be given to this question. In his experimental tests no decrease in phagocytic activity against any bacteria not concerned in the primary infection has been demonstrated, even in the late stages of fatal infection. This would suggest that terminal infections do not arise primarily as the result of a rupture in the phagocytic defense. In fact, Cross asserts that perhaps the most striking feature of his investigation has been the unfailing effectiveness of phagocytic activity against the non-specific bacteria. Hence, what Bullock and Cramer⁵ have termed “cataphylaxis,” to indicate a rupture in the defensive mechanism against bacteria, must be explained by the loss of some other normal immunity factor sufficient to permit infection to lead without interruption to death.

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2. Takata, M.: Relation of Lack of Chlorids in the Animal Body to Hydrochloric Acid of the Gastric Juice, Tohoku J. Exper. Med. **1**: 354, 1920.

3. Rosemann, R.: Beiträge zur Physiologie der Verdauung, VIII, Die Bedeutung der Chlorverarmung des Körpers für die Magensaftsekretion, Arch. f. d. ges. Physiol. **190**: 1, 1921.

4. Cross, H. B.: An Experimental Study of Phagocytosis in Relation to Terminal Infections, Bull. Johns Hopkins Hosp. **32**: 350 (Nov.) 1921.

5. Bullock and Cramer: Proc. Roy. Soc. London, Series B **90**: 513, 1919.

1. Sherrill, J. W.: The Diagnosis of Latent or Incipient Diabetes, J. A. M. A. **77**: 1779 (Dec. 3) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Unlicensed Practitioners Fined.—Newspaper reports state that C. B. Thompson, chiropractor of Selma, was recently fined \$75 for practicing medicine without a license, and that E. T. G. Jackson, chiropractor of Roanoke, was found guilty on five counts and fined \$50 in each case, on the same charge.

CALIFORNIA

Hygienic Examinations in University High School.—The United States government has stationed two physicians at the University High School of Oakland for the purpose of studying the effects a student's physical condition may have on his success in scholarship, and his attendance and conduct. About 100 students are being examined weekly.

School District for Tuberculous Children.—The first school district in the state for tuberculous children exclusively will be established in Alameda County. Its boundaries will be the same as those of the Arroyo Sanatorium, and forty children now confined in the tuberculosis wards of the Arroyo Sanatorium of Livermore will be placed in the school.

Action Against Violation of Harrison Narcotic Law.—According to an announcement by Dr. Charles B. Pinkham, secretary of the state board of medical examiners, San Francisco, drastic action will be taken against physicians implicated in violation of the Harrison Narcotic Law. At a meeting to be held, Feb. 13, 1922, several physicians have been cited to appear and show cause why their licenses should not be revoked.

Hospital News.—The cornerstone of the new St. Francis Hospital, to be erected at Santa Barbara at an estimated cost of \$126,000, was laid December 4, Saint Barbara's Day. The new Jefferson Hospital, Taft, was formally opened the second week in December. Dr. Charles E. Howard and William G. Symon, for many years affiliated with the Garret, Ind., clinic, have taken over the management of the Hillcrest Hospital, at Hemet. A hospital for tuberculous negroes will be built at Monrovia, with a capacity of 100 beds.

DISTRICT OF COLUMBIA

Election of Officers.—At a recent meeting of the Medical Society of the District of Columbia, Dr. Archie W. Boswell was elected president; Dr. William H. Hough, first vice president; Dr. Prentiss Willson, second vice president; Dr. J. Russell Verbrycke, corresponding secretary; Dr. Coursen B. Conklin, recording secretary, and Dr. Edward G. Seibert, treasurer.

Appropriation for Increased Cost of Land Needed for Government Buildings.—Senator Wadsworth of New York has presented a bill in Congress providing for an appropriation of \$134,032 to meet the increased cost of land needed adjoining the Walter Reed General Hospital in Washington. On this real estate it is proposed to erect buildings for the medical museum and library and the Army medical school. At the request of Surgeon General Ireland, Congress appropriated two years ago the sum of \$350,000 for the purchase of this land, but since the negotiations for the taking over of the property have been under way it has been discovered that it could not be bought at this figure. A request for more money from Congress, therefore, was necessary. Immediate purchase is urged both by Senator Wadsworth, chairman of the Senate Committee on Military Affairs, and Surgeon General Ireland, because it is believed that the land will increase in price in the future and the government should act now as a matter of economy. The Army medical school is to be the first building erected at a cost of \$500,000.

GEORGIA

The Lions Club Welfare Program.—The Lions Club has elected Dr. Elmore C. Thrash, Atlanta, general chairman of child welfare work. The club plans to make this work a national undertaking. The program will call for the super-

vision of child health, recreation, saving, pleasure and education.

Sixth District Medical Society.—The semiannual meeting of the Sixth District Medical Society was held, December 14, at Macon. The two visiting physicians were: Dr. Theodore Toepfel, Atlanta, who spoke on "How to Restore Muscle Power in Paralytic Conditions," and Dr. Allen H. Bunce, Atlanta, who spoke on "Some Observations on Neurosyphilis."

ILLINOIS

Contagious Disease Hospital Proposed for DeKalb County.—The authorities of St. Alban's School, located in DeKalb County, recently proposed to donate a considerable sum toward the erection of a county contagious disease hospital, provided the county supervisors would make an appropriation from county funds sufficient to cover additional costs. This proposition was the outcome of a conference recently held between Dr. Samuel S. Winner, chief of district health superintendents of the state department of health, and the school authorities. The occasion for the conference was the continued inconveniences at the school caused by a number of cases of scarlet fever.

Vaccination of Nurses Against Typhoid Fever.—The state department of health wishes to call to the attention of physicians the necessity for vaccinating nurses and attendants of typhoid fever patients against this disease and for examining dejecta of all persons recovered from typhoid fever to determine whether or not they still harbor germs sufficient to make them dangerous as carriers. Two nurses who were not vaccinated have recently contracted the disease. One of them, many weeks after her recovery, was still harboring the typhoid bacilli in the intestine and passing them in the dejecta. The rule requiring two negative cultures of the dejecta for typhoid bacilli is the only thing that kept this nurse from going back to work, with the grave danger of infecting many patients with typhoid fever. The rule concerning vaccination and examination is a good one and should be more carefully observed by physicians and the public.

Sanitation of Forest Preserve Planned.—A three-fold plan for making sanitary improvements in the forest preserve, Cook County's mammoth playground, surrounding Chicago, was the purpose of a meeting held in Chicago, December 19, when Dr. Isaac D. Rawlings, state director of public health, and Dr. L. L. Lumsden, representing the U. S. Public Health Service, conferred with Cook County officials. The plan provides for (1) a safe water supply to accommodate the millions of annual visitors; (2) the safe and adequate disposal of excreta from these visitors, and (3) the adoption of measures to avoid the pollution of the Des Plaines River so that its waters will be available for bathing. The state department of health and the U. S. Public Health Service jointly offered the services of a sanitary engineer to advise with and assist the local engineer in charge of the forest preserve in carrying out the plans.

IOWA

Personal.—Dr. Walter Bierring, Des Moines, for fourteen years professor of pathology and later professor of internal medicine on the faculty of the State University of Iowa, College of Medicine, Iowa City, has been elected to honorary membership in the Royal College of Physicians of Edinburgh, Scotland.

KANSAS

Physician Guilty of Murder.—It is reported that Dr. William A. Nixon, Great Bend, has been sentenced to serve the remainder of his life in the state penitentiary at Lansing, following conviction on a charge of having killed Arthur C. Banta. Attorneys for Dr. Nixon have announced that an appeal will be taken to the state supreme court.

LOUISIANA

Free Night Clinics.—Establishment of free night clinics for men and women afflicted with communicable diseases was authorized, December 14, by the city board of health of New Orleans. In the operation of these clinics the board of health expects the cooperation of the Child Welfare Association and the Anti-Tuberculosis League.

MARYLAND

Gift to the Johns Hopkins Medical School.—Announcement has been made by Frank J. Goodnow, LL.D., president of the Johns Hopkins University, of an endowment in perpetuity of

\$110,000 for the department of art as applied to medicine in the Johns Hopkins Medical School. The gift, by an anonymous donor, was transmitted to the trustees through Dr. Thomas S. Cullen. This department has been established since 1911, with Max Brodel at its head. Each year since its inception the same anonymous donor has provided funds for its maintenance. It was the value of the work produced in these ten years which induced him to make the gift permanent.

New Buildings for Hospital Group.—Contracts for the construction of the Pathological and Women's Clinic buildings on the grounds of the John Hopkins Hospital have been awarded to J. Henry Mills, Inc., at a bid of \$725,815.90. The work of razing the present buildings on the site is expected to begin within about two weeks. Removal of patients from Wards M and O will begin at once. The pathologic building, an eight-story structure, will occupy the site of the present pathologic building. The women's clinic will replace the two buildings at the east end of the line of public wards on the Wolfe Street side of the grounds. Buildings housing the maternity ward and Wards M and O will be remodeled. The remodeled wards and the women's clinic will be carried to a height of five stories at the north end and four stories at the south end.

Personal.—Dr. George J. Heuer, Baltimore, associate professor of surgery at the Johns Hopkins Medical School, has accepted the professorship of surgery in the Medical College of the University of Cincinnati. By accepting the post, he will automatically become chief of the surgical service of the Cincinnati General Hospital. Dr. Heuer is a graduate of the class of 1907, Johns Hopkins Medical School, and since his graduation has been associated with the medical school.—Dr. H. H. Woolard, who is professor of anatomy, lecturer and demonstrator at the University College, London, has arrived in Baltimore to pursue a course in anatomy at the Johns Hopkins Hospital.—Col. Thomas R. Payne, U. S. Public Health Service, who is in command of U. S. Public Health Service Hospital No. 53, at Fort McHenry, has been ordered to Staten Island, where he will take charge of U. S. Public Health Hospital No. 61, at Fox Hills. His successor at Fort McHenry has not yet been designated.—Capt. J. G. Reichard will accompany Colonel Payne.

MASSACHUSETTS

Hospital News.—The contract has been awarded for a new hospital to be built at Forest Hills, at a cost of \$175,000.

Physician Guilty of Theft.—It is reported that Dr. Anthony Danton, Somerville, has been convicted of the larceny of rugs valued at \$10,000. The rugs were the property of Dr. Henry O. Marcy, Cambridge. It was alleged that Dr. Danton with Dr. Ferdinand Vern agreed to buy Dr. Marcy's hospital in Cambridge, gave him a worthless check as security and took possession of the rugs.

Somerville Medical Society.—At a recent meeting of the Somerville Medical Society, a resolution was passed requesting the committee on state and national legislation of the Massachusetts Medical Society to petition the legislature to reject all other proposed bills relating to maternity benefits of any kind while the Sheppard-Towner act is in existence. Dr. Warren D. Ruston was elected president; Dr. Eugene L. Maguire, vice president, and Dr. Edmund H. Robbins, secretary-treasurer.

Resent Attack on Mr. Baynes.—In resentment against an attack by local antivivisectionists on Ernest Harold Baynes, during a recent lecture on "The Truth About Vivisection" in the Boston Public Library, a movement has been organized for the defense of animal experimentation. The first announcement sent out by the executive committee brought congratulatory letters from prominent persons of all classes, among whom were Dr. Charles Eliot, president emeritus of Harvard University; John A. Cousens, president of Tufts College; Dr. Edwin H. Place, Boston City Hospital; Alice A. Coolidge, chairman of the health department of the Massachusetts State Federation of Women's Clubs, and Prof. Edward M. East, Bussey Institute.

MICHIGAN

Merger of University of Michigan Medical Schools.—At a meeting held, December 9, the board of regents of the University of Michigan voted to merge the homeopathic medical school with the medical school of the university. The expense for the maintenance of the homeopathic school was \$47,000 last year and there were seven graduates.

MISSISSIPPI

Hospital News.—The King's Daughters' Infirmary, Gulfport, was destroyed by fire, December 13. The thirty-five patients were all removed to places of safety. A new four-story brick building is now being constructed for the infirmary, with a capacity of 80 beds, and the cost is estimated at approximately \$100,000. There will also be a training school for nurses.—The Masonic lodge of Brookhaven has given \$1,000, and has agreed to furnish a room for the new municipal hospital at Brookhaven.

MISSOURI

Physician Sentenced to Prison.—It is reported that Dr. William R. Harman, Springfield, charged with manslaughter in the criminal court in connection with the death of Ethel Reaves, more than a year ago, following an illegal criminal operation, was found guilty, December 14, and sentenced to serve three years in the state penitentiary. Dr. Harman immediately filed a motion for a new trial and was released on bond for \$2,000 until the March term.

Vaccination Certificates.—On account of a smallpox epidemic at Kansas City, Dr. Emmett P. North, president of the state board of health, called a meeting of the board, December 5, at St. Louis. At this meeting it was resolved that "All common carriers of passengers of interstate and intercounty passage be and are hereby required to require of all persons a certificate from a recognized authority, showing that the person is protected by vaccination or has been successfully vaccinated within three years, before selling a ticket or before accepting for passage any passenger either for interstate or intercounty passage or transportation. This order shall be in effect throughout the state of Missouri on and after Dec. 22, 1921." It is estimated that deaths from smallpox in Kansas City average about one in every three cases.

NEW HAMPSHIRE

Personal.—Dr. Charles E. Perry, Haydenville, Mass., has been made superintendent of the New Hampshire State Sanatorium at Glencliffe, to succeed Dr. John M. Wise, who resigned to accept a similar position in New Bedford, Mass.—Dr. Dennis H. Sullivan, Concord, was reappointed a member of the state board of health.

NEW MEXICO

Personal.—The term of Passed Asst. Surg. Clifford Ellison Waller, U. S. Public Health Service of New Mexico, as acting director of the state bureau of public health of New Mexico, Santa Fe, ends Dec. 31, 1921. The state board of public welfare of New Mexico has appointed as his successor, Dr. George Sparr Luckett, formerly in charge of the division of preventable diseases, New Mexico State Bureau of Public Health, effective, Jan. 1, 1922.

NEW YORK

Personal.—Dr. Frederick J. Douglas, mayor-elect, Utica, has been appointed surgeon in charge of the Faxon Hospital, Utica, to succeed Dr. James H. Glass, who resigned after twenty-eight years of service.

Harvey Society Lecture.—Dr. George H. Whipple, dean of the University of Rochester Medical School, will deliver the fourth Harvey Society Lecture at the New York Academy of Medicine, Jan. 7, 1922. Dr. Whipple's subject will be "Pigment Metabolism and Regeneration of Hemoglobin in the Body."

Resolution to Ban Politics.—The Albany County Medical Society at its meeting, held, December 7, adopted a resolution requesting that politics be disregarded in the selection of medical officers for the city and county. Dr. Thomas W. Jenkins was reelected president of the society; Dr. Nelson K. Fromm was reelected vice president; Dr. Emanuel M. Freund was elected secretary, and Dr. John E. Heslin, treasurer.

Committee on Medical Problems of Workmen's Compensation.—Mr. Henry D. Sayer, industrial commissioner of New York and head of the state department of labor, has appointed a committee to make a survey of existing methods of treating injured employees and to make such recommendations as will assure injured workmen adequate treatment, just compensation for physicians and hospitals, and the restoration of

the patient to a condition of efficiency in the shortest possible time. The committee includes in its membership representatives of insurance companies, workmen, employers, industrial physicians and the state medical society. The physicians on the committee are Dr. James F. Rooney, Albany, president of the Medical Society of New York, Dr. Eden V. Delphey, Dr. F. D. Jennings, Dr. A. R. Tilton, chief medical adviser, Travelers Insurance Co., Dr. R. Lewy, chief medical examiner for the Department of Labor. The committee has decided to investigate medical care of injured workmen, including various methods of choice of physicians, the control and quality of the medical treatment, medical evidence as to disability, physicians' fees and hospital costs. Public hearings have been held in the larger cities of the state and much valuable information has been obtained. Further hearings are planned and physicians, hospitals, injured employees and all others interested are asked to present their views in writing. The secretary of the committee is Mr. Stanley L. Otis, director of Bureau of Workmen's Compensation, 124 East Twenty-Eighth Street, New York City.

New York City

Personal.—Dr. C. Floyd Haviland of Albany has been appointed state hospital commissioner to fill the vacancy caused by the resignation of Dr. Charles W. Pilgrim.

Given Suspended Sentence for Practicing Without a License.—It is reported that Fred Drake Pridham, recently convicted of practicing medicine without a license, has been given a suspended sentence.

Polyclinic Ambulance to Resume.—When the government returns the Polyclinic Hospital to the trustees of the institution on Jan. 1, 1922, its ambulance service will be resumed. The entire hospital, however, will not function immediately after the change in control.

Urologic Clinic for Women.—The New York Hospital announces that the department of urology, established through a bequest of James Buchanan Brady, will operate a clinic for women. The new clinic will be open from 2 to 3 o'clock, afternoons.

Course on the Organization and Services of Health Agencies.—Complying with the request of some of its members, the National Health Council, December 1, initiated a course of lectures on the organization and services of health agencies. The lectures are given each Thursday from December 1 to April 13, and cover twenty-six national organizations in the field of public health.

A New Bikur Cholim Hospital.—The cornerstone of the new Bikur Cholim Hospital, to be erected at 810 Bushwick Avenue at a cost of \$1,500,000, was laid with elaborate ceremonies on December 18. The Brooklyn Federation of Jewish Charities has expressed its disapproval of this project on the ground that there is no need for a Greater Bikur Cholim Hospital. The trustees of the new hospital claim, however, that they have a function to fulfil in that they propose to turn away no applicant without medical attention, while many other Brooklyn hospitals refuse charity patients.

OHIO

Woman Physician as Mayor.—Dr. Amy Kaukonen was recently chosen by the voters of Fairport as mayor, on a "dry" ticket. Dr. Kaukonen is a graduate of the Women's Medical College of Pennsylvania, Philadelphia.

Osteopaths May Sign Death Certificates.—According to a recent decision by the attorney-general of Ohio, osteopaths have the right to sign death certificates. The ruling holds that "if the osteopath meets the educational requirements of the statutes" and takes the same examination in diagnosis as is taken by physicians, under the law he should have the same legal rights as are granted to physicians.

Resolutions of Academy of Medicine of Cleveland.—A special meeting of the council was held, December 5, at which it was voted to present to the city council, to the mayor and to the chief of police a resolution against lowering the standard of purity of the milk supply of Cleveland as required by the sanitary code, and, further, "that no such change be made or contemplated without first affording a fair notice to the members of the Cleveland milk commission and representatives of the medical profession and all other agencies interested in public health."—A special meeting of the council was held, December 11, at which it was resolved "that it is essential to the welfare of the citizens of Cleveland and

of special importance to the lives of infants, children and invalids that an adequate supply of safe milk be furnished and, further, that no activity of the police department is or can be of greater benefit to the community than the prevention of violence or discord tending to interfere with such supply."—At the regular meeting of the academy, December 13, the report of the committee, recommending the resolution protesting against any change in the manner of distribution of milk due to labor controversy, was accepted. The chairman of the legislative committee having reported that for lack of funds the Fairview Hospital Clinic was to be abandoned, it was moved that a letter be written the director of public welfare supporting him in his request to the Community Chest that they make such appropriation as would be needed to continue the work.

PENNSYLVANIA

Physicians Cut Fees.—Owing to the industrial depression, physicians of Sharpsburg have reduced their fees for services to pre-war prices.

Fayette County Medical Society.—Dr. Hugh H. Young had charge of the surgical clinic and Dr. William S. Thayer conducted the medical clinic at the first annual clinic held by the Fayette County Medical Society, December 15, at Uniontown. Drs. Young and Thayer both spoke at the banquet.

Personal.—The Franklin Institute of Pennsylvania has awarded the Howard N. Potts gold medal to Elmer V. McCollum, Ph.D., professor of chemical hygiene in the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore. The medal is awarded for distinguished work in science or the mechanical arts, and was presented by the institute in recognition of a lecture on "Nutrition and Physical Efficiency," delivered before the members.

Work of Pennsylvania State Tuberculosis Clinics.—Under the department of health, Pennsylvania has ninety-six tuberculosis clinics in as many different localities throughout the state. The expense of providing doctors, nurses and supplies is borne by the state, the local community paying the rent. During 1920, 16,936 patients were examined, of whom 7,629 were tuberculous. Total visits to the dispensaries amounted to 72,932. There were 3,621 cases admitted to the sanatoriums.

Robbers Injure Physician.—On December 10, the home of Dr. John Whann, Chickasaw, was entered by robbers who attacked him and left him unconscious, after they had set fire to the house. The fire was discovered by employees of a nearby power plant, who rescued the doctor and extinguished the fire. Dr. Whann was removed to the Kittanning Hospital, where he was found to have suffered a fractured skull. He was later taken to the West Pennsylvania Hospital, Pittsburgh.

Hospital News.—The state department of health has decided against the retention of the Neversink Mountain Tuberculosis Sanatorium as the future county tuberculosis sanatorium authorized to be established at Reading, at the November election, because it is remote from the city and from trolley and other main roads, and is not modern in construction. The county will probably select a new site and erect modern fire-proof buildings. This may require several years and meanwhile the Neversink Sanatorium will probably remain in use. The welfare society that established the sanatorium and supported it offered it to the county free of charge, contingent on the county's assuming a \$30,000 debt on it.

Philadelphia

Personal.—Dr. Hermann Prinz addressed the annual meeting of the Academy of Stomatology, December 20, at the Aldine Hotel.

New Aesculapian Club.—The Aesculapian Club has elected the following officers for the ensuing year: president, Dr. John H. Remig; first vice president, Dr. Levi J. Hammond; second vice president, Dr. Percy S. Pelouze; secretary-treasurer, Dr. Harry E. Ungerleider, and historian, Dr. Edwin S. Cooke.

Dr. Martin Warns of River Pollution.—Attention was called to pollution of the Delaware River, to a serious extent, in a letter from Dr. Edward Martin, state commissioner of public health, read to council, December 22. The letter says that observations made last September show that the water is now polluted to a serious extent as evidenced by the

almost complete exhaustion of oxygen in certain samples. The excessive sewage pollution of the river is shown by the virtual cessation of the shad fisheries at Gloucester.

Prof. E. Fuchs' Lectures on Ocular Pathology.—The ophthalmic section of the College of Physicians announces that arrangements are being completed for a course of lectures upon "Ocular Pathology," by Prof. Ernest Fuchs. They will be delivered in the hall of the College of Physicians, and will consist of twenty lectures, illustrated by lantern slides. The course will begin early in March (probably Monday, March 6). Further information can be obtained from Dr. G. Oram Ring, Chairman of Section on Ophthalmology, northeast corner Seventeenth and Walnut Streets, or Dr. Charles R. Heed, Secretary of Section on Ophthalmology, 1205 Spruce Street.

RHODE ISLAND

Illegal Practitioners Convicted.—An official report states that, during the month of November, "Prof." G. W. Rose, Albert L. Webster and Maria Migliaccio were arrested and found guilty of practicing medicine without licenses. Although not registered as a physician in the state, Albert L. Webster of Providence is said to have diagnosed diseases and written prescriptions, as a result of which he was recently fined \$50 and costs in the district court.

SOUTH DAKOTA

Physicians' Clinic.—Physicians and surgeons of Mitchell held their annual clinic, December 6-7. Among the visiting physicians who read papers at the general sessions were: Dr. Emil Ries, Chicago; Dr. Lee W. Dean, Iowa City; Dr. Adolph Sachs, Omaha; Dr. Daniel T. Quigley, Omaha; Dr. Francis E. Clough, Lead, S. D.; Dr. Melvin S. Henderson, Rochester, Minn.; Dr. Arthur T. Mann, Minneapolis, and Dr. Stanley R. Maxeimer, Minneapolis.

TEXAS

Hospital News.—The "Katy" Railroad Employees' Hospital, Denison, recently completed at a cost of approximately \$300,000, has been opened to all Katy employees in Texas. Dr. Thomas J. Long, Denison, is chief surgeon.

CANADA

Baby Clinic.—The baby clinic, formerly conducted by the St. Thomas Red Cross Society, has been discontinued recently by that body. The clinic will be reorganized by the local board of health.

Memorial to Members Killed in World War.—The Toronto branch of the Alumni Association of the University of New Brunswick met at Toronto recently, where it was decided unanimously to give full support to the campaign of Dr. Charles C. Jones, chancellor of the University of New Brunswick, to erect a suitable memorial to the members of the university who were killed in the World War. The memorial will take shape in a building.

University of Toronto.—The outcome of the recent conferences of the University of Toronto Matriculation Board and the department of education, is that commencing in the fall of 1923, the entrance requirements to all faculties will be honor matriculation in two subjects, or pass matriculation with 75 per cent. in four subjects, or pass matriculation with 60 per cent. in six subjects. Formerly junior matriculation was the standard in most faculties.

Hospital News.—A new hospital for crippled children is to be erected shortly in Montreal, Que., by the Mystic Shriners of North America out of their million dollar endowment fund now being raised. As the fund grows, and buildings are erected, the Hospital for Sick Children and the Home for Incurable Children will be included in the scheme.—The patients (who are all returned soldiers) of Christie Street Hospital, Toronto, were entertained recently by the Canadian Red Cross Society under the patronage of the lieutenant-governor.—The recently appointed committee to enquire into the relations existing between the city hospitals and the authorities charged with the enforcement of the criminal law, will be presided over by Mr. Justice Riddell, Toronto.—The cornerstone for an addition to Grace Hospital, Windsor, Ont., was laid recently by Mayor Wilson. The building will have four public wards, eight semiprivate wards, and thirty-six private beds. The roentgen-ray equipment will be located in the basement of the new building.

GENERAL

Pacific Coast Association of Anesthetists.—The association will hold its first scientific meeting at Yosemite, Yosemite Park, May 15-16, 1922, in conjunction with the meeting of the section on anesthesiology of the California State Medical Society.

American Red Cross.—The seventeenth annual meeting of the American Red Cross was held at National headquarters, Washington, D. C., December 7. The following officers were elected for the ensuing year: president, President Warren Harding; vice presidents, Robert W. DeForest and William Howard Taft; treasurer, Eliot Wadsworth; counselor, James M. Beck; secretary, Mabel T. Boardman. All of these officers were already serving in the positions to which they were elected with the exception of Mr. Wadsworth, who was chosen to succeed John Skelton Williams.

Next Congress on Medical Education, Licensure, Public Health and Hospitals.—The next congress on medical education, licensure, public health and hospitals will be held at the Congress Hotel, Chicago, March 6-10, inclusive, 1922. This congress will be participated in by the Council on Medical Education and Hospitals and the Council on Health and Public Instruction of the American Medical Association, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, and the American Conference on Hospital Service. The program will be announced later.

Group of Wards to Be Opened at Perryville, Md.—The Fourth District, U. S. Veterans' Bureau, will open within a few months the new group of wards now under construction at the government hospital at Perryville, Md. Approximately \$500,000 has been spent upon these structures, five in number, which will be used principally for observation of mental-nervous cases among former service men of Maryland, Virginia, West Virginia and the District of Columbia, which make up the Fourth District. Although the Perryville buildings may not be finished until June, they will be available for temporary occupancy before that time and cases bordering on psychosis and other temporary mental-nervous derangements will be sent there as soon as accommodations are available.

LATIN AMERICA

Inauguration of Italian Hospital at Rosario.—The new hospital at Rosario, Argentina, is said to be a model. It has 100 beds, and provisions for outpatients, thanks to the initiative of Dr. F. Mastrosimone and the surgeon, Dr. B. Vassallo.

Personal.—Dr. E. Bertarelli, professor of hygiene at Parma, who has been visiting in Brazil, has returned to Italy.—Dr. C. Bonorino Udaondo, professor of semeiology at the University of Buenos Aires and one of the three directors of the *Prensa Médica Argentina*, has left for a trip to Europe.—Dr. S. Uchoa has been appointed chief of the service of Prophylaxia Rural in the Amazonas district. He has been serving as director on the Rockefeller Commission in some of the southern states of Brazil.

The Cuban National Medical Congress.—The Fifth Cuban National Medical Congress which has just closed at Havana was a great success. Delegates were present from French and Spanish scientific organizations, and there was a large official representation from Latin America and this country. As mentioned elsewhere, Dr. José Presno presided, and Dr. G. Fernández Abreu was the treasurer. The delegates from Mexico were Dr. A. Pruneda and Dr. F. Castillo Nájera. No details of the scientific meetings have been received as yet.

Tribute to Señorans.—Dr. J. B. Señorans retired recently from the chair of experimental toxicology in the University of Buenos Aires, and the diploma of professor emeritus was presented to him by the authorities at a public meeting. A bronze tablet bearing his name was unveiled in the toxicology laboratory in his honor. Dr. Señorans has published numerous works on physiopathology, and the various medical societies and others have paid tribute to him as the pioneer in Argentina of the experimental study of physiology.

Third American Infant Welfare Congress.—Preparations are being made at Rio de Janeiro for the celebration of the Third American Congress of Infant Welfare, which will be held at Rio de Janeiro, Aug. 27-Sept. 5, 1922, on the centennial of Brazilian independence. The organizing committee is presided over by Dr. Aloysio de Castro. Other members are:

Drs. O. de Oliveira, F. de Magalhães, N. Gurgel, A. Peixoto, D. E. Pedreira de Mello, M. Filho, C. Mourão, D. Nabuco de Abreu, A. de Faria, E. do Nascimento Silva and A. de Rezende. Representatives have already been appointed at Argentine, Chile, Ecuador, Peru, Paraguay, and Venezuela. Among the subjects to be discussed in the medical section are: classification of children's nutritive disturbances, brain tumors, alcoholism, infantile pathology, encephalitic syndromes in childhood, epidemic encephalitis, infantile tuberculosis, acidosis in children, and dysentery.

The Census in Brazil.—The *Brazil-Medico* comments on the colossal task which was undertaken in compiling the census of Brazil. The work started Sept. 1, 1920, and was placed in charge of Dr. Bulhões Carvalho, for twenty years the editor-in-chief of the *Brazil-Medico*. The difficulties encountered in compiling statistics over such a vast and sparsely settled country have been enormous with so many of the inhabitants not only illiterate but antagonistic to the work. But the task is proceeding smoothly, and the completion of the census for the state of Rio de Janeiro was recently celebrated. The census purposes to record the agricultural and other wealth of the country, and the public health and other data, as well as the number of inhabitants. The governor of Brazil, Dr. Epitacio Pessoa, has given encouragement and has facilitated the work. It is the first time anything of the kind has been attempted in the country at large.

FOREIGN

Venereology Congress at Prague.—A German exchange states that the public health authorities of Czechoslovakia, in connection with the International Red Cross, have organized a congress to convene at Prague in December to discuss ways and means for combating venereal diseases.

Foreign Undergraduate Medical Students in France.—A French exchange relates that the number of foreign medical students in France has increased from 1,192 in 1920 to 1,555 in 1921. There were 126 women in 1920 and 179 in 1921. Of the total 1,555 in 1921, 169 are said to be from America. Paris attracts the most, having inscribed 785 men and ninety women medical students. In addition, five women are studying midwifery.

Advertising Supervision.—The Association of the German Medical Press has long had a committee whose task was to supervise the *Soldschreiber*, that is, the medical write-ups. It was called the "authors' committee," and it also supervised the advertisements. This latter part of the task has now been assumed by a committee appointed by the federated medical syndicates, the *Aerztevereinsbund*. The *Münchener medizinische Wochenschrift* comments that with the larger means of this organization, it will prove possible to combat more effectually the abuses in medical advertising.

Damage Suit Against Medical Editor Dismissed.—The editor of the *Deutsche medizinische Wochenschrift*, Dr. J. Schwalbe, was sued for slander by the manufacturers of "Rad-Jo" as he had denounced them in his journal as "exploiting the women of Germany to fill their own pockets." The court at Hamburg, the home of "Rad-Jo," acquitted the editor. The advertisement of "Rad-Jo" appears on the postage stamp booklets, and the postoffice authorities were arraigned by Schwalbe for accepting this advertising. The postmaster general has replied that there is only a small supply of the booklets left and these are only the *freimarkenhftchen*. The new editions will not carry the advertisement.

Deaths in Other Countries

Dr. R. Rojo, surgeon inspector of the Argentine navy, director of two naval hospitals, died at Buenos Aires.—Dr. P. Thompson, professor of anatomy, University of Birmingham, England; author of numerous books on anatomy, aged 50.—Prof. S. Delépine, professor of public health and bacteriology, Manchester, England, aged 66.—Edward St. Barbe Sladen, Colonel, R. A. M. C., justice of the peace for Kent, England, November 9.—Sir Sydney Beauchamp, London, killed in a street accident, November 22, medical officer to the British delegation at the Peace Conference, Paris.—Sir Herbert E. Corbin, former superintendent, London Fever Hospital, health officer of Bagdad, Turkey, during the World War.—Dr. F. Stocker, in charge of the eye infirmary at Luzern.—Dr. R. W. Raudnitz, professor of children's diseases at the German University in Prague.—Dr. Amable S. Jones, vice president of the Sociedad de Psiquiatría, Neurología y Medicina Mental

of Buenos Aires, chief of the psychiatric clinic, and governor of the state of San Juan, was assassinated recently.—Dr. J. J. Araujo, formerly professor of pathology at the University of Buenos Aires and member of the national legislature.—Dr. J. B. de Freitas, secretary of the medical department of the University of Rio de Janeiro.—Dr. M. Séaux of Brussels.

Government Services

Additional Hospital Facilities for U. S. Veterans' Bureau

An amendment presented by Senator Ashurst of Arizona to the Russian Relief Bill was adopted by the Senate providing the appropriation of \$500,000 to be used in giving additional hospital and outpatient dispensary facilities for the patients of the U. S. Veterans' Bureau. Expenditure of the appropriation is lodged in the Secretary of the Treasury instead of the Director of the U. S. Veterans' Bureau; and the location as well as the nature of hospitals and dispensaries, whether for the treatment of tuberculous, neuropsychiatric or general or surgical cases, is also at the discretion of the Secretary of the Treasury. Recently the sum of \$1,000,000 for the same purpose was included in the First Deficiency Bill that passed Congress.

Annual Report of the Surgeon-General of the Navy

The health conditions in the United States Navy are summarized in the annual report of the Surgeon-General, just issued. The report also describes how the bodies of Naval and Marine Corps dead have been brought home from overseas; of the arrangements for permanent cemeteries in France and Belgium; what the Navy Medical Department has done to help and care for ex-soldiers, sailors and marines who are beneficiaries of the U. S. Veterans' Bureau; of educational and other matters affecting the health of the Navy and the operations of the medical department up to the close of the year. Between September, 1920, and June 30, 1921, the sixteen naval hospitals took care of 11,531 patients of the U. S. Veterans' Bureau.

Needs of Army Medical Department Submitted to Congress

An effort will be started by the Medical Department of the Army, headed by Surgeon-General Ireland, to induce Congress to remedy the existing shortage of both officers and men, so that the prescribed functions of the Medical Corps may be carried on. This situation is due to the recent reduction in the Army through legislation and the prevailing sliding scale basis of computing the size of the medical corps in ratio to the actual strength of the entire army. A computation submitted to Congress of the needs of the Medical Department, irrespective of the present or further reduction in the Army, and also to assure its efficient discharge of its duties and meet its obligations to its military mission, claims that the following personnel will be necessary as a minimum: medical officers, 1,425; dental officers, 295; veterinary officers, 300; administrative officers, 140; enlisted personnel, 13,000. The Surgeon-General in this request for legislation also states that the Army Medical School and the Medical Field Service School are operating under a very serious handicap, although they are the most important agencies for the instruction of the Medical Department personnel of the Regular Army, national guard and organized reserve. He insists that the Carlisle School has barely sufficient men for the up-keep of the station and that few troops are available for demonstrative purposes. It is also asked that legislation be enacted to prevent the deterioration of the Army Nurses' Corps, and that the grade of student nurse be created so that these student nurses may be employed in army hospitals, and during their period of training be permitted to perform work which otherwise would have to be carried on by graduate nurses. Because of the attractive remuneration and other features enjoyed by graduate nurses in civil life, the medical department asserts, it is becoming more and more difficult to maintain the Nurses' Corps of the Army. All of the legislation proposed by Surgeon-General Ireland has been approved by the War Department and will be taken up by Congress in its legislation for the Army during the coming year.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 28, 1921.

Self-Disinfection in the Prevention of Venereal Disease

The feud as to methods between the two societies formed with the same object—the National Society for the Prevention of Venereal Diseases and the National Council for Combating Venereal Diseases—continues, although a composition of their differences is urged from time to time by leading men. That two organizations, largely recruited from the leaders of the profession, should engage in the public press in an acrimonious controversy on a medical problem is an extraordinary and unedifying spectacle. The National Council for the Prevention of Venereal Diseases has adopted as its main plank the inculcation of, and the providing of means for, self-disinfection immediately after exposure. The National Council for the Combating of Venereal Diseases has just issued in the public press a manifesto against this method signed by leading physicians and surgeons, health officers, officers in medical charge of venereal disease clinics, who state that they have formed their opinion on the question of self-disinfection after careful consideration. In addition to practical experience they consider that these points are convincing:

1. Such evidence as has been adduced in favor of this policy is founded on the results obtained in the navy and army among men, under discipline, who were carefully, and in many cases individually, instructed by certain enthusiastic and competent officers. When tried by other keen medical officers with men under discipline, the method failed. Even had it been successful, to teach and instruct the civilian population in as detailed a manner is obviously impossible. Careful individual and collective detailed instruction is given to the troops of the British armies of occupation in Germany and at Constantinople. Materials and packets for self-disinfection are available, yet in the Army of the Black Sea the rate of infection was 213.73 per thousand for 1920, and 238.94 per thousand men for January to June, 1921; and in the Army of the Rhine the figures are 188.62 per thousand men for 1920 and 148.90 per thousand for January to June, 1921.
2. Unless disinfection is extremely carefully carried out, it would fail to effect its purpose. In the largest clinic in London, between July and September of this year, out of 375 men presenting themselves for treatment, 101 had used some form of chemical disinfection, chiefly potassium permanganate, within a very short time of running the risk; and from September up to date, of 201 new cases, forty-seven men had used potassium permanganate, the majority of them within five, ten, fifteen or twenty minutes after exposure to infection.
3. Self-disinfection has been extensively carried out in Germany during the last six years, and great stress, during an intensive campaign, has been laid on the virtue of prophylaxis and self-disinfection. The German delegates at the Red Cross congress at Copenhagen last May stated that in their opinion there was no evidence of diminution in the number of cases of venereal disease and no sign of any fall in its incidence. Dr. Pinkus stated that in Berlin alone he estimated that there were 25,000 fresh cases of infection each year.
4. It is likely to lead to disease in large numbers of young persons. In Dresden, where the system of prophylaxis by self-disinfection has been actively pressed by poster, handbill and address, it was found that the number of boys between 14 and 18 coming up for treatment at one clinic had increased during one year from fourteen to 104, and of girls between the same ages from sixty to 116. In the first three months of 1921, the number of boys was thirty-three and of girls sixty-one.
5. The first risk may be as fatal in causing disease as the fiftieth, and a boy of 15 is just as capable of taking infection and conveying the disease as a man of 50. Therefore, to carry out this policy effectually it would be necessary to instruct every boy on reaching the ages of 14 or 15, and see that he is provided with disinfecting materials.
6. The argument in favor of self-disinfection is that it can be carried out without any delay. To fulfil this condition it would be necessary for the disinfectants to be carried on the person. This would be an ever-present and continuing incitement to illicit intercourse, and would tend to lead to an increase in the number of risks incurred.
7. It is very nearly impossible for women satisfactorily to disinfect themselves. This is shown by the conditions existing in Constantinople, where instruction in the methods of self-disinfection has for some time past been given by medical men to all prostitutes at the examination centers. In spite of this, however, the number of infected women in this group works out at 560 out of 2,000 each month.
8. Notwithstanding any warning given, a certain number of individuals, in whom the diseases may have developed, will persist in using the disinfectant materials as a means of treatment. By so delaying the use of true remedial measures they will prolong the period of infectivity to others and of treatment necessary for cure for themselves. This is within the experience of a number of the signatories.

9. We are, therefore, of opinion that the policy of promiscuous propaganda as to the security conferred by personal self-disinfection among the civilian population is likely not only to fail in its object in decreasing the amount of venereal disease, but may actually lead to an increase in the gross number of cases.

Vital Statistics

The returns of the registrar-general for the quarter ending September, 1921, have just been issued. They show that in England and Wales there were 214,850 births, which were 15,017 fewer than in the third quarter of 1920. The rate was 22.5 a year for each thousand of population. The deaths numbered 99,134, and were 9,937 fewer than in the preceding quarter, but 5,444 more than in the third quarter of 1920. The rate was 10.4 per thousand. The infant mortality was 83 per thousand births, being 15 below the average of the ten preceding third quarters.

Mortality from Infantile Diarrhea and Earth Temperature

A most important table is given herewith showing the relation between the mean temperature of the earth at a depth of about 4 feet, and deaths from infantile diarrhea over a long series of years in London.

Year	Mortality Under One Year per Thousand Births	Mean Temperature (F.) of Earth at About 4 Feet
1906.....	62	61.5
1907.....	19	59.2
1908.....	54	60.2
1909.....	35	59.2
1910.....	24	59.4
1911.....	127	64
1912.....	20	60.1
1913.....	43	59.8
1914.....	59	61.7
1915.....	45	60.6
1916.....	24	59.9
1917.....	29	62.6
1918.....	23	?
1919.....	22	56.8
1920.....	13	56.1
1921.....	43	58.6

It has long been known that epidemics of summer diarrhea are associated with warm summers. But not until 1885 was it shown, by Dr. E. Ballard in a report to the Local Government Board, that it was the ground temperature at a depth of about four feet that determined an outbreak of summer diarrhea. He found that when this temperature reached 56 F., summer diarrhea begins. This is well illustrated by the statistics of the present year. For the week ending July 9, the mean temperature of the earth at a depth of 4 feet at Greenwich was 55.9. The deaths per thousand of children under the age of 2 years from diarrhea were 64 for ninety-six great towns in England and Wales, and 13 for London. In the next week the earth temperature rose to 57.3, and the mortality rates to 118 and 30, respectively. A week later the earth temperature rose further, to 58.5, and the mortality rates were 198 and 29. A week still later the temperature was 59.6, and the rates were 300 and 52. The links which connect the high earth temperature with the prevalence of diarrhea are not known. It might be suggested that at the critical earth temperature the external conditions most favorable to the life of the microbes on which summer diarrhea depends are realized.

“Damages Because Physician Did Not Use Roentgen Ray in Treating a Fracture of the Femur”

This case was reported in my last letter. In a letter to the medical journals Mr. R. C. Elmslie, orthopedic surgeon to St. Bartholomew's Hospital, who operated on the patient, calls attention to the great medicolegal importance of the case. The result of the trial largely depended on the question whether refracture had occurred. He was asked whether he had found evidence of refracture. He replied that he had not,

but he pointed out that the interval of eighteen days between the giving way of the limb and the operation was sufficient for signs of refracture to have disappeared. Apart from this, both judge and jury seem to have ignored the possibility of callus bending, a common incident in fracture of the femur. Mr. Elmslie regards as important lessons to be learned from this case: Every case of fracture should be treated as a possible medicolegal one. Careful notes should be made at the time. If a roentgenogram is not taken, the reason should be stated in writing. Physicians should not commit themselves to statements as to the nature of the injury without roentgen-ray evidence. Apart from this, the medical profession must feel considerable perturbation at a legal decision which appears to place on them responsibility for the result of their treatment, apart from their acknowledged responsibility to use recognized methods, for the mere result that the treatment was unsuccessful was accepted as a sufficient cause for action. The loss in damages and costs sustained by the physician amounted to more than \$8,000. The view widely taken in the profession is that the verdict was a miscarriage of justice. A subscription list has been opened to reimburse the physician. The movement is supported by leading surgeons, including Sir Robert Jones, Sir John Lynn-Thomas, Sir Hamilton Ballance, Mr. G. E. Gask and Mr. R. C. Elmslie.

A Boy Murderer

The case of Harold Jones, a boy, aged 15 years, who pleaded guilty at the Monmouthshire Assizes to the murder of a little girl, July 18, is one of the most extraordinary in the annals of crime. He also admitted the murder of another little girl, February 5. For this he had been previously tried and acquitted. His defense had been subscribed for by the public, who evidently thought him innocent, and he was welcomed home by an applauding crowd of neighbors. The judge thought that this reception flattered his vanity and made him more ready to commit the second crime. In the first case he attempted to rape the child and killed her by a blow on the head. He alleged that he did not intend to kill her, and struck her to quiet her. The second was a murder of great brutality. He cut the child's throat and held her over a sink to bleed, and then for concealment pulled the body by a rope up into a loft, which he reached by standing on a table. After the crimes, which he denied, he showed the greatest coolness and unconcern. In the second case there was no evidence of any sexual outrage, and the only thing pointing to a sexual element was the fact that seven women's handkerchiefs were found in his pocket. On examination he showed no abnormality, mental or physical, beyond the fact that he was very big for his age and had the body and sexual development of a man of 21. His mental powers were good, but he was inordinately vain, and when asked why he committed the second murder said his motive was "the lust to kill." Instead of being ashamed he smiled and seemed proud of the deed. As he had not reached the age of 16 years, he could not be sentenced to death. He was sentenced to be detained "during his Majesty's pleasure."

MEXICO

(From Our Regular Correspondent)

Nov. 20, 1921.

Academy of Medicine

October 5, this society began its fifty-seventh year of scientific work. As customary, a meeting was held to elect officers. Dr. G. Gastañeda was chosen vice president, and Dr. R. Carrillo, second secretary. Dr. A. Brioso Vasconcelos was reappointed treasurer for a term of two years. As Dr. Carrillo declined the office, Dr. F. Castillo Nájera was substituted. In accordance with the regulations, Dr. N. León, of

the section on the history of medicine, took charge of the presidency. Among papers recently presented before this association, may be mentioned one by Dr. Cordero, on a comparative study of ass's milk and mother's milk; another, by Dr. J. González, on a case of anarthria treated successfully by psychotherapy, and another, by Dr. Ricardo Ortega, advising the use of an ethyl ether in the treatment of whooping cough. The drug is absorbed through the skin and not injected as previously advised, the ether being placed under a watch glass held in position by a bandage. According to the author, the results are excellent.

Licéaga's Monument

The Mexican Medical Society has expressed its gratitude to Dr. Licéaga, former president of the Mexican board of health, by erecting to him a statue. The monument is located at the corner of Chapultepec Avenue and Carmona Street. It was unveiled by the mayor, and speeches were delivered by Drs. Gregorio Mendizábal and César Margin. A large part of the funds for the monument was donated by Senator Carlos B. Zetina, one of our most prominent industrial leaders.

New Department of Public Instruction

For a long time university education, which in this country is almost entirely in charge of the government, was administered by a bureau connected with the department of justice. In his time, Justo Sierra's efforts resulted in the creation of a department of public instruction and fine arts, which operated until its suppression by Carranza. A recent law has reestablished the old department, which will now be named Department of Public Education. Among its dependencies will be the School of Medicine, the School of Advanced Studies (in which are given courses in ophthalmology, dermatology, gynecology, etc.) and the Academy of Medicine. The new department will be headed by Dr. José Vasconcelos, the former director of the university. It is hoped that the vacant position of undersecretary will be filled by a competent physician who will take an interest in improving the teaching of medicine and in creating a school of hygiene and public health in which to train our future public health officers.

Malaria and Yellow Fever

In the state of Tabasco, on the gulf coast, great floods have caused epidemics of malaria. While there are no accurate data on the number of malaria cases, the public health authorities have sent a well equipped brigade to Villahermosa to combat the disease. At Puerto Vallarta (formerly called Las Peñas), in the state of Jalisco, twelve cases of yellow fever have been reported, with five deaths. It is at present the only infected port on the Pacific Coast, since no new cases have been reported at Manzanillo for the last two months. The presence of yellow fever at Puerto Vallarta, as well as another focus just discovered at Ojitlán, Oaxaca, is not very important from a sanitary standpoint, since both places are difficult to reach, and their intercourse with other towns is very limited; however, in both instances a scientific campaign is being carried out against the disease.

Personal

Dr. José Beracoechea, one of the physicians sent to Puerto Vallarta to combat the yellow fever epidemic, has died from the disease.—Dr. Francisco Cuevas has returned from Europe after several months of study in the old world.—Dr. Alfonso Pruneda, Manuel Uribe Troncoso and F. Castillo Nájera represented Mexico at the fiftieth meeting of the American Public Health Association in New York.—Dr. Alfredo Caturegli, formerly of Hermosillo, Sonora, has assumed charge of the Mexican legation at Berlin.—Drs. Enrique González Martínez and Alvaro Torre Díaz have been

appointed as special plenipotentiaries to South American countries.—Dr. Guillermo Salazar has been appointed secretary of the Guatemalan legation. The present minister is also a physician, Dr. Luis Felipe Obregón.—Dr. Fernando Ocaranza has been appointed member of the American Association for the Advancement of Science.—Dr. Eusebio Guajardo has returned to Mexico after attending the Infant Welfare Congress held in Belgium.—Dr. Francisco Miranda, who spent some time in New Orleans; and Dr. Isidro Espinosa de los Reyes, who made some studies in obstetrics, and Dr. Carlos Meneses, who visited several hospitals, in the United States, have just returned to Mexico.—Dr. Rafael Raygadas, of the Mexican Red Cross, has left for Europe.—In a previous letter, it was stated that Dr. J. M. Albiñana had come here on behalf of the Spanish government to study pre-Columbian medicine in Mexico; however, he has opened his office here and is advertising in political newspapers.

VIENNA

(From Our Regular Correspondent)

Nov. 17, 1921.

The Congress of the German Urologic Society in Vienna

The Fifth Congress of the German Urologic Society—the first since the war—was held in Vienna from September 29 until October 2, and was combined with a celebration of the twenty-fifth anniversary of Roentgen's discovery, to which urology owes in a large degree its present position in surgery. The preliminary work had been entrusted to Professor Zuckerkandl, but he died suddenly just before completing his task, and so Voelcker had to grapple with the work. A large number of urologists were present; Italy, the Scandinavian countries, Spain and Switzerland had delegated representatives. The proceedings were divided under three headings: (1) hydronephrosis; (2) surgical anatomy of the bladder and ureters, and (3) the roentgen ray in urology. In addition to these principal points of view, numerous other items were considered, and the number of papers exceeded half a hundred.

HYDRONEPHROSIS

The introductory paper by Professor Albrecht of Vienna dealt with the definition, the nomenclature and the different degrees of hydronephrosis. He found that even when the parenchyma atrophies, its regeneration can be observed or compensatory hypertrophy, which processes are sufficient to permit of continuation of life. The final condition is interstitial hydronephrotic chronic nephritis. The etiology of the disease is not always known. The acquired cause is mostly obstruction anywhere between the external orifice of the urethra and the pelvis of the kidney. Apart from mechanical causes, chronic atonic dilatation of the entire uropoietic system may be responsible for the condition. The paper was illustrated by demonstrations of numerous specimens from the Vienna pathologic museum.

The clinical part of the theme was dealt with by Rumpel of Berlin, who analyzed sixty-six cases. In 30 per cent. the etiology is still not known. He found three groups of types: (1) bilateral hydronephrosis, when the obstacle is in the bladder or urethra; (2) unilateral or bilateral, if the obstruction is situated in the ureter; often this is a congenital stenosis, and (3) the most frequent cases, due to congenital defects or deformities situated above the exit of the ureter from the kidney, which are mostly onesided. Rumpel read also a paper on the change of position of the kidney and its relation to hydronephrosis. He does not believe that floating kidney is a frequent cause of it, and he discussed the value of cystoscopy, chromocystoscopy, ureteroscopy and pyelography as differential diagnostic means.

The treatment of hydronephrosis was discussed in a paper by Oehlecker of Hamburg. According to him, a cure may be aimed at (1) by plastic operations, of which he gave instructive examples; (2) by severing the accessory blood vessels, and (3) by the radical operation—extirpation—which, in the case of a dystopic kidney, should be made extraperitoneally. The indication is: plastic operation in uronephrosis, extirpation in hydronephrosis. Infected hydronephrosis must be judged according to the degree of infection. The milder cases can be treated by conservative methods; severer cases require radical operations. All patients who have undergone plastic operations should be examined afterward at regular intervals, and also with pyelography. But the chief object must be to discover the true etiology of the hydronephrosis. The discussion betrayed considerable difference of opinion. Wildbolz and Casper, in particular, expressed other views in regard to indication and method of operation.

TUBERCULOSIS OF UROPOIETIC SYSTEM

On the second day, papers on tuberculosis of the uropoietic system were read. Casper found that a tuberculous kidney can heal spontaneously. In a case in which tuberculosis of the left kidney had been verified by microscopic examination twenty-five years ago and the patient refused operation, the urine became clear. But in 1921, the kidney was removed for other reasons, and was found atrophied, but perfectly free from tuberculosis. Also a case of tuberculosis of the bladder observed in 1916 was seen again in 1920, when a tuberculous kidney had to be removed. The bladder proved to be healed completely. These two cases prove that conservative treatment may be of avail.

Professor Wildbolz of Switzerland presented a paper on the result of surgical treatment of tuberculous kidney, based on his own 445 cases. The mortality of the operation is 2.4 per cent.; the total mortality in ten years was 29.9 per cent.; 61.5 per cent. were cured; 8.7 per cent. not cured. Nephrectomy thus is shown to cure more than 60 per cent. of cases of unilateral tuberculosis. Three years after the operation the patient is still well. A permanent cure may be safely supposed; but if after three years the patient is not cured, a cure is no more to be expected. Professor Wildbolz severs the ureter far down with the thermocautery, but the stump not rarely becomes infected. Bilateral tuberculosis of the kidney never proved curable in his hands.

Joseph of Berlin removes one kidney in bilateral kidney tuberculosis only when the other is much better; he operates only if the weaker kidney gives very severe trouble; otherwise the conservative treatment gives better results. Similar results were observed by Paschkis in three cases of bilateral tuberculosis, lasting ten, nine and seven years, respectively, with comparatively good health, after removal of the kidney that appears to be more affected. Similar observations were made by Bachrach, Lieben and Mock.

An interesting subject was opened by Dr. Zinner, who has seen many cases of temporary insufficiency of the ostium of the ureter after the removal of one kidney. Such occurrences may happen not only in the course of inflammation of the bladder and kidney, but also with normal organs; herein lies perhaps one cause of the ascending infection. Dr. Necker of Vienna and Dr. Lichtenstein discussed the symptomatology and therapy of perinephritis, which at times is not accompanied by pathologic changes in the substance of the kidney itself. Tonsillitis seems to be a frequent precursor of this condition, which can be cured by decapsulation.

SURGICAL ANATOMY OF BLADDER AND URETERS

The second chief theme of the congress, surgical anatomy of the bladder and the ureters, was introduced by a paper by Professor Tandler, who explained the relations of the blad-

der to the muscles of the pelvic floor, and gave a short ontogenetic description of the connective tissue and its development from the tela urogenitalis. He thinks that the numerous so-called ligaments are merely parts where the tela urogenitalis is somewhat condensed; they do not appear in the pelvis of infants. Numerous specimens helped to explain the paper and illustrate the perivesical tissue in its relation to the bladder in both sexes. The surgical aspect of this theme was dealt with by Voelcker of Halle. He dwelt on the merits of the various methods used to gain access to the bladder: high section, symphysectomy, the transperitoneal sacral way, and finally his own method, in which the bladder is mobilized outside the peritoneum. By this route it is possible to work freely even on the fixed part, the trigon, with very satisfactory results as to postoperative treatment and ultimate aim. The third part of the theme, the resection of the female bladder, was presented by Professor Latzko of Vienna. He first frees the ureters and blood vessels and then completes the extraperitonization. Tumors of the bladder can thus be removed radically together with the lymphatics.

Favorable results after total removal of the bladder, with implantation of the ureters in the ileum, were reported by Scheele, Blum, Thies and Stutzin. Avoidance and treatment of fistula after high section was described by Kielleuthner, who advocates a very high incision; if a fistula has formed by ectopy of the mucosa, it can be cured by destroying, intravesically, the exuberant mucosa by high-frequency currents. A severe case of hemorrhage from the bladder was observed by Casper in a girl with Banti's disease. High section was useless, but as a Wassermann reaction proved positive, anti-syphilitic treatment was instituted with perfect results. The problem of the bedwetting child was discussed by Goldenberg, who injects from 20 to 30 c.c. ($5\frac{1}{2}$ to 8 fluidrams) of physiologic sodium chlorid solution with indigocarmin into the epidural space. He also recommends the sacral anesthesia for lithotripsy or for difficult cystoscopies. The painful kidney without objective symptoms was dealt with by Professor Maunaberg. He described the crises of the vessels of the kidney, when the pains irradiate into the small of the back, the glutei and the legs. Rothschild and Kneise read papers on the diverticula of the bladder, which are best treated by electrocoagulation, thus destroying the septal wall. Rubritius presented a paper on retention of urine without mechanical cause. He has found in such cases a tonic spasm of the sphincter vesicae of various origins: tabes, myelitis, and injection of tetanus antitoxin. In all cases a cure was obtained by excision of a wedge-shaped part from the posterior aspect of the internal orifice, the bladder being opened. Quite a stir was produced by the discussion of Steinach's views of the gland of puberty. This was opened by Serralach of Spain, who spoke in favor of the claims put forward by the professor and his followers. Schmidt of Berlin, Lichtenstein of Vienna and Finsterer have obtained increase of general vigor by tying the vessels, while Kyrle and Steinberg oppose these views. Especially the latter denies that the interstitial cells have anything to do with the secondary sexual characters; they are present in pseudohermaphroditism, in eunuchoidism and in homosexual individuals, in whom they ought to be absent if Steinach's views are correct.

ROENTGENOLOGY AND UROLOGY

The third day of the meeting was devoted to roentgenology and urology. At the same time, a tribute was paid to Professor Roentgen by a special meeting in which a review of the achievements of the science of which he is the father was held by the leading roentgenologists of the continent. Then the urologic congress resumed its proceedings. Professor Holzknecht gave a vivid description of the results obtained by the roentgen ray in treating acute nephritis,

tumors and the hypertrophic prostate, and explained the modern methods of roentgenotherapy in cancer of the uterus. Eisler of Vienna spoke on the advance of diagnosis by pyelography, by pneumoperitoneum, and by filling the kidneys, ureters or bladder and examining these organs before the fluoroscopic screen; differential diagnosis thus was made much easier. The technic of pyelography was discussed by Voelcker and Lichtenberg. It is necessary that the pressure should not exceed 30 mm. of water. The contrasting substance is a problem of toxicology. The colloid substances used heretofore are not free from danger of infection. They can be used only for experiments of impregnation. Of all the crystalloid solutions of the salts, only sodium bromid is reliable, all others being poisonous, especially potassium iodid.

Dr. Eisendrath of Chicago read a paper on the cause of death after pyelography. He found that a pressure of 30 mm. of mercury was well tolerated; 60 mm. caused collargol to appear in the connective tissue of the pelvis as well as in the kidney and liver. One hundred millimeters pressure is fatal for dogs after from four to ten seconds. He too found a 20 per cent. solution giving best results, while potassium iodid and thorium proved poisonous. Special technic for the roentgenographic examination of the stones in the kidney, ureters or bladder were described by Blum, Sgalitzer and Kienböck, while Goetze prefers pneumoperitoneum for such examinations. Rubin of New York demonstrated an apparatus which enables the surgeon to make gas pass through the uterus and the tubes into the abdominal cavity, thus showing the patency of the tubes. Casper of Berlin describes the method of Rosenstein, who extraperitoneally brings oxygen from the back to the kidney, thus obtaining excellent pictures of the liver, kidneys and suprarenals. Both these methods were regarded as dangerous by a large section of those present.

An interesting subject was opened by Pal, who presented a paper on the relations between arteriosclerosis of the kidney and chronic interstitial nephritis, which is the most frequent terminal condition of hypertonia. Hrynschhak's paper on physiologic function of the bladder, pathologic cases demonstrated by Pregl, Paschkis and Lion, and some papers on diverticula of the bladder by Glingar, and by Sandek on suction treatment of urethritis, which has been again discovered after a lapse of ten years, completed the proceedings. Professor Voelcker finally demonstrated his method of operation for hypertrophic prostate (described in *THE JOURNAL*, Feb. 12, 1921, p. 487). The next meeting of the society will take place in 1923 in Berlin, and Professor Posner has been chosen president.

BUDAPEST

(From Our Regular Correspondent)

Nov. 22, 1921.

Economy in Drugs in the Budapest Hospitals

The director of the Budapest municipal hospitals has issued to the medical staff of all the Budapest municipal hospitals a curious circular in which he complains of extravagance in the treatment of patients, especially as regards certain drugs which he would have suppressed, or at least prescribed sparingly or replaced by cheaper articles. He calls particular attention to morphin (30,000 crowns per kilogram), osmic acid (25,000 crowns), and pilocarpin (35,000 crowns). As regards this latter, he suggests that it could be conveniently replaced by tincture of jaborandi. For codein, which in the last six years passed from 2 to 40 kg. a year, and its price from 400 to 20,000 crowns per kilogram, he considered that opium (120,000 crowns) could be substituted. He called particular attention to the high price of digitalin, hyoscyamin, hydrastinin, physostigmin, atropin, apomorphin, aconitin,

cocain and quinin, and asked that the greatest economy should be observed in prescribing them. He thought that a considerable economy could be made in alcoholic preparations. The annual expense for spirits of camphor was 350,000 crowns, that of pure alcohol used in the preparation of tinctures, liniments, etc., was 3,000,000 crowns; the quantity of ether consumed yearly amounted to 1,500,000 crowns.

The Immunity of Jews from Certain Diseases

Dr. Oscar Friedenberg, a Bessarabian practitioner, who has studied the Jewish race from a pathologic point of view, writes that the pathologic proclivities and immunities of the Jewish race have always been a subject of interest, but researches in this direction present special difficulties. He gives some information which appears to have been compiled with care, and merits more attention than the hasty generalizations with which we have been only too familiar. The Jewish population of Poland, Hungary, Roumania and Bessarabia is estimated at 3,000,000, so that the author had a large amount of material to work on. He says that the average duration of life among the Jews is longer than among Christians, the prolongation being due to the smaller child mortality. This fact, he says, was recognized about two decades ago by Dr. Maurice Fishberg in America. This fact is more significant, in view of the fact that statistics prove that their marriage rate is smaller, and that each marriage is less fertile than with other denominations. The comparative immunity toward zymotic diseases, once claimed for the Jews, now no longer obtains, but they still rejoice in a certain immunity against tuberculosis. Alcoholism and syphilis appear to be relatively infrequent also, but as gonorrhea is equally prevalent among Jews and Christians, the freedom of the former from syphilis is presumably not due to greater chastity but rather to circumcision. Diabetes, on the other hand, is a disease to which Jews appear to be particularly prone, and this predisposition obtains in respect to all the diseases which are grouped under the head of disturbances of metabolism. Affections of the organs of vision, again, appear to be disproportionately frequent among the Jews, but the one fact that strikes the observer is their peculiar racial liability to neuroses and psychoses, and especially to hysteria, in spite of the fact that organic disease of the nervous system is not more frequent among them than among other classes of the community. Dr. Friedenberg is careful to point out that these peculiarities are probably not due to any racial biologic characteristics but rather to their past history and habits of life. When the Jew mixes freely with his neighbors and adopts their customs and habits of life, he sooner or later loses his "racial characteristics," and his comparative pathology ceases to present any special peculiarity.

Heat in the Treatment of Gonorrhea

The value of copious repeated irrigations of the urethra by Janet's method in the treatment of gonorrhea is well known though the method has not come into general use on account of extensive demands which it makes on the time and patience of the patient. Attention has recently been called to the fact that therapeutic effects of the irrigations are greatly increased by employing the solutions of potassium permanganate or other salt at a comparatively high temperature; indeed, it is confidently asserted that the temperature is of more importance than the chemical composition of the solution. The temperature should not be less than 39 C. (102.2 F.), and may advantageously be carried to 42 or 43 C. (about 108 F.). It is stated that these hot injections do not give rise to any untoward consequences nor, indeed, is there any obvious reason why they should; and if they enable us to exert more efficient control over a very obstinate affection, they will constitute a valuable addition to the means at our

disposal. This method has been practiced at the Budapest Polyclinic since 1918, and is giving excellent results.

Race Distribution of Cancer

At a recent discussion at the medical society of Budapest, some interesting facts were brought to light concerning the racial distribution of cancerous diseases. To begin with, it was shown that the death rate from these diseases has undergone a steady increase in Poland (where the lecturer had spent more than twenty years as director of the statistical bureau), from 27 per hundred thousand of the population in 1890 to 41 in 1910 and 43 in 1920, the age distribution coinciding with other well known statistics. The most noteworthy feature of the investigations was that Germans and Poles and Jews, between them, contributed 23 per cent. of the cancer mortality of middle Europe, although they constitute about 20 per cent. of the population. Russians figure only 11 per cent. of the cancer mortality of Europe, though they represent about one third of Europe's total population. Another curious fact is that the proportion of deaths from cancer of the stomach, amounting to about 30 per cent. of the total number of deaths from cancer, was markedly greater among the Germans and Jews, the greater liability to this particular form of cancer being due in all probability to peculiarities of complicated diet. Whether diet acts by introducing a cancer-producing organism, or merely by rendering the stomach a *locus minoris resistentiae* in these races is, of course, a question which does not at present admit of solution. Suspicion has fallen on the large proportion of uncooked and half-cooked vegetables which enters into the dictary of these nations; but in the absence of direct evidence incriminating raw vegetables as carriers of cancer contagion, this is mere surmise. The view that Germans are more prone to gastric excess than other races is not sufficiently well authenticated to command assent, but it would be interesting to ascertain whether the same predominance of gastric cancer obtains in the German inhabited part of Austria and America.

An Interesting Forensic Medical Case

An interesting question bearing on liability to claims for damages recently was the subject of an elaborate judgment in the Budapest High Court of Justice. The point decided was whether a claim for damages could stand under the following somewhat extraordinary circumstances: A woman, advanced in pregnancy, was sitting on a bench in a public park which was crossed by a road for automobiles. A machine had to stop just before the bench, because of a defect in one of the hind wheels. When the driver began to take off the tire, it exploded with a mighty crash, whereupon the pregnant woman collapsed, so that she had to be taken home in an ambulance car. According to the statement of claim, the shock she was suffering at the automobile incident resulted in the birth, six or seven weeks later, of a lame child. The question which the judges were called on to decide was whether the damage was not too remote to furnish ground for action, and they have arrived at the conclusion that it is not, and that the claim for damages may lie. Of course, this is a very different matter from establishing the interdependence of the two events—the shock and the birth of a lame child—and the trial will doubtless raise some very interesting questions in the scope and reality of maternal impressions. In this case there does not appear to have been any actual physical injury, but the judges clearly laid it down that the fact of an injury being mental does not invalidate its admissibility. One important element in the defense will be a careful inquiry into the family and personal history of the parents. There are many ways of explaining the birth of a lame child without connecting the event with an emotional disturbance, however violent, that was sustained six weeks previously.

THE REFERENDUM ON THE USE OF ALCOHOL IN THE PRACTICE OF MEDICINE

(Continued from page 2078)

Last week we published the results of the referendum on the use of alcohol in the practice of medicine in Illinois and Indiana. This week we report on six more states, viz.: Idaho, Kansas, Maine, Mississippi, Nebraska and Rhode Island. Under "Comments," in each state, are printed selections from some of the interesting statements made by those answering the questionnaire; lack of space prevents giving more than a few of these comments.

IDAHO

Idaho has had state wide prohibition for over five years, the state law becoming effective, Jan. 1, 1916. A state constitutional prohibitory amendment was adopted in November of the same year. The law does not permit the prescribing of alcoholic liquor in any form. Physicians may purchase pure alcohol for manufacturing, laboratory or scientific purposes only.

The questionnaire was sent to 227 physicians in Idaho, and 161, or 71 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote was: yes, 70; no, 90.

On the question "Is beer a necessary therapeutic agent?" the vote was: yes, 38; no, 120.

RESULTS IN IDAHO

Number of physicians.....	553
Questionnaires sent	227
Total questionnaires returned.....	161
Percentage of returns.....	71
General practitioners	146
Surgeons	4
Specialists	11
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?	
Yes	70
No	90
Do you regard beer as a necessary therapeutic agent in the practice of medicine?	
Yes	38
No	120
Do you regard wine as a necessary therapeutic agent in the practice of medicine?	
Yes	46
No	113
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?	
Yes	49
No	105
How many times have you found it advisable to prescribe these liquors in a month?	
Whisky: Number of physicians stating times advisable.....	42
Number of physicians stating no times advisable..	90
Beer: Number of physicians stating times advisable.....	22
Number of physicians stating no times advisable....	106
Wine: Number of physicians stating times advisable.....	24
Number of physicians stating no times advisable....	101
Do you hold a federal permit?	
Yes	4
No	41
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?	
Yes (limit not specified).....	33
Restricted absolutely	24
1 to 50 prescriptions.....	14
51 to 100 prescriptions.....	24
More than 100 prescriptions.....	1
Total	96
No restriction	61
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?	
Yes	99
No	59

On the question "Is wine a necessary therapeutic agent?" the vote was: yes, 46; no, 113.

On the question whether physicians had witnessed unnecessary suffering or death from enforcement of the prohibition laws, the vote was: yes, 49, no, 105.

On the question as to the number of times physicians had found it advisable to prescribe alcoholic beverages per month, 42 had found it advisable to prescribe whisky, and 90 had not found it advisable; 22 had found it advisable to prescribe beer,

and 106 had not found it advisable; 24 had found it advisable to prescribe wine, and 101 had not found it advisable.

Four physicians hold federal permits.

On the question as to whether physicians should be restricted in the number of prescriptions for alcoholic beverages, 96 stated that they should be restricted, and 61 did not believe such restrictions necessary; 33 physicians answered yes, but did not specify a limit; 24 stated that the number should be limited to absolutely none; 14 considered from 1 to 50 prescriptions for three months sufficient; 24 physicians considered from 51 to 100 satisfactory, and 1 physician considered 100 insufficient.

On the question "Should physicians be restricted in prescribing alcoholic beverages?" the vote was: yes, 99; no, 59.

COMMENTS

The only thing it has prohibited has been the legitimate securing and use of standard alcoholic stimulants of safe quality where actually and urgently required, while it has created a lucrative occupation for a dozen most disreputable scoundrels where there was one barkeeper, of at least a certain grade of thieves' honor, before.—*Boise*.

Am in favor of government-controlled liquor stores. I do not believe in the saloon. I believe that the present liquor law is unconstitutional in that it is at variance with personal freedom. I believe that the present regulations cause inestimable damage to health, owing to the consumption of illicit and poisonous liquor.—*Boise*.

I would suggest, as a remedy to control the abuses attendant upon the prescribing of liquor, that the government take over the distributing end of it and dispense it upon prescription in sealed packages of uniform quantity and use the postoffice for this purpose.—*Coeur d'Alene*.

In regard to grain alcohol for sponging and general medicinal and scientific use, the laws in this state are too stringent.—*Blaine County*.

Because of state bone dry law prescriptions were not written, and where alcohol was imperatively needed recourse was had to fair quality of bootleg and home brew.—*Custer County*.

Free access to pure alcohol in my estimation, to be used as solvents, and for external application and sterilization purposes, are almost indispensable. It is impossible to substitute liquors for this purpose.—*Nampa*.

KANSAS

The Kansas prohibition law was adopted in 1880. It provides for complete prohibition, and physicians are not granted permits to prescribe liquors for any purpose whatsoever.

Questionnaires were sent to 1,026 physicians in Kansas; 741, or 73 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote was: yes, 289; no, 448.

In Kansas City, Topeka and Wichita, the vote was: yes, 29; no, 62. The remainder of the state voted: yes, 260; no, 386.

On the question "Is beer a necessary therapeutic agent?" the vote was: yes, 150; no, 589. In the three largest cities the vote was: yes, 17; no, 74; in the remainder of the state, yes, 133; no, 515.

On the question "Is wine a necessary therapeutic agent?" the vote was: yes, 165; no, 563. In the three largest cities the vote was: yes, 17; no, 74, while in the remainder of the state the vote was: yes, 148; no, 489.

One hundred and fifty-seven physicians reported cases of unnecessary suffering or death from the prohibition of alcoholic liquors; 544 had no knowledge of such cases. The detailed vote will be found in the accompanying table as to towns and cities.

One hundred and fifty-eight physicians stated that the prescribing of whisky was found advisable; 449 stated they had not found it advisable; 69 found it advisable to prescribe

beer; 487 had not found it advisable; 74 physicians found it advisable to prescribe wine; 489 had not found it advisable.

Regarding the restriction of physicians in the number of prescriptions for alcoholic liquors, 502 were in favor of some kind of restriction; 204 were opposed to any limit on the number of prescriptions which a physician might write. Twenty-six physicians hold federal permits. Of these, 162 simply voted in favor of restriction without specifying any limit; 170 were in favor of absolutely prohibiting the physician from prescribing; 74 were in favor of allowing the physician to prescribe from 1 to 50 times in three months; 91 favored a limit of from 51 to 100 prescriptions in three months, and 5 were in favor of allowing more than 100 prescriptions in three months.

Five hundred and twenty-one physicians were in favor of restriction, and 200 were opposed to restricting physicians in any form.

The American Medical Association should appoint a committee to agree on the type of diseases in which whisky or beer may be used. The physician should turn in a report, monthly, to the internal revenue officer, of the amount used and the type of cases for which prescribed. The internal revenue officer should investigate same.—*Wichita*.

MAINE

Prohibition of some kind has existed in Maine since 1846. The prohibitory amendment to the state constitution was adopted in 1884. The present law prohibits the prescribing of alcoholic liquors by physicians.

Questionnaires were sent to 471 physicians in Maine; 271, or 58 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote in Portland was: yes, 18; no, 14; in the rural districts, yes, 135; no, 101; a total for the state of yes, 153; no, 115.

RESULTS IN KANSAS

KANSAS	Kansas City	Topeka	Wichita	Total Cities	Rural and Towns with Population Under 50,000	Grand Total
Number of physicians.....	147	147	141	435	2,115	2,550
Questionnaires sent	38	43	40	121	905	1,026
Total questionnaires received.....	24	31	36	91	650	741
Percentage of returns.....	64	73	90	75	72	73
General practitioners	21	23	24	68	605	673
Surgeons	2	1	9	12	18	30
Specialists	1	7	3	11	27	38
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?						
Yes.....	12	5	12	29	260	289
No.....	12	26	24	62	386	448
Do you regard beer as a necessary therapeutic agent in the practice of medicine?						
Yes.....	7	3	7	17	133	150
No.....	17	28	29	74	515	589
Do you regard wine as a necessary therapeutic agent in the practice of medicine?						
Yes.....	6	5	6	17	148	165
No.....	18	26	30	74	489	563
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?						
Yes.....	7	1	5	13	144	157
No.....	15	29	28	72	472	544
How many times have you found it advisable to prescribe these liquors in a month?						
Whisky: Number of physicians stating times advisable.....	5	1	6	12	146	158
Number of physicians stating no times advisable....	16	21	24	61	388	449
Beer: Number of physicians stating times advisable.....	2	..	3	5	64	69
Number of physicians stating no times advisable.....	17	21	25	63	424	487
Wine: Number of physicians stating times advisable.....	1	..	2	3	71	74
Number of physicians stating no times advisable.....	18	21	27	66	423	489
Do you hold a federal permit?						
Yes.....	1	..	3	4	22	26
No.....	6	8	6	20	177	197
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?						
Yes (limit not specified).....	11	10	4	25	137	162
Restricted absolutely	1	8	10	19	151	170
1 to 50 prescriptions.....	1	..	4	5	69	74
51 to 100 prescriptions.....	1	6	7	14	77	91
More than 100 prescriptions.....	..	..	..	..	5	5
Total.....	14	24	25	63	439	502
No restriction	7	5	7	19	185	204
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?						
Yes.....	15	24	26	65	456	521
No.....	7	5	7	19	181	200

COMMENTS

The greatest inconvenience I find from the present restrictions is in the laboratory and in local applications as a desiccating agent. These "inconveniences" have not been sufficiently acute to cause me to obtain a permit.—*Chase County*.

The medical profession, as now constituted, must be regulated and restricted in prescribing liquors, wines and beer for the same reason that abortionists and drug prescribers are regulated. I was originally opposed to prohibition, but since I have seen its wonderfully good effects I believe that it should be made effective.—*Fort Leavenworth*.

Certain seasons require more prescriptions than others; for instance, an epidemic of pneumonia or influenza would require more.—*Barton County*.

I am a country physician, and the greatest fault I find is that I am not allowed to have a small quantity of whisky on hand at all times for emergencies. I live 14 miles from a registered druggist who can fill whisky or alcohol prescriptions, therefore I can't use it in many emergencies.—*Marion County*.

I should like to see it taken out of the hands of physicians entirely and dispensed by the government, on the plan of the Canadian law.—*Cherokee County*.

All alcoholic beverages would be put under the Harrison law by the government, the same as morphin, heroin, etc. Then those physicians who deem it necessary to use them would be required to keep an absolute record.—*Lane County*.

On the question "Is beer a necessary therapeutic agent?" the vote in Portland was: yes, 10; no, 22; in the rural districts, yes, 61; no, 174; for the state yes, 71; no, 196.

On the question "Is wine a necessary therapeutic agent?" the vote in Portland was: yes, 11; no, 20; in the rural districts, yes, 62; no, 174; for the state yes, 73, no 194.

Sixty-two physicians had seen cases of unnecessary suffering or death resulting from prohibition laws, and 180 physicians stated that they had not seen such cases.

On the question as to the number of times physicians had found it advisable to prescribe whisky, 83 physicians had found it advisable and 128 had not found it advisable; beer, 31 advisable and 168 inadvisable; wine, 37 advisable and 163 inadvisable. Eleven physicians of those replying held federal permits, and 84 did not hold federal permits.

One hundred and thirty physicians believed that prescribing of alcoholic beverages should be restricted, and 122 believed it should not be restricted. Thirty-four physicians answered yes, but did not specify a limit; 37 believed in absolute prohibition; 15 believed from 1 to 50 for three

months sufficient; 41 believed from 51 to 100 sufficient, and three physicians considered the amount required to be more than 100 in three months.

One hundred and forty-two physicians voted for restriction, and 117 voted for no restrictions.

RESULTS IN MAINE

MAINE	Port-land	Rural	Grand Total
Number of physicians.....	182	923	1,105
Questionnaires sent	52	419	471
Total questionnaires returned.....	33	238	271
Percentage of returns.....	64	57	58
General practitioners	19	216	235
Surgeons	4	13	17
Specialists	10	9	19
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?			
Yes	18	135	153
No	14	101	115
Do you regard beer as a necessary therapeutic agent in the practice of medicine?			
Yes	10	61	71
No	22	174	196
Do you regard wine as a necessary therapeutic agent in the practice of medicine?			
Yes	11	62	73
No	20	174	194
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?			
Yes	6	56	62
No	23	157	180
How many times have you found it advisable to prescribe these liquors in a month?			
Whisky: Number of physicians stating times advisable	7	76	83
Number of physicians stating no times advisable	17	111	128
Beer: Number of physicians stating times advisable	1	30	31
Number of physicians state no times advisable	21	147	168
Wine: Number of physicians stating times advisable	3	34	37
Number of physicians state no times advisable	20	143	163
Do you hold a federal permit?			
Yes	2	9	11
No	14	70	84
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?			
Yes (limit not specified).....	7	27	34
Restricted absolutely	4	33	37
1 to 50 prescriptions.....	..	15	15
51 to 100 prescriptions.....	6	35	41
More than 100 prescriptions.....	..	3	3
Total	17	113	130
No restriction	10	112	122
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?			
Yes	21	121	142
No	10	107	117

COMMENTS

It would seem to me, although proud of my city, that conditions here have gone from bad to worse, and that the number of poison cases equal the "D. T." patients we had before the law was passed.—*Portland.*

I am not prejudiced. I am not a prohibitionist. I think I have seen more people killed or ruined trying to depend on alcohol as a remedial agent than I have on any other drug. If my patient insists on a prescription, I can save my conscience by referring him to the grocer who sells Tan-Lac and Yarnesis, both, I believe, in the 17 per cent. class.—*Bar Harbor.*

For forty years I have seen drunkenness and contempt of law from the inevitable nullification. Today Maine is saturated with immatured whisky and cheap gin, but at a price that only the prosperous buy.—*Cumberland County.*

If law was similar to the Harrison law, that would be sufficient regulation. If a doctor prescribes too freely and illegitimately, take away his license, and I would consider that restriction enough. A physician might write many prescriptions legitimately one month, and only a few or none other months.—*Houlton.*

Whisky is obtainable here, as we are on the Canadian Border. The price is beyond reason.—*Aroostook County.*

It is never difficult to get whisky in this state, provided one has the price.—*Waterville.*

Personally, I think that the questionnaire summing up should be communicated in no uncertain way to Congress. How a chemist would laugh at some ignorant outsider who would propose that he leave out this or that, a certain dye, for instance. Why should the profession of medicine calmly sit by and have a group of men dictate as to whether they can use this or that drug?—*Houlton.*

The trouble is with the prohibition law. Undoubtedly allowing physicians to prescribe will increase the already growing number of bootleggers. But as nearly every respectable citizen is one at present, I don't know as it would make any difference.—*Portland.*

MISSISSIPPI

A state prohibitory law has been in force since Jan. 1, 1909. Under its provisions, physicians may prescribe pure alcohol in quantities not to exceed one-half pint for patients on whom they have made an actual physical examination.

Questionnaires were sent to 549 physicians in Mississippi; 315, or 58 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote was: yes, 133; no, 182.

On the question "Is beer a necessary therapeutic agent?" the vote was: yes, 70; no, 242.

On the question "Is wine a necessary therapeutic agent?" the vote was: yes, 66; no, 240.

Fifty-two physicians had seen cases of unnecessary suffering or death resulting from prohibition laws, and 250 physicians stated that they had not seen such cases.

On the question as to the number of times physicians had found it advisable to prescribe whisky, 75 had found it advisable, and 177 had not found it advisable; beer, 28 advisable, 208 inadvisable; wine, 26 advisable and 214 inadvisable. In the state of Mississippi, 30 physicians of those replying held federal permits; 127 did not hold federal permits.

One hundred and ninety-four physicians believed that prescribing of alcohol should be restricted, and 109 believed that it should not be restricted. Seventy-three answered yes, but did not specify a limit; 58 believed in absolute prohibition; 25 believed from 1 to 50 for three months sufficient; 33 believed from 51 to 100 sufficient, and 5 considered the amount required to be more than 100 in three months.

RESULTS IN MISSISSIPPI

Number of physicians.....	1,761
Questionnaires sent	549
Total questionnaires returned.....	315
Percentage of returns.....	58
General practitioners	291
Surgeons	13
Specialists	11
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?	
Yes	133
No	182
Do you regard beer as a necessary therapeutic agent in the practice of medicine?	
Yes	70
No	242
Do you regard wine as a necessary therapeutic agent in the practice of medicine?	
Yes	66
No	240
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?	
Yes	52
No	250
How many times have you found it advisable to prescribe these liquors in a month?	
Whisky: Number of physicians stating times advisable....	75
Number of physicians stating no times advisable..	177
Beer: Number of physicians stating times advisable.....	28
Number of physicians stating no times advisable....	208
Wine: Number of physicians stating times advisable.....	26
Number of physicians stating no times advisable....	214
Do you hold a federal permit?	
Yes	30
No	127
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?	
Yes (limit not specified).....	73
Restricted absolutely	58
1 to 50 prescriptions.....	25
51 to 100 prescriptions.....	33
More than 100 prescriptions.....	5
Total	194
No restriction	109
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?	
Yes	202
No	101

COMMENTS

In my city I am very much handicapped by not being able to get alcohol (grain) without some such substance as mercuric chlorid in it. This prevents my using it in rectal drips or to sterilize instruments. I believe we should be able to get alcohol if none of the above.—*Jackson.*

The present prohibition law is doing more to undermine society than any other one agency. It is corrupting a large percentage that before prohibition never or rarely violated the laws of the land. Six or seven men have gone from this county this year to the pen for illicit manufacture of whisky, and yet the traffic goes on as much or more since their sentences began. Isn't it a fact that a great many people have an idea that all that is necessary to stop an evil is to enact laws? Prohibition is an educational as well as a legal matter.—*Chickasaw County.*

The trouble and suffering results from the nonenforcement of the law. Individuals are killing themselves drinking all kinds of badly manufactured illicit drinks, out of which the government derives no revenue. In my opinion, the "one quart law" was the best, and the nearest that they will ever get to prohibition in the true sense. As it is, almost any boy, regardless of age, can buy "wild cat," provided he has the price, which is always more than any one ever had to pay for good whisky. I would vote a dry ticket, but I dislike the present law, and the way it is being enforced.—*Covington County.*

I am strictly against our present prohibition, as I can see daily people drinking who never drank before constitutional prohibition took effect. And now every family nearly makes some form of home brew.—*Coahoma County.*

I am not an advocate of constitutional prohibition. I am not an advocate of prohibiting anything. If we are to have constitutional prohibition I believe it should include the rich as well as the poor. Absolute. I believe there is more drunkenness in this community than was ever known; this especially applies to the young men. Illicit distilling is very prevalent, and there is apparently no effort to enforce the law.—*Brookhaven.*

yes, 113; no, 293. Total for the state, yes, 165; no, 394.

On the question "Is wine a necessary therapeutic agent?" the vote in Omaha was: yes, 51; no, 63; Lincoln, yes, 9; no, 26; total for the cities, yes, 60; no, 89; for the rural districts, yes, 102; no, 302. Total for the state, yes, 162; no, 391.

On the question whether physicians had witnessed unnecessary suffering or death from enforcement of the prohibition laws, the vote was: yes, 133; no, 396. A detailed statement as to the city and rural vote appears in the table.

On the question as to the number of times physicians had found it advisable to prescribe alcoholic beverages per month, 157 physicians had found it advisable to prescribe whisky, and 271 had not found it advisable. Eighty-five physicians had found it advisable to prescribe beer, and 303 physicians had not found it advisable. Eighty-three physicians had found it advisable to prescribe wine, and 301 had not found it advisable.

RESULTS IN NEBRASKA

NEBRASKA	Rural and Towns with Population Under 50,000				
	Omaha	Lincoln	Total Cities	Under 50,000	Grand Total
Number of physicians.....	445	183	628	1,337	1,965
Questionnaires sent	212	56	268	602	870
Total questionnaires returned.....	121	35	156	409	565
Percentage of returns.....	58	63	59	68	65
General practitioners	76	19	95	384	479
Surgeons	24	10	34	14	48
Specialists	21	6	27	11	38
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?					
Yes.....	79	6	85	187	272
No.....	41	29	70	221	291
Do you regard beer as a necessary therapeutic agent in the practice of medicine?					
Yes.....	46	6	52	113	165
No.....	72	29	101	293	394
Do you regard wine as a necessary therapeutic agent in the practice of medicine?					
Yes.....	51	9	60	102	162
No.....	63	26	89	302	391
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?					
Yes.....	25	4	29	104	133
No.....	81	29	110	286	396
How many times have you found it advisable to prescribe these liquors in a month?					
Whisky: Number of physicians stating times advisable.....	38	6	44	113	157
Number of physicians stating no times advisable.....	46	23	69	202	271
Beer: Number of physicians stating times advisable.....	26	3	29	56	85
Number of physicians stating no times advisable.....	54	19	73	230	303
Wine: Number of physicians stating times advisable.....	25	6	31	52	83
Number of physicians stating no times advisable.....	54	19	73	228	301
Do you hold a federal permit?					
Yes.....	8	1	9	11	20
No.....	32	8	40	115	155
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?					
Yes (limit not specified).....	23	1	24	65	89
Restricted absolutely	14	10	24	82	106
1 to 50 prescriptions.....	9	6	15	33	48
51 to 100 prescriptions.....	19	4	23	56	79
More than 100 prescriptions.....	65	21	86	1	1
Total.....	46	9	55	237	323
No restriction				147	202
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?					
Yes.....	62	23	85	255	340
No.....	52	7	59	137	196

NEBRASKA

Nebraska adopted a prohibitory amendment to the state constitution, submitted under the initiative, Nov. 7, 1916. The state prohibition law went into effect, May 1, 1917. Previous to the passage of this act a large part of the state had been dry under the local option law. The present law permits regularly licensed physicians to issue prescriptions requiring the use of intoxicating liquors, provided the other ingredients of the prescription are of such character as to make it unfit for use as a beverage.

The questionnaire was sent to 870 physicians in Nebraska, and 565, or 65 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote in Omaha was: yes, 79; no, 41; in Lincoln, yes, 6; no, 29. The total vote in the cities was: yes, 85; no, 70; in the rural districts, yes, 187; no, 221. Total for the state, yes, 272; no, 291.

On the question "Is beer a necessary therapeutic agent?" the vote in Omaha was: yes, 46; no, 72; Lincoln, yes, 6; no, 29; total for the cities, yes, 52; no, 101; in the rural districts,

able. The number of cases varied in the practices of different physicians.

On the question as to whether physicians should be restricted in the number of prescriptions for alcoholic beverages, 323 physicians stated that they should be restricted and 202 did not believe such restrictions necessary; 89 physicians answered yes but did not specify a limit; 106 stated that the number should be limited to absolutely none; 48 considered from 1 to 50 prescriptions for three months sufficient; 79 considered from 51 to 100 satisfactory, and 1 physician considered 100 insufficient.

On the question "Should physicians be restricted in prescribing alcoholic beverages?" the vote was: yes, 340; no, 196.

COMMENTS

I see no harm in light wines and beers, and think that restriction might be better than absolute prohibition. However, I do not believe that alcoholic liquors are necessary, either as therapeutic measures or as beverages, and since prohibition is the law of the day, physicians should not be made bartenders.—*Omaha.*

If liquor is a necessity and the privilege of prescribing it is given, there should be no limit on the amount used when needed. Its use, however, should be restricted but not limited.—*Battle Creek.*

Our state is one that does not allow us any privileges, so we get along. Nevertheless, I believe we should be allowed to prescribe it when it is indicated. I voted for prohibition; I do not drink; but I must admit that prohibition is a joke in our part of the country.—*Bayard*.

When I have felt the need of whisky I have always been able to find some friend of the family of the patient to supply it. We should not be limited as to the number of prescriptions in a stated period of time. There are those who are willing to sell their birthright and become liquor agents. I feel this could be handled by an act similar to the Harrison act.—*Deuel*.

Restrictions should be the same as for narcotic drugs and a statement of the nature of the illness should accompany the prescription; there should be no refills.—*Crete*.

I do not see why a doctor should be restricted in prescribing whisky any more than he should be restricted in prescribing strychnin or digitalis. It should be controlled or regulated in a way similar to morphin, if necessary.—*Omaha*.

Restriction should be similar to the Harrison Narcotic Law and rigid enough to prevent avaricious medical men turning into barkeeps, and broad enough to permit the use with the same sanity that other drugs are used.—*Omaha*.

Restriction should be to cases actually requiring some and dispensed by government stores only and open record.—*Omaha*.

Thirty-four physicians replied that they had seen cases of unnecessary suffering or death resulting from prohibition laws, and 122 physicians stated that they had not seen such cases.

On the question as to the number of times physicians had found it advisable to prescribe whisky, 82 had found it advisable and 46 had not found it advisable; beer, 14 advisable and 79 inadvisable; wine, 35 advisable and 69 inadvisable. In the state of Rhode Island, 100 physicians of those replying held federal permits; 55 did not hold federal permits.

Sixty-seven physicians believed that prescribing of alcoholic beverages should be restricted, and 95 believed it should not be restricted. Twenty physicians answered yes, but did not specify a limit; 8 believed in absolute prohibition; 11 believed from 1 to 50 for three months sufficient; 27 believed from 51 to 100 sufficient, and 1 physician considered the amount required to be more than 100 in three months.

Sixty-seven physicians voted for restriction and 90 voted for no restriction.

RESULTS IN RHODE ISLAND

RHODE ISLAND	Rural and Towns with Population				
	Providence	Pawtucket	Total Cities	Under 50,000	Grand Total
Number of physicians.....	441	48	489	289	778
Questionnaires sent	164	15	179	117	296
Total questionnaires returned.....	97	4	101	60	161
Percentage of returns.....	59	26	56	51	54
General practitioners	74	2	76	53	129
Surgeons	15	1	16	1	17
Specialists	8	1	9	6	15
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?					
Yes.....	59	3	62	34	96
No.....	38	1	39	26	65
Do you regard beer as a necessary therapeutic agent in the practice of medicine?					
Yes.....	38	1	39	16	55
No.....	58	3	61	43	104
Do you regard wine as a necessary therapeutic agent in the practice of medicine?					
Yes.....	41	2	43	22	65
No.....	55	3	57	33	95
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?					
Yes.....	23	..	23	11	34
No.....	69	4	73	49	122
How many times have you found it advisable to prescribe these liquors in a month?					
Whisky: Number of physicians stating times advisable.....	52	3	55	27	82
Number of physicians stating no times advisable.....	29	1	30	16	46
Beer: Number of physicians stating times advisable.....	12	..	12	2	14
Number of physicians stating no times advisable.....	50	1	51	28	79
Wine: Number of physicians stating times advisable.....	24	..	24	11	35
Number of physicians stating no times advisable.....	44	1	45	24	69
Do you hold a federal permit?					
Yes	66	1	67	33	100
No.....	30	1	31	24	55
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?					
Yes (limit not specified).....	9	2	11	9	20
Restricted absolutely	2	2	4	4	8
1 to 50 prescriptions.....	6	1	7	4	11
51 to 100 prescriptions.....	19	..	19	8	27
More than 100 prescriptions.....	..	1	1	..	1
Total.....	36	6	42	25	67
No restriction	59	2	61	34	95
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?					
Yes.....	38	1	39	28	67
No.....	56	3	59	31	90

RHODE ISLAND

Rhode Island has had local option since 1838, the law requiring a vote on the liquor question in each town every two years. As a result, the local situation was constantly changing. There is no state law in Rhode Island regarding the prescribing of alcoholic liquors.

Questionnaires were sent to 296 physicians in Rhode Island; 161, or 54 per cent., were returned.

On the question "Is whisky a necessary therapeutic agent?" the vote in Providence was: yes, 59; no, 38; in the rural districts, yes, 34; no, 26; for the state, yes, 96; no, 65.

On the question "Is beer a necessary therapeutic agent?" the vote was: in Providence, yes, 38; no, 58; in the rural districts, yes, 16; no, 43; for the state, yes, 55; no, 104.

On the question "Is wine a necessary therapeutic agent?" the vote was: in Providence, yes, 41; no, 55; in the rural districts, yes, 22; no, 38; for the state, yes, 65; no, 95.

COMMENTS

The law as it stands, in my opinion, is a poor man's prohibition. Whisky I believe to possess great medicinal value. Good bonded whisky should be obtainable for medicinal purposes. Our profession should try to secure an amendment to the law whereby government-operated stations would take care of prescriptions on prescription blanks from the prohibition enforcement office.—*Providence*.

In a year and a half I have written about 100 prescriptions for whisky and brandy, and in nearly every case for pneumonia. I believe such prescriptions should be unlimited, just as they are for other drugs.—*Providence*.

Physicians should not be allowed to charge for whisky prescriptions. If the patient needs whisky, the physician will not let him go in need of it if he does get no fee for the prescription.—*Wakefield*.

I do not think there should be any limit to the amount prescribed or the number of prescriptions. If a physician abuses his privilege, he should be punished, the profession not condemned because an occasional man goes wrong. In this state it is possible for any one, good or bad—mostly bad—to obtain liquor—mostly moonshine—by paying the price.—*Pawtucket*.

In twenty months I have written but eighteen prescriptions for spirits, but believe there should be no restriction as to the number which may be written.—*Central Falls*.

Marriages

GEORGE GARRETT MCKELLAR, Couchwood, La., to Miss Lillian Smith of Northern Copiah, La., October 8.

JOHN A. SHACKELFORD to Miss Margaret Dillard Spencer, both of Martinsville, Va., November 16.

MAJOR EDWARD THRELKELD, Hazard, Ky., to Miss Mary Bryan Campbell of Louisville, Ky., September 29.

NATHANIEL HAWLEY BRUSH, Santa Barbara, Calif., to Mrs. Lorraine Baker, at Santa Barbara, December 15.

JOHN CASSON GEIGER, Huntingdon, W. Va., to Miss Anna E. Morse of New York City, November 25.

WILLIAM LEIBERMAN to Miss Pauline Miller, both of Jamaica, N. Y., December 17.

WILLIAM LEE COWLES, Boston, to Miss Mary Agnes Terrell of Birmingham, Ala., November 26.

CHARLES WALKER PULNEY, Darlington Heights, Va., to Miss Louise Anne Gathright of Richmond, Va., December 3.

Deaths

Thomas Canby Craig, Brooklyn; M. C., U. S. Navy (retired); University of Pennsylvania, Philadelphia, 1880; surgeon with rank of lieutenant, U. S. Navy, 1881; served in the Far East, Egypt, South America, Hawaii and in the Spanish-American War; retired, owing to physical disability, March, 1897; member of the Medical Society of the State of New York; for many years inspector and diagnostician with the Brooklyn board of health; formerly on the staff of the Brooklyn Home for Consumptives; died, December 13, from heart disease, aged 67.

James C. Fyshe, Edmonton, Alta., Canada; McGill University, Faculty of Medicine, Montreal, 1904; served as superintendent of the Alexandria Hospital for Contagious Diseases, Montreal; the Montreal General Hospital; British Government Hospital, Siam, Asia, and the three civic hospitals at Edmonton, Alta.; in 1907 was assistant director of the Department of Hygiene of the Kingdom of Siam; served with the British Army in France during the late war; died, December 6, at Waterhole, Alta., aged 43.

Edward Torrey, Olean, N. Y.; College of Physicians and Surgeons, Columbia University, New York City, 1869; member of the Medical Society of the State of New York; practitioner for more than half a century; formerly surgeon for the U. S. Board of Pension Examiners; physician to the Olean General Hospital, where he died, December 8, following an operation for carcinoma, aged 74.

Herbert Bronner ☉ Louisville, Ky.; University of Louisville, Louisville, Ky., 1902; professor of genito-urinary diseases, at his alma mater; on the staffs of the City Hospital, the Jewish Hospital and the Children's Free Hospitals; severed the arteries in his wrists and cut his throat with a scalpel, December 7, while suffering from insomnia, aged 42.

Nelson A. Olive, Waco, Texas; St. Louis College of Physicians and Surgeons, St. Louis, 1885; member of the State Medical Association of Texas; former county health officer, member of the school board for ten years; at one time president of the McLennan County Medical Society; died, December 5, following a short illness, aged 61.

Lawrence C. Carr, Cincinnati; Medical College of Ohio, Cincinnati, 1877; surgeon in chief at Santiago during the Spanish-American War; served with General Pershing in the Philippines; formerly professor of obstetrics at the Medical College of Ohio, Cincinnati; died suddenly, December 4, from heart disease, aged 66.

Peter W. Van Peyma, Buffalo, N. Y.; University of Buffalo, 1872; member of the Medical Society of the State of New York; founder and at one time president of the Buffalo Academy of Medicine; emeritus clinical professor of obstetrics, University of Buffalo; died, November 30, after a short illness, aged 71.

Stephen Laubach, Easton, Pa.; University of Pennsylvania, Philadelphia, 1864; veteran of the Civil War; practitioner for nearly half a century; delegate to the American Medical Association, 1870; former secretary to the Northampton

County Medical Society; was stricken in church and died, December 4, from angina pectoris, aged 82.

John J. Youtsey, Newport, Ky.; Louisville Medical College, Louisville, 1877; member of the Kentucky State Medical Association; member of the board of health; member of the board of trustees and visiting physician, Speers Hospital, where he died, December 7, following an operation, aged 66.

Dexter W. Boone, Bellaire, Ohio; Columbus Medical College, Columbus, 1883; member of the Ohio State Medical Association; city health officer for more than twenty years; conducted the first hospital in Bellaire; was found dead in bed, December 6, from cerebral hemorrhage, aged 62.

James R. R. Thompson, Yakima, Wash.; College of Physicians and Surgeons, Chicago, 1900; member of the Washington State Medical Association; member of the Pacific Coast Ophthalmological Society; died, November 15, from influenza, aged 46.

Absolom L. Foreman, Tacoma, Wash.; Eclectic Medical Institute, Cincinnati, 1869; for two years member of the California state legislature; practitioner for nearly half a century; died, December 1, at a local hospital, aged 84.

George Conrad Mohler, New Hebron, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1894; member of the Illinois State Medical Society; died November 9, at the Lindlahr Sanatorium, Chicago, aged 69.

Henry W. Waters, Montgomery, Texas; University of Texas, Department of Medicine, Galveston, 1894; member of the State Medical Association of Texas; died, November 14, from angina pectoris, aged 49.

Thomas F. Campbell, Hale, S. D.; Trinity Medical College, Toronto, Canada, 1886; member of the Wyoming State Medical Society; was found dead in his room, December 3, from heart disease, aged 56.

William Minns Caldwell, Providence, R. I.; Medical School of Harvard University, Boston, 1907; practitioner for nearly half a century; died, November 25, in New York City, from heart disease, aged 77.

John C. Jones, Dillonvale, Ohio; Ohio Medical University, Columbus, 1901; member of the Ohio State Medical Association; dropped dead in his office, December 2, from cerebral hemorrhage, aged 51.

Paul Herman Streichan, Honolulu, Hawaii; Leland Stanford Junior University, School of Medicine, San Francisco, 1920; member of the Medical Society of Hawaii; died, recently, aged 34.

Gustav Adolph Pohl, Buffalo, N. Y.; University of Buffalo, 1886; member of the Medical Society of the State of New York; formerly health inspector of Buffalo; died, recently, aged 67.

Robert Morris, Rome, N. Y.; Bowdoin Medical School, Portland, Me., 1917; died, December 6, following an operation for appendicitis, at the Rome Hospital, aged 47.

John D. Fowler, Heavener, Okla.; Marion-Sims College of Medicine, St. Louis, 1894; member of the Oklahoma State Medical Association; died, November 16, aged 49.

James G. Butler, Shouns, Tenn.; Jefferson Medical College, Philadelphia, 1874; practitioner for nearly fifty years; died, December 2, aged 72.

Henry A. West, D'Hanis, Texas; University of Louisville, Ky., 1872; died, November 19, from heart lesion and frontal sinusitis, aged 56.

Alcanda A. Copeland, Belmont, Miss.; Medical Department, University of Tennessee, Nashville, Tenn., 1894; died, November 29, aged 66.

Robert L. Douglass, Frisco, Texas; University of Louisville, Ky., 1880; died, December 2, from enlargement of the heart, aged 67.

Benjamin L. Petro, Madison, Ind.; (license, Indiana, 1897); died, December 2, at Franklin, Ind., from arteriosclerosis, aged 78.

Arthur Flournoy Jackson ☉ Honolulu, Hawaii; University of Pennsylvania, Philadelphia, 1909; died in October, aged 43.

Charles B. Stephens, Shaw, Miss.; Meharry Medical College, Nashville, Tenn., 1907; died, October 3, aged 57.

Arthur Raymond Meader, Waterville, Me.; Bowdoin Medical College, Portland, Me., 1888; died, December 2.

George W. Ausbrooks, Dongola, Ill.; Physio-Medical Institute, Cincinnati, 1883; died, December 9, aged 63.

Louis C. Newman, Atlanta, Ga.; Atlanta Medical College, 1895; died, November 30, aged 53.

Correspondence

TUBERCULOSIS IN THE NEGRO OF THE SOUTHERN STATES: A SUGGESTED MEANS OF CONTROL

To the Editor:—It is gratifying to review the results of work against tuberculosis in the Northern and Eastern states, and to observe how effectively and systematically the work is carried on. The intelligent care of the tuberculous victim in the congested tenement and industrial district is most perplexing, even to the most efficient organization. In the South there exists just as grievous a problem in the negro, because of his temperament and habits: this must be solved by different methods. Without reflecting on the good work done, the Southern states may be looked on as frontier states in tuberculosis work, and the workers aptly termed missionaries, whose work has borne fruit, as evinced by the increased activity in the last few years.

It is peculiar, however, that the work thus far started has not taken into account the negro. In some states there are sanatoriums and hospitals whose efforts are directed solely to the whites, and no doubt the educational propaganda sent out by these institutions and the fact of the cured patients finding their way back home is wholesome and fruitful of much good; but these agencies fall short of their greatest usefulness.

I have had ample opportunity in working in the City Hospital and Dispensary in Mobile to be convinced that any scheme which does not take into account the tuberculous negro is doomed to fail. The negro is inherently a poor subject in whom to inculcate the principles of good living: he is happier in his squalid shack, surrounded by his ample family, than in a pretentious home, his poverty being due, not to the lack of funds, but to the poor judgment in using his earnings. His home is musty and unkept; his doors and windows are closed, both in summer and in winter: in winter to keep the cold out, in summer because he has the habit. Cleanliness in the home, or its surroundings, is the cause of no serious concern. This is also true of his personal hygiene. And while the food is sufficient in quantity, the menu, in the main, is changed but little from day to day, and is therefore strikingly deficient as a balanced ration. All of these factors lend themselves to a lowered vitality.

Again, one should realize how closely interwoven the lives of the white people and the negroes of the South are; how dependent one is to the other; how, as domestics, they become virtually, members of the white families, having complete care of the children, a companionship scarcely less intimate than the child's mother herself; as laundresses, housemaids or cooks they have entire supervision of their respective positions. We find the same relationship existing also with the field and factory worker to his "white folks."

When the unfortunate negro contracts tuberculosis, it requires no keen imagination to comprehend the situation which exists. He is not forsaken by the members of his church or by the "lodge" members, who make frequent pilgrimages to his bedside in goodly numbers, tarrying to do their duty—they, in turn, becoming added potential elements in a wider spread of this disease.

I have found it impossible among early tuberculous patients, either men or women, to induce them to conform to the usual plans for their recovery. They feel fairly well and are unwilling to submit to continued restraint. It is possible for a period to arrange properly for their food and rest, but not for their isolation. They do not submit for long to continued restraint, but seek employment from the unsuspecting public; for example, a negress, discussing her

disease, tersely remarked that she "would rather wear out than rust out." She is wearing out somewhere. One must stand aghast, therefore, at the danger, and should be both amazed and chagrined by the little protection afforded by law. No philanthropic efforts on the part of tuberculosis leagues, individual societies or civic bodies will be successful without fundamental laws of the state empowering the segregation of the tuberculous negro, as well as liberal appropriations by the state, in addition to those of counties and municipalities.

Isolation can be best brought about by establishing a common institution in each county, maintained by an equitable appropriation from the state, city and county. Such a plant may be maintained as a distinct institution, but for economy's sake could be made a part of, but separate from the almshouse, so that the whole could be supervised under one head. In the more sparsely settled areas where the county would not be feasible as a unit, the congressional district could be the unit, the various counties of the district in like manner contributing with the state to the maintenance of their common hospital. From these centers the field workers would go and the educational literature and propaganda of the various kinds be sent forth into the district which it served.

LEE W. ROE, M.D., Mobile, Ala.

VIENNA AS A GRADUATE MEDICAL CENTER

To the Editor:—With the somewhat deplorable economic condition of the new Austrian Republic, the rough accounts of which have appeared from time to time in the daily newspapers, most Americans are familiar. This unfortunate condition of affairs has had little or nothing to do, however, with the facilities of Vienna as a center of graduate medical work, for where there is much physical or mental misery, there also is always a big field of work for physicians, and as regards population Vienna is more crowded than ever.

Before the World War, Vienna was easily the most popular of European cities as a graduate medical center, the American Medical Association of Vienna having a constant, though always changing, membership of 200 or 300 men. When I came to Vienna in July of the present year, there were a dozen or so Americans doing work here, and this number has steadily increased so that at this writing more than fifty men are in constant attendance.

The popularity of Vienna as a center of graduate work is easily explained. The city has a large population, the hospitals run into a capacity of hundreds of beds, there are ambulatoriums with many thousands of patients, and the buildings are so compactly grouped that an American who takes his residence within a short distance of the hospitals can put in the entire day in work, with a minimum loss of time. The teaching staff is still composed of the same genial type of men as in the antebellum days; and today, as then, the great majority of them give their lectures and demonstrations not in German but in English. The Allgemeinen Krankenhaus on Alser Strasse, the Neue Kliniken on Lazarethgasse and the Poliklinik on Mariannengasse, all within a few minutes' reach of one another, are little altered, and are seemingly as busy and as efficient as ever.

The American Medical Association of Vienna is again functioning, posting courses and seeking to harmonize and make easier for all concerned the work of graduate instruction. Temporary offices, or rather bulletin board quarters, have been installed at the Café Klinik, at Spital and Lazarethgasse, across the way from the pathologic institute, and here the former executive secretary, Mrs. E. Kreidl, can be seen during the hours of 1 to 3. Letters of inquiry regarding the work in Vienna can be sent to that address.

Living conditions in Vienna have in one sense been tremendously cheap, because the American dollar is at this writing worth 6,000 kronen, whereas before the war 5 kronen were equal to a dollar. This means that the Austrian kronen is worth only one twelve-hundredth its prewar value, equivalent to a depreciation in currency value of 1,200,000 per cent. It has been possible to get in a pension a good room with breakfast, lunch and dinner, for about 25 to 50 American cents a day, a price that to Americans seems almost beyond comprehension. It must be remembered, however, that these prices, which are so ridiculously cheap from our standpoint, are prohibitively high to the great majority of the Viennese. However, those who contemplate going to Vienna would do well to write to the association there, because rooms are by no means easy to obtain in the overcrowded city.

Today, as in former years, the majority of the American graduate students are the eye, ear, nose and throat men, and in the Hajek (former Chiari), Neumann (former Urbantschitsch), Alexander nose and ear clinics, and the Dimmer (former Fuchs) and Meller (former Dimmer) eye clinics, courses in English will be found in full blast.

American physicians who have come down to Vienna from Berlin have reported a not overcordial reception, owing to the action taken in America regarding the 1922 international eye congress to be held in Washington, from which the German physicians were seemingly barred. This feeling of resentment on the part of the teaching staffs of the hospitals and universities of the German Empire will no doubt gradually subside, but for the moment there can be no question that the teachers there are rather sensitive about having been barred from this international congress.

The Viennese school, however, has welcomed Americans, partly because of the splendid philanthropic endeavor of the American relief associations among the poor and especially the children of Vienna. At the eye congress that was held in Vienna during the first week of August, Professor Meller, who is so well known to a host of American eye surgeons, stated that the invitation to membership in that eye congress was extended to all who felt friendly toward the Viennese school. And the dean of ophthalmologists, Professor Ernest Fuchs, gave utterance at the closing dinner at Semmering to the thought that, now that the soldiers of the contending nations had put aside the weapons of war and that the business men of the different countries were again seeking to reestablish pleasant trade relationships, it was hoped that the scientific men, who least of all because of their altruistic work should be torn by the animosities of warfare, would also be able again to resume their cordial relationships with one another, so that medical men, for instance, might everywhere be able to give to those fellow humans who needed their care the benefit of all knowledge that had been accumulated in any and all lands.

GEORGE H. KRESS, M.D., Los Angeles.

"DR." AND "M.D."

To the Editor:—Five letters from medical men arrived in my mail this morning, all with headings on the paper "Dr." or "Doctor" so and so. Across the street is an arch twister who runs a chiropractic mill and his sign, "Dr. Culver," is the front window. Next door to him is one of New York's orthodontists; "Dr. Young" is on his sign. Five prominent medical men in New York have offices in the block; all have signs with "Dr." before their names. A mental healer and an osteopath live among us, and they have "Dr." on their signs. Three of my patients are doctors—a Presbyterian minister, a Catholic priest and a rabbi. Around the corner is a bird and dog store run by a Dr. Dooley. On the other

side from him is a shoemaker called Dr. Reed, and he admits that he is not a doctor of any kind. The boxing instructor at our athletic club is Dr. McGovern, an ex-prize fighter; Dr. René teaches fencing, and Dr. Smith is the chiropodist. At the Turkish bath, the chap who runs the cabinet baths is Dr. Murray, who formerly kept a saloon.

Now, with these various kinds of "doctors" around us, and they keep multiplying in kinds, why designate ourselves as Dr. or Doctors on our cards, letter-heads and signs? Why not M.D.? The public will then at least know what type of doctors we are.

ANTHONY BASSLER, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OXALATING BLOOD

To the Editor:—Please explain how blood is oxalated when the method of blood analysis of Folin and Wu is to be used. In their article in the *Journal of Biological Chemistry* (38: 81 [May] 1919) the only mention of the oxalating or citrating of the blood is that too much oxalate or citrate interferes with the precipitation of the protein in order to get the blood filtrate, and they say "20 mg. of potassium oxalate is ample for 10 c.c. of blood." I do not know whether one collects the blood into a solution of oxalate in using their method or proceeds directly to the precipitation of the proteins. No allowance seems to be made for the blood having been diluted with an oxalate solution either. If you publish this, please omit my name.

W. E. B., Texas.

ANSWER.—To the tip of a dry serologic pipet, the usual serologic needle is attached by means of a short piece of pure gum rubber tubing. A small pinch of powdered potassium oxalate is dropped into the upper end of the pipet and allowed to travel down into the tip (20 mg. of oxalate is sufficient for 10 c.c. of blood). The upper end of the pipet is connected with a rubber suction tube, which in turn is connected with a short glass mouthpiece. (Some workers prefer to moisten the pipet with potassium oxalate solution, then drying the pipet by a current of air before drawing the blood; others place the powdered potassium oxalate into a clean test tube, employing a sterile syringe to obtain the blood and quickly delivering in the test tube.) The needle is inserted into the median basilic vein and the blood is withdrawn. It is not necessary that any definite amount be drawn, as the method is adaptable to any amount of blood; but it is wise to draw at least 10 c.c., if possible. The blood may then be transferred to a clean, dry test tube and kept in the icebox if the determination is not to be made at once. A quantity of this blood, accurately measured, is used for the analytic work—in the case of our correspondent, one proceeds with the precipitation of the proteins. The general methods of blood analysis are given in modern textbooks as:

Webster, Ralph: *Diagnostic Methods*, Ed. 6, Philadelphia, P. Blakiston's Son & Co.
Mathews, A. P.: *Physiological Chemistry*, Ed. 3, New York, William Wood & Co.
Laboratory Methods of U. S. Army, *Medical War Manual No. 6*, Ed. 2.
Rockwood, Elbert: *Laboratory Manual of Physiological Chemistry*, Ed. 4, Philadelphia, F. A. Davis & Co.

DISTINCTION BETWEEN CURRENT EXPENSES AND INVESTMENTS

To the Editor:—Will it be permissible to include under "expenses of business" in my 1921 income tax return the amount paid for practice and office equipment and moving of professional equipment? I have lately moved to a new location, paying my predecessor for his location and equipment. May I also include additional equipment needed in my new location? Please omit my name.

W. E. H., Colorado.

ANSWER.—The distinction between current expenses and investments is that anything bought for permanent use is an investment, while anything that is paid for articles for consumption or for temporary use is a current expense. Under this rule the amount paid for a practice and for office equipment would be regarded as an investment and would not be deductible, but the amount paid for moving professional equipment is a current expense and is deductible. Any new equipment is an investment and not an expense.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: Los Angeles, Feb. 13-16. Sec., Dr. Charles B. Pinkham, 342 Flood Bldg., San Francisco.

DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 10-12. Director, Mr. W. H. H. Miller, Springfield.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

KANSAS: Topeka, Feb. 14. Sec., Dr. Albert S. Ross, Sabetha.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS. Written examination in Class A medical schools, Part I, Feb. 15-17; Part II, Feb. 20-21. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, Syracuse and New York City, Jan. 23-26. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

OHIO: Columbus, Jan. 3. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonsteel.

VERMONT: Burlington, Feb. 14. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Rhode Island April Examination

Dr. Byron U. Richards, secretary, Rhode Island State Board of Health, reports the written and practical examination held at Providence, April 7-8, 1921. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Eight candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1891)	93.5
Hering Medical College	(1902)	92.5
University of Maryland	(1920)	89.8
Boston University	(1904)	91.7
Tufts College Medical School	(1919) 86.4, (1920)	88.5
Jefferson Medical College	(1906)	92
Laval University	(1919)	82.1

Wisconsin June Examination

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Milwaukee, June 28-30, 1921. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 55 candidates who took the physicians' and surgeons' examination, 51, including 6 osteopaths, passed, and 4, including 1 osteopath, failed. Seventeen candidates, including 2 osteopaths, received physicians' and surgeons' licenses by reciprocity. Seven candidates were licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1921)	86
College of Physicians and Surgeons, Los Angeles	(1921)	86
Loyola University	(1916)	80
Northwestern University	(1918) 85, (1921) 80,*	84, 88*
Rush Medical College	(1921) 83,* 86,*	90, 91
Johns Hopkins University	(1920)	86
Harvard University	(1920) 87, (1921)	90
St. Louis College of Physicians and Surgeons	(1920)	77
Columbia University	(1920)	87
University of Tennessee	(1921)	88
Marquette University	(1921) 86, 88,	88, 88
Marquette University	(1921)* 80, 80, 80, 82, 83, 83, 83, 83,	84, 84,
		84, 85, 86, 86, 86, 87, 87, 88, 88, 88, 89, 92	

University of Berlin	.....	(1920)†	81
University of Christiania	.....	(1916)†	89
Osteopaths	.....	75, 75, 80, 81, 81, 82	

FAILED

Loyola University	.....	(1917)	73
Kansas City College of Medicine and Surgery	.....	(1916)	54
University of Naples	.....	(1920)†	60
Osteopath	.....		82†

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital of Chicago	(1914)	Indiana
Loyola University	(1917)	Illinois
Northwestern University	(1904), (1908), (1914), (1920, 2), (1921)	Illinois
Rush Medical College	(1920)	Illinois
University of Illinois	(1920)	Illinois
University of Minnesota	(1921, 2)	Minnesota
St. Louis University School of Medicine	(1919)	Texas
University of Nebraska	(1920)	Iowa
Jefferson Medical College	(1915)	New York
Osteopaths		Texas, Utah

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Bennett Medical College	(1914)	U. S. Army
Hahnemann Medical College and Hospital of Chicago	(1917)	U. S. Navy
Northwestern University	(1918)	U. S. Navy
Rush Medical College	(1915), (1917)	U. S. Army
Maryland Medical College	(1913)	U. S. Army
Medical College of Virginia	(1907)	U. S. Army

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

‡ Fell below 60 per cent. in one subject.

Massachusetts September Examination

Dr. Walter P. Bowers, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, Sept. 13-15, 1921. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 39 candidates who took the physicians' and surgeons' examination, 30 passed, and 9, including 1 osteopath, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of California	(1913)	80.7
College of Physicians and Surgeons, Chicago	(1909)	76.8
Johns Hopkins University	(1905) 90.7, (1918)	88.3
Boston University	(1921)	75.5
College of Phys. and Surgs., Boston	(1920) 75, (1921)	82.8
Harvard University	(1893) 75, (1920) 83.8, (1921) 78.3	89.1
Middlesex College of Medicine and Surgery	(1921) 75, 76.3, 77.8, 80.4	
Tufts College Medical School	(1917) 75, (1921)	75,
		77.1, 78.5, 80.2, 81.3, 83.3	
St. Louis College of Physicians and Surgeons	(1921)	75
University of Pennsylvania	(1878)	78.5
University of Vermont	(1920), 79, (1921)	81
Laval University	(1920)	76.7
University of Sydney	(1914)*	85
School of Medicine and Surgery, Lisbon	(1920)* 75, 75	

FAILED

Kentucky School of Medicine	.....	(1906)	57.8
College of Physicians and Surgeons, Boston	.....	(1918)	69.7
Middlesex College of Medicine and Surgery	.....	(1918)	71.1,
		(1919) 70.1, (1921) 68.8	
Meharry Medical College	.....	(1921)	61
Laval University	.....	(1903)	43.8
University of St. Vladimira	.....	(1904)*	72.5
Osteopath	.....		71.1

* Graduation not verified.

Utah October Examination

Mr. J. T. Hammond, director, Department of Registration of Utah, reports the oral and written examination held at Salt Lake City, Oct. 3-5, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 6 passed and 1 failed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Indiana University	(1921)	85.3
State University of Iowa College of Medicine	(1920)	78.6
Harvard University	(1921)	83.3
University of Nebraska	(1921)	82.8
Royal College of Surgeons, England	(1876)	92.2
University of Pressburg	(1921)*	75.6

FAILED

Creighton University College of Medicine	(1921)	72.3
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College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Leland Stanford Junior University School of Medicine	(1916), (1919)	California*
University of Colorado	(1914)	Colorado
Chicago College of Medicine and Surgery	(1916)	Arizona
Rush Medical College	(1921)	Illinois
Western Reserve University	(1920, 2)	Ohio

* Graduation not verified.

Book Notices

TREATISE ON FRACTURES IN GENERAL. By John Bingham Roberts, A.M., M.D., F.A.C.S., Emeritus Professor of Surgery in University of Pennsylvania Graduate School of Medicine, and James A. Kelly, A.M., M.D., Attending Surgeon to St. Joseph's Hospital. Second edition. Cloth. Price, \$9. Pp. 764, with 1,081 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

In a field of surgery in which the percentage of bad results is high, it is a pleasure to read a volume like this. It not only presents the theoretical side of the subject in a complete and detailed way, but also forms a working manual that can be used at the bedside. The opening chapters are devoted to general considerations, such as the treatment of open and infected fractures, operative treatment of closed fractures, epiphyseal fractures, and nonunion. The authors take a conservative attitude toward operative treatment of closed fractures. In the chapter on infected fractures there is much new material of a practical nature gained from our military experience; a clear understanding of pathology is shown. A relatively large amount of space is devoted to fractures of the skull, cranial bones and spine. These chapters are profusely illustrated by roentgenograms, photographs and drawings. The associated neuropathology is well covered, particularly the difficult subject of eord localization. The chapters on peripheral fractures are excellent. A considerable amount of attention is devoted to mechanisms and types of displacement, and to maneuvers and apparatus designed to correct and to maintain correction. One who has had any considerable experience with fractures of the femur will realize how logical and practicable are the chapters on this fracture. The general attitude of the authors on peripheral fractures may be gleaned from this: "Critical, intelligent and frequent examination of fractures instead of too absolute reliance on radiographic interpretations by inexperienced laboratory workers has become an orthodox requirement. . . . No special form of splint or of apparatus may be substituted with safety for the requisite knowledge of anatomy, pathology and mechanics." In addition to a great number of photographs illustrating deformity and methods of manual manipulation, there are also many excellent line and wash drawings illustrating anatomic features and displacement mechanisms.

THE DISEASES OF CHILDREN. By the late Sir James Frederic Goodhart, M.D., LL.D., F.R.C.P. Edited by George Frederic Still, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Eleventh edition. Cloth. Price, \$10. Pp. 942, with 60 illustrations. New York: Paul B. Hoeber, 1921.

This is an excellently written book. It is concise and accurate, and the clinical descriptions are very true and well portrayed. A pediatrician will be struck by the fact that it is written from the standpoint of internal medicine rather than of pediatrics, and gives one the impression that diseases of children are simply another branch of internal medicine, or internal medicine in smaller individuals, an attitude that does not conform to the modern idea of pediatrics. The introduction is especially good and practical, but the chapters on infant feeding are too much abridged and the ideas expressed do not accord with those that are rapidly being adopted in this country. The treatment of disease, too, is often at variance with the practice here. The references at the end of the book to outside articles are rather numerous for a volume of this size, and are principally to works by British authors. On the whole, the book is a very good one and can be recommended to those who wish a complete but short work on the subject.

FIFTY YEARS OF GOLF: MY MEMORIES. By Andra Kirkaldy of St. Andrews. Told to Clyde Foster. Cloth. Price, \$5 net. Pp. 224, with 21 illustrations. New York: E. P. Dutton & Company, 1921.

Twenty-five years ago, when golf in this country was hardly in its infancy, it was "an ancient and honorable game" at St. Andrews, and "old Tom Morris," long past his eightieth birthday, was pointed out as the G. O. M. of golf. But now it is Andra Kirkaldy: "Man and boy, caddie and professional

golfer, I have passed fully fifty years of my life at St. Andrews." Naturally, therefore, he has met, played with or caddied for, all the great golfers—great as golfers or great otherwise—who visited this ancient club of ancient golf. He has written this book, assisted by Clyde Foster, to tell all about the people he has met, and they include Balfour, Field-Marshall Haig, Asquith and "Margot," as well as the noted golfers, professional and unprofessional, not a few of whom live on this side of the ocean. Andra is a likable fellow to those who love golf, and those who love golf will enjoy reading his "Memories." The book is full of stories of the sort that the true golfer enjoys; it also contains a lot of good advice for golfers, which, if heeded, will be worth a hundred times the price of the book.

DISEASES OF THE SKIN. By Henry W. Stelwagon, M.D., Ph.D., with the assistance of Henry K. Gaskill, M.D., Attending Dermatologist to the Philadelphia General Hospital. Ninth edition. Cloth. Price, \$10 net. Pp. 1313, with 430 illustrations. Philadelphia: W. B. Saunders Company, 1921.

This is the last edition of this noted textbook on dermatology to receive the attention of Dr. Stelwagon, who died before completing the revision. He had gone over his text, however, and had left numerous notes and memorandums which have been utilized by Dr. H. K. Gaskill in working up the present text. Attention is called to additional material on several dermatologic subjects as well as to seventy-four new illustrations. The special feature of this textbook has been the careful compilation of all the newer references available on each disease, and this bibliographic material has been kept up in the present edition. It is an exceedingly valuable feature. As a book of reference, Stelwagon's is probably one of the best books on dermatology, whereas its great size and completeness make it not quite so suitable as a textbook for students.

HOW TO EAT. A Cure for "Nerves." By Thomas Clark Hinkle, M.D. Cloth. Price, \$1.25. Pp. 127. Chicago: Rand McNally & Co., 1921.

Dr. Hinkle preaches the gospel that all of us eat too much and that we do not chew our food. He himself suffered with "nerves." By cutting down his food intake, he says, eliminating eggs and meat and increasing vegetables and milk, all solid food being chewed until it had the consistency of cream, he cured himself. He also recommends outdoor life, and the frequent eating of apples. His final chapter is devoted to the general commendation of the simple life. The advice given is good and the manner of giving it is earnest and simple. But a good many persons will pity the author because he cannot enjoy a nice, well-cooked juicy steak.

BIBLIOGRAPHY OF THE WRITINGS OF SIR WILLIAM OSLER, BART., M.D., F.R.S., Regius Professor of Medicine in the University of Oxford. By Minnie Wright Blogg, Librarian of the Johns Hopkins Hospital. Cloth. Price, \$5. Pp. 96. Baltimore: H. A. Blogg, 1921.

In this volume the bibliography of Sir William Osler's writings which appeared in the Osler number of the Bulletin of the Johns Hopkins Hospital, July, 1919, has been increased from 730 titles to 1,195. The titles are arranged in chronological order from 1870 to 1921. The bibliographic information in every instance is most complete. A complete index accompanies the volume, and through it one is able to see just what Sir William has written on various subjects. The frontispiece is a full length portrait of Sir William in his army uniform.

PSYCHOLOGY. A Study of Mental Life. By Robert S. Woodworth, Ph.D., Professor of Psychology in Columbia University. Cloth. Price, \$2.50. Pp. 580, with 73 illustrations. New York: Henry Holt & Company, 1921.

The author is professor of psychology in Columbia University. The material contained in this volume was first prepared as an outline for beginning classes in psychology, and was subject during a period of two years to suggestions and revisions by students and by other instructors in the department. It is in the usual form of psychology textbooks. The various chapters are followed by lists of exercises and references to important literature. As an elementary textbook it seems quite satisfactory.

Medicolegal

No Liability Without Evidence of Malpractice

(*Emerson v. Lumbermen's Hospital Association et al. (Ore.)*,
198 Pac. R. 231)

The Supreme Court of Oregon says that a minor son of the plaintiff was injured by a wheel of a logging train running over one of his legs and practically severing it from his body. This action was brought against the hospital association and a physician to cover damages for the death of the boy, alleged to be due to the negligence of the defendants in caring for him after he was injured. The main allegation in regard to malpractice was that there was a failure to treat or dress the boy's wound so as to stop the flow of blood, although that could have been done by the use of ordinary skill or attention. But the court searched the testimony in vain to find anything as to what treatment was administered to the boy's injured limb, or what the physician failed or neglected to do. It did not appear from the testimony whether he tried to stanch the flow of blood by binding the limb with a string, rope, wire or a bandage, or what he did. Nor was there any evidence to show what he did not do, or that proper and skilful first aid was not provided for the patient. It could not be assumed that there was a total failure to render aid and stanch the flow of blood. Nor, in the absence of an allegation and proof, could it be assumed, or held as a matter of law, that it was improper under the circumstances to take the injured boy on a stretcher from a sparsely settled logging community to a hospital. In a malpractice case the opinion of medical men may be received in evidence as to what would be the proper treatment; but, in order that such expert witnesses may have a basis for their testimony, they should be informed as to what treatment was given the patient, or what the physician in attendance had failed to do. The death of this boy while under the care of the defendant physician as a physician and surgeon, or of either of the defendants, was no evidence of want of care, or of unskilfulness or failure to administer proper treatment. When a physician or surgeon undertakes the treatment of a case he does not guarantee a cure, in the absence of a contract to that effect. The doctrine enunciated by the precedents is that, if a regularly licensed physician with reasonable diligence employs the skill of which he is possessed in treating a surgical case, he is not liable for an error of judgment, and the fact that an unfortunate result follows is not in any way evidence of neglect. There being an entire lack of testimony as to whether or not the defendant physician adopted and applied the proper method of treating the boy after the latter was placed under his care, or to show what he failed to do, the defendants' motion for a nonsuit was properly granted, and the judgment thereon in favor of the defendants must be affirmed.

Law Relating to "The Practice of Medicine" Upheld

(*People v. Max (Colo.)*, 198 Pac. R. 150)

The Supreme Court of Colorado reverses a judgment which sustained a motion to quash on a demurrer to an information filed against the defendant, charging him with unlawfully "diagnosing and treating diseases, injuries and defects of human beings" without a license, in violation of Chapter 94 of the Laws of 1917. After disposing of certain questions touching the jurisdiction of the courts, the court says that the record showed that no evidence was taken, and the facts set forth in the motion to quash were not admitted. This court must assume, therefore, that only questions of law were considered in entering the judgment, and the review must be confined to those. It is necessary to consider only the contentions: (1) that the act is in violation of the state constitution in that it contains more than one subject and that these are not clearly expressed in the title; (2) that it violates the state constitution and the United States constitution in that it abridges the privileges and immunities of citizens, denies the equal protection of the law, and denies "due process." The title of this act is "An act relating to

the practice of medicine in the state of Colorado." The defendant assumed that "the practice of medicine" means the practice of administering drugs and nothing more; hence he maintained that this statute, which establishes a board of medical examiners and commits to their jurisdiction the admission of persons to practice medicine, the revocation of licenses, the practice of chiropody, optometry, chiropractic and midwifery, and provides penalties for its violation, is entirely beyond the scope of the title. With this contention the court is unable to agree. "Medicine" as herein used is properly defined as the art of healing. So defined, the title includes everything covered by the act. Every provision thereof germane to this subject is valid. The generality of the title is commendable. Neither does the statute deny "due process of law." It creates a tribunal, provides for notice and hearing, for evidence and argument. The contention that it abridges the privileges and immunities of citizens and denies equal protection of the law is included within the objection that it denies "due process." They stand or fall together. The judgment on the motion of quash on a demurrer to the information was wrong, and is therefore disapproved and reversed.

Pregnancy Diagnosed as Tumor After Ovariectomy

(*Gottschall v. Geiger (Mo.)*, 231 S. W. R. 87)

The Kansas City (Mo.) Court of Appeals says that the gist of the cause of action submitted was that the defendant was negligent in diagnosing the plaintiff's condition and in advising and deciding on a surgical operation which he undertook to perform on the plaintiff but, on opening her abdomen, he found that pregnancy, and not a tumor, was the cause of her trouble. One of the matters in dispute was whether the defendant did not carelessly assume that the plaintiff was not pregnant merely because about nine months previously he had removed her ovaries, when he knew that he had left a small portion of one of them, and knew, or should have known, as a medical man, that it was not impossible for her to become pregnant. The burden was on the plaintiff to show, not only that the defendant made a mistake in diagnosing her condition and in deciding on and advising an operation, but also that such was a negligent mistake, and that the operation was so palpably unnecessary that a surgeon of ordinary care and prudence would not have advised or undertaken it. And the question of whether the defendant was negligent in making the diagnosis and in deciding on the operation must be determined in the light of the conditions as they existed before the operation was performed. In other words, if conditions were such as to lead a surgeon of ordinary care and skill to think that the plaintiff was not pregnant, or even that as a remote possibility she might be, and yet an operation was necessary, and the defendant in the honest exercise of his best judgment thought an operation was proper, then the defendant would not be liable, even though it afterward turned out that the defendant was mistaken in diagnosing the plaintiff's condition. It was also true that, if there were conditions existing such as to raise a question whether an operation was advisable or proper, then the question of whether the defendant's decision to operate was negligent or not should be gathered from the opinions and testimony of those who had special knowledge and were qualified to speak on such matters. The mere fact that the plaintiff became pregnant notwithstanding she had only a small portion of one ovary left did not, of itself, show that her pregnancy was abnormal, i. e., that abnormal conditions existed with that pregnancy. After a careful study of the record, the court holds that, aside from her husband's testimony, the plaintiff had sufficient evidence to go to the jury, which returned a verdict in her favor for \$3,000 damages. But the judgment rendered for that amount is reversed, and the cause remanded for a new trial, on account of error in the admission of the testimony of the plaintiff's husband, who was present at the operation as a silent spectator, and not as the plaintiff's agent, while, under the Missouri statute, before a husband can testify as a witness in his wife's lawsuit the transaction constituting the basis of the action must be one that is "had with or conducted by" the husband as her agent.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

December, 1921, 58, No. 2

- Studies in Nutrition. Choice Between Adequate and Inadequate Diet, as Made by Rats and Mice. H. S. Mitchell and L. B. Mendel, New Haven, Conn.—p. 211.
- Venous Supply of Heart. R. Burton-Opitz, New York.—p. 226.
- Fragility of Red Blood Cells. R. M. Greenthal and W. S. O'Donnell, Ann Arbor, Mich.—p. 271.
- Circulation Time and Influences Which Affect It. V. Spleen, Kidney, Intestine, Heart (Coronary Circulation), Retina, Lesser Circulation. G. N. Stewart, Cleveland.—p. 278.
- Secretin. V. Its Effect in Anemia; Supposed Similarity Between Secretin and Vitamin B. A. W. Downs and N. B. Eddy, Edmonton, Can.—p. 296.
- Action of Certain Substances on Oxygen Consumption. V. Action of Potassium Cyanid in Relation to Respiratory Rate. A. E. Galigher, Chicago.—p. 301.
- Conditions of Activity in Endocrine Glands. VI. Denervated Heart in Relation to Suprarenal Secretion. W. B. Cannon and D. Rapport, Boston.—p. 308.
- Id. VII. Reflex Center for Suprarenal Secretion and Its Response to Excitatory and Inhibitory Influences. W. B. Cannon and D. Rapport, Boston.—p. 338.
- Id. VIII. Some Effects on Denervated Heart of Stimulating Nerves of Liver. W. B. Cannon and J. E. Uridil, Boston.—p. 353.

Choice Between Adequate and Inadequate Diet.—The results of the investigation made by Mitchell and Mendel are in harmony with the conclusion earlier expressed by Osborne and Mendel that the desire of a young animal for food is something more than the mere satisfaction of calorific needs. The demand made by the growth impulse must be met by a food of the proper chemical constitution.

Secretin in Anemia.—The administration of secretin subcutaneously to anemic animals cause much more rapid improvement than can be obtained by dietary adjustment alone. This improvement manifests itself by increased rate of blood regeneration and increased ability to put on weight. The results obtained by Downs and Eddy do not support the suggested similarity between secretin and vitamin B.

Annals of Medical History, New York

September, 1921, 3, No. 3

- Gideon Harvey. Sidelights on Medical Life from Restoration to End of XVII Century. H. A. Colwell, London.—p. 205.
- Last Illness and Postmortem Examination of Marcellus Malpighi. J. Donley, Providence, R. I.—p. 238.
- Christian Science Cure in Sixteenth Century Introducing the Reader into Very High Society. H. M. Brown, Milwaukee.—p. 241.
- Historical Summary of Treatment of Trachoma, with Special Reference to Arabian School and Writing of Ali Ibn-El-Aissa (Jesu Hali). C. G. Cumston, Geneva, Switzerland.—p. 244.
- John Shaw; Medical Poet of Maryland. J. Ruhräh, Baltimore.—p. 252.
- Montaigne and Medicine. J. S. Taylor, Washington, D. C.—p. 263.
- William Rawlins Beaumont. M. Charlton, Toronto, Can.—p. 284.

Florida Medical Association Journal, St. Augustine and Jacksonville

November, 1921, 8, No. 5

- "Watchman! What of Night?" Watchman Said, "Morning Cometh." I. S. Helms, Tampa.—p. 77.
- Cystitis in Women. L. Lambdin, St. Petersburg.—p. 78.
- Case Records. R. C. Cabot and H. Cabot.—p. 82.

Journal of Bacteriology, Baltimore

November, 1921, 6, No. 6

- Salt Effects in Bacterial Growth. I. Preliminary Paper. G. E. Holm and J. M. Sherman, Washington, D. C.—p. 511.
- Studies in Pathogenic Anaerobes. IV. Rational Basis for Classification of Anaerobic Bacteria. H. H. Heller, San Francisco.—p. 521.
- Hydrogen Ions, Titration and Buffer Index of Bacteriologic Media. J. H. Brown, Princeton, N. J.—p. 555.
- Decreasing Exposure Necessary for Gelatin Determination. J. E. Rush and G. A. Palmer, Pittsburgh.—p. 571.
- Chart of Families and Genera of Bacteria. H. Macy, Minneapolis.—p. 575.

Journal of Biological Chemistry, Baltimore

November, 1921, 49, No. 1

- Determination of Gases of Blood. D. D. Van Slyke and W. C. Stadie, New York.—p. 1.
- Mechanical Shaker and Other Devices for Use with Van Slyke Blood Gas Apparatus. W. C. Stadie, New York.—p. 43.

- Chemical Composition of Ovaries of Fresh Water Gar, *Lepidosteus*. E. E. Nelson and C. W. Greene, Columbia, Mo.—p. 47.
- Chemical Composition of Skeletal Muscle of Fresh Water Gar, *Lepidosteus*. C. W. Greene and E. E. Nelson, Columbia, Mo.—p. 57.
- Proteins of Alfalfa Plant. T. B. Osborne, A. J. Wakeman and C. S. Leavenworth, New Haven, Conn.—p. 63.
- Use of Sodium Sulphate as Globulin Precipitant in Determination of Proteins in Blood. P. E. Howe, Princeton, N. J.—p. 93.
- Determination of Proteins in Blood; Micro-Method. P. E. Howe, Princeton, N. J.—p. 109.
- Effect of Ingestion of Colostrum on Composition of Blood of New-Born Calves. P. E. Howe, Princeton, N. J.—p. 115.
- Vitamin Content of Rice by Yeast Method. Organic Nitrogen as Possible Factor in Stimulation of Yeast. W. D. Fleming, Washington, D. C.—p. 119.
- Catalytic Effect of Ammonia on Oxidation of Butyric Acid with Hydrogen Peroxid. E. J. Witzmann, Chicago.—p. 123.
- Antiketogenesis. III. Calculation of Ketogenic Balance from Respiratory Quotients. P. A. Shaffer, St. Louis.—p. 143.
- "Alakline Tide" After Meals. I. C. H. Fiske, Boston.—p. 163.
- Inorganic Phosphate and Acid Excretion in Postabsorptive Period. C. H. Fiske, Boston.—p. 171.
- Buffer Solution for Colorimetric Comparison. T. C. McIlvaine, Morgantown, W. Va.—p. 183.
- *Calcium Content of Blood Plasma and Corpuscles in New-Born. M. R. Jones, San Francisco.—p. 187.
- *Blood Fat in Diabetes. N. R. Blatherwick, Santa Barbara, Calif.—p. 193.
- Lipemia. W. R. Bloor, Berkeley, Calif.—p. 201.
- *Studies of Liver Function. Benzoate Administration and Hippuric Acid Synthesis. G. D. Delprat and G. H. Whipple, San Francisco.—p. 229.
- *Basal Metabolism of Underweight Children. K. Blunt, A. Nelson and H. C. Oleson, Chicago.—p. 247.

Calcium Content of Blood of Normal Infants.—A series of observations made by Jones on the calcium content of the blood of normal infants ranging in age from four hours to twelve days is reported. Sixty-eight determinations on twenty-two infants were made, the average values being as follows: whole blood, 8.8 mg. per hundred c.c.; corpuscles, 5.0 mg.; and plasma, 12.3 mg. The average for plasma is higher than that reported in older children while corpuscle and whole blood values are less. The twelve days included in the series of observations were divided into six periods of two days each, and the results of the analyses made during each period averaged and plotted. The plasma values remained constant throughout, while there is a tendency for the corpuscle averages to decrease and those of whole blood to increase. The average percentage of red blood cells dropped from 55 to 41.9 during the twelve day period.

Blood Fat in Diabetes.—A study by Blatherwick of blood fat in relation to the fat in the diet showed that cases of mild and moderate diabetes are apparently able to utilize satisfactorily large amounts of fat, as indicated by constancy of the blood fat level and by the absence of acetone bodies in the urine.

Effect of Benzoate on Liver Function.—Distinct increases in ammonia, urea and total urinary nitrogen were noted by Delprat and Whipple whenever benzoate was given intravenously, exceeding a certain amount per pound body weight. The question of dosage may explain many discrepancies noted in the literature. Under certain conditions benzoate injection causes a considerable protein breakdown due probably to the acute need for glyocoll which is taken from the body protein molecule. The suggestion that under emergency conditions the glyocoll may be obtained from the globulins finds no support in these experiments. The serum albumin-globulin ratio is not changed by administration of large doses of benzoate.

Metabolism of Underweight Children.—Metabolism determinations made by Blunt and associates on twenty-eight children, mostly underweight, showed that the basal metabolism of underweight children tends to be higher than that of the normal child. The excess metabolism was in some cases as high as 40 per cent. above that read from curves given by Benedict and Talbot, and in most cases the metabolism was not only higher than the curve but higher than the highest observation of the child of the same weight from which the curve was drawn. The average percentage excesses for the underweight children in the Health School compared with Benedict and Talbot's of the same weight were 22 for the total calories, 25 for the calories per kilogram and 24 for the calories per square meter. In the Elementary School the

corresponding excesses were somewhat less—14, 16 and 18 per cent. No close relation was observed between the percentage underweight and the excess metabolism.

Journal of Urology, Baltimore

August, 1921, 6, No. 2

- *Renal Tuberculosis. J. R. Caulk, St. Louis.—p. 97.
- *Primary Carcinoma of Ureter. Review of Literature and Report of Case. E. S. Judd and J. E. Struthers, Rochester, Minn.—p. 115.
- Scientific Study of Normal Human Ureter by Fractional Ureteropyelography. A. E. Goldstein, Baltimore.—p. 125.
- *Transperitoneal Approach to Kidney, Its Indications and Limitations. W. C. Quinby, Boston.—p. 135.
- Sacral Anesthesia in Urology. A. J. Scholl, Jr., Rochester, Minn.—p. 149.
- *Radical Treatment of Cancer of Bladder. G. G. Smith, Boston.—p. 173.

Renal Tuberculosis.—A review of the literature on this subject is made by Caulk and ninety-seven personal cases are analyzed. Frequency of urination occurred as the initial symptom in 85 per cent. Kidney pain was present as a beginning symptom in less than 20 per cent., but was present during the course of the disease in 48 per cent. Painful urination, particularly terminal pain, was present in 48 per cent. and hematuria was present in 38 per cent. There were two patients who had hematuria without other symptoms. These were supposed to be the so-called essential or idiopathic hematuria, since they occurred without any evidence of any other disease. Tuberculosis was found only after a thorough pathologic study of the kidney. Caulk says that an unobstructed bladder in which stricture, prostate, stone or gonorrhea cannot be demonstrated and which fails promptly to subside within a week or ten days of local treatment, is usually tuberculous.

Primary Carcinoma of Ureter.—Judd and Struthers report one case of papillary epithelioma of the ureter and review twenty-five cases recorded in the literature.

Transperitoneal Approach to Kidney.—The ligation of the renal vessels as the primary attack on a kidney subsequently to be removed, Quinby states, is important and should be carried out as the first step in the removal of renal tumors. Possibly tuberculosis of the kidney should be similarly attacked. The renal vascular pedicle is easily reached through the retroperitoneum by transabdominal approach. Such ligation may be a substitute for nephrectomy where this operation has become impossible.

Cancer of Bladder.—Smith believes that total cystectomy should be done much more frequently than it is done at present; that cancer of the bladder should be treated in as radical a way as cancer in the breast or the stomach is treated. Many patients now operated on with the "hope of relief" but without the slightest logical reason for believing that relief will be gained, either should not be operated on at all, or should have diversion of the urinary stream, plus thorough treatment of the bladder with radium, or total cystectomy. Four cases are reported.

Medical Record, New York

Dec. 10, 1921, 100, No. 24

- *Cases of Gallbladder Lesions Simulating Other Affections of Digestive Tract. M. Einhorn, New York.—p. 1015.
- Writers' Cramp and Allied Affections: Their Treatment by Massage and Kinesitherapy. D. Graham, Boston.—p. 1018.
- Case of Tuberculosis of Spinal Cord. C. C. Browning, Los Angeles, Calif.—p. 1021.
- *Principles of Pirquet Method of Feeding. C. F. Fisher, Brooklyn.—p. 1023.
- Tuberculosis: Its Climatology and Sociology. O. Paget, Perth, West Australia.—p. 1026.
- Boston Dispensary Health Clinic; Review of First 400 Cases. L. H. Spooner, Boston.—p. 1028.
- Hyoscin and Morphin as Preliminary to Local Anesthetics. L. M. Hurd, New York.—p. 1031.
- Were They Wrong Diagnoses or Nature Cures? C. A. Bryce, Richmond, Va.—p. 1032.
- Case of Chronic Erythema Nodosum, with Recovery. W. W. Cadbury, Canton, China.—p. 1033.

Gallbladder Lesions Simulating Other Affections.—Three cases are cited by Einhorn, one that resembled cancer of the stomach, another that typified duodenal ulcer, and a third in which a diagnosis of intestinal obstruction had been made by competent physicians. In all these cases the correct diag-

nosis had been established before the operation by the direct examination of the duodenal contents, showing the importance of this method of examination.

Pirquet Method of Feeding the Best.—It is Fisher's belief that Pirquet's method of feeding is: (1) scientific and practical; (2) the simplest and most rational system of feeding so far devised; (3) based on two factors: (a) the sitting height, used as a basis of measure for determining the daily amount of food required in feeding a given case, and (b) milk is used as a standard of measure of the value of a calory, with which all foods are compared.

New Orleans Medical and Surgical Journal

December, 1921, 74, No. 6

- Rest in Tuberculosis. E. D. Price, El Paso, Tex.—p. 395.
- Clinico-Philosophic Interpretation of Immunotherapy. G. H. Sherman, Detroit.—p. 398.
- Practical Value of Slide Diagnosis of Gonorrhea and Other Pyogenic Infections of Genito-Urinary Tract. A. Mattes, New Orleans.—p. 414.
- Management of Chronic Nephritic. A. A. Herold, Shreveport.—p. 418.
- Treatment of Scurvy. J. B. Elliott, New Orleans.—p. 425.
- Statistics in Louisiana. O. Dowling, New Orleans.—p. 432.
- Needed Hygiene. M. Loebner, New Orleans.—p. 437.
- Diagnosis and Susceptibility in Hay-Fever. W. Scheppegegrell, New Orleans.—p. 444.

New York Medical Journal

Dec. 7, 1921, 114, No. 11

- Difficult Case of Bronchoscopic Foreign Body Extraction Complicated by Pyopneumothorax. H. L. Lynah, New York.—p. 617.
- Mucocoele of Nasal Accessory Sinuses; Two Cases of Pansinus Involvement with Recovery After Interval Operations. V. Dabney, Washington, D. C.—p. 619.
- *Treatment of Recurrent Pleurisy by Injection of Oxygen. A. MacFarlane, Albany, N. Y.—p. 623.
- Rôle Played by Physical Exercise in Respiratory Gymnastics. P. Kouindjy, Paris.—p. 627.
- *Aspergillosis and Pulmonary Pseudotuberculosis. V. A. Lapenta, Indianapolis.—p. 629.
- Practical Points in Treatment of Pulmonary Hemorrhage. H. Schwatt, New York.—p. 631.
- Significance of Tracheobronchial Node Tuberculosis and Its Diagnosis. L. Frischman, New York.—p. 634.
- Laryngeal Tuberculosis. S. Cohen, Philadelphia.—p. 636.
- Tonsil Enucleation and Tonsil Enucleator. C. B. Meding, New York.—p. 638.
- Peritonsillar Abscess and Its Radical Treatment. I. M. Heller, New York.—p. 642.
- Tonsillar and Adenoid Tissue Under Roentgen-Ray Treatment. W. G. Herrman, Asbury Park, N. J.—p. 646.
- Tonsil Thyroid Syndrome in Female. J. H. Barach, Pittsburgh.—p. 648.
- Diseased Tonsil. M. S. Ittelson, Brooklyn.—p. 649.
- Influenza as Primary Edema of Respiratory Mucous Membranes and Adnexa. I. M. Brenner, New York.—p. 651.
- Symptomatology of Influenza. J. C. Regan, Brooklyn.—p. 656.

Oxygen Injections in Recurrent Pleurisy.—MacFarlane recommends the injection of oxygen into the pleural cavity in these cases and cites two instances in which the method was used. He says that there is no record of its use for this purpose in the United States.

Aspergillosis of Lungs.—The early recognition and treatment of this infection, which, Lapenta asserts, is not as rare as usually believed, is of great importance in its relationship to tuberculosis. The necessity of sputum examinations in all suspicious cases for the detection of *Aspergillus fumigatus* is therefore obvious. Iodin seems to be specifically destructive to the life of the aspergillus. Lapenta has employed it in the form of the iodids of potassium and sodium, by mouth and by intravenous injection. For the intravenous treatment, sodium iodid, in doses of 1 or 2 gm., in 25 c.c. of saline solution (properly sterilized and filtered) is recommended. Proper hygienic measures should not be neglected and absolute rest from work is essential. The nutrition of the patient must be encouraged and such treatments as may be demanded by symptoms (cough, anemia, emaciation, etc.) should not be neglected. Under the administration of the iodids, the infection has cleared up in the course of four or five weeks. Of five patients treated three have remained well for over two years. In the remaining two there have been recurrences after a few months. One of these cases was complicated by tuberculosis. This patient had a recurrence in about eight months after the aspergillus had disappeared from sputum. He responded to treatment quickly and gained about thirty-five pounds.

Rhode Island Medical Journal, Providence

December, 1921, 4, No. 12

- *Discussion of One Month's Treatment with Luminal of Thirty Selected Cases of So-called "Idiopathic" Epilepsy. W. N. Hughes, Howard.—p. 157.
- Value of Knowledge of Psychometric Methods to the Doctor. B. Feinberg, Howard.—p. 160.

Luminal in Epilepsy.—Dizziness, "dopiness," sleepiness and headache were the most frequent symptoms noted by Hughes and others in the administration of luminal. One month's treatment with luminal of thirty cases of so-called idiopathic epilepsy seems to show that the seizures have been reduced in number, and in severity. Postepileptic phenomena seem less marked since the administration of the drug. No serious symptoms which can be directly attributed to the luminal were observed.

South Carolina Medical Association Journal, Greenville

December, 1921, 17, No. 12

- General Practitioner's Privileges and Responsibilities in Mental Hygiene. B. O. Whitten, Clinton.—p. 306.
- Röntgen-Ray Therapy in Dermatology. J. R. Allison, Columbia.—p. 310.
- Malarial Hemoglobinuria. A. B. Patterson, Barnwell.—p. 315.
- *Pyloric Stenosis with Intestinal Obstruction. S. G. Glover, Greenville.—p. 317.
- Mind in Cure of Disease. D. A. J. Bell, McCormick.—p. 318.
- Credulity—Menace of Modern Medicine. A. J. Jervey, Tryon.—p. 320.

Pyloric Stenosis with Intestinal Obstruction.—Glover cites the case of a child, aged 9 days, which developed a severe diarrhea lasting for several days. A tentative diagnosis of fat diarrhea was made. The diarrhea continued. The child was not in distress. The abdomen was negative especially as to distention, tumor and gastric peristalsis. Following the vomiting of a coffee ground material, the child died. The additional diagnosis of intestinal obstruction was made. The necropsy findings were congenital hypertrophic pyloric stenosis with partial obstruction of intestines at a point two inches above the ileocecal valve.

Southern Medical Journal, Birmingham, Ala.

December, 1921, 14, No. 12

- Aristocracy of Service. J. L. Crook, Jackson, Tenn.—p. 951.
- Patient Himself—Need of a Better Study of His Personality and of Varied Meaning of Symptoms. W. H. Witt, Nashville, Tenn.—p. 957.
- *Analysis of Nonsurgical Drainage of Pathologic Gallbladders. G. M. Niles, Atlanta, Ga.—p. 961.
- Tuberculin. C. H. Cocke, Asheville, N. C.—p. 965.
- Intestinal Parasites in Eastern Cuba. N. Nedergaard, Minneapolis.—p. 971.
- Public Health Policies and Medical Profession. W. S. Leathers, Jackson, Miss.—p. 974.
- Essentials of Successful Leadership for Public Health Work on County Basis. S. W. Welch, Montgomery, Ala.—p. 978.
- Ideals of Surgeon. J. S. Horsley, Richmond, Va.—p. 983.
- Limits of Orthopedic Surgery. E. S. Hatch, New Orleans.—p. 986.
- Fractures of Lower Extremity of Radius. W. T. Henderson, Mobile, Ala.—p. 988.
- Preparedness Against Cancer. J. C. Bloodgood, Baltimore.—p. 990.
- Our Specialty and General Medicine. W. T. Patton, New Orleans.—p. 997.
- *Dilation of Pharynx as Means of Relieving Dysphagia in Tonsillitis, Peritonsillar Abscess and Postoperative Tonsillectomies. F. E. Hasty, Nashville.—p. 999.
- Correlation in Teaching of Dentistry and Medicine. D. Vanderhoof.—p. 1002.

Nonsurgical Drainage of Gallbladder.—The Meltzer-Lyon method is endorsed by Niles as a worth while clinical method, although he says it cannot supplant surgery in the presence of gross pathologic lesions of the gallbladder, such as empyema, dense pericholecystitic adhesions, or when gallstones are present. In some instances this method may clear up certain cases that without it would have developed into surgical states. Its employment is indicated in jaundice, cholecystitis, choledochitis, migraine and those indeterminate "bilious" conditions that have resisted other treatment.

Dilation of Pharynx to Aid Swallowing.—Hasty has devised a mechanical appliance which he asserts solves most, if not all, of the swallowing problems of tonsillar infections and postoperative tonsillectomies.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 26, 1921, 2, No. 3178

- *Blood Diseases in Children. J. H. Thursfield.—p. 873.
- *General Principles of Treatment in Tuberculous Disease of Bones and Joints. H. Gauvain.—p. 876.
- *Polyarticular Muscles as Cause of Arthrogenetic Contractures. M. Jansen.—p. 884.
- Ante-Natal Treatment of Congenital Syphilis with Arsphenamin and Mercury. L. Findlay.—p. 887.
- *Causation of Symptoms in Congenital Hypertrophy of Pylorus. J. Thomson.—p. 889.
- *Congenital Hypertrophic Pyloric Stenosis: Analysis of Fifty Operations. H. T. Gray and F. N. Reynolds.—p. 891.
- Milk Control and Tuberculosis. H. M. Cargin.—p. 894.
- *Persistent Pain in Lesions of Peripheral and Central Nervous System. W. Harris.—p. 896.
- Case of Pyocoele of Frontal Sinus. J. A. Gibb.—p. 900.
- *Suture of Severed Median Nerve with Rapid Recovery of Function. E. Wirth.—p. 900.

Blood Diseases in Children.—The term "aplastic anemia," is yet favored by Thursfield. He would term this condition "anemia gravis," because it is not a specific entity, any more than is the pernicious anemia of adults. Just as in that disease the clinical difficulty is to discover the source of the infection which gives rise to toxemia, which in turn attacks the hemopoietic tissues, so from time to time there occur fatal profound anemias, which belong to the purpura group; almost certainly they are also infective in origin. As to Banti's disease, Thursfield says he never met with an affection in a child below the age of puberty which appeared to him to present the characteristics so familiar in later life, nor has he ever seen an undoubted case of leukemia recover permanently though some patients have recovered a certain degree of health and lived to a period beyond expectations. In the definitely purpuric cases injections of normal horse serum or of human serum sometimes appear to stay the tendency to bleed; but in anemia gravis neither serums, drugs nor blood transfusions, avail to impede the march of the disorder.

Treatment of Bone Tuberculosis.—Today, Gauvain says, radical measures are rarely called for in the treatment of tuberculous bone and joint disease in children and as the indication for their employment has diminished, so the results, both as regards ultimate mortality and from orthopedic considerations, have improved.

Cause of Contracture in Arthritis.—As inflamed joints are fixed by the surrounding muscles, Jansen says, the polyarticular muscles undergo lengthening and shortening in movements of the neighboring joints, the monarticular muscles do not. This may be the reason why in chronic arthritis the polyarticular muscles are better preserved than the monarticular. In the knee, for example, the rectus cruris is retained in front, the semimembranosus and semitendinosus muscles and the long head of the biceps at the back. This may explain why in chronic inflammations the knee, as well as other joints, tends to contracture in the direction of the pull of the surviving polyarticular muscles.

Pyloric Stenosis a Self-Limited Disease.—Discussing the cause of this condition, Thomson agrees with those who hold that the muscular hypertrophy is secondary to some form of antecedent overaction which may have resulted from long continued inharmonious working of the various elements of the muscular mechanism which controls the emptying of the stomach. Such incoordination would probably have begun before birth, but would be most active and effective during the first weeks of life. As the case progresses, however, other very important mechanical causes of obstruction arise, which greatly aggravate the symptoms. These secondary causes of blocking consist in the increasing thickening of the muscular coat of the pylorus and in longitudinal folding of its mucous membrane. If the child survives the earlier stages, there is a period of recovery. During this stage the muscular incoordination of the organ becomes normal, the peritoneal coat gradually widens, the muscular hypertrophy probably subsides, though certainly very slowly, and the lumen enlarges. The disease is therefore, in an important sense,

self-limited; for, if the child does not die of inanition from too little food reaching the bowel, or some other complication, the natural processes of growth and development will always in time remove the obstruction.

Hyperadrenalism Cause of Pyloric Stenosis.—Gray and Reynolds are of the opinion that hyperadrenalism causes pyloric hypertrophy, which is to be regarded as one of its manifestations. Pancreatic and biliary insufficiency also resulting from hyperadrenalism, accentuate the pyloric closure and influence the mortality. The sex preponderance is of similar importance. Gas and oxygen anesthesia will nearly eliminate operative fatalities, both immediate and delayed.

Psychalgia.—The lesson given by Harris is that it is unwise to attempt any form of surgical treatment for psychalgias, the pain is apt to get worse, or spread to another area, and once an operation has been performed, it is most difficult for another practitioner to sift the real from the false and to make a diagnosis.

Rapid Recovery After Suture of Divided Nerve.—In Wirth's case an immediate suture was done of a nerve divided completely by a piece of glass. Two days after the operation the patient showed distinct improvement in some of the movements controlled by the median nerve, as, for instance, better flexion at the wrist, much better pronation of the forearm, less impairment of opposition of the thumb, and less difficulty in abduction of the thumb. There was, however, still inability to flex the terminal phalanges of thumb and index finger. At the end of six weeks there was almost complete return of normal muscle power, the grip remaining somewhat weak. Sensation showed little improvement. Two months after the original injury trophic changes were noticed in the skin of the thumb, index, and middle fingers, consisting of an exfoliation of the outer layers of the skin.

Lancet, London

Nov. 26, 1921, 2, No. 5126

*Pathology and Treatment of Lupus. W. S. Handley.—p. 1089.

Relation of Crime and Delinquency to Heredity, Environment and Disease. W. A. Potts.—p. 1094.

*Jaw-Neck Syndrome: Its Significance in Rheumatic Group of Diseases. A. S. Herbert.—p. 1097.

*Method for Diminishing Mortality in Empyema in Infancy and Childhood. F. J. Poynton and F. N. Reynolds.—p. 1100.

Sporadic Outbreaks of Plague in Union of South Africa. L. G. Haydon.—p. 1103.

*Case of Decerebrate Rigidity in an Infant. A. P. Thomson and A. Piney.—p. 1105.

*Formaldehyd Blood Test for Syphilis. C. Suffern.—p. 1107.

Pathology and Treatment of Lupus.—Handley asserts that tuberculous lupus is not a skin disease. It is essentially and primarily a disease of the lymphatics, a destructive lymphangitis of the parietal lymphatic system. The essential event for the establishment of lupus is the inoculation of the bacillus into a cutaneous lymphatic vessel. The primary lesion is from the beginning a tuberculous lymphangitis, at first of the dermal lymphatics, but soon, of anatomic necessity, the process spreads to the subcutaneous lymphatics and to those of the deep fascial plexus. On the hypothesis that lupus is a destructive capillary lymphangitis, many hitherto unexplained phenomena of the disease become easy to understand. The treatment is surgical. Adequate excision is the operation of choice, unless the disease is very extensive. Superficial excisions, not including the deep fascia, are only allowable where removal of the latter layer is impossible on cosmetic or other grounds. They should always be supplemented by cauterizing agents, which it may be hoped will excite sufficient reaction to destroy the foci of disease in the deep fascia. Skin-grafting should be deferred until the cauterized surface has produced healthy granulations. Bier's hyperemia and Finsen light treatment are useless procedures. Radium therapy may prove of value if applied properly.

Jaw-Neck Syndrome in Rheumatic Diseases.—The whole heterogeneous medley of diseases generally and vaguely classed under the heading of "rheumatic" or gouty, Herbert asserts, can be divided sharply into two groups, those in which the temporomaxillary joint is involved, and those in which it is not. While it is present in nearly every case of rheumatoid arthritis, it is pathognomonic, not of that disease,

but of a whole group of infective and toxic diseases of which rheumatoid arthritis is but a member and a type. Herbert would put it as a definite law that in gout and true rheumatism the syndrome is always absent, and conversely, that in the toxic and infective group it is practically always present.

Apparatus for Drainage in Empyema.—The apparatus and technic used by Poynton and Reynolds have been devised with the special object of completely emptying the pleural cavity, and maintaining continuous drainage by aspiration without at any time exposing the cavity to the outside air and secondary infection. For details the original article should be consulted.

Decerebrate Rigidity in Infant.—From the clinical aspect the case cited by Thomson and Piney appeared to be one of complete decerebrate rigidity of the type to be expected after ablation of the cerebral cortex. It was associated with diffuse softening of the cerebral cortex and calcification of the cerebral vessels. The clinical features throughout the course of the illness appear to bear a close resemblance to the condition of decerebrate rigidity, as described by Kinnier Wilson, in man, except that there was absence of gross respiratory irregularity.

Formaldehyd Test for Syphilis.—The value of this test lies in its simplicity. Blood is drawn in the usual manner as for a Wassermann test. At the end of twenty-four hours the serum is decanted from the test tube into another clean but not sterilized test tube; a drop of ordinary commercial liquor formaldehydi is added, and the tube plugged with cottonwool. The serum and formaldehyd are allowed to remain at ordinary room temperature for twenty-four hours. At the end of this period observation is made as to the condition of the serum. Coagulated serum is a positive result; fluid serum is a negative result. Suffern endorses the method as being of value.

Bulletin de l'Académie de Médecine, Paris

Nov. 2, 1921, 86, No. 35

Experimental Research on New Arsenical. Jeanselme and Pomaret.—p. 219.

*Restoring of Function to Collapsed Lung. J. Pescher.—p. 221.

*Restoration of Parenchyma. Nathan, Capette and Madier.—p. 223.

*Experimental Hemoclastic Shock and Edema. J. Le Calvé.—p. 226.

Restoration of Function to Collapsed Lung.—Pescher has found that it is possible to act on a compressed and non-functioning lung by means of the other lung. By breathing deep in the sound lung, and then preventing the escape of the air through the mouth and nose during forced expiration, the air, seeking to escape, finds its way through the bronchus into the collapsed lung, and inflates it. With the spirometer, the force can be intensified and measured. In a case of total collapse of one lung from a war wound, this spirometer method, applied about a hundred times a day, finally succeeded in inflating the lung to bring it up almost to a level with the chest wall. With these special spirometer exercises, the two lungs learn to work together as one, and this explains, he says, the remarkable benefit from spirometer exercises in certain cases of respiratory insufficiency, pleural effusions and fistulas and deformity of the chest.

Restoration of Parenchyma of Organs.—In the research here reported the tough outer layer of the organ was incised and some connective tissue pushed in. The parenchyma cells grew freely into this connective tissue, from which they had been shut off before by their impermeable cortex. The experiments were made on the liver, kidney and thyroid of dogs and rabbits. Nathan and his co-workers suggest that it may be possible some day to induce the restoration of the functional elements of an organ by utilizing connective tissue in some such way, in treatment of chronic insufficiency of a parenchymatous organ.

Experimental Hemoclastic Crisis.—Le Calvé succeeded in inducing the typical hemoclastic crisis, leukopenia, etc., in dogs and rabbits in two minutes after subcutaneous injection of indol or skatol. These induced edema, besides, and by applying irritation to a region the edema could be attracted to that region.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 4, 1921, 45, No. 31

- *Negative Wassermann with Active Syphilis. M. Pinard, Deguignand and Mouquin.—p. 1413.
- *Experimental Syphilis in Man. M. Pinard and Deguignand.—p. 1415.
- *Pregnancy in Parkinsonism. G. Guillaïn and C. Gardin.—p. 1417.
- Febrile Syphilitic Hepatitis. J. Dumont.—p. 1421.
- *Acute Aplastic Leukemia. G. Paiseau and E. Alcheck.—p. 1424.
- *Aphasia in Epidemic Encephalitis. L. Kindberg and M. Lelong.—p. 1435.
- *Minor Signs of Gallstone Disease. F. Ramond, C. Jacquelin and H. Borrien.—p. 1440.
- *Nervous Complications of Rubeola. R. Bénard.—p. 1443.

Negative Wassermann.—The woman of 36 had only one child living from her eleven pregnancies; five terminated in a miscarriage at the fourth month. The Wassermann test was constantly negative, and there were no signs of syphilis, but her child presents unmistakable symptoms of inherited syphilis. It is the fruit of her eighth pregnancy.

Experimental Syphilis in Man.—A mechanic, 27 years old, to prove to his physician that he did not have syphilis, inoculated himself with a pen with which he had scraped an active chancre on one of his mates. As this did not "take," he inoculated his arm from another friend's lesion, and this time spirochetes were found in the resulting chancre. He then took a course of injections of neo-arsphenamin, given by a nonmedical friend, to a total of 8.5 gm. To ascertain whether he was cured, he inoculated himself a third and a fourth time. Spirochetes were found in the last lesion and he began to treat himself with neo-arsphenamin, in 0.6 gm. doses once a week, to a total of 16 gm. in six months, and then a new series of 5 gm. more. Three other auto-inoculations then were negative, but his eighth inoculation yielded a hard chancre and enlarged glands in the axillae, with numerous spirochetes. The man is now a laboratory attendant, having forsaken his trade to read medical books, and he can inspect his own spirochetes hour by hour. This experimental history is interesting from the psychiatric as well as other standpoints, but mainly because it shows that four years of doses of 0.6 gm. did not suffice to banish the spirochetes. They disappeared from the lesions after a single dose of 0.75 gm. The Hecht and the Wassermann tests just before this had been only partially positive, although the papules were swarming with spirochetes.

Pregnancy During Parkinsonism Following Epidemic Encephalitis.—The intense parkinsonian symptoms had persisted unmodified for five months, after recovery otherwise from epidemic encephalitis, when the woman became pregnant and bore an apparently healthy child. The parkinsonian symptoms persisted unmodified throughout and during the months since.

Acute Aplastic Leukemia.—Paiseau and Alcheck describe a case with only transient increase in the number of leukocytes, the blood picture differing from that in pernicious anemia only by the appearance of undifferentiated cells; 84 per cent. of the leukocytes were of the embryonal type. The onset was febrile and septicemic, with severe pains in heel and calf suggesting gonococcus septicemia. The delirium later, rigidity, and intense pains in the bones were other features. Almost the entire skeleton was tender, but the woman screamed when the sternum, ribs and tibias were even touched. She died three months after the first symptoms. The Wassermann reaction was positive on one occasion, and improvement followed the first injection of neo-arsphenamin, but it was briefly transient.

Aphasia from Epidemic Encephalitis.—For several days aphasia was the only symptom; then others developed, showing that the aphasia had been the first manifestation of epidemic encephalitis. It proved fatal in two weeks. No paralysis accompanied the aphasia, but hemiplegia developed in the second week.

Minor Signs of Gallstones.—Among the signs testifying that cholelithiasis is responsible for symptoms from the stomach and duodenum, are Chauffard's tender point in the right, lower neck, and tenderness at the eighth to eleventh dorsal spinous processes, and another tender point on the right side, 2 or 3 cm. from the spine, in the fourth or fifth interspace.

When there is a tender point at the xiphoid process, associated with the gallbladder tender point, the presumption is in favor of more or less latent cholelithiasis. Another sign is the reduction of the vesicular murmur at the right base, especially on the posterior axillary line. This respiratory dulness may extend even to the middle or upper part of the right lung. It is evidently due to a reflex from the diseased gallbladder; it occurs likewise with catarrhal jaundice, but is less pronounced and less durable than with gallstones. It is not present with disease in the pylorus or duodenum which does not involve the gallbladder, and thus is useful in differential diagnosis. It has been described as a sign of typhoid, but only when the gallbladder is involved. Another, rather inconstant sign is a reflex pain at the emerging point of the perforating branches of the right intercostal nerves. It is seldom spontaneous but can be induced by light percussion. It may occur with gastric ulcer as well as with gallstone disease. Cholelithiasis is often accompanied with peripheral vasomotor disturbance of the sympathetic type, which is exceptional in pyloric or duodenal disease. Gallstones are also liable to induce a pure appendicitis pain, without appendicitis. Ramond and his co-workers regard the above respiratory sign as the most important of all these, ranking it above the Murphy sign, pain at the right base, possibly spreading to the shoulder. Linossier has had gallstone patients with the right base absolutely silent, and the right diaphragm immovable, but this occurred only in extreme cases of cholelithiasis.

Nervous Complications of Rubeola.—Bénard states that in 291 cases of rubeola in a recent epidemic among soldiers, thirteen of the patients presented transient meningitis symptoms; in one case the meningitis occurred in an intermittent form. In one case acute ascending paralysis of the Landry type developed the fourth day of typical rubeola, and proved fatal in thirty-six hours. Another patient developed herpes zoster in the course of the rubeola. These nervous manifestations in 4.5 per cent. of the cases of rubeola, and certain other features of the disease, seem to link it more with scarlet fever than with measles.

Médecine, Paris

October, 1921, 3, No. 1

- *Surgery in 1921. P. Mathieu.—p. 5.
- Sacralization of Fifth Lumbar Vertebra. P. Mauclair.—p. 16.
- *Fracture of Neck of Femur. C. Dujarier.—p. 22.
- *Deforming Osteochondritis in the Young. A. Mouchet.—p. 27.
- *Stenosis of Pylorus in Infants. P. Fredet.—p. 32.
- *Surgery for Cancer of Rectum. A. Schwartz.—p. 38.
- Cleavage Line Between Colon and Omentum. J. Okinczyk.—p. 40.
- *Detaching Adherent Pleura. J. L. Roux-Berger.—p. 45.
- Indications for Operative Treatment of Gallstones. T. de Martel and E. Antoine.—p. 49.
- *Blocking the Splanchnic Nerves. V. Pauchet and Laborde.—p. 52.
- *Facial Surgery in 1921. L. Dufourmentel.—p. 57.
- Advantages of Early Cholecystectomy in Cholelithiasis. Cotte.—p. 61.
- Examination for Prostate Disturbance. E. Papin.—p. 63.
- Treatment of Spasm of Lower Esophagus. L. Dufourmentel.—p. 64.
- Mixed Stock Vaccine. C. Girode.—p. 67.

Surgery in 1921.—Mathieu reviews the live topics in surgery during the last twelve months. He says that blocking the splanchnic nerves has transformed the prognosis of operations in the upper abdomen. Vaccine therapy to supplement surgery has modified conditions in the acute osteomyelitis of adolescents to such a degree that Grégoire has even sutured the focus at once after evacuation and myoplasty. Vaccine therapy can seldom be relied on alone, but it facilitates the cure after operative measures, and anti-gangrene vaccine might prove useful to supplement surgical measures for all putrid suppurations. Among the interesting operations is Legueu's case in which a segment of the abdominal aorta from a dog was used to bridge a long gap in a man's urethra with fistulas. The consensus of opinion in regard to cancer now seems to be to leave cancers of the mouth for radium treatment, supplemented by curetting the glands, preceded by radiotherapy. Even if recurrence follows the radium as soon as after operations, there is less mutilation. For malignant disease of the uterus, surgeons operate with but little hope except for beginning cancers. Many prefer to precede the hysterectomy with radium. With cancer of the rectum, Cunéo draws the colon down to the

perineum to utilize the natural sphincter. Surgeons have been disappointed in the results of their treatment of jacksonian epilepsy from war wounds.

Fracture of Neck of Femur.—Dujarier endorses Delbet's method of driving a screw axially into the neck as, beyond question, a great improvement over the older methods of treating the fractured neck. In two cases, however, the screw caused some disturbance, and he had to remove it and replace it with a shorter screw with blunt tip. The bone tissue at the junction of the two fragments becomes more friable, and the outer fragment climbs up on the screw and may twist a little. He discusses means to avoid this secondary deviation. It is more liable to occur in correcting pseudarthrosis. In some cases he supplements the screw with a rod from the tibia driven into a tunnel on a parallel lower plane, fastening the outer end with a Lambotte screw driven into the femur from the front. In other cases he slips into this tunnel a thin bone and periosteum graft, 7 by 2 cm., folding it lengthwise with the periosteum surface outside.

Deforming Osteochondritis of the Upper Epiphysis of the Femur.—Mouchet remarks that this Legg-Calvé-Perthes pathologic condition is often mistaken for tuberculous hip disease. It was among the children sent to Berck on this latter diagnosis that Calvé found his first cases. The symptoms are nothing; radiography is everything, in this coxa plana. Repose is the only treatment required; if there is much pain, a plaster cast. Massage of the muscles is advisable. Mouchet regards the condition as a growth osteitis of the epiphysis, a minor degree of deforming arthritis of the hip joint. Calvé and Sorrel deny an inflammatory nature.

Hypertrophy of the Pylorus in Infants.—Fredet expatiates on the excellent results from severing the muscular ring of the pylorus to correct the stenosis while leaving the mucous membrane intact. This "extramucosa longitudinal pylorotomy" was applied by him as early as 1907, and he published his experiences with it in 1910, two years before Rammstedt's description of the same technic. It is an insignificant operation, and transforms the clinical picture at once.

Cancer of the Rectum.—Schwartz advocates attacking the rectum from above and below, severing it through a laparotomy and drawing the proximal stump of the colon out through the incision; then roofing over the whole pelvis with peritoneum, and then extirpating the rectum through the perineum. The difficulty of and danger from saving the sphincter are so great that he does not attempt it, but he sometimes reconstructs the vagina.

Immobilization of the Lung by Detaching the Adherent Pleura.—Roux-Berger states that when artificial pneumothorax is impossible on account of pleural symphysis, an almost equivalent effect can be obtained by loosening up the pleura. It is not necessary to introduce any rubber bulb to inflate or other device to maintain the compression. The *décollement pleuro-pariétal* seemed to answer the purpose alone in the few cases in which it has been done. It aims to aid in treatment of a gangrenous focus, fetid bronchitis or bronchiectasia, as well as tuberculous processes.

Blocking the Splanchnic Nerves.—Pauchet and Laborde extol the harmlessness and long duration of the anesthesia induced by lumbar injection of the anesthetic to lase the semilunar ganglion on each side and the nerves connected with it. The 12 cm. needle is introduced 7 cm. from the median line, below the right twelfth rib, at an angle of 45 degrees to the median plane of the body. It is pushed in until it hits the vertebra; then the tip is drawn back into the subcutaneous tissue and is then pushed in again at a slightly different angle until it reaches and just grazes the vertebra. Then it is pushed 1 cm. farther, the needle entering the loose paravertebral cellular tissue. The sensation from this is felt in the hand, gently pushing the needle. On the left side, the needle is introduced 3.5 cm. from the median line to avoid the kidney and aorta. The anesthetic used is 25 or 30 c.c. of a 1 per cent. solution of procain. An illustration is given of the technic.

Facial Surgery.—Dufourmentel remarks that the impulse given by the war to surgery of the face has resulted in remarkably enlarging its sphere, so that malformations and deformities hitherto considered beyond the reach or below the

dignity of surgeons are now being corrected. He declares that there is no deformity or disfigurement of the face—congenital, pathologic or traumatic—for which some good surgical remedy cannot now be offered.

Schweizerische medizinische Wochenschrift, Basel Nov. 3, 1921, 51, No. 44

Comparison of Diuretics of Xanthic Series. Roch and Katzenelbogen.
—p. 1009.

*Endemic Deafness. F. Nager.—p. 1011.

*Wassermann Reaction from Brain Tumor. F. Lotmar.—p. 1013.

*Prophylaxis of Goiter and Goiter Recurrence. E. Fritzsche.—p. 1016.

Action of Sunlight on Glycolysis in Blood. R. Fritzsche.—p. 1018.

Bronchiolitis. K. Leuw.—p. 1022.

Endemic Tendency to Deafness.—Nager comments on the evidences of endemic cretin degeneration which are common among those who apply to the ear infirmary in his charge at Zurich. The familial coincidence with goiter and the constant presence of other signs of cretin degeneration call for long continued thyroid or iodine treatment, begun early. The deafness is generally of nerve and labyrinth types, and even if the hearing is not much benefited by this treatment, the general health will improve.

The Wassermann Reaction with Brain Tumors.—Lotmar cites a few cases in which brain tumors in nonsyphilitics seemed to be responsible for a nonspecific positive reaction to the Wassermann test applied to cerebrospinal fluid. In a case personally observed in a man of 43 the test was negative with the blood but strongly positive with the spinal fluid. Under arsphenamin treatment, the symptoms of pressure on the brain increased and the tumor was partially removed. Necropsy confirmed that it was a large xanthofibrosarcoma in the cerebellopontine angle, with no signs of syphilis.

Goiter Operations.—Fritzsche relates that 7 per cent. of all the operations at the Glarus canton hospital in the last eight years have been for goiter, and that 6.5 per cent of these 322 goiter operations were for recurrence. No matter how radical the operation, we have to count on occasional recurrence, and hence he advocates postoperative prophylaxis on a large scale. Fully 50 per cent. of 1,000 children examined had abnormally large thyroid glands, and 28 per cent. had actual goiter, very large in 0.7 per cent. Boys and girls seem to be affected about alike. He had 763 school children given once a week a chocolate tablet containing 0.005 gm. iodine. After fourteen months of this, the thyroid had subsided more or less in 269 and had remained stationary in 453, while only forty-one showed an increased size. Each child had taken thus about 0.2 gm. of iodine in the course of the school year. In private practice he gave two or more tablets a week. The danger of breeding a habit of drug taking is so great, that he urges some other plan for administering the iodine, such as its incorporation in table salt. This would supply it automatically, as it were, in the desired minute amounts, and this "special salt" could be used in goiter districts and in goiter families.

Chirurgia degli Organi di Movimento, Bologna

October, 1921, 5, No. 5

Achondroplasia in the Fetus. F. de Raffe.—p. 467.

*Sacralization of Fifth Lumbar Vertebra. M. Lupo.—p. 503.

*Cineplastic Amputations. G. Pieri.—p. 535.

Disarticulation of the Foot. G. Pieri.—p. 550.

Tuberculosis of the Pelvis; Forty-Nine Cases. G. Valtancoli.—p. 563.

Dislocation of Big Toe. S. Vacchelli.—p. 573.

Sacralization of Fifth Lumbar Vertebra.—Lupo cites data which show that anomalies in the fifth lumbar vertebra were described as long ago as 1888 at least. Serra in 1914 reported 7 cases of anomalies in the fifth lumbar metamere and suggested that this might explain certain cases of rebellious nervous disturbances simulating inflammatory processes. Other Italians reported groups of 16, 27 and 15 cases before the recent French publications on the subject. Lupo here reports 11 cases in children; in some the sacralization of the vertebra was symmetrically bilateral. Under the age of 20 this anomaly causes no disturbance as a rule, except possibly as a factor in enuresis. It might be well to advise the parents of children with this sacralized vertebra to guard them with special care against trauma of this region, against lifting of heavy weights, and conditions predisposing to rheumatism, in

childhood and later life. His study has shown that the degree of sacralization is determined before birth. It is not a process of hypertrophy, and it seems to be the normal condition in certain monkeys.

Cineplastic Amputation of the Femur.—Pieri has applied in six cases of amputation of the leg the method published by Dalla Vedova in 1913. It provides a cinematic cap for the stump in addition to the osteoplastic closure of the stump. The illustrations show how the soft parts are cut to form a broad inverted V, only with more curving lines. Then the aponeurosis is cut above the patella, and the skin is cut in two square flaps which are turned over and sutured together to form a tunnel. A similar one is made in the popliteal space. Then the epiphysis of the femur is sawed, slanting from below upward and from the front backward, thus cutting out a nearly right-angled portion, leaving merely a shell in front, pivoting on a periosteum hinge. This shell is drawn up and forms a cap for the femur. Then the severed tendon is drawn up and sutured over the anterior tunnel. The front flap of soft parts, containing the patella and its ligaments, is drawn across to suture to the rear flap, enclosing the rear tunnel. Prosthesis fitted to utilize the two tunnels can be moved with considerable force. Recent information from four of his six cases after intervals of from eighteen months to six years confirms the excellent outcome in every respect.

Siglo Médico, Madrid

Aug. 27, 1921, 68, No. 3533

Congenital Influenza; Influenzal Meningitis. B. Hernández Briz.—p. 813.

Electrocardiography. Vaquez (Paris).—p. 814.

Tuberculosis in Spain. F. Rico.—p. 819.

Syphilitic Disease of the Stomach. G. Leven (Paris).—p. 820.

Sept 3, 1921, 68, No. 3534

*Spinal Rheumatism. R. del Valle y Aldabalde.—p. 837.

Trachoma in Almeria District. M. Marin Amat.—p. 839. Cont'd.

Case of Hymenolcpis Nana. Sadi de Buen and E. Luengo.—p. 845.

Is Vision a Physical Phenomenon?—p. 846.

Spinal Rheumatism.—Del Vaile's retrospective diagnosis is that the rheumatic affection of several joints and of the spine was secondary to chronic cystitis. The first symptoms had been noted eight months before and the man of 46 was bedridden from the pains and paralysis of arms and legs. There were no sphincter or genital disturbances, and under persevering treatment for six months a complete clinical cure was realized. The treatment included measures for the cystitis and vigorous revulsion by the button cautery along the spine. This not only relieved the pains but restored flexibility to the stiff spine, aided by electricity to restore tone to the muscles. The case is an excellent illustration, he says, of what can be accomplished with patience and perseverance even in apparently the most hopeless of rheumatism cases. The man was in the hospital for six months.

Deutsche medizinische Wochenschrift, Berlin

Oct. 13, 1921, 47, No. 41

Pathologic Physiology and the Physician. L. Krehl.—p. 1217.

Acute Yellow Atrophy of the Liver. A. Strümpell.—p. 1219.

Blood Changes in Acute Yellow Atrophy of Liver. Weigeldt.—p. 1221.

Pathologic Anatomy of Acute Yellow Atrophy of Liver. Seyfarth.—p. 1222.

Surgical Treatment of Exophthalmic Goiter. P. Sudeck.—p. 1224.

Artificial Vagina Made from Intestine. M. Martens.—p. 1226.

Horseshoe Kidney with Stone. M. Zondek.—p. 1226.

*Intravenous Ether Narcosis. F. Momburg.—p. 1228.

A Case of Purulent Perimeningitis. Hinz.—p. 1229.

Arsenic Poisoning. H. Schulte.—p. 1230.

A Rare Case of Poisoning from Arsenic Trioxid. B. Faulhaber.—p. 1231.

Present Conception of Hypertonia. H. Rosin.—p. 1231. Conc'n.

Surgical Hints for the Practitioner: Operations in Private Homes. G. Ledderhose.—p. 1233.

Intravenous Ether Narcosis.—On the basis of 170 instances of intravenous ether narcosis, Momburg reports the same satisfactory results as Kümmell and Peitmann. He regards it as an ideal form of narcosis and thinks it is to be regretted that it is so little used. He believes the injuries observed in certain quarters must be due to faulty technic. He says it is remarkable how quietly the patients "go under," how calm and pleasant the course of the anesthesia is, and how fresh the patients look when they come out of it. However, the method is adapted only for the clinic, not for general practice.

Münchener medizinische Wochenschrift, Munich

Sept. 30, 1921, 68, No. 39

*Operative Indications with Gallstones. L. Heidenhain.—p. 1239.

Hunger Osteomalacia. Reichel.—p. 1242.

*Bovine Instead of Horse Antiserums. R. Kraus et al.—p. 1244.

Agent of Koch-Weeks Conjunctivitis. J. Hammerschmidt.—p. 1246.

Indications for Radiotherapy of Uterine Cancer. Zweifel.—p. 1247.

Radium Therapy for Hemangiomas. A. Beck.—p. 1248.

*Combined Roentgen and Heliotherapy in Granuloma. A. Lahmann.—p. 1249.

Alimentary Urobilinogenuria. W. Falta et al.—p. 1250.

*Positive Wassermann Reaction in Typhus Fever. K. Bauer.—p. 1251.

Sulphur Dioxid for Pediculosis Capitis. A. Lenz.—p. 1252.

Supplementary Tube Beneath Table for Deep Roentgen Therapy. O. Wille.—p. 1254.

Simplified Micro-Test for Blood Sugar. R. Weiss.—p. 1255.

Invisible Stage in Development of Pathogenic Protozoa. M. Mayer.—p. 1256.

Tuberculosis Treatment with So-Called Turtle Bacilli. Kruse.—p. 1256.

*Early History of Syphilis. H. E. Sigerist.—p. 1257.

Diagnosis and Treatment of Hip Joint Affections of Nontraumatic Origin. J. Wieting.—p. 1258.

Practical Psychology as a Field for the Physician. W. Poppelreuter.—p. 1262.

Operative Indications in Gallstone Affections.—Heidenhain says that it is now established that scarcely a patient need die from appendicitis, and that chronic illness is a rare sequel of such affections. He holds that the same goal could be reached in gallstone affections if a timely operation were performed. The passage of one or more stones, which are found in the stool after a laborious search, does not prove that the choledochus is free from stone, since usually only the small stones are passed, while the larger ones remain. That many patients with stones in the choledochus may continue to feel well for years, is all very true, but the day of reckoning always comes some time, the course of the affection being determined by infection of bile ducts. Operation is imperative in all cases of acute cholecystitis with palpable gallbladder, fever and severe pain or peritonitis symptoms. The stones are not the main thing but rather the infection. In chronic recurring gallstone affections, when the general health of the patient begins to fail in any respect, operation is imperatively needed. A gallstone affection that lowers the general condition is not one in which all sorts of treatment are justifiable but rather one that under all circumstances must be promptly gotten rid of.

Prevention of Untoward Manifestations Following the Injection of a Foreign Serum.—A similar article by Kraus, Bonorino Cuenca and Sordelli was summarized in THE JOURNAL, June 11, 1921, p. 1714. They state that unpleasant reactions resulting from the injection of horse serum may be prevented, in the main, by using diphtheria and tetanus antiserums from immunized bovines. In forty-nine cases of diphtheria and 149 cases of preventive serotherapy, serum sickness was observed only in nine instances, that is, in 4.54 per cent.

Combined Roentgen and Heliotherapy in Granuloma.—Lahmann reports a peculiar case of a rapidly developing, malignant mediastinal lymphogranuloma, in which roentgenotherapy when used alone was of no avail; in fact, the blood picture and general condition became worse after each irradiation. But after intensive heliotherapy (natural and on occasion, artificial) was instituted, the general condition and the blood picture improved, and the reaction to roentgen irradiation was also better. The tumor retrogressed rapidly, with fever present, so that after four months' treatment normal conditions had been restored. As no recurrence has taken place during the two years that have elapsed since, it is justifiable to speak of at least a temporary recovery.

Positive Wassermann Reaction in Typhus.—Bauer reports the results he secured from the application of the Wassermann test to fifty serums of typhus patients in whom there was no clinical evidence of syphilitic infection. During the fever period, forty-six serums (92 per cent.) gave a positive Wassermann reaction. From his observations Bauer reaches the conclusion that the Wassermann test in typhus fever, applied to inactivated serum, is almost always positive, if the blood sample is taken before the crisis. He recommends in doubtful cases, if the Weil-Felix test is not feasible, and a differential diagnosis (for example, as between typhus and

typhoid fever) is desired, that a positive Wassermann reaction be interpreted as pointing to typhus fever, since in many control cases of typhoid and paratyphoid solely negative results were secured. What the mechanism of the positive reaction is he is unable to state, but suggests that possibly Wassermann's recent investigations may throw light on the subject. Bauer makes no attempt to explain the repeatedly reported negative Wassermann reactions of other investigators, as he has no detailed information in regard to the technic they employed.

Early History of Syphilis.—Sigerist refers to Hans Vogler's "Familienbuch," which is found in manuscript form in the Zurich Central Library. This chronicle was begun in 1497, and contains, among notations of current events, a number of medical recipes. Sigerist reproduces in the original Middle High German complete instructions for the application of inunction treatment in syphilis, which accord very closely with modern methods: "Du solt nemen II lot hondsalmaltz, II lot kecksilber, II lot silberglet, II lot wissen wiroch, II lot loröl, II lot spongruen, I liß (ram) rotbärgy schmer. Nim die spongruen, das silbergelt und den wissen wiroch und stos das under enander zuo bulfer. . . ."

Zentralblatt für Gynäkologie, Leipzig

Sept. 17, 1921, 45, No. 37

- Early Stages of Carcinoma of the Uterus. O. Frankl.—p. 1317.
*Prophylaxis and Treatment of Eclampsia and Uremia. W. Gessner.—p. 1324.
*Construction of Artificial Vagina. W. Benthin.—p. 1330. Idem.: Mortality Rate. O. Fohr.—p. 1332.

Sept. 24, 1921, 45, No. 38

- Pathogenesis of Leukorrhea. R. Schröder.—p. 1350. Conc'n in No. 39, p. 1398.
Edema of the Pregnant. H. Hinselmann.—p. 1361.
Pregnancy in Uterus Septus. Meyer-Rüegg.—p. 1364.
Suppuration of Symphysis Pubis in Pregnancy. Kaboth.—p. 1367.

Prophylaxis and Treatment of Eclampsia and Uremia.

Gessner regards the high blood pressure in "pregnancy kidney" and eclampsia as a reliable indicator of the character of the disturbances. The increased blood pressure is a reflex and a very practical provision in the human organism, since its purpose is to help overcome the impediment to the flow of urine. This inability to pass the urine along is a factor that has not received sufficient attention either in kidney diseases associated with pregnancy and childbirth, or in inflammatory renal affections outside of pregnancy, a fact which has made the understanding of renal pathology much more difficult. Mild or even moderate impairment of the flow of urine does not necessarily lead to high blood pressure since the normal blood pressure overcomes obstacles, but if, among the clinical symptoms we find high blood pressure there is always a marked impediment to the flow of urine, having its seat either in the efferent urinary passages or in the renal tissues. He opposes vigorously the views of Traube and Cohnheim that the genesis of hypertonia is associated with a stasis of the blood in the greater circulation, resulting from the disturbance of the circulation in the kidneys in acute chronic renal inflammation.

As for the chief domain of renal decapsulation, he finds this in acute and chronic glomerulonephritis, provided the disease process shows no tendency to subside. The dangers from early operation are not as great as from too long waiting. A timely operation offers not only the best conditions for a cure of the disease process, but affords also the best protection against uremia. In parenchymatous nephritis, in which the degenerative changes are found mainly in the tubuli uriniferi, with no hypertonia and no congestion of urine, renal decapsulation cannot be expected to help much. In short, the best indication for renal decapsulation is high blood pressure. However, it should be noted that the purpose of renal decapsulation may possibly be accomplished by making several longitudinal incisions from one pole of the kidney to the other, to relieve the tension, without actual decapsulation.

Artificial Vagina.—Fohr states that the mortality rate in operations to construct an artificial vagina is much higher than is commonly supposed. He refers to several series

amounting to forty-four cases in all, in which there were eight deaths, or 18 per cent., and expresses the conviction that a considerable number of unsuccessful or even fatal cases have, for various reasons, not been reported. He favors the Schubert method as being the least dangerous, but admits that rectovaginal fistulas and incontinence of the sphincter ani are at times unwelcome complications, though Schubert maintains that such complications are preventable.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 1, 1921, 2, No. 14

- *Methods to Determine Activity of Bone Marrow. M. J. Roessingh.—p. 1656.
*Treatment of Enuresis. P. Bierens de Haan.—p. 1666.
*Subcutaneous Injection of Oxygen. J. A. van der Starp.—p. 1669.
Phenobarbital (Luminal) in Treatment of Migraine. T. van Schelven.—p. 1673.
Swine Erysipelas in Man. M. A. J. Jansma.—p. 1676.
Aortic Insufficiency as Result of Extreme Physical Exertion in a Weight-Throwing Game. R. J. Wolvius.—p. 1680.
Spirochetes in Neurosyphilis. J. Goudsmit.—p. 1685.
Cornelis Stalpart vander Wiel, 1620-1702. E. D. Baumann.—p. 1689.
Bacillus Carriers in California. A. C. H.-V. La Brand and A. L. Hagedoorn.—p. 1740.

Tests of Functional Activity of the Bone Marrow.—Roessingh emphasizes that the fixation of oxygen by the erythrocytes, and the granulation demonstrated in them by one of the vital stains, may be regarded as valuable indications of the functional activity of the bone marrow at the moment. In 30 normal persons, with 100 per cent. hemoglobin, the vital granulation did not surpass 0.4 to 1.8 per cent. His technic was the same as that used by Cunningham, described in the *Archives of Internal Medicine* 26:405 (Oct.) 1920. He tabulates further the findings in over 50 patients with various pathologic conditions, including 11 cases of pernicious anemia, giving the hemoglobin content; the maximal oxygen capacity of the erythrocytes; the oxygen content after four hours in the incubator; the oxygen fixation percentage; the fixation index, and the percentage of vital granulation cells. In pernicious anemia the figures were the highest, the conditions resembling the embryonal, and indicating intense stimulation of the blood forming organs. Stimulation was also evident after transfusion of blood, and in 2 cases of tumor metastasis in the bone marrow. The oxygen fixation index and the vital granulation did not always harmonize. The highest fixation index was in a case of pernicious anemia three days after transfusion of blood, having run up from 51 to 133, and dropping to 0 the seventh week. The corresponding vital granulation percentages were 7.2; 8.6 and 4.3. The highest granulation figure was in another case of pernicious anemia, 54 with, at the time, an oxygen fixation index of 20.8.

Treatment of Enuresis.—De Haan presents convincing arguments that the main cause of enuresis is the exceptionally profound sleep. The slumber is so deep that it is below the threshold for the normal rousing reflex for evacuation of the bladder. There is some neuropathic factor involved in this unusually deep sleep, but his experience as psychiatrist to two large children's asylums has amply demonstrated, he asserts, that all that is necessary to cure it is to prevent this extremely deep sleep at night. In mild cases, a nap during the day may be enough. Or the child may be put to bed a few hours earlier than usual but without darkening the room till the usual time. In the severer cases, the child is kept in bed all day long, in an atmosphere of calm and quiet. The repose is often distinctly beneficial in other respects. Excluding actual imbeciles and idiots, a cure may be counted on in 99 per cent. of the cases. Relapses are treated in the same way, merely by measures to make the night sleep normal; the factors responsible for the unusual depth of the slumber should be sought out and avoided in future.

Subcutaneous Injection of Oxygen.—Van der Starp comments on the prompt benefit from subcutaneous injection of oxygen, two or three times a day, in an infant of 14 months apparently moribund from pneumonia in the course of severe whooping cough. The injections were continued for a week, with recovery. The effect was most apparent in the pulse. This became at once stronger and more regular. Subcutaneous injection is practically the only way to give a suffocating restless child the benefit of oxygen.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1921

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where located.

- Acta Chirurgica Scandinavica. Irregular. 24 kroner. Stockholm.
Acta Medica Scandinavica. Irregular. 20 kroner. Stockholm.
*Acta Paediatrica. Irregular. \$6 per volume. Upsala.
Acta Scholae medicinalis universitatis imperialis in Kioto. Irregular. 3.30 yen. Kioto.
American Journal of Anatomy. Bi-m. \$7.50. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. \$4. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Hygiene. Bi-m. \$6. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. \$6. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Gynecology. M. \$6. C. V. Mosby Co., St. Louis.
American Journal of Ophthalmology. M. \$10. 7 W. Madison St., Chicago.
American Journal of Physiology. M. \$5. Johns Hopkins Medical School, Baltimore.
American Journal of Psychiatry. Q. \$5. Johns Hopkins Press, Baltimore.
American Journal of Public Health. M. \$5. 370 Seventh Ave., New York.
American Journal of Roentgenology. M. \$6. 69 E. 59th St., New York.
American Journal of Syphilis. Q. \$7. C. V. Mosby Co., St. Louis.
American Review of Tuberculosis. M. \$5. Williams & Wilkins Co., Baltimore.
Anales de la Facultad de Medicina, Montevideo. Bi-m. \$2. Montevideo.
Anales de la Facultad de Medicina, Universidad de Lima. Bi-m. 6 soles. Lima, Peru.
Annales de médecine. M. 55 francs. Paris.
Annali d'igiene. M. 50 lire. Rome.
Annali di Neurologia. Bi-m. 40 francs. Naples.
Annals of Medical History. Q. \$8. Paul B. Hoeber, 67 E. 59th St., New York.
Annals of Medicine. Q. \$10. W. F. Prior Co., 22 East 17th St., New York.
Annals of Otolaryngology and Laryngology. Q. \$6. Times Bldg., St. Louis.
Annals of Surgery. M. \$7.50. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. \$5. Liverpool.
Arbeiten aus dem Anatomischen Institut der Kaiserlich-Japanischen Universität zu Sendai. Irregular. Price varies. Tokyo.
*Archiv für Gynaekologie. Irregular. Price varies. Berlin.
Archiv für Kinderheilkunde. Irregular. 60 marks. Stuttgart.
*Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archiv für Verdauungskrankheiten. Bi-m. 60 marks. Berlin.
Archives of Dermatology and Syphilology. M. \$6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Internal Medicine. M. \$5. American Medical Association, 535 N. Dearborn St., Chicago.
Archives des maladies de l'appareil digestif et de la nutrition. Bi-m. 30 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 36 francs. Paris.
Archives de médecine des enfants. M. 40 francs. Paris.
Archives de Médecine et de Pharmacie Militaires. M. Paris.
Archives médicales belges. M. 25 francs. Liège and Paris.
Archives of Neurology and Psychiatry. M. \$6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Ophthalmology. Bi-m. \$6. G. P. Putnam's Sons, 2 W. 45th St., New York.
Archives of Radiology and Electrotherapy. M. £2, 2 shillings. London.
Archives of Surgery. Bi-m. \$6. American Medical Association, 535 N. Dearborn St., Chicago.
Archivio italiano di chirurgia. Irreg. 80 francs per volume. Bologna.
Archivos de Cardiología y Hematología. M. 24 pesetas. Madrid.
Archivos Españoles de Pediatría. M. 25 pesetas. Madrid.
Archivos Latino-Americanos de Pediatría. Bi-m. \$5. Buenos Aires.
Archivos de Neurobiología. Q. 20 pesetas. Madrid.
Arquivos do Instituto bacteriológico Camara Pestana. Irregular. Price varies. Lisbon.
*Beiträge zur klinischen Chirurgie. Irregular. Price varies. Tübingen.
Boston Medical and Surgical Journal. W. \$6. 126 Massachusetts Ave., Boston.
Brain. A Journal of Neurology. Irregular. \$4. London.
Brazil-Medico. W. 25 milreis. Rio de Janeiro.
Bristol Medico-Chirurgical Journal. Irregular. 3 shillings per issue.
British Journal of Children's Diseases. Q. 25 shillings. London.
British Journal of Experimental Pathology. Bi-m. £2. London.
British Journal of Psychology. Irregular. 25 shillings. London.
British Journal of Surgery. Q. \$6.50. William Wood & Company, 51 11th Ave., New York.
British Journal of Tuberculosis. Q. \$2.50. G. E. Stechert & Co., 151 W. 25th St., New York.
British Medical Journal. W. 1 shilling 3 d. per issue. London.
Bulletin de l'Académie de médecine. W. 40 francs. Paris.
Bulletin médical. Semi-w. 16 francs. Paris.
Bulletin of the Johns Hopkins Hospital. M. \$3. Baltimore.
Bulletin of the Lying-In Hospital, New York. Irregular. \$1. Bulletin of Lying-In Hospital Press, New York.
Bulletin of the Medical and Chirurgical Faculty of Maryland. M. (except June, July, August and September) 25 cents. 1211 Cathedral St., Baltimore.
Bulletin of the Naval Medical Association of Japan. Irregular. Tokio.
Bulletin of the Porto Rico Medical Association. Q. San Juan, Porto Rico.
Bulletins et mémoires de la Société médicale des Hôpitaux de Paris. W. 65 francs. Paris.
California State Journal of Medicine. M. \$4. Butler Bldg., San Francisco.
Canadian Journal of Mental Hygiene. Q. \$2. 207 St. Catherine St., West, Montreal.
Canadian Medical Association Journal. M. \$5. 836 University St., Montreal.
China Medical Journal. Bi-m. \$5. Shanghai.
Chirurgia degli organi di movimento. Bi-m. 55 francs. Bologna.
La Clinica Pediatrica. M. 15 lire. Modena.
Colorado Medicine. M. \$2. Metropolitan Bldg., Denver.
Correspondenz-Blatt für schweizer Aerzte. See Schweizerische medizinische Wochenschrift.
Crónica Médica. Semi-m. 15 francs. Lima, Peru.
Delaware State Medical Journal. Q. \$1. Wilmington.
Deutsche medizinische Wochenschrift. W. \$6. Leipzig.
Deutsche Zeitschrift für Chirurgie. Irregular. 60 marks. Leipzig.
Deutsches Archiv für klinische Medizin. M. 80 marks. Leipzig.
Dublin Journal of Medical Science. M. £1.5s.
Edinburgh Medical Journal. M. 40 shillings.
Encéphale. M. 70 francs. Paris.
Endocrinology: Bulletin of the Association for the Study of Internal Secretions. Bi-m. \$6. 1100-1103 Title Insurance Bldg., Los Angeles.
Finska Läkarsällskapets Handlingar. Bi-m. 60 Finnish marks. Helsingfors.
Gaceta Médica de Caracas. Semi-m. 24 bolívares. Caracas, Venezuela.
Gaceta Médica de México. Irregular. \$6. Mexico City.
Gann. Irregular. Tokio.
Glasgow Medical Journal. M. 30 shillings.
Grèce médicale. Semi-m. 12 francs. Athens.
Gynécologie et Obstétrique. M. 65 francs. Paris.
Hospitalstidende. W. 30 kroner. Copenhagen.
Hygiea. Semi-m. \$5. Stockholm.
Illinois Medical Journal. M. \$3. 155 N. Ridgeland Ave., Oak Park.
Indian Journal of Medical Research. Q. 10s. Calcutta.
Indian Journal of Medicine. Q. Rs. 6. Calcutta.
Indian Medical Gazette. M. Rs. 16. Calcutta.
International Journal of Psycho-Analysis. Q. \$6. London.
International Journal of Public Health. Bi-m. \$5. Geneva.
Jahrbuch für Kinderheilkunde und physische Erziehung. M. 40 marks. Berlin.
Japan Medical World (Nippon No Ikai). W. \$6. Tokio.
Journal of the American Medical Association. W. \$6. 535 N. Dearborn St., Chicago.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. * Cannot be loaned.

- Journal of the Arkansas Medical Society. M. \$2 Boyle Bldg., Little Rock, Ark.
- Journal of Bacteriology. Bi-m. \$5. Williams & Wilkins Company, Baltimore.
- Journal of Biological Chemistry. M. \$3. Williams and Wilkins Company, Baltimore.
- Journal of Cancer Research. Q. \$5. Williams & Wilkins Company, Baltimore.
- Journal de chirurgie. M. 85 francs. Paris.
- Journal of Experimental Medicine. M. \$5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
- Journal of the Florida Medical Association. M. \$1.50. P. O. Box 136, Jacksonville, Fla.
- Journal of General Physiology. Bi-m. \$5. Rockefeller Institute for Medical Research, 66th St., and Avenue A, New York.
- Journal of Immunology. Bi-m. \$5. Williams & Wilkins Company, Baltimore.
- Journal of the Indiana State Medical Association. M. \$3. 406 W. Berry St., Fort Wayne, Ind.
- Journal of Industrial Hygiene and Abstract of the Literature. M. \$6. Harvard University Press, Cambridge, Mass.
- Journal of Infectious Diseases. M. \$5. 637 S. Wood St., Chicago.
- Journal of Iowa State Medical Society. M. \$2.75. Des Moines.
- Journal of Kansas Medical Society. M. \$2. 303 Commerce Bldg., Topeka, Kan.
- Journal of Laboratory and Clinical Medicine. M. \$6. C. V. Mosby Company, St. Louis.
- Journal of Laryngology and Otology. M. 40 shillings. Edinburgh.
- Journal of Maine Medical Association. M. \$2. Portland, Maine.
- Journal of Medical Association of Georgia. M. \$3 Healy Bldg., Atlanta, Ga.
- Journal de médecine de Bordeaux. Semi-m. 20 francs.
- Journal of Medical Research. Bi-m. \$4. 240 Longwood Ave., Boston.
- Journal of Medical Society of New Jersey. M. \$2. 12 Cone St., Orange, N. J.
- Journal of Mental Science. Q. 20 shillings. London.
- Journal of Michigan State Medical Society. M. \$5. Powers' Theatre Bldg., Grand Rapids, Mich.
- Journal of Missouri State Medical Association. M. \$2. 3529 Pine St., St. Louis.
- Journal of Nervous and Mental Diseases. M. \$10. 64 W. 56th St., New York.
- Journal of Neurology and Psychopathology. Q. 30 shillings. Bristol, England.
- Journal of Oklahoma State Medical Association. M. \$4. Muskogee.
- Journal of Orthopaedic Surgery. M. \$5. 372 Marlborough St., Boston.
- Journal of Parasitology. Q. \$3. Urbana, Ill.
- Journal of Pathology and Bacteriology. Q. £2. Edinburgh.
- Journal of Pharmacology and Experimental Therapeutics. M. \$6. 2419 Greenmount Ave., Baltimore.
- Journal of the Philippine Islands Medical Association. Bi-m. \$5. Manila.
- Journal de radiologie et d'électrologie. M. 60 francs. Paris.
- Journal of South Carolina Medical Association. M. \$2. Greenville, S. C.
- Journal of State Medicine. M. 2 shillings. London.
- Journal of Tennessee State Medical Association. M. \$2. 327 Seventh Ave., Nashville, Tenn.
- Journal of Tropical Medicine and Hygiene. Semi-m. 30 shillings. London.
- Journal d'urologie médicale et chirurgicale. M. 45 francs. Paris.
- Journal of Urology. M. \$6. Williams & Wilkins Co., Baltimore.
- Kentucky Medical Journal. M. \$2. State and Twelfth Sts., Bowling Green, Ky.
- Kitasato Archives of Experimental Medicine. Twice a year. 60 cents. Tokio.
- Lancet. W. \$12. London.
- Laryngoscope. M. \$6. 3858 Westminster Place, St. Louis.
- Lyon chirurgial. M. 50 francs.
- Lyon médical. Semi-m. 25 francs.
- Médecine. M. 20 francs. Paris.
- Mededeelingen van den Burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië. Irregular. Price varies. Batavia, Java.
- Medical Journal of Australia. W. 6 d. Sydney.
- Medical Journal of the Siamese Red Cross. 5 ticals. Bangkok.
- Medical Journal of South Africa. M. £1.5. Johannesburg.
- Medical Record. W. \$5. W. Wood & Co., 51 Fifth Ave., New York.
- Medizinische Klinik. W. 200 marks. Berlin.
- Mental Hygiene. Q. \$2. National Committee for Mental Hygiene, 50 Union Square, New York City.
- Military Surgeon. M. \$4. Army Medical Museum, Washington, D. C.
- Minnesota Medicine. M. \$3. Lowry Bldg., St. Paul.
- *Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Irregular. Jena.
- Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität Kyushu. Irregular. Price varies. Fukuoka.
- Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität zu Tokyo. Irregular. Price varies. Tokio.
- *Monatsschrift für Geburtshilfe und Gynäkologie. M. 60 marks. Berlin.
- Monatsschrift für Kinderheilkunde. M. 180 marks. Leipzig.
- Monographies Oto-Rhino-Laryngologiques Internationales. Bi-m. 36 francs. Paris.
- Münchener medizinische Wochenschrift. W. \$6. Munich.
- National Medical Journal of China. Q. \$2.50.
- Nebraska State Medical Journal. M. \$2.50. 519 McCague Bldg., Omaha.
- Nederlandsch Tijdschrift voor Geneeskunde. W. 18 florins. Amsterdam.
- Neurological Bulletin. M. \$6. Paul B. Hoeber, 69 E. 59th St., New York.
- New Orleans Medical and Surgical Journal. M. \$2. 1551 Canal St., New Orleans.
- New York Medical Journal. Semi-m. \$6. A. R. Elliott Publishing Co., 66 W. Broadway, New York.
- New York State Journal of Medicine. M. \$2. 17 W. 43d St., New York.
- Norsk Magazin for Lægevidenskaben. M. \$5. Christiania.
- Northwest Medicine. M. \$2. Cobb Bldg., Seattle, Wash.
- Nourrisson. Bi-m. 24 francs. Paris.
- Ohio State Medical Journal. M. \$3. Physician's Bldg., Columbus.
- Paris médical. W. 35 francs.
- Pediatria. Semi-m. 40 lire. Naples.
- Pennsylvania Medical Journal. M. \$2. 212 N. Third St., Harrisburg.
- Philippine Journal of Science. M. \$5. Manila, P. I.
- Policlinico. W. 60 francs. Rome.
- Practitioner. M. \$6.50. London.
- Presse médicale. Semi-w. 55 francs. Paris.
- Progrès médical. W. 25 francs. Paris.
- Public Health Journal. M. \$2. York Publishing Co., 154 Bay St., Toronto.
- Quarterly Journal of Medicine. 25 shillings. London.
- Repertorio de Medicina y Cirugía. M. \$4. Bogota, Colombia.
- Revista de la Asociación Médica Argentina. M. 20 pesos. Buenos Aires.
- Revista Clínica. Q. \$1. Medellín.
- Revista Española de Medicina y Cirugía. M. 24 pesetas. Barcelona.
- Revista del Instituto Bacteriológico. Q. Buenos Aires.
- Revista Médica de Chile. M. Santiago.
- Revista Médica del Uruguay. M. 6 pesos. Montevideo.
- Revista de Medicina y Cirugía de la Habana. Semi-m. \$4.50. Habana.
- Revista Mexicana de Biología. Bi-m. \$4. Mexico City.
- Revista de la Universidad de Buenos Aires. M. \$5. Buenos Aires.
- Revue de chirurgie. M. 56 francs. Paris.
- Revue française de Gynécologie et d'Obstétrique. M. 30 francs. Paris.
- Revue de médecine. M. 48 francs. Paris.
- Revue médicale de la Suisse romande. M. 22 francs. Geneva.
- Revue neurologique. M. 55 francs. Paris.
- Rhode Island Medical Journal. M. \$2. 219 Waterman Street, Providence.
- Riforma medica. W. 90 lire. Naples.
- Rivista di clinica pediatrica. M. 50 lire. Florence.
- Rivista critica di clinica medica. W. 36 francs. Florence.
- Schweizer Archiv für Neurologie und Psychiatrie. Irregular. Price varies. Zurich.
- Schweizerische medizinische Wochenschrift. W. 17.20 francs per half year. Basel.
- Sei-I-Kwai Medical Journal. Q. \$2. Tokio.
- Semana Médica. W. \$5. Buenos Aires.
- Siglo Médico. W. 30 pesetas. Madrid.
- Social Hygiene. Q. \$3. American Social Hygiene Association, 105 W. 40th St., New York.
- South African Medical Record. Semi-m. 31 shillings 6 pence. P. O. Box 643, Capetown.
- Southern Medical Journal. M. \$3. 807 Empire Bldg., Birmingham, Ala.
- Surgery, Gynecology and Obstetrics with International Abstract of Surgery. M. \$12. Surgical Publishing Co., 30 N. Michigan Ave., Chicago.
- Svenska Läkaresällskapets Handlingar. Q. 24 kronor. Stockholm.
- Texas State Journal of Medicine. M. \$2.50. Texas State Bldg., Fort Worth.
- Therapeutische Halbmonatshefte. Semi-m. 64 marks. Berlin.
- Tohoku Journal of Experimental Medicine. Issued six times a year. 5 yen. Sendai.
- Tubercle. M. 25 shillings. London.
- Tumori. Irregular. 50 francs. Rome.
- Ugeskrift for Læger. W. 30 kroner. Copenhagen.
- United States Naval Medical Bulletin. Q. \$1. Washington, D. C.
- Upsala Läkareförenings Förhandlingar. Irregular. 10 kronor. Upsala.
- Veröffentlichungen der Robert Koch Stiftung zur Bekämpfung der Tuberculose. Irreg. Leipzig.
- Virginia Medical Monthly. M. \$2. Richmond.
- Washington Medical Annals. Bi-m. \$1. 2114 Eighteenth Street, N.W., Washington, D. C.
- West Virginia Medical Journal. M. \$3. Huntington, W. Va.
- Wiener Archiv für innere Medizin. Irregular. Price varies. Vienna.
- Wiener klinische Wochenschrift. W. 80 marks, with foreign postage. Vienna.
- Wisconsin Medical Journal. M. \$3.50. Wells Bldg., Milwaukee.
- *Zeitschrift für Geburtshilfe und Gynäkologie. Irregular. 30 marks, Stuttgart.
- Zeitschrift für Kinderheilkunde. Irregular. Price varies. Berlin.
- *Zeitschrift für klinische Medizin. Irregular. 36 marks per volume. Berlin.
- Zeitschrift für Tuberculose. Bi-m. Price varies. Leipzig.
- Zeitschrift für urologische Chirurgie. Irregular. Price varies. Berlin.
- Zentralblatt für Chirurgie. W. 100 marks per year. Leipzig.
- Zentralblatt für Gewerbehygiene und Unfallverhütung. M. 36 marks. Berlin.
- Zentralblatt für Gynäkologie. W. 100 marks per year. Leipzig.
- Zentralblatt für innere Medizin. W. 100 marks per year. Leipzig.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author follows the subject entry in brackets.

For author index see page 2193.

A

- ABDERHALDEN**, E., Bergelius medal awarded to, 1348 fund, 1667
- ABDERHALDEN REACTION** in rachitis, [Corica] 1291
- ABDOMEN**, acute diseases of, auscultatory sign in, [Aschner] 1917
- contusion with phlegmon 15 months later, [Lavenant] 1373
- diagnosis, importance of history in, [Daniel] 1448
- diagnosis, value of contraction method in, [Kohn] 1207
- fibroma in abdominal wall, [Klot] 1292
- gas cysts in, [Steindl] 499
- pain and throat infection, [Brennemann] 312—ab, 1762
- pain, auto-observation, [Brüning] 1774
- pain, food allergy cause of, 790—E, [Duke] 885, 1996—ab
- pain in children, [Peiper] 581
- pathology, indications in, [Gilberti] 158
- sensitivity of abdominal cavity, [Breslauer] 161
- surgery, how to avoid secondary laparotomies, [Dorsett] 149
- surgery, plea for routine examination on operating table as a preliminary to operation, [Keefe] 1204—ab
- surgery under roentgen control, [Drüner] 1215
- tuberculosis in infancy, [Mixer] 1841
- wounds, infected, treatment by closed method, [Watkins] *676
- wounds of thorax and, [Bryan] 406
- ABORTION**, evidence of performance of other abortions, 310—Ml
- febrile, [Bermann] 1056, [Offermann] 1933
- infected, treatment of, [Schottmüller] 500, [Heberer] 744
- legislation for suppression of, 1749
- murder or manslaughter in death from, 224—Ml
- physician allowed to refresh recollection from statement in abortion case, 1044—Ml
- septic endocarditis secondary to, [Colistro & Silva Ferrer] 326
- ABSCCESS**: See also under names of organs and regions
- ABSCCESS**, fixation, [Janowski] 1452
- fixation, in treatment of puerperal mania, [Gomez Calvo] 76
- perinephritic, simulating hip joint disease, [Sussini & Garrahan] 1786—ab
- retropharyngeal, [Frank] *517
- suppurative, [Kovács] 1059
- ACACIA**, fatality after infusion of, [Olivecrona] 1852
- ACADEMY** of Medicine, Paris, election of foreign correspondents of, 567
- of Ophthalmology and Oto-Laryngology, meeting of, 1829
- ACALCOLIA** and amusia, [Mingazzini] 1138
- ACAPNIA** theory, [Henderson & others] *424
- ACARAPHOBIA**, [Myerson] 151
- ACCIDENTS** in quarries, 1112
- ACETANILIDISM**, chronic, case of, [Shuman] *526, [Thomas] 723—C
- ACETONE**, excretion of, from lungs, [Briggs & Shaffer] 1765
- ACETONEMIA**, coma in, [Ponce de Léon] 1453
- ACETYLENE** poisoning, [Pontopiddan] 1778
- ACHU'CARRO**, memorial to, 295
- ACHYLIA GASTRICA**, diagnostic significance of leukocyte blood count for, [Weinberg] 1141
- in cholelithiasis, [Rydgaard] 238
- ACID**, balance between bases and acids of organisms, [Henderson] 1527
- Carbolic: See Phenol
- dinitrosalicylic, for estimation of sugar in urine, [Summer & Graham] 152
- fatty, and fats, rate of diffusion of, [Neill] 1763
- glycuronic, occurrence of, in blood, [Stepp & Diebschlag] 77
- hippuric, elimination of, in kidney disease, [Snapper] 1295
- hippuric, in urine, determination of, [Kingsbury & Swanson] 1283
- hydrochloric, in stomach contents, significance of absence of, [Wilkinson] 1210
- hydrochloric, dilute, not harmless, [McClure & Ellis] 890
- hydrochloric, disturbance of gastric secretion of, in affections of gallbladder, [Behm] 1610
- hydrochloric, effect of ingestion of, on urine, [Stehle & McCarty] 575
- Intoxication: See Acidosis
- lactic, test for minute quantities of sugar and, [Pittarelli] 75
- osmic, to promote healing of fractured bones, [Arnava] 75
- oxalic acid gout, [Loeper] 893
- phenylethionine, effect of, on kidney, [Myers & Killian] 1584
- Salicylic: See also Salicylates
- salicylic, is free salicylic acid liberated from salicylate in the circulation? 2064—E
- salicylic, liberation of free salicylic acid from salicylates, [Hanzlik] 153
- Uric: See Uric Acid
- ACIDEMIA** and acidosis, [Poggio] 896
- and alkalemia, 291—E
- ACIDOSIS** and acidemia, [Poggio] 896
- and anesthesia, [Jeanbrau & others], 652
- familial, 806
- fasting, [Labbe] 893
- in pregnancy, [Labbe & others] 234
- prevention of, in treatment of diabetes, [Ebert] 64—ab
- recent developments concerning alkalosis, and misuse of alkali therapy, 1657—E
- ACME** Brand Pennyroyal Pills, 879—P
- ACRIFLAVINE** in otitis externa, [Scal] *1102
- ACROCYANOSIS** or hypogenital hand, [Marañón] 1057
- ACRODYNIA**, case of, [Emerson] *285
- ACTINOMYCOSIS**, etiology and laboratory diagnosis of, [Sanford & Magath] 966—ab
- human, in Bukovina, 215
- of spine, [Rising] 658
- roentgen-ray treatment of, [Prikel] 1932
- ADDISON'S DISEASE**, pigmentation in, [Bittorf] 656
- with aplasia of suprarenals, [Schnyder] 895
- ADENTIS**, malignant inguinal, and kraurosis vulvae, [Reder] 1922
- ADENOIDS**, bacteriology of, 1975—E
- cause of rickets and, [Merrall] 1924
- diphtheria bacilli and diphtheroids of tonsil and, [Pilot] 317
- hemolytic streptococci of, [Pilot & Pearlman] 317
- in nurslings, [Hallez] 1211
- influenza bacilli of tonsils and, [Pilot & Pearlman] 317
- physiologic significance of adenoid tissue, [Fleischmann] 1456
- pneumococci and nonhemolytic streptococci of tonsils and, [Pilot & Pearlman] 317
- relations between pituitary and, [Poppi] 737
- ADENOMA** of bile ducts, [Greig] 1286
- ADENOMYOMA** of fallopian tube, [Mahle] 319
- ADENOMYOMETRITIS**, [Strong] 149
- ADHESIONS**, abdominal, [Naegeli] 824
- abdominal, silver foil in prevention of, [Puls] 734
- use of sigmoid flexure and cecum in pelvic peritonization, [Culbertson] *772
- ADIPOSIS** dolorosa and pituitary, [Lopez Albo] 76
- ADRENALIN**: See Epinephrin
- ADRENALS**: See Suprarenals
- ADSTUKI** bean, nutritive value of, [Johns & Finks] 66
- ADVERTISING** of medicinal articles in Jugoslavia, 133
- prison term for exaggerated advertising of nostrum in France, 950
- rulings on questions as to physician advertising, 1761—Ml
- slogan that contravenes the aphorism of moderation, (Eatmore campaigns) 1109—E
- valid law against advertising of medical business, 810—Ml
- AEQUUM**, [Pirquet] 1377
- AEROPHAGIA**, and ulcer, [Full & v. Friedrich] 1851
- blocked, [Ramond & others] 494
- AGED**: See Old Age
- AGGLUTINATION**, macroscopic agglutination method in capillary tubes, [Gates] *2054
- AIR** service officer receives commendation, 1192
- ALABAMA** state board, July examination, 960
- ALASKA** hospital to be retained by government, 2069
- ALBERTA** Medical Association, 1347
- ALBERT'S** diphtheria bacillus stain, 1838
- ALBUMEN** in blood serum in children, [Mensi] 895
- ALBUMINURIA**, blood pressure in eclampsia and, of pregnancy, [Balard] 975
- orthostatic, explanation of, 127—E
- significance of, 2122—E
- toxic, of pregnancy, [Gibson] 69
- ALBUMOSEMIA**, [Wolff] 2004
- ALCOHOL**, effects of, on digestion, [Haneberg] 2100
- nature of alcoholic fermentation, [Warden] 1763
- prescribing of, [Tufts] 638—C
- prescribing of, in prohibition Norway, 93—ab
- ALCOHOL**, pulse pressure findings after ingestion of, [Engelen] 1060
- questionnaire on, as a therapeutic agent, 1820—E, 1896—E, 1974—E, 2075
- ratio between deaths from traumatic fracture of cranial bones and from alcohol, [Hatton] *2109
- referendum on use of alcohol in practice of medicine, 2075, 2136
- test breakfast, [Lanz] 160, [Sanfilippo] 976, 1364—ab
- use of, at first aid stations, dispensaries, infirmaries, and clinics, and by Visiting Nurses' Association, 714
- visual disturbance from abuse of tobacco or, [Terson] 73
- Wood: See Methyl Alcohol
- ALCOHOLISM**, administration of anesthetic to alcoholic patient, 63—Ml
- and heredity, 1343—E
- and mental depression, [Janet] *1462
- influence of, of mother on offspring, 214
- ALCRESTA LOTION**, 1441
- ALIENISTS**, service of, not chargeable to incompetent, 811—Ml
- ALIMENTARY TRACT**: See Gastro-Intestinal Tract
- ALKALEMIA** and acidemia, 291—E
- ALKALOSIS**, recent developments concerning acidosis and, and misuse of alkali therapy, 1657—E
- ALKAPTONURIA**, metabolism study in, [Gibson & Howard] 1918
- ALLAN'S** Star Brand Pills, 393—P
- ALLERGY**: See Anaphylaxis; Immunity
- ALLIED** Medical Associations of America, 46—E
- ALOPECIA** areata and syphilis, relations between [Sabouraud] 894
- ALSAKER WAY**, 1909—P
- ALTITUDE**, effect of, on human life, 1902
- high, and tuberculosis, [Amrein] 1769
- record, latest, 1342—E
- AMAUROSIS**, posthemorrhagic, [Terrien] 1527
- quin, [Rathery & Cambessédes] 892
- AMBER**, artificial, manufacture of, and acute dermatitis, [Sachs] 1216
- AMBULANCE**, town without authority to operate ambulance and not liable for injuries, 572—Ml
- AMEBA** in relation to gastric and duodenal ulcer, [Birt] 1142
- AMEBIASIS**: See also Dysentery, Amebic
- AMEBIASIS**, intestinal, atypical forms of, [Paranhos & Reis] 1454
- AMENORRHEA**, war, in Petrograd, [v. Lingen] 2010
- AMERICAN** Academy of Ophthalmology and Oto-Laryngology, meeting of, 795, 1112, 1503
- Academy of Ophthalmology and Oto-Laryngology, postgraduate course of, [Keiper] 1593—C
- Association of Obstetricians, Gynecologists and Abdominal Surgeons, meeting of, 473
- Association of Railway Surgeons, meeting of, 1504
- Chemical Society, meeting of, 473

- AMERICAN Child Hygiene Association, meeting of, 1431
College of Surgeons, congress of, 1347, 1504
Commission for Relief in Belgium and the Rockefeller Foundation, 137
Conference on Hospital Service, 870, 1029
Dietetic Association, 1264
Electrotherapeutic Association and New York Electrotherapeutic Association hold joint meeting, 1503
Electrotherapeutic Association, meeting of, 132, 714
Gastro-Enterological Association, officers of, 630
Gynecological Society, officers of, 132
Hospital Association, annual meeting of, 1029
Legion adopts resolution on Public Health Service reserve, 1748
Legion promulgates resolution on hospitalization, 210
AMERICAN MEDICAL ASSOCIATION, commission on anesthesia, 1741
conference of secretaries of constituent state associations, 1661—E
cooperation between constituent and component branches of, [Craig] 1824
cooperation in legislation, [Green] 1825
cooperation with state associations, 1742, [Colwell] 1825
from a Netherlands point of view, [Stekhoven] 2100
Gorgas memorial, 1742
Harrison law ruling unjust, 1741
Life Extension Institute not endorsed by 1742
Maine Medical Association's plan for coordinating health activities in the state association, [Bryant] 1976
meeting of Board of Trustees, 1741
of Vienna, 875, 1192
past, present and future policies of, [Billings] 1742
pay clinics discussed by board, 1741
report of special committee on department of public welfare, 206
St. Louis session, dates announced for, 292
St. Louis session, hotel headquarters for scientific sections, 1824
St. Louis session, organization of local committee of arrangements, 1260
Section on Diseases of Children, [Neff] *331
standards of Council on Medical Education and Hospitals of, 541
symposium on cooperation between constituent and component branches and, 1743, 1824, 1896
AMERICAN Pharmaceutical Association awards research grant fund, 1504
Pharmaceutical Association grant for research, 385
Pharmaceutical Association, meeting of, 949
Public Health Association, meeting of, 132, 1191
Red Cross: See Red Cross, American
Roentgen-Ray Society appoints committee of safety, 385
Roentgen-Ray Society, meeting of, 630
Society for Control of Cancer, admitted to National Health Council, 948
AMIDOPYRINE, 41
AMINO-ACID content of feeds, [Nevens & Grindley] 1765
in urine, [Mestrezat] 1527
AMMONIACAL diaper, [Cooke] 1762, [Hart] 1764
AMMONIUM sulphate and ammonium nitrate cause explosion at Oppau, 1432
AMNIOTIC FLUID, agenesis of both kidneys in fetus with absence of, [Hurzeler] 330
AMPULLA of Vater, cancer of, [Lewis] 70
AMPUTATION, cineplastic, [Platau] 980, [Bosch Arana] 1849
stumps, pegs in, [Fränkel] 1932
AMUSIA and inability to do calculations, [Mingazzini] 1138
AMYL ACETATE, toxicity of, 1990
AMYLZYME, 1891
AMYOTROPHY or myatonla, [Leenhardt & Sentis] 322
ANAEROBIC bacteria in infant's intestine, studies of, [Porter] 312—ab
ANALGESIA: See Anesthesia
ANAMNESIS, [de Quirós] 580
ANAPHYLAXIS: See also Immunity
ANAPHYLAXIS, [Doerr] 1772
alkali reserve during anaphylactic shock, [Eggstein] 645
and migraine, [Lubbers] 1778
antianaphylaxis, 1905
food allergy and abdominal pain, 790—E, [Duke] 885, 1996—ab
intestinal and hepatic reactions in, [Manwaring] *849
nystagmus in, [Pentimalli] 580
present views on, [Bordet] 814
protein hypersensitiveness and its importance in etiology of disease, [Longcope] *1535
skin test for, [Le Noir & others] 1770
therapeutic antianaphylaxis, [Valéry-Radot & others] 1451
to breast milk, [Sztark] 1372
to food proteins in breast-fed infants and its probable relation to certain diseases of nursing infant, especially exudative diathesis, [Shannon] 964—ab
treatment based on anaphylactic shock applied in gynecology, [Bouché & Hustin] 1052
treatment of, [De Vasconcellos] 497
ANATOMY, early work on, in Finland, [Tigerstedt] 164
ANEMIA, alimentary, [Brinchmann] 1377
aplastic, [Gorke] 413
aplastic, and arsenphenamin stomatitis, [Moore & Keidel] 731
aplastic, pernicious, in child, [Lasnier] 1453
bile pigments in urine and stool in, [Canelli] 654
hemorrhagic, value of inorganic iron in, [Musser] 1918
in young children, [Weill & Dufourt] 233
iron, and blood regeneration, 379—E
pernicious, [Levine & Ladd] 814
pernicious, and intestinal stricture, [Meulengracht] 242, 1931
pernicious, sensory changes in, [Ashby] 732
pernicious, diagnosis of, [Schneider] 69
pernicious, digestive tract in, [Biffis] 739
pernicious, hypertrophy of pylorus with, [Mayeda] 1053
pernicious, in child, [Condat] 2004
pernicious, repeated small injections of blood in, [Waag] 500
pernicious, sensory channels in, [Hamilton & Nixon] 229
pernicious, significance of blood findings for course of, [Flater] 1692
pernicious, transfusion of blood in, [Muller & Jervell] 242, [Bon] 502
pernicious, treatment of, [Hurwitz] 573
pernicious, with gastro-intestinal pathology, [Maynard & Sturton] 1767
phagocytic, and trinitrotoluene poisoning, 809
posterolateral sclerosis in, [Wilson & McIver] 2092
rare form of, [Knoll] 414
sclerosis of spinal cord and, [Cadwalader] 816
secondary, blood reaction in, [Evans] 404
secretin in, [Downs & Eddy] 2147
splenic, and jaundice, [Pallin] 1614
splenic, in children, [Canelli] 1452, 1773
splenic, splenectomy in, [Mayo] *34, [Sweetzer] 1523
ANESTHESIA, action of anesthetics on liver, 52
administration of anesthetic to alcoholic patient, 63—M1
and acidosis, [Jeanbrau & others] 652
anesthetic units of measurement, [Miller] *433
automatic gravity anesthetizer, [Soresi] 318
blocking, splanchnic nerves, 1928, [Pauchet & Laborde] 2152
blocking splanchnic nerves by Braun method, [Buhre] 501
ANESTHESIA, chloroform, irritation of gastro-intestinal mucosa from, [Komoda] 160
current progress in science and practice of, [Gwathmey] *421
danger in similarity of ether and chloroform containers, [Flagg] 1121—C
ether, intravenous ether narcosis, [Momburg] 2153
ethyl chlorid, fatality from, [Jaeger] 1378
general, defensive ferments in blood under general anesthesia and certain intoxications, [Grönberg] 2011
general, ethyl chlorid in, and its action on cardiovascular system; a classification of signs of overdose [Guedel] *427
general injury of liver during, [Balkhausen] 898
general, local and lumbar, delimitation of, 301
how anesthesia may aid and protect surgery, [McKeesson] *430
in genito-urinary surgery, 1831
in nose and throat work, [Mayer & others] *1337, [Cahn & Lévy] 1753—C, [Mayer] 1836—C
intercardiac injections of epinephrin in cardiac standstill occurring during anesthesia, [Frenzel] 741
intericoid-thyroid general anesthesia, [Rosenthal] 1212
intravenous alcohol anesthesia, [Nakagawa] 237
local, limitations of, [Braun] 1214
local, new syringe for, [Dunn] *2055
local, prevention of cocaine intoxication by ethyl alcohol in surgery, [Herzfeld] 1594—C
local, report of committee on, in ophthalmic work, [Bulson & others] *1730
magnesium sulphate solution as aid in, [Curtis] *1492
paracetal, experience with, [Staffel] 415
report of Ohio committee on, [Jennings] 59
resuscitation after, [Moss] 1210
spinal, [Mériel & Lefebvre] 892
spinal, in obstetrics, gynecology and abdominal surgery, [Huggins] 1204—ab
spinal, psychosis after, [Bianchi] 2006
spinal, treatment of syncope at, [Bloch & Hertz] 653
transverse section anesthesia for operations on limbs, [Sievers] 581
ANEURYSM, aortic, surgical treatment of, [Delorme] 157
aortic, dissecting, report of cases and review of the literature, [Crowell] *2114
arteriovenous, pulse sign of, [Dobrovolskaia] 652
arteriovenous, treatment of, report of 10 cases, [Connors] *118
Colt's apparatus for treatment of, [Power] 648
general statistical data on, [Lucke & Rea] *935
inguinal, [Bonfanti] 75
intracranial, of carotid, [Moller] 164
multiple, in child, [Kennan] 1686
of abdominal aorta, [Kaufmann] 1378
of abdominal aorta, partial ligation for, [Vaughan] 1368
of femoral artery, [MacLaren] 1368
of hand, 929—ab
of hepatic artery, [Weiss] 730
of vertebral arteries, [Morrow] 1920
ANGINA PECTORIS, subdiaphragmatic, [Neugebauer] 1376
pectoris, surgical treatment of, [Jonnescio] 892, 2094
ANGIOMA, cavernous, extensive, [Blumer] 489
racemose, arterial, [Schwartz] 1058
ANGIOSPASM, influence of labor pains on, [Hinselmann] 1456
ANILIN methyl violet, 1838
poisoning of infants with anilin, naphthallin, etc., [Neuland] 1215
ANKLE fractures, results of [Lane] 1450
tuberculosis in adult, treatment of, [Gaenslen & Schneider] *1168
ANKYLOSTOMIASIS: See Uncinariasis
ANOPHELES, biology of, [Grassl] 1213
ANTHELMINTICS, composition and therapeutic value of, [Calus & Mhaskar] 1209
ANTHRAX and disinfection of horsehair, 388
cutaneous, local and general serum treatment of, [Regan] *1944
from shaving brushes, 1585, [Symmers & Cady] *2120
human, cause of, [Peacock & Duke] 891
in children, [Lasala] 1055
normal beef serum in, [Kraus & Beltrami] 1608
problem, 1831
treatment of, [Regan] 1366
ANTHROPOLOGY and prisons, 389
international institute of, 950
ANTIAPHYLAXIS: See Anaphylaxis
ANTIBODIES, do different immunologic reactions depend on one or several antibodies, 1892—E
resistance of, to tryptic digestion, [Huntton & others] 880—C
what is an antibody? 205—E
ANTIFEBRIL, 722—P
ANTIFREEZING mixtures for automobiles, 1756, 1912
ANTILAIETUSE, 880—P
ANTIMENINGOCOCCUS Serum: See under Meningococcus
ANTINARCOTIC laws, states may enact, 963—M1
ANTI-PNEUMONIA, 218—P
ANTIPIRETIC drug action and blood content, [Barbour & Herrmann] 1634, 1892—E
sensitization and desensitization to, [Labbé & Hagenau] 1526
ANTISCORBUTICS: See Scurvy
ANTISEPTICS, chlorin, toxic effects of, [Barbour & Hjort] 1684
ANTITETANUS Serum: See Tetanus
ANTITOXIN: See Diphtheria Antitoxin
ANTITOXIN, Tetanus: See Tetanus Antitoxin
ANTONI, prize for, 1903
ANTRUM, cancer of, radium therapy in, [Blaisdell] 1842
radical antrum operations, and damage that may be done to nerve and blood supply of teeth, [Myers] 2081—C
ANURIA from calculus, [André & Grandineau] 652
reflex, [Pfaumer] 656, [Stäheli] 1292
ANUS, artificial, protecting apron for, [Hartert] 1378
artificial, skin tube to shut off, [Unger & Schwabe] 328
atresia of rectum and, congenital, [Vetri] 1291
fissures, etiology of, in women, [Kossmann] 2100
AORTA, abdominal, terminals of, [Maurer & Portes] 651
changes in syphilis, 1269
clamp in postpartum hemorrhages, [Lörincz] 1059
modification of Sehr's aorta clamp and its use in postpartum hemorrhage, [Becker] 1059
thoracic, total stenosis of, [Follet & Caille] 407
APHASIA, ataxic, reeducation in cases of, [Froment] 1771
from epidemic encephalitis, [Kindberg & LeLong] 2151
posttyphoid, [Bonaba] 1930
APOCYNUM and convallaria, clinical studies of "digitalis series," [Marvin & White] *1865
APOPLEXY: See Brain, Hemorrhage
APPARATUS: See also Instruments
APPARATUS, adjustable, multiple cover glass and slide holder, [Wagoner] *1423
electric headlight with 2 periscopes, [Reaves] *1653
for diagnostic or therapeutic punctures, [Morris] *286
for measuring depth of respiration in infants, [Pacchioni] 739
for quantitative test for vagotonia, [Kahn] *1573
new blood counting pipet holder, [Moody] *941
to aid in differentiation between obstruction in urinary outlet and paralysis of bladder, [Walker] *286
APPENDICITIS, acute, best incision in, [Ballance] 1208
acute, significance of vaginal secretion in differential diagnosis of acute salpingitis and, [Wolfring] 1777

- APPENDICITIS and cholecystitis, [Stineer] 2096
and focal infection, [Rosenow] 319
chronic, [Avilés] 647
chronic, muscle sign of, [Wolkowitsch] 240
chronic, nervous, [Scheltema] 502
experimental, [Behan] 1917
hematemesis and melena in, [Bassler] *28
Lanz point in, [Mertens] 1294
mesenteric lymphadenitis simulating, [Struthers] 817
nonperforative, causing peritonitis, [McWhorter] 887
suppurative, [Barton & Sherwood] 64—ab
testicular pain in, [Cope] 2002
APPENDIX, calculus of, [Packard] 2089
cancer of, [Perret] 1132
concretions, composition of, [Maver & Wells] 1047
hernia of, with foreign body perforation of hernial sac, [Langley] *706
in Filipinos, [Garcia & Solloza] 1685
in hernial sac, [Niedlich] 77
neuroma in, [Masson] 652
nondescent of cecum and, [Gardner] *1652
sarcoma of, primary, [Goldstein] 730
APPETITE curve in infants, [Panzer] 163
AQUEOUS HUMOR, quantitative determination of cocaine and atrophin absorption by, [Post] *1323
ARBUTIN in bacteriology, [Gosio] 1927
ARCUATE FIBERS, anatomy of, [Winkler] 819
ARGENTINE Medical Association, 137
medicine of, as seen by a French professor, 2071
ARGYN, 287
ARGYRIA from argyrol, [Goldstein] 1514—C
ARGYROL, argyria from, [Goldstein] 1514—C
ARIZONA, opportunity for passing vital statistics law, 945—E
state board April examination, 143
ARKANSAS Eclectic board May examination, 1359
state board May examination, 395
ARM: See also Extremities
ARM, efforts should be used to save injured leg or, 1044—M
genesis of arm paralysis in newborn infant, [Weil] 1934
pains in, in spinal tuberculosis, [Marechal] 157
pulmonary tuberculosis causing pain in, [Moren] 971
reaction time in fingers and, [Rolder] 80
ARMY contracts, board to pass on, 2070
health of, 97
medical establishments, consolidation of, 1349
Medical School, course at, 1506
ARNETH'S leukocyte count and Döhle's inclusion bodies in tuberculosis, [Tomimaga] 1845
AROMATICS, sedative properties of, [Macht & Ting] 2090
ARRHYTHMIA, myogenous, [Herzog] 655
quinidin in: See under Quinidin
terminal, [Dieuaide & Davidson] 1918
with myocardial degeneration, [Davidson & Butterfield] 406
ARSENIC, chemotherapy of arsenicals, [Myers] 1684
daily injection of an arsenical, [Minot] 2096
dermatitis exfoliativa following injections of, [Whiteside] 154
erythroderma due to arsenicals, [Gougerot] 1925
influence of arsenic preparations on skin tests, [Strickler] 731
poisoning, chronic, [Elzas] 241, [Stockman] 816
reactions following arsenical treatment of syphilis, [Moore & Keidel] 151
ARSPHENAMIN, [Cortelezzi] 1375
administration, modification of gravity method of, [Gill] *464
air pressure method of administration, [Burke] *2057
American and German, 142
arsenoxid in, [Pomaret] 1606
ARSPHENAMIN, eruptions, [Buschke & Freymann] 1215
fatality, [Glaser] 1142, [Susslg] 1691
prophylaxis of shock on injection of, [Sicard & others] 324, [Chenisse] 579, [Milian] 1053
shock, 634, [Jeanselme & Pomaret] 974
silver, in syphilis, study based on 4,290 injections, [Parounagian] *1706
silver, therapeutic action of, [Fordyce] 1997
sodium, value of, [Michelson & Siperstein] 731
intramuscular administration of, [Voegtlin & others] 153
stomatitis and aplastic anemia, [Moore & Keidel] 731
ARSPHENAMINIZED serum treatment in neurosyphilis, [Samovici] 1375
ART as a solace in the ward, 388
medical subjects in, [Gills] 330
ARTERIO-SCLEROSIS, 1669
abdominal, [Fernández Martínez] 1847
manifestations of, in eye, [Fuchs] 236
of vessels of skin, [Watanabe] 1212
ARTERITIS, acute, complicating pneumonia, [Head] 1045
of unknown origin, Harbitz] 1457
ARTERY, brachial, suturing blood vessels with report of sutured brachial artery, [Horsley] *117
carotid, suture of, [Sloan] 319, [Lenormant] 410
consequence of ligation of, [Wieting] 898
meningeal, middle, trephining for rupture of, [Brunner] 2097
middle meningeal, extradural hematoma from lesion of, [Cosentino] 1607
obliteration of, treatment of, [Leriche & Policard] 820
pulmonary, primary thrombosis of, [Billings] 2092
radial, anomalies of, [Villar & Baerchau] 819
smaller arteries, "deleveling test" of, [Richard] 973
spontaneous rhythm of arteries, [Full] 1934
ARTHRITIS: See also Gout; Rheumatism
ARTHRITIS, chemical and clinical studies with salicylates, and cinchopen and neocinchopen in, [Chace & others] *1230
chronic, special treatment of, [Coon] 2000
contracture in, [Jansen] 2149
deformans of syphilitic origin, [Finck] 323
deformans, operative treatment of, [Lejars] 323
deformans, treatment of, [Wasink] 502
diet in, [Pemberton] 643
due to overstrain, [Miel] 732
fever with, [Rost] 78
focal infections in genital organs as cause of, [Cunningham] 69
gonorrheal, observations on cast treatment of, [Collings] *1789
hypertrophic, not due to static strain, [Patek] 575
in scarlet fever, [Van Amstal] 825
infective, and allied conditions, [Willcox] 155
intravenous use of foreign proteins in, [Snyder & Ramirez] 489, [Waggoner] 1049
maximum fat feeding in, [Wright & Hubbard] 2000
nonspecific protein therapy in, [Cowie] 2000
ARTHRODESIS by implantation of strip of bone close to joint in tuberculosis of hip joint, [Kaplan] 1059
of sacro-iliac joint, [Smith-Petersen] 970
ARTHROPLASTY, [Putti] 1369
of elbow, free fascia transplants in, [MacAusland] 1285
of knee, [Campbell] 1370
some principles of, [Baldwin] *1860
ARTHUR'S Emmenagogue Pills, 304—P
Sextone Tablets, 303—P
ASCARIDS, Jacksonian epilepsy from, [Sironi] 236
severe disturbances from, [Schloessmann] 1851
ASPERGILLOSIS of lungs, [Lapenta] 2148
ASPIRIN: See Acid, Acetylsalicylic
ASPIRONAL, 481—P
ASSOCIATION for Research on Treatment of Nervous and Mental Diseases, 386
of American Medical Colleges, 556
ASTHENIAS, [Martínez] 822
ASTHMA, [Bezancon & de Jong] 234, [Lyon] 1606
bronchial, caused by sporothrix, [Stansfield] 2089
bronchial, endobronchial treatment of, [Gottlieb] 1207
bronchial, pathology of, [Kamachorn & Ellis] 643
bronchial, protein sensitization in, [Ramirez] 1207
bronchoscopy and silver nitrate in, [Syme] 1371
from idiosyncrasy to potato, [Roch & Schiff] 495
horse, treatment of, [Vallery-Radot & Huguonau] 1526
protein hypersensitivity and its importance in etiology of disease, [Longcope] *1535
relations between pulmonary tuberculosis and, [Lueg] 1934
treatment of attack of, [Hurst] 156
tuberculin treatment of hay-fever and, [Van Leeuwen & Verekamp] 1778
vaccine therapy in, [Rogers] 576, [Wickett & others] 971
ATAxia, hereditary, [Bergman] 1457
hereditary, sensibility in Friedrich's disease, [Sundberg] 1614
hereditary, transitional forms of, [Taddei] 497
in tabes, curable form of, [Guilain] 578
Locomotor: See Tabes Dorsalis
ATHLETICS, games for girls, 1668
physiologic findings in connection with sport activities, 1907
ATHREPSIA, diagnosis and treatment of hypothyrepsia and, [Marfan] 1450
in infants, 1736—E
pathogenesis of, [Marfan] 495
ATLAS, fracture of [Forbes] 1602
ATROPHY, in infants, blood sugar in, [Guy] 1769
infantile, metabolism in, 205—E
muscular, genesis of, 1895—E
myopathic muscular, in negro, [Corson] 1287
ATROPIN, action of, on stomach, [Hecht] 656
quantitative determination of cocaine and atropin absorption by aqueous humor, [Post] *1323
reaction of pylorus to, [Otvös] 77
specific action of, in relieving irregularities of heart beat, [Bishop] *31
AUDITORY hallucinations, [Price] 646
AURICULAR Fibrillation: See under Heart
AUSTRALIA, tuberculosis and emigration to, 1350
AUSTRIA, child welfare work in, 1667
North American aid for children in, [Navarro] 1056
AUTOINTOXICATION of gastrointestinal origin, [Risquez] 1374
AUTOMOBILE accidents, deaths from, in 1920, 1579—E
antifreezing mixtures, 1756, 1912
AUTOPLASMOETHERAPY, desensitizing, [Flandin & Tzanek] 1605
AUTOPSY: See Necropsies
AUTOSEROTHERAPY: See Sero-therapy
AVIATION accidents, causes of, [Palthe] 744
congress, international, 1829
latest altitude record, 1342—E
tests of candidates for, [Milano] 1056
AXILLA in diagnosis of pulmonary disease, [Mouriquand] 72

B
BACILLUS, acid-resisting, [Vaudremer] 234
aerogenes capsulatus, changes in uterus due to, [Marx] 502
colombensis, [Jacono] 1452
colon bacillus and kidney stones, [Cyranka] 1774
colon bacillus prostatitis, [Suter] 1138
BACILLUS, colon bacillus septicemia, [Popel] 70
colon, onychia due to, [Hollander] 1129
enteritidis, report of food infection from, [Rosenau & Weiss] *1948
Morgan's, infection with, [Besson & De Lavergne] 324
Pfeiffer: See Influenza Bacilli
Sedwicki found in peculiar pustular conditions, [Rush] 1921
BACK, pains in, [Lindstedt] 744
BACKACHE, syphilitic, [Klander] 150
BACKWARDNESS: See Feeble-mindedness
BACTERIA, adaptability of, to opsonins, [Gulino] 976
antigenic properties of acetone extracted bacteria [Douglas & Fleming] 404
counting of blood cells and, a precise and simple method without a special chamber, [Dreyer] *1166
do bacteria suffer from infectious diseases, 126—E
elective localization of, in muscle, 1498—E
food accessory factors in bacterial growth, further observations on substances necessary for growth of Pfeiffer's bacillus, [Davis] *683
Influence of dust on growth of, [Cluver & Mavrogordato] 1687
pleomorphism among, 1184—E
polymorphism among, [Ritter] 1514—C
vitamin requirements of yeast and, [Funk & Dubin] 1765
BACTERIOLOGY, endowment of chair of, at Leeds University, 1583
practical course in, 719
BACTERIOPHAGUM conferring immunity, [D'Herelle] 324
BAHIA, Medical Society of, 474
BALANTIDIUM coliditis, [Steen] 164
BANDL'S RING, moving upward of, [Lange-Nielson] 826
BANTI'S DISEASE: See Anemia, Splenic
BARBITAL poisoning, case of, [Littell] *1333
BARCELONA Academy of Medicine, anniversary of foundation of, 950
BARKER'S leg sign of pyramidal disease, [Angela] 412
BARTH festschrift, [Schmidte & Lampe] 1775
BASEDOW'S DISEASE: See Goiter, Exophthalmie
"BASIC Cancer Research" and "Cosmopolitan Cancer Research Society," 805—P, 1672—P
BATHS, hot, as test of constitution, [Meyerstein] 2007
of hot sand in parametric exudates and in pyosalpinx, [Aschenmach] 826
BEAUNIS, Henri, death of, 952
BEE sting, death from, [Hansen] 1613
BEEBE Modified Buttermilk, 863
Protein Milk, 863
BEER, congress prohibits prescription of, 627—E
limit on beer prescriptions set, 1666
medicinal, regulations on, 1504
Mellon issues regulations on, 1425—E, [Herz] 1594—C, [Ravle] 1594—C, [Davis] 1673—C, [Cracraft] 1673—C, [Moser] 1755—C, [Asche] 1836—C
prescribing wine and—Senate adopts conference report on, 1739—E
prohibition commissioner to issue beer regulations, 473
Willis-Campbell antibeer bill delayed, 385, 630, 1748
Willis-Robinson bill amending Volstead act passed by House, 1739—E
BEETS, poisonous milk from cows fed on, 1510
v. BEHRING Institute for Experimental Therapy, 955
BELGIAN penitentiary system, reforms in, 301
relief for Russian refugees, 477
Sanitary Mission in Poland, 1509
tuberculous soldiers, increase of pension for, 477
war wounded, supplemental indemnity for, 477

- BELLADONNA** poisoning from eating rabbit, [Bentley] 1768
preparations, standardization of, [Van Leeuwen & Maal] 744
- BENZOATE**, effect of, on liver function, [Delprat & Whipple] 2147
- BENZYL benzoate**, 723
benzoate, effect of, on leucocytes, [Emge & Jensen] 153
benzoate in high blood pressure, [Laubry & Mougeot] 157
esters, pharmacology of, [Nielsen & Higgins] 2090
Succinate, 1023
Succinate-Seydel, 1183
- BERIBERI**, infantile, in Philippines, [Tupas] 1603
- BERLIN**, reorganization of public health administration in, 1985
- BERRIES**, liability of city corporation for poisoning from berries in a public park, 1982
- BETELNUT**, cancer of mouth from, [Ellis] 1204
- BEVAN** receives Legion of Honor medal, 1662
- BIBLIOPHILES**, medical, 133
- BICK'S** Daisy 99, 304—P
Sextone Pills, 304—P
- BIGELOW**, Henry Jacob, [Mayo] *597
- BILE** acids in duodenal juice, test for [Beth] 743
acids, urine tests for, [Müller] 1373
bacteria in, following splenectomy, 1823—E
ducts, adenoma of, [Grieg] 1286
ducts, cancer of hepatic and common bile ducts, [Pallin] 77
ducts, functions of gallbladder and, 1738—E
ducts, surgery of, and gallstones, [Riese] 1850
extract, nonsurgical drainage, its usefulness, diagnostically and therapeutically, [Smithies & others] *2036
peritonitis, [Neuber] 1690
pigments, passage of, into intestine with normal course arrested, [Brule & Spilliaert] 407
secretory pressure of, [Robitschek & Turolt] 500
spontaneous reflux of, into stomach, [Moppert] 158
stasis, [Rous & McMaster] 230
tract, course of biliary passages, [Pallin] 77
tract, nonsurgical drainage, diagnostic value of, [Friedenwald & Morrison] 1048
tract, report of case of hepato-duodenostomy, with observation on Lyon-Meltzer method of drainage, [Dunn & Connell] *1093
white, [Gossett & others] 235
- BILHARZIASIS**, [Quintini] 326
antimony and emetin in, [Cawston] 2093
antimony tartrate intravenously in, [Pavy] 1288
emetin treatment of, [Bonnet] 974
in Natal, prevalence and treatment, [Cawston] 58—C
- BILIRUBIN** colorimeter, [Meulengracht] 164, 1141
in blood in new-born, [Hellmuth] 499
in blood serum, [Van den Bergh] 235, [Thannhauser & Andersen] 1292
in cadaver bile and in duodenal juice, [Lepehner] 1141
- BILDA** shoulder sign of tuberculous meningitis, [Tronconi] 1529
- PIOLOGY**, recent progress in, [Gautrelet] 1526
second congress of, 2073
- BIRTHS** and birth rates in birth registration area, 2030—ab
control, legislation against, in France, 474
control, society for, 1904
rate, declining, 1830
rate, inquiry concerning, in department of the Nord, 135
trauma of new-born, from the standpoint of obstetrician, [Ehrnfest] *103
- BISMUTH** carbonate in oxyuriasis, [Hallez] 1212
- BLACK** damp, results of exposure to oxygen deficiency, 1440
- BLADDER**, anatomy and surgery of trigon, [Young & Wesson] 315
apparatus to aid in differentiation between an obstruction in urinary outlet and paralysis of bladder, [Walker] *286
calculi, giant, [Kummer & Brutsch] 1926
- BLADDER** calculi, postoperative fistulas in, [Eduque] 491
calculus, [Crenshaw] *1071
cancer, [Rochet] 652, [Smith] 2148
cancer, radium in, [Smith] 1922
cancer, squamous cell carcinoma of bladder, [Scholl] 1047, [Hinman & Gibson] 1999
contracted, [Frontz] 1446
cystin calculi in, [Mörner] 1614
disturbances from anteversion of uterus, [Oraison] 975
diverticula of, [Lower] 315
diverticulum with spina bifida, (urachus) and pyonephrosis, [Smith] 1996—ab
extrophy of, [Mugniéry] 1606, [Grant] 2086—ab
extrophy of, operative treatment of, [Roberts] 156
extrophy of, results of operative treatment, [Demel] 1294
incomplete evacuation of, in women, [Bazy] 651
interpretation of vesical symptoms in gynecologic diagnosis, [Keene] 400—ab
nontuberculous chronic vesiculitis, 1033
rupture, intraperitoneal, [Chattaway] 1525
sarcomatous, [Kraft] 825
septum in [Zinner] 501
surgical anatomy of ureters and, 2133
to insure extensive access to, [Boeminghaus] 1214
trigon in mammals, [Krasa & Paschke] 501
tumor, phantom, [Mayer] 79
tumors, [Egger] 2099
tumors, diagnosis and pathology of, [Bronner] 1128—ab
tumors, diathermy for, [Corbus] 1922
tumors, high frequency current in, [Pellecchia] 579
urinary, permeability of, 129—E
- BLASTOCYSTITS**, culture medium for, [Barret] 647
- BLASTOMYCEOID** bodies in sarcoma-like tumor of leg, [Weidman & Douglas] 150
- BLASTOMYCOSIS**, clinical pathology and therapeutics, [Davis] 965
of lung, [Howes & Morse] 1129
- BLEYER**, Willard Grosvenor, on standards in journalism, 1426—E
- BLIND** men as factory workers, 478
- BLIND SPOT**, relation of, to medullated nerve fibers in retina, [Gradle] *1483
- BLINDNESS**, causes of, [Harman] 1923
following prophylactic use of silver nitrate solution, 802
from wood alcohol poisoning, [Rostedt] 164
night, and malingering of night blindness, [Smith] *1001
report of committee on prevention of hereditary blindness, *2059
- BLOOD**, albumen content of, in children, [Mensi] 895
albumose in, determination of, [Wolff] 2004
alkali reserve of plasma during protein shock, [Eggstein] 230
alkali reserve, sugar concentration, and leukocytes of blood in experimental infections, [Hirsch] 317
ammonia content of, [Nash & Benedict] 1765
and antipyretic drug action, [Barbour & Hermann] 1684, 1892—E
Arnetz count, clinical significance of changes in, [Wollenberg] 1933
bilirubin in: See Bilirubin in blood calcium, [Szenes] 1294
calcium and phosphoric acid in, of normal child, [Jones & Nye] 575
calcium and phosphorus in rickets, 865—E
calcium in normal infants, [Jones] 2147
calcium in pregnant, [Mazzocco & Morón] 1929
calcium of different species, [Mazzocco] 1929
causes of variations in sedimentation of corpuscles and formation of crusta phlogistica ("Size," "Buffy coat") on blood, [Gram] 1204
cell counting, priority in, [Gray] 1682
cells and bacteria, counting of, a precise and simple method without a special chamber, [Dreyer] *1166
- BLOOD** cells, red, biologic import of sedimentation of erythrocytes, [Lagniez] 73
cells, red, fragility of erythrocytes, in infectious diseases, [Greenthal & O'Donnell] 729
cells, red, speed of sedimentation of erythrocytes in tuberculosis, [Westergren] 1739, [Frisch & Starlinger] 1932
cells, red, testing velocity of precipitation of erythrocytes as an aid in diagnosis, [Abderhalden] 1376
cells, red, protection of, against hemolysis, 484
cells, red, simple method of determining fragility of, [Fontaine] *1022
cells, red, suspension stability of erythrocytes in children, [Bardach] 2007
cells, resistance of, [Neilson & Wheelon] 231
cells, speed of sedimentation of, [Fabraeus] 80, [Leendertz] 1293
cells, toxic injury of, [Reicher] 325
chemistry, value of, in surgery, [Bailey] 2086—ab
chlorids, determination of, [Christoffersen] 1296
cholesterin content of, [Malerba] 654
cholesterin, effect of, on Wassermann test, [Craig & Williams] 968
cholesterin, hypercholesterinemia and albuminuric retinitis, [Gaudissart] 2005
circulation through lungs, study of, [Underhill] 1923
coagulation after roentgen exposures of spleen and liver, [Hütten] 979
coagulation, prevention of, [Van Herwerden] 1852
coagulation, theories of, [Bordet] 574
coagulation time, test for determining, 638, [Geers] 658, [Inchley] 1920
comparative simultaneous research on arterial, capillary and venous blood, [Hess] 1292
content and antipyretic drug action, [Barbour & Herrmann] 1684
count, diagnostic significance of leukocyte blood count for carcinoma and achylia gastrica, [Weinberg] 1141
counting pipet holder, new, [Moody] *941
diastases, source of, [Davis & Ross] 66
diseases in children, [Thursfield] 2149
distinguishing organisms in, [Cohen & Heist] 1603
extravasated, reabsorption of, [Albanese] 1138
fat, [Cowie & Hoag] *1493
fat in diabetes, [Blatherwick] 2147
glycolytic power of, [Koning] 1534
glyconic acid in, [Stepp & Diebschlag] 77
grouping, medicolegal application of, [Ottenberg] *682
hereditary qualities of, [Ottenberg] 1999
in fever, dissociation curve of, [Yamakita] 1612
inorganic elements in determination of, [Kramer & Tisdall] 1284
interchanges between blood and extravascular circulation, [Le Calvé] 894
iso-agglutination group percentages of Filipino bloods, [Cabrera & Wade] 1603
iso-agglutinins in, [Johannsen] 980
mineral waters and composition of, [Grigaut & others] 235
needle for collecting blood for serologic tests, [Petroff] *1495
nitrogen and cholesterol content of, in migraine, [Rémond & Rouzard] 325
nitrogen estimations in prostatic obstruction, [Vaughan & Morse] 1047
nitrogen, residual, in blood under influence of venesection, [Löwry & Mendl] 78
nonprotein nitrogen of, in arterial hypertension, [Williams] 151
nonprotein nitrogen of, in chronic nephritis, [Williams] 1520
oxalating, 2143
pathology of, [Lankhout] 1144
phosphorus and cancer, [Grobly] 160
- BLOOD**, physiology of, in infancy and children, [Lucas] *332
picture and vegetative nervous system, [Breuer] 1058
picture, clinical value of, [Schilling] 977
platelet origin, [Bedson] 1605
platelets from erythrocyte standpoint, [Schilsky] 1933
potassium content of, [Myers & Short] 1284
pressure, a layman's views, 1259—E
pressure and blood viscosity, 942—E
pressure, arterial pressure before onset of nephritis, [Kylin] 2100
pressure, arterial pressure in newborn, [Balard] 1450
pressure, automatic method for serial observation on, [Blankenhorn] *90
pressure, capillary pressure and glomerular filtration theory, [Hill & McQueen] 1845
pressure changes during abdominal operations, [McClannan] *107
pressure during sleep, [Müller] 2100
pressure, epinephrin may reduce, [Girou] 1926
pressure, high, and kidney arteries, 1669
pressure, high, and kidney disease, [Kylin] 1296
pressure, high, benzyl benzoate in, [Laubry & Mougeot] 157
pressure, high, daily variations of, [Kylin] 582
pressure, high, in nephritis, cause and treatment of, [Alder] 1053
pressure, high, nonprotein nitrogen of blood in, [Williams] 151
pressure, high, prognosis with, [Broca & Clément] 1688
pressure, high, reduced by "salt-free" diet, [Konikow & Smith] 1129
pressure, high, the past, the present and the future of patients with, [Vaquez & Leconte] 820
pressure, high, with minimal renal lesions, [Moschowitz] *1075
pressure in normal children, [Faber & James] 401
pressure in pulmonary tuberculosis, [Grant] 71
pressure, measure of, in sleeping subject, [Müller] 1296
pressure, research on arterial pressure, [Marrasini] 1452
pressure, unilateral alterations in, [Cyriax] 1050
puncture to obtain arterial blood, [Högler] 743
reciprocal relations between composition of blood and gastric juice, [Leist] 742
reducing substance in, and tumors, [Leyton & Leyton] 232
regeneration, anemia and iron, 379—E
regulation of fluidity of, [Doyon] 1527
smears, new stains for, [Grant & Wilson] 645
studies in new-born, [Dearing & Hoobler] 225—ab
sugar and basal metabolism, findings in chronic pulmonary tuberculosis and hyperthyroidism, [McBrayer] *861
sugar content of, estimation of, [Tervant] 2011, [Foyer] 2011
sugar content of, factors controlling, [Cambridge & others] 1604
sugar content of, regulation of, [Pollak] 1532
sugar, effect of antipneumatic ferment on, [Wago] 1846
sugar, free and the bound sugar in blood, [van Crefeld] 1612
sugar in atrophic infants, [Guy] 1769
sugar in diabetes, [Fitz & Bock] 1765
sugar in nephritis, [Bierry & others] 1053
sugar in, physiochemical state of, [Onohara] 889
sugar, influence of parathyroidectomy on, [Underhill & Nollans] 1766
sugar, regulation of, 466—E
sugar studies in dementia praecox, [Raphael & Parsons] 151
sugar, test for minute quantities of lactic acid and, [Pittarelli] 75

- BLOOD sugar tolerance at various ages, [Spence] 1050
test, court refuses to order a blood test, 2085—MI
therapy, desensitizing autoplasmotherapy, [Flandin & Tzanck] 1605
therapy, injection of blood in treatment of infants, [Barabás] 1144
transfusion, [Ravdin & Glenn] 644, [Morrison] 1128—ab
transfusion, arsenical-treated blood for transfusion, [Flandin & others] 1925
transfusion, damages claimed by donor of blood in case of, 1588
transfusion, deleterious effect of sodium citrate in, [Unger] *2107
transfusion, experiences with own blood transfusion in extra-uterine pregnancy, [Schweitzer] 741
transfusion in children, [Brown & Simpson] 1447
transfusion in infants with malnutrition, [Burk & Fischer] 1601
transfusion of citrated blood, [Jervell] 2012
transfusion, technic for vein-to-vein transfusion, [Ochlecker] 1531
transfusion, use of students for, 1193
transfusion, whole blood transfusion and citrated blood transfusion, possible differentiation of cases, [Bernheim] *275
urea and residual nitrogen in kidney disease, [Aiello] 1773
uric acid in, [Theis & Benedict] 1843
vessels, extension of carcinoma into, [Van Raamsdonk] 980
vessels, suturing, with report of sutured brachial artery, [Horsley] *117
viscosity and blood pressure, 942—E, [Lyon] 1051
volume, [Lucas] 1842
volume color test to determine volume of, [Feringa & van Creveld] 1852
volume determination, [Franke & Benedict] 1047
volume, three blood volume methods compared, [Smith & others] 149
- BODY, human, as a working mechanism, 2062—E
BÖHME'S solutions for indol test, 959
- BONE and joint disease in disease of central nervous system, [Robinski] 329
atrophy from nonuse, study of, [Allison & Brooks] 1285
cells, study of, [Bast] 811
cysts, [Schuster] 1292
diseases, serotherapy and vaccination in, 1749
disintegration zones in, [Fromme] 1774
fragile, blue sclerotics with, [Blegvad & Haxthausen] 1934
fragilitas ossium a family disease, [Burns] 1282
grafting methods compared, [McWilliams] 1368
grafts of long bones and joints, [Fieschi] 1373
grafts, surgery and survival of, [Regard] 1847
hydatid cysts in, [Zorraquin & Gómez] 1140
legitimate use of bones by physicians as witnesses, 62—MI
marrow, giant cells in, [Jordan] 811
marrow, tests of functional activity of, [Roessingh] 2154
metastatic cancer in, [Deelman] 1778
sarcoma, [Greenough & others] 1920
sarcoma, roentgen-ray therapy of, [Morrison] 1763
surgery of, [Orth] 161
transplantation, autogenous, [Henderson] *165
tuberculosis from standpoint of workmen's compensation, [Broca] 323
tuberculosis, roentgen-ray treatment of, [Stromeyer] 162
tuberculosis, treatment of, [Gauvain] 2149
- BON-OPTO EYEWASH, injury from, 486—MI
- BOOK production in France in 1920, 873
- BOOK, provision for increased duty on all imported books, 1187—E
- BOOKKEEPING for physician's wife, 796
- BOQUETTE'S Family Remedy, 1513—P
- BOTRYOMYCOSIS, alleged, in man, [Romano] 1139
- BOTULISM, 1187—E
a toxic encephalitis, [Wells] 1601
changes in central nervous system in, [Semerak] 490
from canned spinach, [Koser & others] *1250, [Wells] 1601
pathology of, [Dickson] 483—C
thermal death point of *B. botulinus* spores, [Weiss] 1369
- BOVERI'S TEST of spinal fluid, [Guillain & Libert] 233
- BOWEL: See Intestine
- BRACHIAL PLEXUS paralysis, rib pressure as cause of, [Bramwell & Dykes] 817
rudimentary ribs and lesions of, [Sargent] 1133
- BRADYCARDIA, congenital, [Calandre] 896
- BRAIN: See also Cerebellum; Cranium; Pituitary Body
BRAIN abscess, [Linck] 1775
access to subarachnoidal space in pons and cerebellum region, [Karlefors] 1458
calcification of cerebral vessels, [Bassoe & Hassin] 1281
development of falx cerebri and tentorium, [Hultén] 1458
effect of radium emanation on, [Bagg] 1367
fascia-fat flaps for brain-dura defects, [Koennecke] 239
hemorrhage in new-born, [Rosa-mond] 2087—ab
influence of roentgen rays on, [Brunner] 2008
injection of salt solution in intracranial tension, [Foley] 733
intracranial birth trauma of new-born, [Ehrenfest] *103
lecithin, 290—E
lesions, action of pilocarpin on, [Besta] 496
lung fluke cyst in, [Kimura] 823
nucleus in human testiform body, [Hirose] 1446
pseudotumors, remarkable combinations of psychic neurologic and autonomic symptoms, [Rows] *1643
sarcoma simulating lethargic encephalitis, [Clark] 1284
sclerosis of, abortive, [Shimoda] 823
sensory disturbances from lesions in pons and oblongata, [Bergmark] 1458
surgery, [Holth] 1457
symptoms caused by pulmonary distomiasis, [Kawamura & Yamaguchi] 1209
tuberculosis, [Valabrega] 1055
tuberculoma, numerous convulsions in case of, [Randolph] 1600
tumors, [Marburg & Ranzi] 1214
tumors, classification of, [Spiller & Frazier] 1841
tumors, cystic, [Alurralde] 1056
tumors, errors in diagnosis of, 1425—ab
tumors in children, [Broca] 975
tumors, intracranial tumors, [Locke] 1841
tumors, radium therapy of, [Ewing] 1367
tumors, spinal fluid in diagnosis of, [Lange] 1294
tumors, successful removal of, [Barkman] 1295
tumors, treatment of, [Dandy] *1853
tumors, Wassermann reaction with, [Lotmar] 2152
wounds, [Demmer] 328
zinc and copper content of, [Bodansky] 1765
- BRANCHIAL cysts and fistulas, [Gilman] *26
- BRAUN'S skin grafts, [de Sanson] 977
- BRAZIL, medical impressions of, [de Laugen] 1144
- BREAD, nutritive value of yeast in, [Hawk & others] 66
- BREAST amputation, Tansini's method of, [Aperle] 2096
cancer, [Hoffmann] 161, [Wiesmann] 498, [Sherrill] 1127—ab
cancer, blood in, [Anderson] 405
- BREAST cancer, incidence of, in second breast, after radical removal of one breast, [Kilgore] *454
cancer operation, cautery knife in, [Percy] 1523
cancer, paralysis of vocal cords secondary to, [Turner] 818
cancer, prevention of local recurrence in, [Schloffer] 1934
cancer, prognosis of, [Boss] 323, [Mills] 648
cancer, roentgen exposures after mastectomy, [Kastner] 161
hypertrophy of, [Keyser] 2001
papilloma of, [Cheatle] 2002
sarcoma, [Norden] 980
swelling of, in new-born, [Gruber] 2099
typhoid abscess of, [Dyke] 891
- BREATHING, effectual, training in, [d'Heuqueville] 1136
- BRETSCHNEIDER'S alternating hot and cold respiration procedure, [Koch] 1533
- BRILL'S DISEASE: See Typhus fever
- BRISSEAU memorial, 1192, 1432
- BRITISH Association for Advancement of Science, 1193
Medical Association, annual meeting of, 474, 632
- BROMID for nervous diseases, bad effects of, [Hunt] 491
- BROMIN, Is bromin a tissue component? 470—E
- BROMPIN 10 per cent., 1819
- BROMODERMA, [Pulvirenti] 1923
congenital, [Langer] 1850
- BRONCHIAL GLANDS, tuberculous, in adults, [Lankhout] 1612
tuberculous, in children, [Wallgren] 1614
- BRONCHITIS clinically resembling tuberculosis, [Castellani & others] 320
fibrinous, with exophthalmic goiter, [Weber] 1932
vaccine therapy in, [Dufour & Ravina] 1770
- BRONCHOMONILIASIS complicating tuberculosis, [Macfie & Ingram] 155
- BRONCHOPHONY sign of D'Espine, [Reh] 653
- BRONCHOPNEUMONIA, [Roussy & Leroux] 737
- BRONCHOSCOPY, direct laryngoscopy, esophagoscopy, and, as diagnostic aids, [Hoagland] 64—ab
- BRONCHUS, effect of antispasmodic drugs on, [Macht & Ting] 2091
foreign body in, [Castilho] 1529
musculature of, [Miller] 2088
response of excised bronchi to drugs, [Macht & Glu-Ching Ting] 1131
- BROWNIAN MOVEMENT, so-called biologic theory of, [Ocaranza] 1139
- BRISSOLS, meeting of physicians of, 1508
- BURSITIS, retrocalcaneal, diagnostic and therapeutic point in, [Nielson] *463
- BUTTERMILK, Beebe Modified, 863
for infant feeding, [Gaing] 1055, 1453, 2095
plus fat in infant feeding, [Gaing] 1140
- BUTYN, preliminary report of Council on, 1891
- BACTERIOLOGY, Clinical, and Haematology for Practitioners, 808
Bacteriology, Fundamentals of, 641
Bactjer, F. H., and Waters, C. A., Injuries and Diseases of Bones and Joints, 727
Bard, S., Medical Education in Early New York, 808
Barrowcliff, M., and Carr, F. H., Organic Medicinal Chemicals (Synthetic and Natural), 1278
Bee, Book About the Bee, 1677
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Benign Stupors, 1993
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Bing, R., Lehrbuch der Nervenkrankheiten, 486
Blind, A Story of These Times, 1518
Blogg, M. W., Bibliography of Writings of Sir William Osler, Bart., 2145
Blood, Practical Chemical Analysis of, 641
Blutuntersuchung, Metodik der Blutuntersuchung, mit einem anhang: Zytodiagnostische Technik, 222
Bones and Joints, Injuries and Diseases of, 727
Bonney, V., and Berkeley, C., Text-book of Gynaecological Surgery, 1125
Booth, F., Radiant Energy and the Ophthalmic Lens, 1676
Brain Injuries, Diagnosis and Treatment of, with and without Fracture of Skull, 222
Braum, H., Anatomie des Menschen, 962
Bregman, L. E., Die Schlafstörungen und ihre Behandlung, 62
Briggs, L. V., Manner of Man that Kills, 41
Broca, A., Chirurgie de Guerre et d'Après-Guerre, 1278
Brown, W., Psychology and Psychotherapy, 222
Brown, W. H., and White, C. F., An Atlas of Primary Cutaneous Lesions of Acquired Syphilis in Male, 1125
Browne, E. G., Arabian Medicine, 1517
Buckley, A. C., Basis of Psychiatry (Psychological Medicine), 1124
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Burton-Opitz, R., Advanced Lessons in Practical Physiology for Students of Medicine, 145
Burton-Opitz, R., Text-Book of Physiology for Students and Practitioners of Medicine, 61
Buschan, G., and others, Handbuch der Sexualwissenschaften mit besonderer Berücksichtigung der kulturgeschichtlichen Beziehungen, 1201
Butler, G. F., How the Mind Cures, 145
Caffrey, A. J., Pitfalls, 1042
Cajal, S. R., Charles de Café, 1360
Campbell, J. C., Southern Highlander and His Homeland, 223
Cancer and Its Non-Surgical Treatment, 1201
Cardio-Rénaux, Les, 1677
Cardiovascular Disease, Arteriosclerosis, 808
Carr, F. H., and Barrowcliff, M., Organic Medicinal Chemicals (Synthetic and Natural), 1278
Carter, H. S., Howe, P. E., and Mason, H. H., Nutrition and Clinical Dietetics, 1839
Charles de Café, 1360
Chekhov, A., The Horse-Stealers and Other Stories, 1201
Chemical Pharmacology, Introduction to, 485
Chemicals, Organic Medicinal Chemicals (Synthetic and Natural), 1278
Cheplin, H. A., and Rettger, L. F., Treatise on Transformation of the Intestinal Flora, with Special Reference to Implantation of *Bacillus Acidophilus*, 808
Child, C. M., Origin and Development of Nervous System from a Physiological Viewpoint, 1277
Children, Clinical Study and Treatment of Sick Children, 1597
Children, Diseases of, 2145

- Children, Diseases of Children for Nurses, Including Infant Feeding, Therapeutic Measures Employed in Childhood, Treatment for Emergencies, Prophylaxis, Hygiene and Nursing, 963
- Chirurgie de Guerre et d'Après-Guerre, 1278
- Clarke, J. M., Organic Dependence and Diseases: Their Origin and Significance, 963
- Clarke, R. H., and Henderson, E. E., Investigation of Central Nervous System, 1125
- Clinical Methods, 1201
- Clubbe, C. P. B., Diagnosis and Treatment of Intussusception, 486
- Colledge, L., and Parker, C. A., Guide to Diseases of the Nose and Throat and Their Treatment, 396
- Collip, J. B., Formation of Hydrochloric Acid in Gastric Tubules of Vertebrate Stomach, 1360
- Colloïdes, Rôle des Colloïdes chez les Êtres Vivants, 883
- Cope, Z., Surgical Aspects of Dysentery, Including Liver-Abscess, 963
- Courcade, D., Notions Pratiques d'Électrothérapie Appliquée à l'Urologie, 223
- Croonian Lectures on Psychology of the Special Senses and Their Functional Disorders, 485
- Cumberbatch, E. P., Diathermy: Its Production and Uses in Medicine and Surgery, 1759
- Davis, A. E., and Douglass, B., Eye, Ear, Nose and Throat Nursing, 223
- Davis, E. P., Mother and Child, 306
- Deficiency Disease, Studies in, 1676
- d'Électrothérapie, Notions Pratiques d'Électrothérapie Appliquée à l'Urologie, 223
- Delitala, F., Gli Apparecchi Ortopedici, 572
- Diabetes Mellitus, 1360
- Diagnosis, Functional, 727
- Diagnostic and Therapeutic Technic, 1125
- Diathermy: Its Production and Uses in Medicine and Surgery, 1759
- Differentialdiagnose, Lehrbuch der Differentialdiagnose innerer Krankheiten, 146
- Döderlein, A., Döderlein-Krönig Operative Gynäkologie, 62
- v. Domarus, A., Methodik der Blutuntersuchung, mit einem Anhang: Zytodiagnostische Technik, 222
- Douglass, B., and Davis, A. E., Eye, Ear, Nose and Throat Nursing, 223
- Dowd, Q. L., Funeral Management and Costs, 883
- Doyen, E., Surgical Therapeutics and Operative Technic, 61
- Drever, J., Psychology of Everyday Life, 1992
- Dreyer, G., Assessment of Physical Fitness by Correlation of Vital Capacity and Certain Measurements of the Body, 1277
- Dwarfism, Feebleness of Growth and Congenital Dwarfism with Special Reference to Dysostosis Cleido-Cranialis, 396
- Dysentery, Surgical Aspects of, Including Liver-Abscess, 963
- Ear, Diseases of, 1124
- Ecker, E. E., and Karsner, H. T., Principles of Immunology, 146
- Edema and Nephritis, 146
- Education, Medical, in Early New York, 808
- Einführung in die Allgemeine Konstitutions- und Vererbungs-pathologie, 1840
- Electricity, Medical, Roentgen Rays and Radium, with a Practical Chapter on Phototherapy, 808
- Elschnig, A., and others, Lehrbuch und Atlas der Augenheilkunde, 306
- Emery, W. D., Clinical Bacteriology and Hematology for Practitioners, 808
- Enzyme Actions, Chemistry of, 396
- Eye, Ear, Nose and Throat Nursing, 223
- Falk, K. G., Chemistry of Enzyme Actions, 396
- Farmer, J. S., and Henley, W. E., Dictionary of Slang and Colloquial English, 1597
- Feebleness of Growth and Congenital Dwarfism with Special Reference to Dysostosis Cleido-Cranialis, 396
- Feer, E., Diagnostik der Kinderkrankheiten mit besonderer Berücksichtigung des Säuglings, 961
- Finkelstein, H., Lehrbuch der Säuglingskrankheiten, 1914
- Fischer, M. H., Edema and Nephritis, 146
- Flint, H. L., Heart: Old and New Views, 883
- Fox, H., and Stengel, A., Text-Book of Pathology, 486
- Fractures, Treatise on, 2145
- Frölich, A., and Wasicky, R., Taschenbuch der ökonomischen u. rationellen Rezeptur, 993
- Funeral Management and Costs, 883
- Gaskill, H. K., and Stelwagen, H. W., Diseases of the Skin, 2145
- Gassul, R., Die Bedeutung der verschiedenen Strahlen für die Diagnose und Behandlung der Tuberkulose, 1759
- Ginecología, 1277
- Glaister, J., Text-Book of Medical Jurisprudence and Toxicology, 883
- Golf, Fifty Years of, My Memories, 2145
- Gonococcal Infection in Male, 146
- Goodhart, J. F., Diseases of Children, 2145
- Gould, A. P., and Gould, E. P., Elements of Surgical Diagnosis, 485
- Gould, E. P., and Gould, A. P., Elements of Surgical Diagnosis, 485
- Greek Medicine in Rome, 882
- Greenberg, J. P., Tuberculous Salpingitis, 1125
- Greenish, H. G., Text Book of Materia Medica, 1201
- Grossmann, F., Die Spezifische Percutanbehandlung der Tuberkulose mit dem Petruschky'schen Tuberkulinliniment, 145
- Growth of the Soil, 305
- Gynaecological Surgery, Textbook of, 1125
- Gynäkologie, Döderlein-Krönig Operative Gynäkologie, 62
- Gynecology, 727
- Hæmatology and Clinical Bacteriology for Practitioners, 808
- Halsted, W. S., Ligations of the Left Subclavian Artery in Its First Proportion, 883
- Harrower, H. R., Harrower's Monographs on the Internal Secretions, 1042
- Harrower's Monographs on the Internal Secretions, Hyperthyroidism, 1042
- Hay, J., Graphic Methods in Heart Disease, 222
- Heart Disease, Graphic Methods in, 222
- Heart: Old and New Views, 883
- Hegner, R. W., Diagnosis of Protozoa and Worms Parasitic in Man, 145
- Heitzmann, L., Urinary Analysis and Diagnosis by Microscopical and Chemical Examination, 1677
- Henderson, E. E., and Clarke, R. H., Investigation of Central Nervous System, 1125
- Henley, W. E., and Farmer, J. S., Dictionary of Slang and Colloquial English, 1597
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- Hering, Ewald, Fünf Reden von Ewald Hering, 1360
- Hering, H. E., Fünf Reden von Ewald Hering, 1360
- Hinkle, T. C., How to Eat. A Cure for "Nerves," 2145
- Hippocrates, Genuine Works of, 306
- Hitschmann, F., Die Therapie der Placenta Prævia, 1041
- Hoch, A., Benign Stupors, 1993
- von Hoesslin, H., Das Sputum, 1443
- Hope of Our Children, 641
- Horse-Stealers and Other Stories, 1201
- Horsley, J. S., Operative Surgery, 1676
- How the Mind Cures, 145
- How to Eat. A Cure for "Nerves," 2145
- Howe, P. E., Mason, H. H., and Carter, H. S., Nutrition and Clinical Dietetics, 1839
- Hurst, A. F., Croonian Lectures on Psychology of the Special Senses and Their Functional Disorders, 485
- Hutchison, R., Clinical Methods, 1201
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- Hygiene, Elements of Hygiene and Public Health for Use of Medical Students and Practitioners, 306
- Hygiene, Principles of, 1915
- Immunology, Principles of, 146
- Infant-Welfare Work in Europe, 962
- Infectious Diseases, Acute, Treatment of, 1677
- Influenza, 1992
- Innere Sekretion, 1124
- Insanity, Manic-Depressive Insanity and Paranoia, 572
- International Medical Annual, 883
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- Intussusception, Diagnosis and Treatment of, 486
- Jack O'Health and Peg O'Joy, 1915
- Jackson, J. A., and Salisbury, H. M., Outwitting Our Nerves, 963
- Jansen, M., Feebleness of Growth and Congenital Dwarfism with Special Reference to Dysostosis Cleido-Cranialis, 396
- Jaquet, A., Muskularbeit und Herz-tätigkeit, 1915
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- Joints, Injuries to, 883
- Jones, R., Injuries to Joints, 883
- Jones, R., Orthopaedic Surgery of Injuries, 1442
- Josué, O., and Parturier, M., Les Cardio-Rénaux, 1677
- Kahn, M., Functional Diagnosis, 727
- Karsner, H. T., and Ecker, E. E., Principles of Immunology, 146
- Keen, W. W., Surgery, Its Principles and Practice, 1518
- Kelly, J. A., and Roberts, J. B., Treatise on Fractures in General, 2145
- Kerrison, P. D., Diseases of Ear, 1124
- Kinderkrankheiten, Diagnostik der Kinderkrankheiten, mit besonderer Berücksichtigung des Säuglings, 961
- Kindertuberkulose, die, 61
- Kirkaldy, A., Fifty Years of Golf: My Memories, 2145
- Kraepelin, E., Manic-Depressive Insanity and Paranoia, 572
- Kystoskopischer Atlas, 223
- Leroux, R., and Roussy, G., Diagnostique des Tumeurs, 146
- Liebermeister, G., Tuberkulose, 641
- Ligations of Left Subclavian Artery in Its First Proportion, 883
- Long, H. W., Motherhood, 1759
- Lumb, N., Gonococcal Infection in Male, 146
- Lumière, A., Rôle des Colloïdes chez les Êtres Vivants, 883
- Lungenkrankheiten, Lehrbuch der, 2084
- Lymphosarcoma, 396
- MacArthur, J., Mental Hospital Manual, 1914
- McCarrison, R., Studies in Deficiency Disease, 1676
- McCombs, R. S., Diseases of Children for Nurses Including Infant Feeding, Therapeutic Measures Employed in Childhood, Treatment for Emergencies, Prophylaxis, Hygiene and Nursing, 963
- Mace, H., Book About the Bee, 1677
- McGill, N., Infant-Welfare Work in Europe, 962
- McGrath, J. J., Operative Surgery for Students and Practitioners, 2084
- McGuigan, H., An Introduction to Chemical Pharmacology, 485
- Macleod, J. M. H., Diseases of the Skin, 1758
- McMillan, M., Massage and Therapeutic Exercise, 223
- Madill, D. G., and Jellet, H., Manual of Midwifery for Students and Practitioners, 1758
- Mann, M., Text-Book of Tracheo-Bronchoscopy (Technical and Practical), 727
- Manner of Man that Kills, 641
- Manson-Bahr, P. H., Manson's Tropical Diseases, 727
- Mason, H. H., Carter, H. S., and Howe, P. E., Nutrition and Clinical Dietetics, 1839
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- Moll, A., Sexualwissenschaften, Handbuch der Sexualwissenschaften mit besonderer Berücksichtigung der kulturgeschichtlichen Beziehungen, 1201
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- Moorhead, J. J., Traumatic Surgery, 808
- Morbo di Hirschsprung e Nanismo Ipoftario, 1042
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- Morrow, A. S., Diagnostic and Therapeutic Technic, 1125
- Mosenthal, H. O., Diabetes Mellitus, 1360
- Mother and Child, 306
- Motherhood, 1759
- Moynihan, B., Essays on Surgical Subjects, 1125
- Much, H., Die Kindertuberkulose: Ihre Erkennung und Behandlung, 61
- Much, H., Hope of Our Children, 641
- Much, H., Tuberculosis of Children, 61
- Murrell, W., What to Do in Cases of Poisoning, 2084
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- Myers, V. C., Practical Chemical Analysis of Blood, 641
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- Nervous System, Anatomy of Nervous System from Standpoint of Development and Function, 306
- Nervous System, Central, Investigation of, 1125
- Nervous System, Clinical Examination of, 1759
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- Nose, Guide to Diseases of the Nose and Throat and Their Treatment, 396
- Nutrition and Clinical Dietetics, 1839
- Oertel, H., General Pathology, 882
- Ophüls, W., Arteriosclerosis, Cardiovascular Disease, 808
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- Outwitting Our Nerves, 963
- Paekard, F. R., Life and Times of Ambroise Paré (1510-1590), 883
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- Parturier, M., and Josué, O., Les Cardio-Rénaux, 1677
Pathology, General, 882
Pathology, Text-Book of, 436
Physical Diagnosis, 1758
Physical Fitness, Assessment of
Physical Fitness by Correlation of Vital Capacity and Certain Measurements of the Body, 1277
Physiology, Advanced Lessons in Practical Physiology for Students of Medicine, 145
Physiology, Text-Book of, for Students and Practitioners of Medicine, 61
Pincussen, L., Mikromethodik, 1840
Pitfalls, 1042
Placenta Praevia, Die Therapie der, 1041
Poisoning, What to Do in Cases of, 2084
Poisons, Laboratory Manual for Detection of Poisons and Powerful Drugs, 145
Poole, E., Blind. A Story of These Times, 1518
Prospective Mother, 1277
Protozoa and Worms Parasitic in Man, Diagnosis of, 145
Psychiatry, Basis of (Psychological Medicine), 1124
Psychology, 2145
Psychology and Psychotherapy, 222
Psychology of Everyday Life, 1992
Radiant Energy and the Ophthalmic Lens, 1676
Radium, Medical Electricity, and Roentgen Rays, with a Practical Chapter on Phototherapy, 808
Ranson, S. W., Anatomy of the Nervous System from Standpoint of Development and Function, 306
Recasens, S., Tratado de Ginecología, 1277
Reiss, E., Missstände im Arzneimittelwesen und Vorschläge zu Ihrer Bekämpfung, 1992
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Rixon, C. H. L., and Matthew, D., Anxiety Hysteria, 1360
Roberts, J. B., and Kelly, J. A., Treatise on Fractures in General, 2145
Roentgen Rays, Medical Electricity, and Radium, with a Practical Chapter on Phototherapy, 808
Röntgendiagnostik der Inneren Erkrankungen, 1442
Rose, W. D., Physical Diagnosis, 1758
Roussy, G., and Leroux, R., Diagnostic des Tumeurs, 146
Sabourin, C., Rational Treatment of Pulmonary Tuberculosis, 222
Salisbury, H. M., and Jackson, J. A., Outwitting Our Nerves, 963
Salpingitis, Tuberculous, 1125
Samaja, N., Morbo di Hirschsprung e Nanismo Ipoftisario, 1042
Säuglingskrankheiten, Lehrbuch der, 1914
Schamberg, J. F., Compend of Diseases of Skin, 145
Schlafstörungen und ihre Behandlung, 62
Schnittentbindung, Ueber die Entwicklung und den Ausbau der Suprasympophysären Schnittentbindung an der Universitäts-Frauenklinik Tübingen, 2084
Secretions, Internal, Harrower's Monographs on, Hyperthyroidism, 1042
Sex-Complex, 1041
Sexualwissenschaften, Handbuch der Sexualwissenschaften mit besonderer Berücksichtigung der Kulturgeschichtlichen Beziehungen, 1201
Sharpe, W., Diagnosis and Treatment of Brain Injuries with and without a Fracture of Skull, 222
Slemens, H. W., Einführung in die Allgemeine Konstitutionen—und Vererbungspathologie, 1840
Singer, K., Leitfaden der Neurologischen Diagnostik, 223
Skin, Compend of Diseases of, 145
Skin, Diseases of, 2145
Skin, Diseases of, 1758
Skin, Diseases of the Skin, 1759
Skin, Practical Treatise on Diseases of the Skin, 1839
Slang, Dictionary of Slang and Colloquial English, 1597
Slemens, J. M., Prospective Mother, 1277
Southern Highlander and His Homeland, 223
Special Senses, Croonian Lectures on Psychology of the Special Senses and Their Functional Disorders, 435
Sputum, Das, 1443
Stelwagen, H. W., and Gaskill, H. K., Diseases of the Skin, 2145
Stengel, A., and Fox, H., Text-Book of Pathology, 486
Stevens, E. F., American Hospital of the Twentieth Century, 1677
Strong, R. P., and others, Typhus Fever with Particular Reference to the Serbian Epidemic, 962
Surgery, Its Principles and Practice, 1518
Surgery, Operative, 1676
Surgery, Operative, for Students and Practitioners, 2084
Surgery, Traumatic, 808
Surgical Anatomy, Manual of, 1993
Surgical Diseases, Elements of, 485
Surgical Subjects, Essays on, 1125
Surgical Therapeutics and Operative Technique, 61
Sutton, R. L., Diseases of the Skin, 1759
Syphilis, Atlas of Primary and Cutaneous Lesions of Acquired Syphilis in Male, 1125
Syphilis und Nervensystem, 223
Taschenbuch der ökonomischen u. rationellen Rezeptur, 1993
Therapeutics, Principles of, 1915
Throat, Guide to Diseases of the Nose and Throat and Their Treatment, 396
Thomson, J., Clinical Study and Treatment of Sick Children, 1597
Tice, F., Tice's Practice of Medicine, 1124
Tice's Practice of Medicine, 1124
Tousey, S., Medical Electricity, Roentgen Rays and Radium, with a Practical Chapter on Phototherapy, 808
Tracheo-Bronchoscopy, 727
Tropical Diseases, Manson's, 727
Tuberculosis, (Hope of Our Children), 641
Tuberculosis of Children, 61
Tuberculosis, Rational Treatment of Pulmonary Tuberculosis, 222
Tuberkulose, 641
Tuberkulose, die Bedeutung der Verschiedenartigen Strahlen für die Diagnose und Behandlung der Tuberkulose, 1759
Tuberkulose, Die Spezifische Percutanbehandlung der Tuberkulose mit dem Petruschky'schen Tuberkulinliniment, 145
Tumeurs, Diagnostic des, 146
Typhus Fever with Particular Reference to Serbian Epidemic, 962
Urinary Analysis and Diagnosis by Microscopical and Chemical Examination, 1677
Urologische Operationslehre, 1915
Vaughan, W. T., Influenza, 1992
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Webster, L. T., Lymphosarcoma, 396
Weil, A., Die Innere Sekretion, 1124
White, C. F., and Brown, W. H., An Atlas of Primary and Cutaneous Lesions of Acquired Syphilis in Male, 1125
Whittaker, C. R., Manual of Surgical Anatomy, 1993
Woodworth, R. S., Psychology, 2145
Worster, W. W., Growth of the Soil, 305
Wossidlo, and Voelcker, Urologische Operationslehre, 1915
Wossidlo, E., Kystoskopischer Atlas, 223
- C**
- C. C. CAPSULES, 140—P
C. G. REMEDY, 140—P
CADAVERS, lack of, for dissecting, 216
CADOMENE Tablets, 878—P
CAJAL, pension for, 718
CALCANEUM, resection of, [Johanson] 242
CALCIFICATION of skin in infant, [Morse] 1444
CALCIUM Caseinate, 1023
chlorid injection for controlling hemorrhage, [Grove & Vines] 493
chlorid promotes phagocytosis, [Nagal & Ito] 740
hard waters as a physiologic source of, 625—E
in Blood: See Blood, calcium in
in serum, diffusible, determination of, [Meysenbug & others] 970
influence of, on electric overexcitability in tetany, [Ochsenius] 1932
phosphate deposits, [Pontoppidan] 1296
salts, absorption of, [Mason] 152
CALCULI: See also under names of Organs
CALCULI, salivary and serumal, 304
CALIFORNIA state board February examination, 221
CALLUS formation after fractures with nerve lesions, [Putzu] 1374
production, [Wehner] 2097
CALORIES, shall the calories be forgotten? 1972—E
CALYMATOBACTERIUM granulomatis, [Giuliani] 1448
CANADA, medical council of, 1112
CANCER: See also Tumor and under Organs and Regions
CANCER and its nonsurgical treatment, [Semken] 1357—C, [Murphy & others] 1674—C
at Madrid, 1486—ab
blood examination as aid in prognosis in, [Anderson] 70
blood in breast cancer, [Anderson] 405
campaign, new factors in, [Fraenkel] 413
caustic destruction of, [Citelli & Caliceti] 1139
cells in blood stream, [Quensel] 1614
conservative treatment of cervical lymphatics in mouth cancer, [Quick] *436
"Cosmopolitan Cancer Research Society," 805—P, 1515, 1672—P
early references to, [Haupt] 1440—C
extension of, into blood vessels, [Van Raamsdonk] 980
in Brazil, [Clark] 1454
in Cuba, 1583
in gastro-intestinal diverticulosis, [Mellon & others] 734
in Germany, 1265
in Japan, [Harada] 1778
in nail matrix, [Pinheiro] 326
in the tropics, [De Langen] 1534
incidence of, 1751
incidence of, in general practice, [Hendricks] 1216
increase of, 951
interspecies transplantation of, [Nagayo & Wago] 1777
irradiation in cancer of female genito-urinary organs, results in 313 cases, [Clark & Keene] *613
irradiation in superficial malignancy, therapeutic aspect of, [Soiland] *1560
micro-organism discovered in, [Young] 1449
operations for, results of, [Brattstrom] 328
organism in white mouse carcinoma [Nuzum] 734
pamphlet for enlightenment of people in regard to, 1436
phobia, 1427—E
phosphorus content of blood and, [Grobly] 160
posttraumatic, [Berner] 2012
precancerous conditions, radium treatment of, [Da Costa] 2095
primary, in mice, [Slye & others] 814
race distribution of, 2135
radiotherapy of, [Perthes] 1291
radium in cancer, 177—ab
radium therapy in vulval and vaginal cancer, [Bailey & Bagge] 314—ab
radium treatment of malignant conditions, [Young] 1127—ab
relationship between trauma and malignant disease from an industrial standpoint, 466—E
relationship of growth and, [Robertson & Ray] 814
roentgen-ray treatment of, 216, 951, [Espinola] 1057
roentgen-ray treatment of, deep, [Espinola] 1057, [Heuser] 1454
serodiagnosis of, [Waterman] 1060, 1144
statistics, [Jeanselme & Barbé] 1210
CANCER, tar, experimental production of, 127—E
therapeutic aspect of irradiation in superficial malignancy, [Soliland] *1560
transplanting of, and the seasons, [Wago] 1778
unusual case of malignancy, [Ellison] 491
week, 871, 1426—E
CANTHARIDIN, poisoning by, [Andrewes] 1371
CAPILLARIES, research on, [Secher] 900
CARBOHYDRATES, prolonged intolerance to, [Howland] 225—ab
CARBON dioxide excretion after destruction of optic thalamus, [Rogers & Wheat] 1131
dioxide inhibits growth of tubercle bacillus, [Corper & others] 1368
monoxid and other gases, problems of, 1574—E
monoxid asphyxia, 710—E
monoxid asphyxia, respiration and blood alkali in, [Haggard & Henderson] 575
monoxid poisoning, [Nicolux] 1289
monoxid poisoning in closed garages, 1186—E
monoxid poisoning, results of exposure to oxygen deficiency, 1440
monoxid poisoning, treatment of, [Haggard & Henderson] *1065
sulphid in pneumonia, [Masciaglioli] 1055
tetrachlorid for removal of hookworms, [Hall] *1641
CARCINOMA: See Cancer
CARCINOSARCOMA, [Claessen & Mathias] 2097
CARDARELLI, tribute to, 1735—ab
CARDIORENAL DISEASE: See under Heart and Kidney
CARDIOSPASM, atony and idiopathic dilation of esophagus, [Thiedung] 161
recurring, with cancer of stomach, [Leoper & Forestier] 1846
treatment of, [Boehm] 656
with dilatation of esophagus, [Snodgrass] 230, [Smithies] 1365
CAREY'S MARSH ROOT, 1513—P
CARIES, of hip joint, treatment of, [Bradford] 2001
CARNEGIE hero medals in France, 50
CAROTID region, surgery in, [Alevoli] 1213
CAROTINEMIA in adult, [Head & Johnson] 1204
CARPUS, radiologic exploration of, [Arcelin] 1372
CARRIERS: See also under names of diseases, as Typhoid carriers, etc.
CARRIERS, unrecognized infections in production of carriers of pathogenic organisms, [Craig] *827
CARRIÓN, Memorial to, 2070
CARVALLO, memorial to, 1505
CASE records, case taking at St. Andrews' Institute, [Paton] 1287
CASEC, 1023
CASEIN, 287
CASTALIAN, Natural Mineral Water, 1119—P
CATALASE, is catalase a measure of metabolic activity? 1259—E, [Seymour] 1673—C
CATARACT, [Strebel] 1053
bilateral, from lightning stroke, [Tiscornia] 1930
diabetic, [Lippmann] 1777
memorial, 1432
senile, comparative study of results obtained in 1421 operations, [Parker] *1171
vacuum extraction in capsule, [Barraquer] 977
with myotonia atrophica, [Vogt] 976
CATATONIA, blood in dementia praecox catatonica, [Uyematsu & Soda] 491
CATHETERIZATION, postoperative, in Korea, [Mills] 1050
CATHETERS, rubber, disinfection of, [Hadda] 825
CECOSTOMY, treatment of disease of colon by, [Stiles] 647
CECUM, nondescent of appendix and, [Gardner] *1652
ptosis of right kidney and, [Chutro] 1057
torsion of, [Chalfant] 400—ab
use of sigmoid flexure and cecum in pelvic peritonization, [Culbertson] *772

- CELL, structure of, [Pollicard] 1847
CEMETERIES, new, creation of, in Paris, 1351
CENSUS of Great Britain, 1114
CEREBELLUM abscess, case with very unusual features; operation; recovery, [McCoy] *1333
disease, checking of movement as sign of, [Barkman] 1379
localization in, [Hesser & Troell] 1458
CEREBROSPINAL FLUID, [Stern] 821, [v. Monakow] 821
at different levels, [Weigeldt] 978
bacillus proteus in, in typhus, [Anderson] 1605
Boveri's test of, [Guillain & Libert] 233
cholesterol in, [Levinson & others] 644
coagulation of, [Rodriguez Arias] 76
colloidal benzoin reaction of, [Guillain & others] 1528
colloidal gold solution, 220
colloidal gold solution, preparation of, [Pietravalle] 1927
colloidal reaction in, [Haguenau] 737, [Sordelli & Renella] 1929
colloidal tests, comparison of, [Keidel & Moore] 731
determination of reducing substance in, [Kasahara & Hattori] 729
encephalitis virus in, [Kling & others] 1613
in rabbits, [Plaut & Mulzer] 978
in syphilis, chemistry of, [Seham & Nixon] 1918
intradermal test with, [Korbsch] 978
neutrophilic myelocytes in, [Barker] 69
paregoric test for, [Targowla] 1770
permanganate test of, [Boveri] 1848
physiopathology of, [Mestrezat] 1527
protein in, quantitative estimation of, [Ayer & Foster] *365
sugar in, [Ino] 76
sugar in, diagnostic value of, [Coope] 1769
volume changes of, [Becht & Gunnar] 149
CEREBRUM: See Brain
CESAREAN SECTION, abdominal, [Couvelaire] 2004, [Henrotay] 2004
analysis of 21 years' experience with, [Williams] 67
fate of children, [Dencker] 2009
improvement on, [Jones] 577
pregnancies after, [Balard & Planes] 235
transperitoneal, high-operation—Copeland technic, [Copeland] *449
transperitoneal, low, [Gaifami] 158
transperitoneal, on lower segment, [Aubert] 73
two cases, [González] 823
two flap, [Beck] 1285
CHAGAS returns to Brazil, 1191
CHANCRES, extragenital, [Cignozzi] 1849
primary, on vaginal portion of uterus, [Liegnier] 415
CHANCROID, cephalic, report of case following extraction of tooth that had infection at apex, [Potts] *1885
CHARCOT joints, sign occurring in tabes complicated by, [Eloesser] *604
CHASE, A. W., Chase's Nerve Pills, 141—P
CHAUFFEUR, joy-riding by physician's chauffeur, 1678—M
CHAULMOOGRA OIL, 1270
and its derivatives in experimental tuberculosis, therapeutic value of, [Voegtlin & others] *1017
and sodium morrhuate in tuberculosis, [Rogers] 972
in leprosy and tuberculosis, [Rogers] 736
in tuberculosis, [Culpepper & Abelson] 68
requested by Trinidad, 386
tree to be grown in this country, 473
CHEEK, tuberculosis of glands in, [Lenormant] 235
CHEESE, paratyphoid carried in, 1025—E
CHEESEMANS PILLS, 393—P
CHEMICAL industry, American, 470—E
CHEMOTHERAPY, recent tendencies in, 1658—E
CHENOPODIUM, toxicity of, [Lellis] 1291
CHEST: See Thorax
CHEYNE-STOKES psychosis, [Wasermann] 978
CHILD labor, increase of, 753—ab
CHILD-BEARING: See Labor; Obstetrics
CHILDREN, abnormal, 1351
abnormal, education of, 1587
abnormal, new law concerning, 389
backward, aid to, 1750
colony of wards of the state, 299
deprived of parental care, 1042—ME
diseases in 1921, [Lereboullet & Schreiber] 2005
effect of environment on disease in, [Friedjung] 1531
health protection for young workers, 782—ab
hygiene and puericulture, 1352
hygiene, conference on, 1031
maladjusted, 637—ab
maladjusted, psychiatric clinic for, 705—ab
malnutrition in, of well-to-do, [Kerley] 226—ab
North American aid for children in Austria, [Navarro] 1056
of elderly parents, [Peiper] 1851
on barges, 1115
overweight in, [Emerson] 1520
physical standards for working children, 943—E
psychologic selective test as applied to school children, 1509
rapid growth of abnormally small child, [Davidson] 1210
relation between the child and hospital social service, [Chapin] *279
safeguarding child workers, 1112
Section on Diseases of, [Neff] *331
surgical mortality in, [Lanman] 1600
welfare and maternity, 873
welfare and protection of mothers, 138
welfare clinics, 390
welfare, expositions on, in France, 50, 1348
welfare in Tennessee, 1042—ME
welfare, international congress for, 953, 1351
welfare, teaching puericulture, [Mola] 2095
welfare week, 2073
welfare work in S. Paulo, [Ferreira] 2095
with defective vision of school age, [Holm] 900
CHILE, medicine in, 1596
CHILLING and mucous membranes, [Mudd & others] 230
CHINA, famine in, 55
Chinese foods, [Embry] 2093
National Medical Association of, 1980
medical education in, 1505
office of Imperial Physicians, Peking, [Cowdry] 307
United States medical standards for, 1431
CHIROPRACTIC, a good indictment—medical law not discriminatory, 487—M
in Ohio, [Wickware] 569—C, [Murrell] 723—C
not Nuxated Iron responsible for Dempsey's victory, [Jones] 220—C
service rendered by chiropractors, 627—E
veterinary, 944—E, 1122
what a chiropractic photoplay is expected to accomplish, 1660—E
CHLORIDS in blood, determination of, [Christoffersen] 1296
CHLORIN antiseptics, toxic effects of, [Barbour & Hjort] 1684
CHLORINATED SODA, surgical solution of, ineffectual in empyema, [Wilensky] 573
CHLOROFORM and ether containers, danger in similarity of, [Flagg] 1121—C
liver injury, effect of cyanids on, [Davis] 488
CHOCOLATE dippers' dermatitis, 1199
CHOKED DISK, [Sluder] *688
CHOLANGIOLITIS in relation to pain following operations for gallstone, [Poppert] 2010
CHOLECYSTECTOMY for gallstones, [Barling] 2002
formation of gallbladder after, [Specht] 2097
omission of drainage following, [Buchbinder] *256
CHOLECYSTITIS, acute, [Vlscher] 410, [Nordmann] 2008
and appendicitis, [Stincer] 2096
relation of hepatitis to, [MacCarty & Jackson] 154
typhoid, acute, [Söderlund] 1614
CHOLECYSTOGASTROSTOMY and the Courvoisier gallbladder, [Heyd] *339
CHOLECYSTOTOMY, vs. cholecystectomy, [Barling] 2002
CHOLELITHIASIS: See Gallbladder Calculus
CHOLERA, Baltic International conference on, 1348
inspectors in Roumania, 1352
kaolin in, [Walker] 890
pathogenesis of, [Sanarelli] 158, 821
precautions against, at British ports, 1266
CHOLESTEROL from gallstones, 1358
in spinal fluid, [Levinson & others] 644
CHOREA, acute, [Demetre] 1770
and acute articular rheumatism, [Pfaundler] 1378
and circumscribed edema, treatment of, [Mathieu] 1526
exercises in treatment of, [Karger] 1531
posthoreic acute articular rheumatism, [da Silva] 1454
CHORIO-EPITHELIOMA following hydatid degeneration, [Payne] 969
CHOROID, flat sarcoma of, [Arganaraz] 326
CHOROIDITIS, tuberculous, involvement of meninges with, [Gilbert] 1141
CHVOSTEK, Professor, retirement of, 1196
CHVOSTEK'S SIGN and tuberculosis in children, [Pollitzer] 976
in children, [Veronese] 2006
CHYLE cysts, [Grauhan] 1531
CICATRIX, centripetal massage of scars, [Szenes] 2008
innervation of scar tissue, [Cajal] 1455
painful scars, [Corbett] 965—ab
sarcoma in scar tissue, [Nasseti] 412
CINCHOPHEN, 723
antiphlogistic action of, 45—E
chemical and clinical studies with salicylates, and cinchophen and neo-cinchophen in arthritis, [Chace & others] *1230
CIRCULATORY disturbances of feet, [Gielt] 964—ab
extravascular, and blood, interchanges between, [Le Calvé] 894
CIRCUMCISION prevents syphilis, [Irvine] 734
CIRRHOSIS of Liver: See Liver, Cirrhosis
CITY, liability of, for poisoning from berries in a public park, 1982
CLADORCHINAE parasites, [Travassos] 1291
CLAES Tilly Genuine Medicamentum, 722—P
CLAMP, aorta, in postpartum hemorrhages, [Lörincz] 1059
modification of Sehr's aorta clamp and its use in postpartum hemorrhage, [Becker] 1059
use of the Sehr abdominal aorta clamp in obstetric hemorrhage, [Fleischer] 78
CLAUDICATION, intermittent, [Zak] 742
CLAVICULAR regions, new method of exposing, [Dobrovolskaya] 577
CLEVELAND'S hospital supply, 1595—ME
CLIENTS, where do our clients come from? 1267
CLIMATE, where can a perfect climate be found? 288—E
CLINICS, pay, 1740, [Dock] 1835—C, [McLester] 1836—C, [Billings] 1910—C, [Cabot] 1911—C, [Davis] 1987—C, [Malone] 1987—C, [Dunn] 2080—C, [Blumer] 2018—C
pay, of Cornell University, [Lukin] 1673—C, [Niles] 1755—C
COAL TAR, crude, in skin diseases, [White] 1998
COAST SURVEY, legislation providing medical service for, 2069
COCAIN and cocaine poisoning, [Dragotti] 1054
poisoning, treatment of, [Mayer] 1290
COCAIN, prevention of cocaine intoxication by ethyl alcohol in surgery, [Herzfeld] 1594—C
quantitative determination of cocaine and atropin absorption by aqueous humor, [Post] *1323
traffic in, [Courtois-Suffit & Giroux] 494, 633
COCCIDIOSIS in man as a possible sanitary problem in United States, [Haughwout] *940
COCOA in acute ileocolitis in infants, [Picard] 1132
COD LIVER OIL in rickets, value of, [Park & Howland] 1919
more about cod liver oil in therapy, 2122—E
vitamins in, 1168—ab
COITUS during pregnancy, [Ruge] 1692
COLDS, common, etiology of, 206—E, [Maxwell] 394—C
common, weather and ventilation, [Palmer] 1047
Gram-negative cocci in, [Gordon] 1919
in infants, [Ivens & Stern] 825
recurrent, [Stoker] 2003
relation of pneumococcus to, [Gordon] 1919
serial quantitative method of culture in study of respiratory disease, [Bloomfield] *187
spasmodic coryza, [Lermoyez] 1052
COLLECTOMY, technic for anastomosis after, [Del Valle & Donovan] 1530
total, [Lane] 975
COLIC, biliary, following attempted gallbladder drainage, [Dowden & Enfield] *1890
renal, treatment of, [Nin Posadas] 1454
COLITIS, chronic, mucous, [Bahr] 658
chronic, ulcerative, [Yeomans] *2043
hemorrhagic, ulcerative, [Van Amstel] 899
in children, [Barbour] 1128—ab
COLLEGES, medical, classification of, 544
medical, description of, 547
medical, entrance requirements of, 545
new, opening of, 1828
COLLES' and Profeta's laws, 904—ab
COLLOIDAL GOLD TEST: See under Cerebrospinal Fluid
COLON, air at splenic flexure of, [Ramond & Borrien] 1846
diverticula, diverticulitis and peridiverticulitis of, [Gant] *1415
incarceration of, in hernial sac, [Royer] 1445
megacolon in adults, [Iversen] 242
megacolon, treatment of, [Dowd] 1683
treatment of disease of, by cecostomy, [Stiles] 648
ulcer of, [Levy] 1531
COLOR blindness, apparatus to test for scotoma and, [Illoth] 2012
vision, new theory of, 1194
COLORADO state board, April examination, 726
state board July examination, 807
COLOSTRUM, immunizing function of, 710—E
COLT'S apparatus for treatment of aneurysm, [Bower] 648
COMA, causes and diagnosis of various forms of, [Holcomb] *2112
COMBES, Emile, death of, 53
COMMUNICABLE DISEASES: See Contagious Diseases
CONDYLOMAS, pointed, roentgen irradiation of, [Stein] 899
CONGRESS, Cuban medical, 1030
Far Eastern medical congress, 1829
French, "de la Natalité," 1903
French-Polish medical, 1347
German, urologic, 1030
International Antialcohol, 1031, 1264
international aviation, 1829
international conference on epizootic diseases, 212, 796
international conference on sexual reform, 474, 1268
international, for history of medicine, 717, 1667
international, of military medicine and surgery, 210
international, for child welfare, 1351
international, for comparative pathology, 1030
international, for protection of maternity, 1030
international, for psychical research, 949

- CONGRESS, international, of urology to be held at Rome, 565
international, on otology, 630, 1030
international, on physiotherapy, 295
international sanitary congress to fight epidemic diseases, 2069
international tuberculosis conference, 716
medical, 137
medical, fifth, transactions of, 568
medical, held in Strasbourg, 386, 1348, 1508
medical, in Italy, 1348
medical, of the Northland, 475
Mexican typhus congress, 949
odontologic, 719
of allergists and neurologists, 25th, 133, 1032
of Association of French Speaking Gynecologists and Obstetricians, second, 1586
of biology, second, 2073
of Catalan-speaking physicians, 796
of German Urologic Society in Vienna, 2133
of International Society of Urology, 634
of Italian medical women, 1431
of medical press of Cuba, 1191
of northern pathologists, 1668
on child welfare, in Central America, 631
on gynecology and obstetrics, 211
on medical radiology, 1192
Second International Congress of Eugenics, 948
second national congress on tabardillo, 568
South African medical congress, 1903
thirty-third congress of German society for internal medicine, 53
tuberculosis, 2010
Uruguay medical congress, 1903
Venezuela Medical Congress, resolutions adopted by, 1583
CONGRESSIONAL appropriations, medical items in, 1829
CONGRESSMEN, bringing pressure to bear on, 944—E
CONJUNCTIVA, melanosis of, [Oyenard] 326
CONJUNCTIVITIS, arsenical, [Milian] 1847
of new-born in relation to puerperal mastitis, [Lang] 416
purulent, in new-born, [Cantonnet] 234
CONNECTICUT state board homeopathic July examination, 1359
state board July examination, 882
state board March examination, 143
CONSANGUINITY, effect of intermarriage of kin on offspring, 724
CONSTIPATION: See also Intestine, Stasis
CONSTIPATION, chronic, etiology of, [Thaysen] 1692
ipeac in, in infants, [García del Diestro] 2007
CONSUMPTION: See Tuberculosis, Pulmonary
CONTAGIOUS DISEASES, 1270
control of, [McLaughlin] *594, *1693, 1587
isolation for, at Rio de Janeiro, 1903
isolation in, [Hansen] 658
nations unite to fight, 2069
physician not liable for death of other child, 148—M
sequelae of communicable diseases of childhood as a public health problem, [Abt] *665
CONTRACT practice in Berlin, 1748
CONTRACTURE, Dupuytren's, result of infection, [Byford] 1284
in arthritis, cause of, [Jansen] 2149
under immobilization, [Meyer & Spiegel] 78
CONVALLARIA and apocynum, clinical studies of "digitalis series," [Marvin & White] *1865
CONVERSE treatment for epilepsy, 1440
CONVULSIONS, etiology of, in infants, [Mitchell & Barber] 1603
in infants, [Thomson] 1767
COPPER citrate—PWR, 1423
significance of, in tissues, [White] 1450
CORNEA, hemotransplantation of, [Ebeling & Carrel] 1842
sensitiveness of, [Marx] 980
ulcer, protein therapy for, [Sirlin] 1849
vital stain for, [Knüsel & Vonwiller] 1212
CORNELL pay clinic: See under Clinic
CORPUS CALLOSUM, effect of lack of, [Hultkrantz] 1458
partial absence of, [Cameron & Nichols] 1206
tumors of, [Bachr] 1049
CORPUS LUTEUM, effect of active substance of placenta and, on growth of sexual organs, 421—ab
CORPUS STRIATUM, lesions of, [Crothers] 729
CORYZA: See Colds
COSMOPOLITAN Cancer Research Society, 805—P, 1515, 1672—P, [Riley] 2081—C
COSTAL cartilages, ossification of, [Creyx] 308
COUING, mechanism of, [Rohrer] 1290
COUNCIL ON PHARMACY AND CHEMISTRY, efforts of Germans to establish, 475
for Italy, 565
COUNCILS on discipline recommended by 13th Congress, 1984
COVER GLASS, adjustable multiple cover glass and slide holder, [Wagoner] *1423
COXA-VARA, [Anzoletti] 739
COXITIS, differential diagnosis of sciatica and, [Schlesinger] 1294
CRANIOPLASTY, [Ballin] 320
CRANIOTABES, [De Stefano] 976
CRANIUM, artificial deformation of, [Montoya] 1849
autoplasty of, [Righetti] 580
fracture, [Eagleton] 316
fracture, diagnostic and prognostic features, [Stewart] 2030
fracture in children, [Moorhead & Weller] 573
fracture in children, early trephining with, [Jorge] 1453
fracture of base of, [Kulke] 1776
fractures, ratio between deaths from traumatic fracture of cranial bones and from alcohol, [Hatton] *2109
in Museum of Royal College of Surgeons, 1266
mechanics of, [Pedrazzini] 896
steeple skull, [Savelli] 2006
syphilitic osteitis of, [Merklen & Desclaux] 1526
traumatic separation of skull sutures, [Murard] 235
traumatism of, [Billet] 826
tuberculosis of, [St. John] 2002
CREATINURIA, explanations of, 624—E
CREATING ERUPTION, treatment of, [Ketron] 1129
CREMATION, inquiry required of institutions receiving bodies—cremation after dissection, 1840—M
CREOSOTE poisoning in infant, [Thorling] 1614
CRICOID cartilage, fracture of, [Wildenskov] 1060
CRIME and drug habit, [Hamilton] 1207
CRIPPLES, tuberculous, care of, [Martin] 649
CROSBY, W. D., retirement of, 475
CRUSTA phlogistica on blood, [Gram] 1205
CULTURE Medium: See under Medium
CYANIDS, effect of, on chloroform liver injury, [Davis] 488
CYPRESS OIL, 1971
CYST, dentigerous or follicular, [Wenker] *1877
chyle, [Grauhan] 1531
lung fluke cyst in brain, [Kimura] 823
multiple, in vagina, [Bérard & Dunet] 1136
of jaws, etiology, pathology and treatment of, [Dorrance] *1883
of rib causes lower arm paralysis, [Meyer] 2002
perirenal urine cysts, [Kaiser] 743
CYSTIC DUCT, ligamentum teres as covering for, [Burckhardt] 1692
CYSTIN calculi in bladder, [Mörner] 1614
CYSTITIS, false, [Nogués] 652
gonorrheal, [Linzenmeier] 1379
painful, surgical treatment of, [Rochet] 1606
CYSTOCELE and prolapse, [Earl] 965—ab
significance of pelvic outlet in, [Morse] 967
CYSTOMA, polypous, ovarian, [Kusuda] 655
CYSTOSCOPE, evacuating attachment for, [Severance] *706
CYSTOSCOPY, difficult, local anesthesia for, [Lichtenberg] 1378
with tumors in sigmoid flexure, [Michon] 652
CYSTOSTOMY, prostatitis after, [Alapy] 1774

D
DAMAGES allowed for loss or injury of leg, 148—M
allowed physician for personal injuries, 1280—M
because physician did not use roentgen ray in treating fracture of femur, 2072, 2131
claimed by donor of blood in case of transfusion, 1588
DAMIANA Compound with Saw Palmetto, 303—P
DANDRUFF, 1595
DANGEROUS DRUGS ACT, 136
control of narcotic drugs in English hospitals, 1113
DARIER, tribute to, 1505
DARIER'S DISEASE: See Keratosis follicularis
DARK ROOM, an effective, [Olsho] *1183
DEAFNESS, adventitious, social alleviations of, [Peck] *267
endemic tendency to, [Nager] 2152
needed measures for prevention of, during early life, [Hays] *263
DEAN Female Pil's, 879—P
DEATH, an interpretation of, 289—E
rate declines, 603—ab
DECADENCE of civilized nations in light of biologic research, 1034
DECEREBRATE rigidity in man, [Lhermitte] 2004
rigidity in infant, [Thomson & Piney] 2150
DEFECTIVES: See Feeble-Mindedness
DEGENERACY: See Feeble-Mindedness
DELANO'S Rheumatism Cure, 1828
DELAWARE state board June examination, 571
DELIRIUM cordis, [De Boer] 407
suggesting rabies, [Remlinger] 1053
DELIVERY: See Labor
DEMENTIA paralytica, cause of tabes dorsalis, dementia praecox and, [Van Trotsenburg] 1295
paretic, centennial of first description of, 801
praecox and paralytica, cause of, [Van Trotsenburg] 1295
praecox as a mental disease, [Minkowski] 1288
praecox, blood sugar studies in, [Raphael & Parsons] 151
praecox catatonica, blood in, [Uyematsu & Soda] 491
praecox, infectious origin of, 1467—ab
DEMODOX, pathogenesis of, [Lawrence] 1135
DEMPSEY, chiropractic not Nuxated Iron responsible for Dempsey's victory, [Jones] 220—C
DENTISTRY, history of, [Bisseling] 1778
DENTISTS, law governing physicians is law for dentists, 398—M
DEPILATORIES: See Hair, Superfluous
DERMATITIS, acute, and manufacture of artificial amber, [Sachs] 1216
ammonia, [Cooke] 1762
exfoliative following arsenic injections, [Whiteside] 154
factitious, 142
match-box, [Rasch] 1296
of chocolate dippers, 1199
phenolphthalein, [Ayres] *1722
procain, 395
pyrethrum, [McCord & others] *448
roentgen-ray, curietherapy of, [Bergonie] 409
suppression of sweating after toxic dermatitis, [Patzschke & Plaut] 1933
venenata, toxin treatment of, [Strickler] *910
DERMATOLOGIC research, necessity for, 1104—E
DERMATOSES, industrial, among printers, 1760
DERMOID cysts, cancerous, of ovary, [Eisenstädter] 499
DETUBATION, [Reh] 1051
DIABETES INSIPIDUS, [Meyer & Meyer-Bisch] 1293
after trauma of head, [Catterina] 75
DIABETES INSIPIDUS and pituitary, relations between, [Villa] 1848
gastro-intestinal disturbances with, [Gorke & Deloch] 1932
growth disturbances in child with, [Gayler] 2009
hereditary, [Janzen & Broekman] 330
metabolism in, [Rabinowitch] 1205
ocular manifestations in, [Marín Amat] 1849
DIABETES MELLITUS, acute military tuberculosis in, [Caussade & Doumer] 650
after mumps, [Labbé & Debré] 1770
Allen treatment, valuation of, [Williams] 812
and glycosuria in exophthalmic goiter, [Holst] 744
and pregnancy, [Bell] 1202—ab
and surgery, [Bith] 892
and syphilis, 880—ab
and syphilis in negro, [Lemann] 1045
arteries in legs in, [Heitz] 72
association of, with other diseases, [Achard] 1769
blood fat in, [Blatherwick] 2147
blood pressure in, [Hitzenger] 742
blood sugar in, [Fitz & Bock] 1765
blood test in, [Williamson] 1135
carbohydrates in, [Chabanier & others] 892
coma with renal insufficiency [Mödré] 2100
diagnosis of latent or incipient diabetes, [Sherrill] *1779
diet adjustment in, [Woodyatt] 885
edema in, 202—E
etiology of, [Mitchell] 1284
fasting in, [Labbé] 71, 1210
gangrene in, [Massary & Girard] 71
high fat diet in, [Newburgh & Marsh] 150
hirsutism plus, [Achard & Thiers] 891
in negro, [Lemann] 403
Jacksonian epilepsy in, [Rathery & others] 1770
newer methods in treatment of, [Joslin] 1996—ab
ocular signs of, [Terrien] 1926
potential, 2124—E
practical and historical aspects of carbohydrate diet in, [Falta] 1293
prevention of acidosis in treatment of, [Ebert] 64—ab
treatment of, 390 [Lenné] 1214, [Salomon] 1929
vegetable problem in diet in, [Orton] 1682
DIAGNOSIS, examination of standing patient, [Krieg] 1143
laboratory vs. clinical, [Pottenger] 1365
local temperature in differential diagnosis, [Seitz] 239
percentage of error in, [Rowand] 1209
subjective signs in, [Williams] *185
value of abdominal contraction method in, [Kohn] 1207
DIAPER, ammonia dermatitis, [Cooke] 1762, [Hart] 1764
DIAPHRAGM, traumatic rupture of, [Dodgson] 1135
DIARRHEA, infectious, bacteriology of, [Graham] 1282
infantile, mortality from, and earth temperature, 2131
infectious, outbreak of, [Welss] 489
lowered alkali reserve in, [Guy] 1768
mild, an infectious agent in, 790—E
paraffined starch in, [Doumer] 578
summer drugs in, [Sinclair] 888
treatment of, in tuberculous, [Lassablière] 234
DIATHERMY in gynecology, [Sperling] 415
in malignant tumors of pharynx, [Turner] 818
DIATHERMY in bladder tumors, [Corbus] 1922
DIAZO versus urochromogen reaction, [Wahlberg] 1380
DIET: See also Nutrition and under names of diseases
DIET, choice between adequate and inadequate diet, [Mitchell & Mendel] 2147
defective, as cause of sterility, [Reynolds & Macomber] *169
recovery when diet is made adequate (nutritional rehabilitation), 289—E
DIGESTIVE TRACT: See Gastro-Intestinal Tract

- DIGITALIS**, dosage of, in children, [McCulloch & Rupe] 1045
preparations, standardization of, [Lewis & Moffat] 1764
series, clinical studies of apocynum and convallaria, [Marvin & White] *1865
tolerance of children for, [McCulloch & Rupe] 2087—ab
- DIPHTHERIA**, [Thomson] 493
active immunization against, [Rohmer & Lévy] 1605, [Opitz] 1850
administration of toxin-antitoxin when Schick test is negative, 1594
and hemolytic streptococcus carriers, [Adkins] 2087—ab
antitoxin, 719
antitoxin by mouth, [Aviragnet & others] 1052
antitoxin in mumps, [Villegas] 326, antitoxin, 10 years' experience with, in Bulgaria, 874, [Chenisse] 1137
Antitoxin-Toxin Mixture, 1971
bacilli and diphtheroids of adenoids and tonsil, [Pilot] 317
bacilli, culture mediums for, [Pellini] 896
bacilli in sputum, [Port] 1294
bacilli, Pergola's egg medium for, 1358
bacillus, research on, 715
bacillus stain, Albert's, 1838
bacteriologic diagnosis of, [Pergola] 1773
bovine antisera for, [Kraus & others] 1608
carriers sterilized by ultraviolet rays, [Donnelly] 1132
control, [Carey] *668
degree of immunity to, insured by negative Schick reaction, [Park] 401
diagnosing and treating as quinsy, 311—MI
effect of diphtheria toxin on blood, [Tongs] 1369
epidemic of, 1830
heart failure and antitoxin in, 1675
heart in, [Smith] *765
Immunity Test (Schick Test) 1971
immunity to diphtheria: Schick reaction, [Ekvall] 502
in new-born, [Lietz] 79, [Brindeau] 1925
in Spain, [Martínez Vargas] 1057
laryngeal, [Hogan] *662
nervous phenomena following, [Basacchi] 739
of penis, [Cochrane] 492
of umbilicus, [Comby] 1051
outbreak in private school, management of, [Fleischner & Shaw] *1714
paralysis due to, cured by serotherapy, [Labbe] 1605
paralysis, postdiphtheritic diaphragmatic paralysis, report of 8 fatal cases in 4,259 cases, [Mixsell & Giddings] *590
paralysis, generalized, following, [Achar] 819
paralysis of accommodation after, [Poulard] 894
prevention work in public schools of New York City, [Zingher] *835
preventive measures, 1025—E
progressive gangrene, syphilis and diphtheria, [Voss] 2012
Schick reaction in, [Ward] 405, [Hannah] 575, [Comby] 1605
Schick test and active immunization with diphtheria toxin-antitoxin, [Mulsow] *1254
Schick test and immunity to, 703—E
toxin in serum during diphtheria, [Busacchi] 2006
treatment of, [Bie] 1144, [Widowitz] 1609
vaccine, local reaction to injections of, [Opitz] 825
- DIPHTHEROIDS** and diphtheria bacilli of adenoids and tonsils, [Pilot] 317
- DIPLOMA** mill still active, 132
more diplomas of "Oriental University," 1433
- DISEASES**, associated, [Plaundler & Seht] 1144, [Löwy] 2097
influence of one disease on another, [Löwy] 2008
predisposition to, [Theilhaber] 1533
- DISINFECTION**: See also Sterilization
- DISINFECTION**, disinfecting apparatus, [Vernicke] 1608
new regulations in Berlin in regard to, 2074
- DISINFECTION** of dialyzing membranes, [De Angellis] 1213
of rubber catheters, [Hadda] 825
of sickroom, 802
- DISPENSARY**, educational function of an outpatient department, [Shambaugh] 1275—ME
Göteborg plan for dispensaries, 211
new, for Washington Navy Yard, 1265
- DISSECTION**, inquiry required of institutions receiving bodies—cremation after dissection, 1840—MI
lack of cadavers for, 216
- DISTOMIASIS**, pulmonary, brain symptoms caused by, [Kawamura & Yamaguchi] 1209
- DISTRICT OF COLUMBIA**, April examination, 305
July examination, 1122
- DIURESIS**, factors in, 1343—E
from water, nervous factor in, [Pico & Murtagh] 326
- DIVERTICULA**, diverticulitis and peridiverticulitis of small intestine, cecum, colon, sigmoid flexure and rectum, [Gant] *1415
diverticulitis and cancer of sigmoid, [Mayo] 1922
duodenal, [Andrews] *1309, 1341—E, [Novaro & Galíndez] 1929
of urinary bladder, [Lower] 315
- DIVORCE** and mental derangement, 389
impotence quoad hanc, 297
- DOG** meat as food in Germany, 802
paraplegia in, [Gwyn] 1120—C
- DOHLE'S** inclusion bodies and Arenth's leukocyte count in tuberculosis, [Tominaga] 1845
- DOLD**, new head of serodiagnostic department of Behring Institute, 1751
- DONALDSON'S** Wonderful New Life Remedy, 879—P
- DONDERS** memorial, 295
"DR." and "M.D.," [Bassler] 2143—C
- DRAINAGE** tube fixation, simple method of, [Campbell] *1890
cigaret drain, [Robinson] *2121
- DRESSING**, improvised antiseptic, adhesive, [Taylor] 321
- DROWNING**, method for determination of death by, [Gettler] *1650
- DRUG** addict, physician issuing to, prescription to be filled through innocent agency, 884—MI
addict, [Ravenel] 1199—C
addiction, report of committee on, 1504
antinarcotic laws in Brazil, 1980
Dangerous Drugs regulations, 136
economy in, in Budapest hospitals, 2134
habit and crime, [Hamilton] 1207
habit-forming, 1270
in infancy and childhood, use of, [Helmholz] *1157
in internal medicine, value of, [Barker] *1151
in surgery, value of, [Crile] *1155
mistake in dispensing cause of deaths, 875, 1350
Narcotic: See also Harrison Law
narcotic, call for conference on, 1980
narcotic drug regulations in England, 1043, 1113
narcotic, tests of, [Eckstein & Rominger] 2007
novelties in medicine, 1667
states may enact antinarcotic laws, 963—MI
therapy, rôle and development of, [Rowntree] *1061
toxicity of drugs and route of administration, [Kolmer] 815
- DRUGGIST**: See Pharmacist
- DRUGLESS HEALERS**, classification of, 147—MI
provincial report in British Columbia on, 1516—ME
- DRUNKENNESS**, 566
- DUCTLESS GLANDS**: See also Secretions, Internal
- DUCTLESS GLANDS** and nucleoproteids, [Grobly] 160
dystrophia of, [Hutinel & Maillet] 1525
- DUCTUS ARTERIOSUS**, clinical picture with patent arterial duct, [Bard] 407
congenital aneurysmal dilatation of, 729
- DUODENUM**, chronic occlusion of, from compression by mesentery, [Leveuf] 235
contents in normal individuals, fractional analysis of, [Friedenwald & Sindler] *1469
- DUODENUM** contents, physical characters and enzymatic activities of, findings during gastric digestion in normal young men, [McClure & others] *1468
cytology of duodenal tube findings, [Rothman-Manheim] 899
Diverticula: See Diverticula
hemangioma of, [Carman] 1046
ileus, chronic, [Wilkie] 1924, 2002, 2092
obstruction, observations on gastric and duodenal motility in, [Wheeler] *1404
phenoltetrachlorphthalein estimation in duodenal contents, [Kahn] *41
stenosis, chronic, [Duval & Gatteller] 650
test for bile in acids in duodenal juice, [Beth] 743
tubercle bacilli in duodenal fluid, [Carnot & Libert] 892
ulcer: See stomach ulcer
- DUPRÉ**, Ernest, death of, 1195
- DUST**, influence of, on growth of bacteria, [Cluver & Mavrogordato] 1687
injuriousness of, in industry, 1423—ab
- DUTCH EAST INDIES**, medical and public health service in, [De Langen] 658, 826, 1456
- DWARFISM**, infantilism and dwarf growth, [Brandis] 656
pituitary origin of, [Maranon & Solanilla] 1929
rachitic dwarf growth, [Gerstl] 327
- DYSENTERY**, Amebic: See also Amebiasis
amebic, value of finding Charcot-Leyden crystals in stool in, [Thomson & Robertson] 2093
bacillary, [Job] 818
bacillary, acute, treatment of, [Crichlow] 973
bacillary, in Chile, 871
bacillary, in Texas, [Boyd] 1448
bacillary, serotherapy of, in children, [Josephs & Davison] *1863
bacillary, stomatitis ulcerosa cachectica as complication in, [Kundratitz] 2009
etiology of, [Janowski] 1136
- DYSMENORRHEA**, operative treatment of, [Forssner] 1458
- DYSOSTOSIS**, cleidocranialis, [Janzen] 1370
- DYSPEPSIA** and nutritional diseases in 1920, [Lortat-Jacob] 892
fermentation, [Stenström] 1931
in artificially fed infants, [Veronese] 1928
influence of, on nervous system, [Loeper & others] 1607
nervous reflexions of, [Loeper & others] 1052
or cholelithiasis, [Ramond] 893
prevention of, in infants, [Bessau & others] 824
surgical treatment of, [McGuire] 734, 1128—ab
- DYSYPHAGIA**, hysterical, [Wilson] 966—ab
- DYSPNEA**, cardiac, [Eppinger & Schiller] 743
pathology of, [Hess] 742
- DYSTOCIA** from fecal tumor, [Etcheverry Boneo] 2096
- DYSTONIA** musculorum deformans, [Howe] 1235
- DYSTROPHIA**, glandular, [Hutinel & Maillet] 2004
muscular, epinephrin in, [Aldabalde] 1455
sclerodermic, [Curschmann] 2097

DEATHS

- Abbot, Florence Hale, 635
Abbot, Wallace Calvin, 139
Acker, Milton F., 1834
Adamkiewicz, A., 1829
Adams, Clovis, 568
Adams, John Martin, 1908
Agnew, James Alexander, 1671
Aitkin, Frederick M., 957
Albers-Schönberg, H., 211
Allen, Asa A., 1355
Allen, John Thomas, 392
Allende, E., 631
Allison, Lucien Dent, 1354
Alrich, William M., 1590
Altmiller, Charles F., 636
Amis, William A., 569
Amman, Edgar William, 1512
Anderson, William Henry, 1271
Andre, Simeon N., 1512
Andrews, James Campbell, 1671
Applebach, Henry E., 2079
Arendrup, Herluf, 1432
Armaignac, Dr., 1981
Armona, M., 1031
Armstrong, Marlette M., 1355
Armstrong, Milton Nathan, 1834
Armstrong, Paul, 481
Arnold, William Ford, 1986
Ashley, Edward Mayo, 1834
Arnold, Harry L., 392
Arrington, John D., 878
Aschmann, Gustavus A., 1354
Ashe, Walter Ruffin, 1118
Astler, George H., 481
Ausbrosks, George W., 2141
Ausset, E., 1192
Austin, Silas Addison, 481
Avendano y Silva, A., 1031
Axline, William H., 1196
Ayres, Melancthon S., 804
Ayres, Stephen Cooper, 1036
Baber, William Lafayette, 2078
Bachmann, Morris Piper, 1355
Badger, Samuel W., 1590
Bahio, M. J., 1583
Bailey, George D., 878
Bainbridge, F. A., 1981
Baird, John H., Sr., 804
Baer, George Franklin, 636
Baldwin, William H., 568
Ball, Andrew J., 1037
Ballard, Asa N., 957
Bamberger, E., 1506
Baner, William Lewellyn, 2078
Banerjee, L. M., 1432
Banner, Logan L., 481
Bantley, Bartholomew, 721
Barber, Edmund Hopkins, 480
Barber, Joel H., 957
Barbosa, José Celso, 1437
Barclay, William A., 1512
Barnes, Albert Spurgeon, 1590
Barnes, George, 597
Barnes, Joshua, 957
Barnes, Leona F., 878
Barnes, Robert A., 1671
Barr, Bernice Barks, 1671
Barr, Roy Leslie, 1752
Barrett, Elmer E., 804
Bartlett, Melgs J., 1437
Bartols, Lillie Anastasia Aberle, 1834
Bary, Vera F., 1590
Baster, Wm. Clay, 57
Batman, William F., 1908
Battle, Thomas J., 1271
Baxter, Andrew Cornelius, 1986
Bayliss, William M., 636
Bayona, J. Cortés, 1265
Baze, Robert Joseph, 1908
Beacom, Albert A., 1986
Beardslee, Frederick N., 392
Beardsley, Andrew J., 721
Beebe, Edwin L., 480
Bechtold, Louis J., 139
Becker, L., 565
Beckett, William Francis, 1437
Beckh, W., 565
Beckham, Henry F., 1834
Beebe, William, 1834
Bell, George Pearson, 721
Bell, George Wallace, 1197
Bell, John T., 1512
Bell, William A., 211
Bennett, Charles R., 1590
Benton, Alice A., 1834
Bérard, P., 796
Bercial, Dr., 1114
Bergen, Lloyd Moss, 1437
Bering, Robert Eugene, 721
Berlin, Fanny, 2079
Berry, Jacob Edward, 721
Berry, Richard P., 218
Best, Margaret Blanche, 569
Beyer, James Monroe, 1752
Bienenstock, Abraham S., 1986
Biggar, Hamilton Fisk, Jr., 1511
Biggs, Harvey Lewis, 1908
Bilbo, John W., 636
Bingham, J. Eugene, 1671
Binns, Reuben C., 1909
Bishop, Gertrude A. G., 957
Bittner, Edward W., 140
Black, James Alexander, 1119
Blake, Henry B., 392
Blake, William H., 877
Blakemore, Henri A., 392
Blanchard, Nicholas Norman, 1036
Blaney, Oregon C., 1512
Blankmeyer, Henry J., Jr., 1590
Blechmann J., 796
Blockinger, Albert Herman, 481
Bluitt, Lyman B., 392
Bogue, Edward A., 1908
Boice, James Morton, 1986
Boice, John M., 636
Bolton, Mahlon, 957
Bond, Harry A., 1512
Bondy, Albert L., 1037
Bone, Joseph Wade, 1271
Bonnet, R., 1748
Bonora, R. N., 631
Booher, William J. H., 1119
Boone, Dexter W., 2141
Boswell, Charles J., 1590
Bouillon Cavezudo, M. A., 1583

- Bowen, Daniel Hampton, 957
Boyd, James Peter, 1752
Boyers, Cyrus F., 2079
Braden, William C., 721
Bradford, Claudius B., 1271
Bradley, Frank L., 1512
Bradley, George W., 1671
Brady, William Joseph, 1671
Brandao, J. C. Telxera, 1348
Brannon, Lloyd Henry, 1119
Brav, Herman A., 1437
Bray, Nicholas, 2079
Brewer, Andrew J., 1271
Brindley, Roy, 1355
Brock, H., 217
Bronner, Herbert, 2141
Brooks, Simon W., 636
Brough, Davie Dandie, 568
Brown, Edward W., 636
Brown, Elias Galley, 480
Brown, Helen Williston, 569
Brown, Robert Luddington, 635
Brown, Warner E., 1119
Broyles, Charles J., 1986
Bruno, William Henry, 1909
Brust, J. F., 1981
Bryant, John, 721
Bryant, Madison, 218
Buck, Francis D., 1986
Buck, Henry C., 1037
Buck, William Penn, 1512
Bull, Col. W. H., 1031
Buren, Wilbur F., 1512
Burgett, William W., 2078
Burgin, George H., 636
Burke, Thomas, 57
Burnett, Joshua U., 1908
Burns, George M., 1752
Burns, George Washington, 1986
Burr, Henry Newton, 480
Burrit, Alice, 302
Burt, William H., 1512
Butler, Charles M., 878
Butler, George Frank, 56
Butler, James G., 2141
Butler, John Freeman, 1986
Buzzell, Leonard O., 57
Bynum, Archie M., 636
Byrne, Charles Christopher, 1752
Caldwell, John Miles, 140
Caldwell, William Minns, 2141
Calhoun, George L., 1037
Callane, Marshall D., 569
Campbell, Thomas F., 2141
Cardenas, J. del C., 871
Carey, Charles H., 878
Carey, Robert B., 1036
Carey, William Wallace, 1671
Carleton, William G., 1196
Carmichael, Aaron Lee, 957
Carmichael, Benjamin F., 1355
Carmichael, John Wesley, 721
Carnes, Charles F., 1590
Carøe, K. F., 1981
Carr, Lawrence C., 2141
Carrol, James R., 302
Carson, Albert W., 1437
Carvalho, J. Egydio de, 475
Paes de Carvalho Sobrinho, J., 296
Casali, A., 1432
Casgrain, Charles A., 1197
Castillo, Arturo del, 636
Castillo, Daniel, 1671
Castles, William S. A., 1355
Catron, Robert P., 1037
Chaapel, Victor P., 1511
Chambers, Jacob G., 1834
Chamblin, Marquis R., 1036
Chambliss, Thomas Lee, 1512
Chandelon, Dr., 950
Channing, Walter, 1908
Chapin, Warren B., 1037
Chapuis, G., 387
Chase, Walter L., 804
Chenault, John C., 1355
Chervin, A., 387
Childs, William, 2079
Chisolm, Henry Clay, 1590
Chloupek, Edmund H., 878
Cholodkowsky, N. A., 1114
Chotzen, M., 950
Clapp, Wesley F., 658
Clarens e Ibern, A., 1348
Clark, Ernest M., 878
Clark, George F., 1119
Clarke, Joseph T., 1590
Coates, Louis P., 569
Coatsworth, Richard Collier, 1036
Coffey, Bert, 1437
Cogswell William B., 636
Cohen, Elizabeth, 569
Colajanni, N., 1348
Colbourne, John Antony, 1512
Colburn, Clarence P., 1909
Coll, Arthur Patrick, 721
Collins, William Homer, 2079
Colter, George Frederick, 1834
Combs, Robert B., 140
Comegys, Nathaniel W., 721
Condory, Vilmas, 1590
Cone, Frank Brother, 392
Conkey, Charles DeWitt, 1118
Conklin, William James, 1196
Conniff, Robert E., 140
Connolly, Henry A., 302
Conwell, William F., 2079
Cook, Benjamin Harvey, 1834
Cools, Dr., 1830
Cooper, Josiah E., 1752
Coopersmith, Samuel, 1271
Copeland, Alcanda A., 2141
Córdova y Bravo, Luis, 1981
Cory, Walter Bennet, 1271
Contessa, Lawrence, 140
Cook, Green Mouroe, 569
Cook, William Henderson, 721
Cornell, Isaac M., 481
Cornelli, E., 950
Baeh y Cortadella, J., 1114
Cossey, William A. Lincoln, 1512
Coté, Camille, 636
Courrel, F. T., 950
Cousins, J. W., 1348
Coutant, Richard B., 1037
Cox, Ella B., 218
Cox, Truman H., 2078
Coy, Clinton H., 804
Cozy, J. A., 721
Craft, Robert A., 2079
Craig, Thomas Canby, 2141
Crandall, Charles Edward, 1512
Crawford, Charles E., 1036
Crawford, Levi D., 569
Crenshaw, Hansell, 877
Crespo, Tirso Luis, 296
Creswell, George, 140
Crismore, William E., 569
Crooker, Leander James, Jr., 2079
Crosland, William James, 1197
Crossthaite, David W., 481
Croston, John Francis, 635
Crowder, Joseph K., 1271
Crowley, John Francis, 1512
Cryer, Matthew H., 721
Cuff, H. E., 1031
Cully, John F., 1119
Culpepper, W. W., 139
Cunningham, Louis Braby, 392
Cunningham, Russel McWhorter, 56
Cunningham, Wilfred B., 1197
Currens, John Randolph, 1986
Curtis, David G., 1986
Cushman, Marshall L., 635
Dake, Alfred J., 1197
Dakin, William Scott, 1037
Dale, Joseph E., 1271
Dale, Marian A., 1271
D'Alesandro, A., 1348
Dalton, Christopher C., 957
D'Amico, Americ George, 1271
Danforth, Loomis LeGrand, 1752
Daniel, William B., 140
Darby, Franklin H., 597
Darr, Isaac E., 1512
Davenport, Frederick Marshall, 57
Davidson, Elijah A., 1590
Davidson, Will J., 569
D'Avignon, Francis J., 569
Davis, Milton Burr, 636
Davis, Robert L., 636
Dean, C. V., 569
Deane, William Curtis, 877
DeBacher, August V., 1197
Debrunner-Albrecht, A., 1432
Defendorf, John Jacob, 392
De Giacomi, J., 1981
De Goes e Vasconcellos, Domingos, 475
De Haan, Henry J., 218
Dejoie, Paul H. V., 1437
DeLacy, William H., 1590
Denekamp, M., 1583
Denison, John W., 1271
Denniston, Robert, 2079
Denny, Eli, 1437
De Sant'Anna, F. J., 1348
DeSouchet, A. L., 1119
De Torres, Ramon A., 1512
Deutsch, J., 211
Deyo, Jonathan Titus, 1590
Dickey, William A., 1752
Dickie, James R., 481
Dickle, William W., 1752
Dinsmore, Silas, 1196
Dinsmore, David Collins, 1908
Dodge, Francis H., 721
Dodge, George Wayland, 392
Dodge, Sidney W., 1271
Donald, Alexander, 1834
Dorewitz, Maurice, 481
Douglass, Robert L., 2141
Dove, John Fitch, 1752
Downie, William Edgar, 636
Downing, Samuel N. A., 140
Drake, Francis J., 957
Drake, Harlow B., 392
Drill, Alexander Aloysius, 2079
Drinnon, Riley W., 2079
Drouineau, G., 1830
Duff, John F. H., 1752
Dunbar, Stiles H., 1752
Dunn, Charles N., 1752
Duos, F. I., 950
Dudley, Dwight, 302
Dunbar, Eugene B., 140
Duncan, John Alexander, 878
Dupré, Ernest, 1114
Durham, John L., 57
Durnell, Aubert, 635
Dutton, Julius Maltby, 810
Dyer, Ebenezer Alden, 804
Eads, Charles Vincent, 1752
Eareckson, Edith, 1118
Earle, Thomas T., 302
Eason, Oscar, 481
Easton, Frederick Edward, 1752
Ebaugh, William Calhoun, 140
Eberhart, Isa A., 1671
Eberlein, Frederick W., 218
Edel, K., 631
Edwards, Eldredge S., 721
Eichhorst, H., 714
Eisenberg, Phillip Y., 804
Elder, Samuel A., 1271
Elliot, John Barnwell, Sr., 636
Elliot, John W., 1355
Ely, William B., 481
Embry, John A., 2079
English, James Harvey, 957
Ensminger, Samuel L., 1271
Ensor, L. D. J., 1908
Erb, W. H., 1829
Erhard, Phillip, 392
Eskew, Oscar, 569
Evatt, George Joseph Hamilton, 1981
Eversole, Chester A., 1512
Ewald, J. R., 871
Exner, Alfred, 1981
Fahre, J., 211
Fahrenbaugh, William H., 569
Fairbairn, Archibald, 392
Fay, James Monroe, 568
Fehr, Howard A., 636
Feland, John M., 877
Feldman, Jacob, 1834
Felt, John Calvin, 636
Fenton, Jefferson Davis, 481
Fernández, Nicasio, 565
Ferrall, G. H., 957
Ferralis-Biddau, U., 950
Ferran, J. E., 796
Fickes, Howard, 302
Fiedler, A., 211
Field, Ferdinand, 218
Fields, William J., 1834
Finch, Sarah Elizabeth, 139
Fiorentine, G., 1506
Fitts, William L., 1197
Fitzpatrick, Harrison, 481
Fletcher, W. W. E., 796
Flinn, Irvine Moore, 1908
Flynn, John Joseph, 1834
Folger, Rupert, 1752
Fønss, A. L., 1667
Ford, Thomas D., 1271
Ford, Willis C. R., 1437
Foreman, Absolom L., 2141
Fortesque-Brickdale, John M., 216
Foss, Charles M., 1437
Fowler, John D., 2141
Fox, Charles Vernon, 1834
Fox, George Herbert, 218
Fox, William Henry, 1752
Frame, Thomas C., 1437
Francis-Franek, Dr., 1192
Frank, John, 636
Frankson, Benjamin, 302
Fraser, S. John, 1437
French, Benjamin Franklin, 569
French, Robert T., 804
Freyer, Sir P., 1192
Fried, Amos Emmanuel, 636
Frisbie, William R., 957
Fromm, B., 1506
Fuller, Austin B., 302
Fussell, James, 804
Fussell, Milton Howard, 1437
Fyshe, James C., 2141
Gainza, R. de, 1748
Gallivan, William J., 392
Gambill, John Milton, 1197
Gamble, Cary Breckenridge, Sr., 1752
Gano, Sidney J., 804
Gant, James Robert, 2079
García, Evaristo, 565
Garland, Albert Stone, 2079
Garrison, George B., 140
Garrison, William L., 1671
Geeslin, Preston A., 1037
Gennerichs, G., 1348
George, Frank J., 1512
Gerhardt, D., 796
Gibbs, John Wilson, 1590
Gibson, James T., 569
Giles, Cleon Andrew, 721
Giles, William, 1037
Gill, John C., 1271
Gilmore, William Grant, 877
Ginn, David R., 1437
Girard, L., 1348
Glasco, Jesse, 1986
Glascock, George W., 2079
Glickstein, Abraham, 2079
Goddard, Nathan Andrews, 1986
Golden, Sol S., 1590
Gonçlaves, G., 1506
González de Segovia, M., 1265
Goodbred, Robert Lee, 877
Goodman, William J., 957
Goodwill, John Jones, 1986
Goossens, L. C. H., 1432
Gordon, Charles Wesley, 1909
Gordon, Samuel B., 481
Gordon, Seth Chase, 139
Gorham, George H., 2078
Goss, Isham Hamilton, 878
Gould, Isaac P., 1437
Grace, George Holbert, 878
Graham, James Patterson, 1511
Gramaxo, J. de Andrade, 714
Graner, Edwin Jackson, 1036
Graves, Frederick E., 481
Graves, Henry North, 302
Graves, John F., 1437
Gray, Herbert Lee, 480
Green, Albert W., 877
Green, James K. P., 957
Green, John S., Sr., 636
Green, McKendree, 1512
Greer, Reuben Thomas, 2079
Gresham, Andrew B., 1037
Griffin, Herbert, 1037
Grimes, Charles W., 1271
Grimes, Louis A., 139
Griswold, Vernon Marks, 2079
Groff, James E., 57
Groner, Flavius J., 1196
Grossman, Daniel S., 1512
Groth, Frederick W., 2079
Groat, Franklin, 1114
Gruss, A., 1981
Guedes de Miranda, F. C., 950
Gundry, Lewis H., 1118
Guthrie, Robert Lee, 392
Guy, Clement North, 481
Haas, Julius, 481
Hecker, Isaac B., 636
Haddock, Horace Preston, 804
Hadley, Wilmer Amos, 2079
Hagenbach-Burckhardt, K., 1114
Haig, John, 568
Hale, Samuel Echols, 1909
Haley, Oba, 1590
Hall, Charles Walter, 302
Hallanan, Thomas, 1512
Hambright, Edwin A., 804
Hancock, Eugene T., 2079
Hancock, Nathan Miller, 1119
Hantsch, R., 1142
Haraway, Pleasant M., 1271
Harcourt, William L., 1036
Haralson, Jeff B., 1834
Hardcastle, J. L., 1355
Hardegger, Alice Maeffer, 950
Harner, Daniel W., 804
Harris, John F., 1512
Harrison, Bernard Hove, 1909
Harrison, Howard David, 1671
Hartwell, John Henry, 57
Haswell, Eddy Stearns, 1909
Hatch, Peter R., 1512
Hatfield, Cornelius L., 1590
Hauben, Dr., 1583
Haultain, F. W. N., 796
Haward, J. W., 1192
Hayden, James Raynor, 1354
Hayes, James P., 1197
Hayes, Robert F., 1752
Haynes, Eugene E., 597
Haynes, Stanley Hewitt, 721
Healy, Michael D., 218
Hedgecock, George W., 957
Hedges, Josiah S., 1437
Hedrick, William H., 1512
Helm, Ernest C., 1355
Heimstreet, Thomas B., 1511
Hench, John Bull, 1118
Henderson, Albert Wallace, 1752
Henderson, Charles M., 1037
Henderson, Duncan D., 2079
Henriques, Henry A., 804
Hendrixson, Lewis H., 1908
Henry, Albert G., 957
Henry, Thomas Burnfield, 1671
Heritage, J. Irving, 597
Herman, Henry, 480
Hernández, M., 211
Herrod, Willis Lee, 1197
Herron, Alexander M., 1512
Hershey, John B., 1271
Hershey, Emanuel R., 1671
Hershiser, Anthony E., 218
Hertzog, Albert E., 1834
Heller, William Henry, 57
Hicks, Lamartine Orlando, 480
Hiatt, John, 1590
Higgins, Henry Rich, 878
Hilbert, Pierre A., 1196
Hill, Benjamin Levin, 218
Hill, Jesse L., 481
Hill, Walter Henry P., 568
Hiller, Hiram M., 721
Hills, Edward L., 1197
Hirst, Patrick Joseph, 721
Hitch, William S., 1834
Hitchcock, Walter, 140
Hixson, George W., 636

- Hjort, J. A., 1265
Hodges, Burton, 1197
Holiday, Joshua W., 877
Hölker, Dr., 1432
Holland, Margaret E., 1119
Hollis, Austin W., 1752
Holly, Elsha W., 2079
Holtzapfel, Milton, 1355
Hooper, Sir William R., 1506
Hopkins, Charles B., 1197
Horah, Allston David, 1834
Hoskins, Walter D., 1196
House, John W., 140
Houston, John P., 569
Howard, Elmlra Y., 721
Howard, Manchie E., 1512
Howland, Edgar J., 804
Hoyt, Andros W., 1512
Hubbard, B. Roswell, 140
Huff, V. C., 721
Huffaker, James R., 1834
Hull, Madison Darwin, 1119
Hunlock, Edward Royal, 1037
Hunt, Ward Evans, 218
Hunter, G., 1432
Hurlock, Frank, 636
Hurst, Nathaniel N., 481
Hutchinson, Charles, 2079
Hutson, Jefferson G., 721
Ibiza, Blas Lazaro, 1348
Ingalls, Gilbert B., 636
Ingersoll, Joel M., 302
Ingersoll, Lowell, 218
Ingoldsby, Joseph E., 803
Inks, John S., 140
Irvine, Robert Thomas, 1671
Isenberg, Edgar E., 1671
Isley, Joseph P., 1590
Jackson, Andrew C., 480
Jackson, Arthur Flournoy, 2141
Jackson, Edward R., 1036
Jackson, Justin Lowe, 804
Jacobs, Harold Hill, 877
Jahn, R., 565
Jannet, Joshua D., 140
Jansing, Joseph Henry, 392
Jenkins, William T., 139
Johnson, Arthur Jukes, 480
Johnson, Charles F., 636
Johnson, Robert Wesley, 140
Johnson, Thomas C., 1196
Johnston, John Chamney, 302
Jolasse, O., 871
Jones, A. R., 1834
Jones, Edward Groves, 1354
Jones, Eli Spear, 1671
Jones, John C., 2141
Jones, John Leland, 1271
Jones, Robert E., 1590
Jones, William J., 1355
Julien, William F., 636
Kaiser, Abraham Jerome, 568
Kalish, Richard, 319
Karlinsky, Leo, 140
Keating, John Joseph, 1834
Kelly, Wallace B., 569
Kellis, John D., 1512
Kendall, John C., 1196
Kenniston, William B., 804
Kent, John O., 1909
Kerr, Marcus C., 1437
Kesler, Abraham J., 1119
Kessler, James K. P., 1909
Kiely, William E., 392
Kiley, Edward S., 1437
Kimball, Arthur Stevens, 1834
Kimery, Henry A., 957
King, Charles T., 2078
King, Oscar Augustus, 956
Kinnvall, E. I. A., 950
Kintzi, Erwin Julius, 636
Kirkpatrick, Everind Alexander, 1590
Kirkpatrick, George W., 1197
Kistler, Washington L., 1037
Kline, Howard Wheelwright, 804
Kline, Sherman M., 1271
Knorr, L., 211
Koch, Albert Garfield, 1590
Köhler, J., 1348
Koogler, Marlon, 302
Koons, Philip Rankin, 1671
Kraft, C., 1031
Krause, H., 871
Kreisler, S., 1265
Krum, Thomas E., 2079
Kubes, Dr., 1506
Kupp, Daniel Webster B., 1671
Laastad, A., 1830
Laelar, Henry J., 140
Laferrriere, Charles E. A., 878
Lagace, Joseph A., 804
Laird, Eugene Bernard, 139
Lajoux, H., 714
Lake, Frederick W., 480
Lamkin, William E., 636
Lamphear, Albert H., 480
Lamson, Allen, 139
Lang, V., 475
Latimer, James P., 57
Laubach, Stephen, 2141
Lauwers, E., 211
Lawrence Elijah W., 1986
LeGro, Lester Burnside, 878
Leguizamon, H., 631
Leidy, Thomas H., 804
Leon, Cipriano Hernandez, 1119
Leonard, Pierre Isadore, 1196
Lerch, A., 211
Levens, William Basil, 1271
Levy, Henry H., 1590
Lewandowsky, F., 1829
Leyton, A. S., 1348
Lille, William A., 218
Lindley, Chambers Morton, 1590
Lindsay, Johnson C., 1909
Linn, Henry G., 1986
Lipmann, Gabriel, 634
Lipsitz, Samuel T., 1036
Lipson, John M., 1355
Little, A. Hampton, 392
Loewenstein, Alexander Mitchell, 804
Loggins, James C., 1354
Lomison, William A., 636
Long, Frederick Seely, Sr., 1119
Longacre, William W., 57
Longstreet, Samuel P., 957
Lonsdale, James, 302
Lorrain, Joseph Alphonse, 803
Lothridge, Fulton Monroe, 804
Lovelady, Benton, 1036
Lowder, William L., 2079
Loxton, A., 1348
Lull, Sherman L., 1036
Luna, Thomas L., 392
Lung, George A., 568
Lupo, P., 1432
Luten, Joseph Reed, 1119
Lynn, Bascom, 1671
Lynn, Robert S., 721
Macbeth, Chester St. Julien, 569
MacDiarmid, John, 57
MacDonald, John Munroe, 636
Macfarlan, Malcolm, 2079
MacKillavry, T. H., 475
Madden, Joel Davis, 1909
Maguire, Edward O'Reilly, 1590
Mackintosh, James Hetherington, 721
Magill, Isaac H., 392
Mahady, Charles R., 721
Manion, Patrick Henry, 1512
Mann, Gustav, 635
Marcondes, J. Vieira, 1748
Marcouzet, Roquet, 1981
Marcy, Alexander, Sr., 1037
Marion, James Willis J., 804
Marker, John J., 1036
Marling, John H., Oswald, 636
Marlow, John W., 878
Marsh, George Osear, 1909
Martí Lis, L., 1265
Martin, J. L., 387
Martin, Orella S., 302
Marty, John Burton, 721
Mason, Robert H., 1119
Masser, Charles B., 1512
Matthews, Franklin, 1752
May, Robert L., 721
Maynard, F. P., 1748
McAlilly, Marquis L., 1671
McArthur, Robert J., 1908
McCafferty, Robert Watson, 1834
McCall, Charles Polhill, 1752
McCallon, B. H., 1036
McCann, Charles L., 1512
McCarthy, Charles H., 480
McCaw, Hugh E., 1271
McCay, Mary Anne, 480
McClintock, Charles T., 1671
McConnell, Weston H., 878
McCormick, Frederick, 804
McCracken, James W., 481
McCrimmon, Frederick W., 2079
McCrumb, Samuel Stephen, 1590
McCully, Samuel E., 957
McCymont, A. J., 1981
McElwee, Lucien Claude, 392
McGauran, George D., 139
McGinnis, John, 2079
McGowan, John Francis, 392
McGraw, Theodore A., 956
McGuire, William Edward, 1437
McHugh, Ulysses Grant M., 1834
McIntyre, Charles W., 636
McKaig, Frisby T., 1590
McKay, Charles Alexander, 1271
McKay, Seth S., 1671
McKenzie, Robert Ewing, 1197
McKibbin, James W., 804
McKivitt, William E., 1986
McLaughlin, John Joseph, 2079
McLaughlin, Robert Benson, 957
McMillan, John Luther, 1986
McRae, Floyd W., 721
McRae, Frank, 957
McSwegan, Daniel, 2079
Meador, Arthur Raymond, 2141
Meador, Lee Douglas, 1834
Means, James Foster, 569
Medina, Alfonso, 1748
Meehan, Martin Grace, 480
Meighen, Thomas Hughes, 804
Merriman, Waldo B., 1197
Merritt, George F., 1671
Metcalfe, William H., 957
Metzler, Abraham Suter, 302
Middleditch, James, 569
Mignot, R., 475
Mijnlieff, Arie, 1830
Milholland, John, 1512
Miller, Harley H., 1908
Miller, Robert Emmett, 1354
Millington, Benjamin F., 1196
Millman, Thomas, 1834
Milner, Thomas Jefferson, 1986
Mindel, Henry W., 804
Mitchell, Austin, 636
Mitchell, James J., 636
Mitchell, John W., 1036
Mohler, George Conrad, 2141
Moir, Charles Lewis, 1752
Monk, H. G., 1197
Montgomery, William, 804
Moon, John H., 302
Moon, Rachael Tatnall, 569
Mooney, Edward Leland, 1354
Moore, Annie F. Norton, 1512
Moore, Clara Anna, 1834
Moore, Edwin Wilson, 568
Moore, George W. H., 1752
Moore, John A., 1834
Moore, William J., 302
Moreau, C., 296
Moreschi, Carlo, 211
Moretti, T., 950
Morey (formerly Morlarity), Pierre
Colon, 1986
Morford, Cornelius M., 1036
Morgan, J. H., 1271
Morris, Robert, 2141
Morrison, Alonzo M., 636
Morrison, Mary Ellis, 804
Morrison, Norman H., 302
Mosser, Robert, 140
Mossman, Elmore, 1037
Mounsey, George T., 1590
Mount, Philippe Edmund, 1671
Mowry, Christopher Dean, 392
Munn, Frederick J., 1671
Murphy, Edward Collins, 878
Murphy, John Henry, 1512
Murphy, M., 1748
Murray, Dwight H., 1511
Murray, Helen Lenox, 1354
Murray, William Henry, 1986
Musgrave, A. Clarence, 1354
Musgrave, Christopher James, 636
Myers, A. B. R., 196
Nash, Frank Wylie, 1355
Nead, Daniel Wunderlich, 2079
Near, Jefferson S., 218
Nehrbas, Jacob, 1834
Newpher, John J., 1834
Newman, Louis C., 2141
Newman, Louis E., 1986
Newton, Cyrus B., 218
Nieoll, J. N., 1031
Nichols, Mark R., 1271
Nichols, W. H., 1909
Nogier, J., 1192
Norris, John William, 302
Norris, Ora Lee, 1036
Norris, W. H., 1037
Norton, Anson M., 957
Norvell, John Conyers, 1355
O'Brien, Thomas, 1834
Ockford, George Morgan, 218
O'Hara, Bernard A., 1986
O'Leary, Joseph August, 1196
Olive, Nelson A., 2141
Olive, A., 1506
Oliver, Leonard Briggs, 57
Omohundro, Orville C., 480
Oreder, W. A., 57
O'Rourke, Timothy M., 1036
Orr, Charles L., 56
Orr, Robert, 2079
Ort, Wallace A., 1908
Ortiz, E. Navarro, 1748
Osbaldeston, Julian T., 877
Osborn, George Wakeman, 1986
Osuna, J. Martinez, 1031
Oviatt, William H., 804
Owen, James H., 140
Pace, Henry L., 481
Page, Lewis C., 1037
Painter, Lorene, 57
Paiva, U., 950
Palladine C., 1265
Palmer, Clarence Alanson, 1511
Palmer, Daniel S., 1671
Palmer, James C., 1909
Parker, Thomas James, 636
Parpal, M., 1667
Parry, William Melville, 218
Parmalee, Walter Woodruff, 1036
Parrel, A. de, 1506
Paschal, Clayton M., 1512
Patek, Robert, 878
Patrick, Ellwood, 1671
Patrick, Harry Wooster, 1512
Patrick, Jehell H., 1590
Patrick, Robert B., 804
Patton, John W., 569
Patton, Samuel M., 1908
Paul, Banks L., 1909
Paul, Frank, 1934
Payne, Jesse Davis, 1834
Peacock, Samuel R., 1119
Peck, Joseph H., 1037
Pelletier, Louis J., 1752
Pelletier, Thomas H., 569
Penfield, William P., 1834
Pennock, Vivian Russell, 1196
Penzin, R., Jr., 211
Perkins, William Martin, 1036
Perrier, E., 796
Perry, Sarah H., 1197
Petersen, T. S. V., 1981
Petro, Benjamin L., 2141
Petty, George W., 1271
Pettitt, Joseph G., 1671
Pevey, Wade Hampton, 1271
Pfeiffer, E., 631
Phillips, George A., 1437
Phillips, James H., 1355
Piersol, Willard G., 1197
Pike, Walter R., 57
Pla, E. F., 475
Poff, Herman Lee, 804
Pohl, Gustav Adolph, 2141
Poindexter, John Milton, 636
Pongs, A., 1583
Poole, George William, 878
Porter, George, 302
Porter, William, 1908
Potter, Ezra B., 302
Potter, Thomas J., 1671
Potter, William Advance, 1437
Potts, Joseph H., 57
Powell, Richard Addison, 1036
Pratt, Lester Cross, 1197
Price, George Vickers, 1037
Prigden, Ross Edwin, 636
Prime, William Reid, 2079
Prior, Amelia J., 957
Posrperi, E., 950
Pugh, John W., 636
Purcell, Fred Cole, 1511
Purdum, John R., 2079
Pyle, Walter Lytle, 1354
Questa, Guido John, 1037
Quimby, Charles Elihu, 1752
Raborg, Joseph S., 57
Radom, Elizabeth Lillian, 1986
Raible, Herman F., 957
Ramos, Alvaro, 1031
Ramsel, Paul A., 480
Rand, B. H., 392
Rankin, Isabelle Mathison, 1271
Rapoport, Frederick Henry, 1834
Ratliff, Joseph M., 1752
Rawlins, James S., 636
Ray, Charles Wells, 1036
Read, Lotan Chilson, 140
Read, Robert W., 1909
Reat, James Lee, 1908
Redditt, W. J., 1512
Reimstad, Christian S., 957
Remage, George W., 1355
Renner, Edwin Gilbert, 804
Reppard, Myron M., 1437
Reville, Dr., 631
Reynaud, Louis Favrot, 480
Reynolds, John Paul, 2079
Reynolds, William Myron, 878
Rhoads, Reuben B., 1512
Richards, Finley B., 878
Richards, William A., 1355
Richardson, Bertha S. Hatfield, 2079
Richardson, David Hobart, 1437
Richardson, John Breckenridge, 392
Richardson, Neafie, 1671
Riker, John David, 1437
Riley, Elizabeth Angela, 1752
Rinkel, Edward H., 1752
Risdon, Herbert Thomas, 140
Robards, Richard Burton, 392
Robert, D. L., 1506
Roberts, Daniel E., 140
Roberts, John Turner, 302
Roberts, Moses, 1752
Roberts, William Henry, 1834
Robertson, Edna May Cowling, 1671
Robinson, Fernando C., 877
Robinson, John J., 1752
Robinson, Samuel B., 1512
Roche, Thomas Bryan, 1590
Rodriguez, Antonio, 1583
Rodriguez, M. Gil, 1265
Rohder, William, 302
Rogers, Franklin, 635
Rogers, LeRoy, 302
Rompf, John Henry, 1834
Roome, William F., 1037
Rose, Maurice Edgar, 139
Rosewater, Charles, 1909
Ross, Harvey Lee, 1354
Ross, William F., 804
Ross, William H., 481
Rothman, Henry Lee, 1986
Rouby, Dr., 387
Roume, Dr., 475
Roveda, Nicolás, 1192

Rowland, George R., 804
Rueda, E. P., 714
Ruff, David E., 1511
Ruff, William F., 1834
Rumbaugh, Daniel Webster, 302
Rundstrom, John, 1671
Rusca, P., 565
Russ, Eben Jeremlah, 1671
Russell, Plummer D., 1511
Russell, W., 1748
Rutter, Clara H. Rogers, 481
Ryan, William P., 1752
Sadler, John, 721
Saelan, A. T., 1981
Sáenz, J. Martínez, 950
Sager, Benson E., 1271
Saltmarsh, George H., 1271
Sanderford, John F., 1908
Sanders, John Augustus, 1197
Santibanez, Ramiréz, 565
Santos Junior, Dr., 1667
Sater, Pearl M., 2079
Sato, S., 1031
Satterlee, Nellis Clement, 804
Satterthwaite, Samuel T., 392
Sauer, Anton, 2079
Sauvalle, John S., 877
Savannah, Joseph G., 1271
Sawtelle, Frederick G., 1037
Sawtelle, Henry W., 957
Sawyer, Alfred D., 218
Sawyer, Eugene, 1752
Sayre, Ellis Brooks, 1512
Schenck, Garrett K. W., 2078
Schieck, J., 1830
Schiller, Louis Edouard, 878
Schilling, T., 296
Schmidt, John A., 1512
Schmidt, P., 1981
Schmiedeberg, O., 565
Schneider, E., 1142
Schulzein, W., 475
Schwartz, Herbert Woodworth, 1671
Schwarz, F., 1114
Scott, Alfred James, 1511
Seale, John T., 302
Secheyron, Dr., 387
Seldon, Robert, 636
Sellers, William, 1909
Sepple, Edward Gerald, 1512
Shepherd, Melville R., 1512
Shipley, Everett, 1437
Shipp, Mary Elizabeth, 804
Shreve, Oscar W., 1590
Shuey, Sarah Isabel, 1908
Shuttee, Henry C., 1437
Sickles, Franklin Deare, 957
Siekmann, Ivan J., 1197
Slethoff, E. G. A. ten, 1432
Siler, Manley J., 636
Silva, J. Adolpho da, 1583
Simarro, L., 565
Simmons, Demarcus Green, 1036
Slms, Samuel C., 481
Sleet, William Everett, 1986
Sloan, Flavel B., 1834
Smiley, Edwin R., 480
Smith, Andrew Jackson, 302
Smith, Chapman C., 636
Smith, Charles Eastwick, Jr., 636
Smith, Charles Heister, 1036
Smith, Charles H., 1271
Smith, Charles North, 1511
Smith, Charles O., 392
Smith, George DeForest, 569
Smith, George Sidney, 2079
Smith, George W., 1036
Smith, Hiram Lee, 1271
Smith, J. Anson, 1671
Smith, James A., 1909
Smith, John D., 878
Smith, Ralph G., 140
Snider, James W., 636
Sorrell, L. P., 1589
Soulié, A. H., 1506
Soulier, P. H., 1506
Spaulding, Jacob Franklin, 1511
Sparkman, John T., 1512
Spear, James Milton, 1908
Spencer, Ira Darius, 1437
Spikes, Jesse M., 1908
Sprague, Francis Peleg, 1437
Squires, Melvin B., 1271
Stafford, Gaylord Ames, 1355
Stafford, James A., 1119
Stafford, Thomas J., 1909
Stalker, Henry J., 1511
Stallman, George Phillip, 217
Stanton, Nathaniel Greene, 218
Staton, Lycurgus L., 218
Ellis, Stayner, 1986
Stedman, George, 804
Stedman, T. B., 1348
Steele, William D., 1986
Stephens, Charles B., 2141
Sterrett, Joseph E., 1119
Sterris, James G., 1834
Stevens, William, 1834
Stevenson, William Wycoff, 1197
Stewart, Jacob Henry, 1671
Stewart, Joseph S., 1512
St. John, Charles Stephen, 1511
Stockwell, John F., 1590

Stone, Bingham Hiram, 1671
Stone, Charles Albert, 878
Stone, James Thomas, 2079
Stoneburner, Joseph W., 1986
Story, Richard Thompson, 1671
Stover, William R., 1271
Strack, David, 1437
Straub, D. Walter, 1986
Streichan, Paul Herman, 2141
Strother, William A., 1271
Stuart, William W., 302
Susong, S. L., 1909
Sutherland, Arick, 1909
Sutton, Harley H., 957
Sutton, Henry H., 721
Swafford, Edward William, 957
Swan, Charles Walter, 1986
Swanick, James Robert, 1036
Swasey, William Brooks, 636
Swetland, Agnes V., 302
Swift, Frederick Norman, 804
Swinburne, George Knowles, 480
Swinton, Archie A., 57
Swisher, Argus R., 392
Symington, James, 1908
Tachard, E., 1667
Taft, Robert McLean G., 721
Talbot, Robert Bancker, 480
Taliaferro, B. Lawrence, 1908
Tallmadge, Andnes M., 1834
Taylor, Clifford Ernest, 1355
Taylor, Enoch J., 1037
Taylor, Henry S., 1037
Taylor, Isaac Montrose, 1986
Taylor, William J., 1671
Terrell, Henry Walker, 1908
Terrill, Andrew J., 140
Teuber, Charles, 140
Thaler, Moses Markus, 1834
Theel, Gustavus Ferdinand, 957
Thomas, Anna T. L., 636
Thomas, Charles Hermon, 217
Thomas, George Brinton, 480
Thompson, Arthur George, 877
Thompson, Henry Herbert, 1196
Thompson, James R. R., 2141
Thompson, Oscar N., 2079
Thomson, F. G., 211
Thornton, Thomas C., 1590
Tidball, William, 1271
Tiffany, Douglas S., 569
Tilden, George, 877
Tilzer, Aaron, 1197
Todd, Frank Hamilton, 481
Toms, Robert Alonzo, 1355
Toner, Harry M., 2079
Toner, Mark Ferdinand, 1511
Tooley, George Washington, 1834
Toombs, Reuben Saunders, 480
Torres, N. Rossas, 950
Torrey, Edward, 2141
Towle, George Henry, 2079
Towne, Everett Sayles, 569
Trovati, P., 950
Troy, Edward H., 57
Turner, Carl George, 1271
Turnowsky, E., 1830
Tyler, Frank Harold, 1908
Ulrich, Robert Matthew, 636
Underhill, Henry Plato, 1986
Upton, A. F., 1834
Urbantschitsch, V., 296
Valdes Castro, J., 1265
Van Cleave, Robert H., 1512
Vanderhoof, Frederick D., 804
Vanderslice, Edward S., 218
Van Pyma, Peter W., 2141
Van Winkle, Bebee L., 1671
Vaughan, Harry, 302
Veazie, Henry A., 804
Vega, R. Fajardo, 871
Venero, Pantaleon, 1031
Vermehren, F., 475
Vest, David W., 1671
Vetere, L., 1981
Vieira de Rezende, A., 950
Viko, Eindred, 721
Vincent, Ernest Hubert, 1119
Vincent, Mary Lucinda, 1590
Vincent, Walter Scott, 1908
Virel, R., 1506
Vogler, C. H., 1506
Von Merkel, G., 1667
Von Petersen, O. W., 1506
Von Schjerning, Dr., 386
Wagener, Pierre O., 721
Waggoner, M. R., Sr., 804
Walker, LeGrand Allen, 1834
Walker, Orville C., 1271
Walker, William E., 804
Wall, Raymond Laurence, 1512
Walter, Robert, 1590
Walton, Alfred, 636
Ward, Bela J., 218
Ward, Clarence Stanton, 1271
Ware, Ferdinand N., 392
Ware, William J., 957
Warlick, Eli S., 302
Warner, Franklin Pierce, 1119
Warren, John W., 1037

Washburn, George Edward, 1512
Washington, James S., 302
Waters, Henry W., 2141
Watlington, Obe F., 1909
Watson, Wilbur S., 57
Weaver, David P., 1671
Weaver, Joseph Kerr, 1354
Weedon, Walter R., 636
Weil, Charles, 218
Weiler, Harry K., 1909
Weimer, Edwin Alexander, 57
Wenger, Emanuel S., 957
West, Henry A., 2141
Westedt, Otto E., 721
Weyerhorst, Joseph, 1512
Weymouth, Daniel George, 1512
Whitaker, Simon T., 1355
White, Arthur, 957
White, Charles A., 721
White, Milton Persus, 1355
White, Sampel R., 2079
White, Thomas Charles, Jr., 1671
Whitehead, Ira Condict, 392
Whitehouse, Walter John, 1119
Whitesides, Lindsey L., 480
Whittington, Samuel B., 1119
Wiley, Percy Joseph, 57
Williams, Arthur Bailey, 57
Williams, Eugene Edward, 1512
Williams, Espy Milo, 1590
Williams, Henry Clarence, 1909
Williams, Josephus, 804
Williams, Nathan Hall, 721
Willis, Samuel N., 1437
Willse, Hudson G., 1512
Willson, Mortimer, 1752
Wilson, Charles R., 804
Wilson, E. M., 1506
Wilson, Frank G., 1986
Wilson, Isaac Berton, 1511
Wilson, Jasper Muir, 636
Wilson, Louis David, 956
Winans, Joseph Clark, 721
Winchell, Walter Bernard, 56
Wingfield, Russel S., 877
Wiseman, William A., 1590
Wolcott, William Remington Udney, 721
Wood, John C., 218
Wood, William H., 481
Woodhull, Alfred A., 1511
Woodruff, Row O., 1512
Woofter, James V., 804
Woollen, Green Vinbon, 2078
Wright, Henry Eugene, 2079
Wright, John Frederick, 957
Würzburg, A., 211
Xavier, F. J., 950
Yeomans, Horace Augustus, 1909
York, James F., 1752
Yorke, Albert Daniel, 1908
Young, William James, 1271
Youtsey, John J., 2141
Yu Shufen, Dr., 1192
Zeigler, Henry A., 878
Zuebelen, George J., 804
Zuckerkaudl, Otto, 386

E

EAR: See also under Special Structures of Ear
EAR, foreign bodies in, [Liébaux] 72
infection of, of schoolchildren, 215
"EAT-MORE" campaigns, 1109—E
ECHINOCOCCOSIS of bones, [Zorraqin & Gómez] 1140, [Lesi] 1928
of gallbladder, [Gutiérrez] 977
of lung, [Prati], 408, [Ferro] 1689, [Acevedo] 1848
of orbit, [Tiscornia] 326
of ribs, [Meyer] 2002
ECLAMPSIA, [Boije] 164, [Essen-Möller] 1933
blood pressure in, and albuminuria of pregnancy, [Balard] 975
prophylaxis and treatment of uremia and, [Gessner] 2154
rôle of chlorids in pathogenesis of, [Mestre] 897
treatment with a high-percentage sugar solution, [Hugel] 1143
ECTASIA of portal vein, [Glaser], 1690
ECTHYMA, case of, [May] 1930
ECTROPION, cicatricial, correction, by use of true skin of upper lid, [Wheeler] *1628
ECZEMA, chronic, etiology and treatment of, [Hilgermann] 741
in breast fed babies, [O'Keefe] 886
roentgen-ray therapy of, [Eichenlaub] 1367
EDEMA, angioneurotic etiology factor in, [Turnbull] *858
angioneurotic, multiple, [Narlo] 1930
circumscribed, and chorea, treatment of, [Mathieu] 1526

EDEMA, famine, and intestinal tuberculosis, [Wlechers] 581
from undernourishment, [Bolaño] 1374
from undernourishment in young children, [Schick & Wagner] 1377
in diabetes, 202—E
latent, [Kaufmann] 1141
malignant, meat of cattle with, [Bonansea] 497
of extrarenal origin, [Nonnenbruch] 413
Pulmonary: See Lung, edema of
Quinke's, with urticaria, [Alesandri] 497
EDGAR, THOMAS WEBSTER, The Journal receives a letter denouncing "medical clerks" and "biased sceptres," 1835—P
tired rabbits for diabetes; ring-tail monkeys for sex stimulation, 1272—P
EDISON'S examination questions, 129—E
EDUCATION, MEDICAL: See also School; Universities
EDUCATION, MEDICAL, 1515
changes in educational methods and legislation advocated, [Anders] 570—C
cost of tuition fees and, 290—E
development of, in Brussels, 294
in China, 1505
in United States, 949
in the United States, annual presentation by Council on Medical Education and Hospitals, 527
instruction and examination, 1434
progress of 21 years, 557—E
preliminary, state requirements of, 537
proposed changes in medical curriculum in Belgium, 1433
proposed reforms in medical curriculum in Germany, 1265, 1353
teaching conditions in schools of medicine continue abnormal, 137
EFFICIENCY expert, inefficiency of, 866—E
EGERSIMETER, [Strohl] 1136
EGGS, anaphylaxis to, [Pagniez & others] 737
egg yolk for infant feeding, [Tweddell] 1920
frozen, dangers from, 800
EGYPTIAN Regulator Tea, 1119—P
ELBOW arthroplasty, free fascia transplants in, [MacAusland] 1285
injuries, [Cohn] 1047
puncture of, [Reynders] 1135
ELECTRIC accidents, [Hulst] 1852
conductibility of body fluids, [Novoa Santos & Arión Gende] 977
ELECTROCARDIOGRAMS from complete bundle branch block, [Smith] 1520
ventricle group in, [Bordet] 973
ELECTROCARDIOGRAPHY, clinical, [Taschenberg] 1141
simple and efficient light source for, [Prewitt] *465
ELECTROMAGNET, giant, uses of, 1618—ab
ELEPHANTIASIS, surgical, [Halsted] 1446, 1895—E
EMACIATION, fatal case of, [Weber] 492
EMBOLISM, air, [Gundermann] 239
pulmonary, in myoma uteri, [Farar] 1366
pulmonary localization of, [Rupp] 233
pulmonary, postoperative thrombosis and, [Rupp] 238
EMETIN, action of, on heart, [Guglielmetti & Arrillaga] 1140
EMOTION, experimental, [Sierra] 1530
hyperglycemia and glycosuria in frightened rabbits, [Fujii] 237
seat of emotions, [Dana] 1998
EMPLOYEES, general duty owed to stricken employees, 147—M
EMPLOYER, right to sue employer for requested services, 1126—M
EMPYEMA, acute, 633, [Wade] 1208
apparatus for drainage in, [Poyn-ton & Reynolds] 2150
chronic, [Donati] 1290
decortication of lung for, [Fischer] 979
diagnosis and treatment of, [Mon-jardino] 1454
experimental streptococcus pneumonia and, [Gay & Rhodes] 1131

- EMPHYEMA**, gentian violet in, [Major] 1365
in children, [Ladd & Cutler] 65
negative pressure in, [Ramstad] 64
—ab
pulmonary tuberculosis or interlobar emphyema, [Karström] 1296
pulsating, [Bard] 578
streptococcus hemolyticus, [Johnston] 1045
surgical solution of chlorinated soda effectual in, [Wilensky] 573
tidal irrigation of wounds by means of liquid-tight closure, with special reference to treatment of, [Taylor & Taylor] *1393
tuberculous, [Kalb] 229
- ENCEPHALITIS, EPIDEMIC**, [Marie & Lévy] 737, [Piotrowski] 821, [Echebarr] 1055, [Mongini] 1213, [Maggiore & Sindoni] 1213, [Kristenson] 1458
aphasia from, [Kindberg & Lelong] 2151
botulism, a toxic encephalitis, [Wells] 1601
cerebral sarcoma simulating, [Clark] 1284
cerebrospinal fluid in, [Rodríguez] 1374
etiology of, 1896—E
hexamethylenamin in, [Thomas & Rendu] 1771
in children, [Voigt] 1059, [Comby] 1135, [Mensi] 1213
in children, experience with more than 100 cases, [Neal] *121
in children, after effects of, [Pater-son & Spence] 1134
in pregnant, [Vincent & Gaujoux] 73, [Jorge] 324
in Rosario, [Fracassi] 1374
influenzal [Schröder & Pophal] 1142
inquiry into, 567
insomnia in children after, [Reh] 2094
labyrinth form of, [Barré & Reys] 1771
lethargic, diurnal somnolence and nocturnal wakefulness in, [Fletcher] 492
lethargic, following bumping of head, 963—M
lethargic, in children, [Moore] 646
lethargic, oxygen therapy in, [Barach & Woodwell] 1520
medicolegal aspect of, [Chavigny & Pomaret] 974
optic nerve in, [Waardenburg] 1216
otogenous, [Borries] 1534
Parkinsonian syndrome with, [Guil-lain & Gardin] 71, [Falzi] 1452, [Langer] 1850
predisposition to, [Villinger] 1143
pregnancy during Parkinsonism following, [Guillain & Gardin] 2151
presence of virus of, in spinal fluid, [Kling & others] 1613
psychosis of, [Hohman] 1129
report of case following extraction of tooth that had infection at apex, [Potts] *1885
salivary glands in, [Netter & others] 72
sequels to, [Spät] 1534, [Carp] 1612, [Bassoe] 2001
signs of, [Sinton & Cornet] 72
statistics on, [Pearl] 574
surgical treatment of, [Tilman] 1774
symptoms in, [Barker] 731, [D'An-tona] 821
transient obesity after, [Roger & Aymès] 1770
transmission of, from mother to fetus, 135
types of, [Hunt] 1682
- ENCEPHALOMYELITIS**, multiple sclerosis following, [De Tomasi] 1055
myoclonic, of malarial origin, [Marinesco] 1133
- ENDOCARDITIS**, acute, from plague, [Teissier & others] 1770
chronic, with deformed thorax, [Canelli] 739
gonorrheal, [Smith] 730
in children, [Schippers & De Lange] 1532
malignant tricuspid, [St. George] 1682
rheumatismal, aortic, in children, [Nobécourt & De Toni] 1373
septic, secondary to abortion, [Colistro & Silva Ferrer] 326
- ENDOCERVICITIS**, chronic, [Roy-ston] 149
- ENDOCRINE GLANDS**: See Ductless Glands; Secretion, Internal
- ENDOMETRITIS**, acute, [Hobbs] 492
cervical, multiple scarification in, [Byford] 400—ab, 1445
- ENDOTHELIOMA** of nasopharynx, [Eloesser & Read] 70
- ENDOTHERMY** for malignant dis-ease, [Wyeth] 1767
- ENTERITIS** and fusospirillar sore throat, [Bouchut & Leroux] 1689
Gaertner bacillus meningitis com-plicating, [Smith] 1450
in infants, vaccine therapy in pre-vention and treatment of, [Spol-vern] 739
- ENTEROCLE**, acute, partial, [Saw-yer] 319
- ENTEROPTOSIS** of liver origin, [Glenard & Rouzard] 495
treatment of, [McCay] 817
- ENTEROSTOMY** in ileus and peri-tonitis, [Wortmann] 1533
in peritonitis, [Delore & Conrozier] 235
- ENURESIS**: See Urine, Inconti-nence of
- ENVIRONMENT**, effect of, on disease in children, [Friedjung] 1531
- EOSINOPHILIA**, local, [Kühnel] 242
with enlarged prostate, [Cassuto] 1291
- EPICONDYLITIS**, nature and treat-ment of, [Dubs] 238
- EPIDERMAL** cysts, [Sherk] 1922
- EPIDERMOPHYTOSIS**, [White & Greenwood] *1297
- EPIDIDYMITIS**, gonococcus, auto-serotherapy in, [Weill] 820
- EPILEPSY**, [Roubinovitch] 1687, [Ducosté] 1769
Converse treatment for, 1440
injury to epileptic not arising out of employment, 884—M
Jacksonian, from ascarids, [Sironi] 236
Jacksonian, in diabetes, [Rathery & others] 1770
Jacksonian, intracranial pressure in, [Leriche] 1606
Jacksonian, operative treatment of, [Tenani] 75
luminal and bromids in, [Golla] 1050
luminal in, [Small] 1524, [Austin] 1602, [Hughes] 2149
luminal sodium in, [Fox] 1209
Maghee's treatment, 1037—P
nature of, [Pagniez] 894, [Car-ver] 2093
oculocardiac reflex in, [Roubino-vitch & Chavany] 323
pathogenesis of, [Kasak] 151
polycelia plus, [Nicolai] 1929
postinfluenzal, report of case, [Hannah] *40
removal of suprarenal gland in treatment of, [Steinthal] 657, [Sándor] 657
special epileptic equivalent, [Mar-tini] 1453
symptoms of, [Dupouy] 1687
syphilis as etiologic factor in, [Bambaren] 497
traumatic, 1032, [Voncken] 1605
treatment of, [Wechsler] 1521, [Mailard] 1687
- EPINEPHRIN**, effect of, on healthy persons, [Bjore & Svenson] 1458
hyperglycemia, [Tatum] 153
hypersensitiveness and hyperthy-roidism, [Peabody & others] 643
improvement of muscular dys-trophy under, [Aldabalde] 1455
intracardiac injection of, [Ber-mann] 1774
intracardiac injection of strophan-thin and, in acute cardiac paral-ysis, [Guthmann] 741
intracardiac injection of, in cardiac standstill occurring during anes-thesia, [Franzel] 741
may reduce blood pressure, [Girou] 1926
mode of action of test injection of, [Billigheimer] 77
reaction to, administered by rec-tum, [Hoskins] 1684
test, response of young children to, [de Angelis] 822
- EPITHELIOMA**, Bowen type of, [Mount] 1998
melano-epithelioma of palate, [New] *19
multiple, [Montgomery & Culver] 1447
of male urethra, [Barabino] 327
of thymic origin, [Symmers & Vance] 1204
- EQUINOVALGUS**, Whitman loop op-eration for, [Kleinberg] *1390
- EQUINOX** Lithia Water, 878—P
- ERB**, Wilhelm Heinrich, death of, 1907
- ERGOT**, effect of, on hemoptysis, [Maeda] 237
- ERUPTION**: See Exanthem
- ERYSIPELAS**, death of insured phy-sician from, 1761—M
persisting hiccup with, [Casteran & Railliet] 1925
phenol treatment of, [Porter] 817
swine, in man, [Düttmann] 1455
- ERYTHEMA** nodosum, [Ernberg] 740, [Vetlesen] 1613
nodosum, micro-organism of, [Emrys-Roberts] 1605
nodosum, nature of, [Symes] 1923
- ERYTHROCYTES**: See Blood Cells, Red
- ERYTHRODERMIA**, arsenical, [Gougerot] 1925
desquamating, [Blechmann & Hal-lez] 1451
- ESKIMOS**, health among, 1347
- ESOPHAGOSCOPY**, [Bensaude & Lelong] 158
direct laryngoscopy, bronchoscopy and, as diagnostic aids, [Hoag-land] 64—ab
- ESOPHAGUS**, artificial, [Madlener] 656, [Lundblad] 1379, [Fonia] 1452
atony and idiopathic dilation of, and cardiospasm, [Thieding] 161
cancer, operation for, [Lilienthal] 1368
cancer, radium treatment of, [Rocky] *30, [Hotz] 236
digestion of, cause of hematemesis, [Pringle & others] 1604
dilatation of, [Bensaude & Que-naux] 325, [Guisez] 1137
dilatation of, and cardiospasm, [Snodgrass] 230, [Smithies] 1365
disease, [Sgalitzer] 1214
foreign body in, removal by way of stomach, [Fink] 80, [Massari] 1378
open safety pin successfully re-moved by peroral endoscopy, [Orton] *1422
pulsion diverticulum of, treatment of, [Deis] 2097
roentgen-ray diagnosis of abdom-inal communication between esophagus and air passages, [Peltason] 657
stenosis following swallowing of caustic alkalis, [Jackson] *22
suture of, [Tiesenhansen] 1292
vagus control of, [Carlson & Luck-hardt] 1131
- ESPERANTO** association, 1829
- D'ESPINE** bronchophony sign, [Reh] 653
- ESTIVIN**, 1595
- ETHER**, and chloroform containers, danger in similarity of, [Flagg] 1121—C
effect of, on respiration, [Smith] 1999
glycemia and glycosuria in rabbits, [Fujii] 1612
ignited during operation, 1269
in pleural cavity, [Torraca] 1608
narcosis, intravenous, [Nomburg] 2153
- ETHICS**, council on discipline rec-ommended by 13th Congress, 1984
- ETHMOID** bones of horses, tumors grown in, 1668
- ETHYL** alcohol, prevention of cocain intoxication by ethyl alcohol in surgery, [Herzfeld] 1594—C
chlorid in general anesthesia, its action on cardiovascular system; a classification of signs of over-dose [Guedel] *427
- ETHYLHYDROCUPREIN** hydro-chlorid, route of administration of drugs in relation to toxicity in chemotherapeutic investiga-tions with special reference to intrapleural injections of, [Kolmer] 814
in experimental pneumococcus pleuritis, [Kolmer & Sands] 152
- EUCA-MUL**, 1438—P
- EUGENICS**, 214
members of International Congress of Eugenics, geographical loca-tion of, (Where is this country, anyway?), [Pusey] 219—C
- EVIDENCE**, admissibility of physical demonstrations in court, 1126—M
- EXAMINATION**, plea for routine examination on operating table as a preliminary to abdominal operations, [Keefe] 1204—ab
refusal of, on account of school, 1916—M
- EXANTHEM**, eruptive fever of un-usual characteristics in infancy and early childhood, [Levy] *1785
febrile, occurring in childhood, [Veeder & Hempelmann] 313
—ab, *1787
spring eruption on hands of the young, [Thibierge & Rabut] 1926
subitum, febrile exanthem occur-ring in childhood, [Veeder & Hempelmann] *1787
- EXERCISE**, heart during, [Boigey] 1137
- EXERTION**, studies in, [Crile] 316
- EXHAUSTION**, studies in, [Crile] 316
- EXOPHTHALMOS**, pulsating, [Fer-rero] 654
- EXOSTOSES**, pathogenesis of, [Lar-denois & Nathan] 818
- EXPERT**, one may be an expert with-out being a specialist, 224—M
- EXPLOSION**, cause of, at Oppau, 1432
- EXTREMITIES**: See also Arm; Leg
- EXTREMITIES**, transverse section anesthesia for operation on, [Sievers] 581
- EYE**: See also Special Structures of Eye
accommodation, diphtheric paralysis of, [Poulard] 894
artificial, support for, [Carrasco] 1374
bacteriology of, [Chih] 736
blunders in treatment of, [Zeeman] 582
compensation for loss of one eye, [Siegrist] 1528
convergence spasm of, [de Monchy] 980
diseases, protein therapy in, [De Haan] 1934
findings and basal metabolic rate, [Stegman] 1132
hygiene, history of, 479
injuries, report of committee on estimating compensation for, [Black & others] *1654
injury, roentgen-ray treatment of, 110—ab
intra-ocular sclerosis, [Wernicke] 1213
manifestations of arteriosclerosis in, [Fuchs] 236
postoperative intra-ocular infec-tions, new methods of prevention, report of 400 cases, [Bell] *1096
sarcoma from injury of, [Møller] 1613
scrofulous disease of, [Steiner] 2006
senile arc in tuberculosis, [Lortat-Jacob & Turpin] 737
syphilis of, experimental, [Brown & Pearce] 732
tuberculosis, diagnosis of, [Caul-field] 66
- EYELIDS**, plastic repair by peduncu-lated skin grafts, [Cross] *1233
- EYESIGHT** Conservation Council of America, 1347
- EYEWASH**, Bon-Opto, injury from, 486—M

F

- FABRE**, Jean, death of, 389
- FACE**, changes in facial types from blending of races, [Lundborg] 1614
Paralysis: See Paralysis, facial
reconstruction of, [Moliné] 1053, [Vignolo] 1290
surgery, [Dufourmentel] 2152
surgery, plastic surgery of lip, [Kazanjan] *1959
- FACTORIES**, day nurseries in, 796
- FAD** for pseudoscience, [de Tarnow-sky] *859
- FALLOPIAN TUBE**, adenomyoma of, [Mahle] 319
bacteriology and pathology of, re-moved at operation, [Curtis] 400—ab
hemorrhages of ovarian and tubal origin, not associated with ec-topic pregnancy, [Schumann] *692
noninflammatory ovarian and tubal disturbances, [Dalché] 1528
pathology of, [Curtis] 2001

- FAMINE**, influence of, on disease, 2064—E
FAR EAST, some public health problems of Far East [Mendelson] 1361—ME
FARADIC stimulation of nerve, anomalous response to, [Stopford] 493
FASCIA, tuberculosis of, [Blackburn] 404
FASTING, composition of urine during, [Suzuki & Hasui] 160
FAT, animal, soluble vitamin and yellow pigmentation in animal fats, [Steenboek & others] 152
free diets, nutrition and growth on, [Drummond & Coward] 1450
rate of diffusion of fats and fatty acids, [Nelli] 1763
FATIGUE, chemical factors in, [Rakstraw] 970
influence of, on health, [Vernon] 1130
physiologic cost of muscular work, [Waller & DeDecker] 1686
role of, in malnutrition of children, [Veeder] *758
FATTY DEGENERATION in fetus at term, [Elizalde & Puente] 326
FECES, bile pigments in urine and, in anemia, [Canelli] 634
brief retention of alimentary contents, 1660—E
fecal flora of infants, [Davison & Rosenthal] 1599
foreign body stools, [Castilla] 1056, [Tonina] 1214
impacted, dystocia from, [Etcheverry Boneo] 2096
in alimentary disorders, [Coope] 406
occult blood in, significance of decomposition of blood pigment in intestine into porphyrin in determination of, [Snapper & Dalmeler] 1609
value of finding Chareot-Leyden crystals in, in amebic dysentery, [Thomson & Robertson] 2093
FEDERATION of American Society of Experimental Biology, meeting of, 1902
FEEBLEMINDEDNESS, connection between difficult birth and mental and nervous disturbances later, [Hannes] 1216
FEEDING: See Diet; Nutrition
FEES and successful treatment, 1195
court decision on, 1351
doctor's, 1204—ab
for care of disabled soldiers, 800
general rules of law governing compensation of physicians and surgeons, [Steinhardt] *98
increase in, in Berlin, 2074
resolutions of medical board of Johns Hopkins Hospital limiting fees, 631, 960—ME
world's oldest medical code, [Djurberg] 1692
FEET: See Foot
FEMUR, bifurcation of lower end of, [Budde] 1932
central luxation of head of, [Rahmann] 1455
cineplastic amputation of, [Pieri] 2153
crippling from shortening of, correcting of, [Kortzeborn] 1455
deforming osteochondritis of upper epiphysis of, [Mouchet] 2152
fracture, circular constriction for, [Hallopeau] 408
fracture, damages because physician did not use roentgen ray in treating, 2072, 2131
fracture, end results of reconstruction operation for ununited fracture, [Whitman] *913
fracture of femoral neck and trochanters, rational treatment, [Ruth] *1811
fracture of neck of, [Rubeli] 160, [Dujarier] 234, [Judet] 1772
fracture of head of, abduction treatment, [Murphy & Dorrance] 150, [Waltman] *1808
fracture of neck of, [Dujarier] 2152
fracture of neck of, differential diagnosis of, [Delbet] 1772
fracture of neck of, final results, without treatment, or with worse than no treatment, [Ridlon] *1815
fracture of neck of, treatment of, [Galloway] 2001
fracture, operative treatment of, [Ryerson] 1995—ab
fracture, results of treatment of, [Ellason] 969
FEMUR fracture, treatment of fracture of femoral diaphysis in children, [Balkan] 70
fracture, treatment of ununited fractures of neck by bone transplants, [Davison] *916
operative lengthening of, [Putti] *934
FERMENT action, influence of pressure on, [Meldolesi] 1529
FETUS, closure of fetal ocular cleft, [Lindahl & Jokl] 1614
fatty degeneration in, at term, [Elizalde & Puente] 326
hydrogen ions in vitreous humor in, [Nordenson] 1614
roentgen exposures and injury of, [Stettner] 740
skin and sweat glands in, [Becker] 1143
FEVER, basal metabolism in, [Du Bois] *352
common pyrexias in Porto Rico, [Torregrosa] 1447
differential diagnosis of fevers most commonly observed in Porto Rico, [Torregrosa] 646
dissociation curve of blood in, [Yamakita] 1612
eruptive, of unusual characteristics in infancy and early childhood, [Levy] *1785
fulminating urine fever, [Pirondini] 496
glandular, [Zimmerman] 64—ab, [Morse] *1403
hemolytic, 128—E
in infants due to pyelitis, [Olaran Chans] 1055
inanition, so-called, toxic protein end-products cause of, [Sherman & Lohnes] *1720
mortality, decline of, 136
pathologic physiology of, [Rist] 407
periodic pyrexia with lymphogranulomatosis, [Lorenzini] 896
transitory, in new-born, 628—E
unclassified, in Jamaica, [Loughnan] 973
FIBROID: See under names of organs, as Uterus, Fibroid of
FIBROMA: See also under names of organs as, Uterus, fibroma, etc.
FIBROMA, gastro-intestinal, [van Woerden] 1144
molluscum, 4,000 tumors in case of, [Tyau] 405
nasopharyngeal, technic for removal of, [Botey] 897
FIBROMYOMA: See also under names of organs as, Uterus, Fibromyoma of
FIBROMYOMA, extraperitoneal, [Beaver] 1288
flooding peritoneum from rupture of varicose vein on, [Chalier & Morénas] 651
FIBULA, substitution of, for tibia, [Flori] 411
FIGUEIRA, tribute to, 1505
FILARIASIS expedition to British Guiana, 388
FILIO, Moncorvo, street named for living physician, 1747
FINGERS, cold, in driving, preventive of, 1040, 1199
drumstick, from freezing, [Sabatucci] 580
reaction time in arm and, [Rolder] 80
snapping, [Hoogveld] 416
suture of tendon in, [Kaufmann] 653
FINLAY, Carlos, monument to, in Havana, 1113
Park in Havana, 295
FIREWORKS, dangers of phosphorus in, [Stacy] 1514—C
FIRST AID classes in postoffice, 385
FISCHER'S Indian Remedy, 219—P
FISH as an antimosquito agency, [Leprince] 1996—ab
FISTULA between bladder and sigmoid flexure, [Bagger] 900
bile, rebellious, cure of, [Stadler] 2006
biliary, postoperative, [Balfour & Ross] 1841
biliary-pulmonary, [Shinkai] 735
biliary, technic for making, [Mann] 2090
branchial cysts and, [Gilman] *26
bronchobiliary, [Burgess] 2002
broncho-esophageal, [Hawes] 729
of dental origin, treatment of, [Despin] 974
pancreatic, technic for making, [Inlow] 2090
FISTULA, postoperative, in vesical lithiasis, [Eduque] 491
rectovaginal, treatment of, [Rüb-samen] 500
rectovesical plus rectovaginal, operative correction of, [Schmidt] 241
treatment by inversion of skin, [Salleras] 580
FLAVINE, value of, in tuberculosis, [Peteroff] 1600
FLORIDA, new practice act for, 382—E
state board August examination, 1359
FLUIDS, administration of, by intraperitoneal injection, 1893—E
body, electric conductivity of, [Novoa Santos & Arijón Gende] 977
FLY, far flying, 1424—E
FOOD allergy and abdominal pain, 790—E, [Duke] 885, 1996—ab
Chinese foods, [Embry] 2093
concentrated, [Helmreich & Schick] 1377
concentrated, for infants, [Helmreich & Schick] 1377
duration of stay of food in infant stomach, [Krüger] 1376
handlers, results of physical examination of, [Gloyne] 1997
infections, with an illustrative outbreak, [Rosenau & Weiss] *1948
influence of, on tuberculosis mortality, [Selter & Nehring] 240
proteins and breast milk, 1340—E
relation between bases and acids in, [Baumgardt] 237
requirements of children, [Holt & Fales] 1444
restaurant treatment in industrial accident cases, [Marshall] 1273—C
FOOT, circulatory disturbances of feet, [Giest] 964—ab
clonus, [Wertheim Salomonson] 1288
minor surgery of, [Strauss] 1376
musculature of foot and its treatment by electricity, [Little] 575
print, sole print identification of new-born, [Robinson] 1766
tuberculosis of, [Cicconardi] 74
valgus feet, an operation for, [Roberts] *1571
FOOT-AND-MOUTH DISEASE in man, [Hittmair] 1776
susceptibility of small experimental animals to, [Hobmaier] 414
FORBES, Colonel, makes tour of inspection, 872
FORCEPS, Kielland's, 142
FORDNEY tariff bill taxes knowledge, 1187—E
FOREIGN BODY, ileus from, [Boerner] 1058
in air or food passages, [Hug] 498
in lung, prognosis of, [Jackson] *1178
penetrating head, unusual instance of, [Hagemann] *2053
retained sponge simulating carcinoma of cervix uteri, [Smith] *1653
stools, [Castilla] 1056, [Tonina] 1214
FORGERY, microscope in examination of handwriting, 1194
FORMOL and Wassermann reactions, a comparison, [Ecker] 1369
FORMOL-GEL TEST in kala-azar, [Fox & Machie] 2003
FOSSIL MAN, new species of, 1904
FRACTURE: See also under names of bones as Femur, fracture, etc.
FRACTURE, Colles', [Power] 648
damages because physician did not use roentgen ray in treating fracture of femur, 2072
delayed healing of, [Kappis] 1531
formation of callus after fractures with nerve lesions, [Putzu] 1374
frame, [Barton] *2058
lessons of war in treatment of, 799
of extremities, suspension and traction in treatment of, [Ide & Derauf] 965—ab
operative treatment of, [Ryerson] 1995—ab
osmic acid to promote healing of, [Arnavas] 75
pathologic, [Rassieur] 1844
plaster extension for, [Birt] 1058
reconstruction of fractured long bone, [Charbonnel] 408
spontaneous, from inadequate food, [Szenes] 1294
FRACTURE, status of bone graft in treatment of, [Henderson] 64—ab
suspension traction treatment of, [Hartwell] 1841
treatment of, [Green] 965—ab
what fractures can be treated at home? [Ewald] 1776
FRAMINGHAM community health and tuberculosis demonstration, [Armstrong & Bartlett] *585
FRANCE, Franco-American collaboration in science, 1116
French scientific expansion in foreign countries, 952
number of physicians in, 796
token of gratitude of, 296, 474
FRANÇOIS-FRANCK, C. E., death of, 1268
FREDERICQ, Leon, tribute to, 475, 1265
FREEZING, drumstick fingers from, [Sabatucci] 580
FRESH AIR treatment of infants, [Elias] 1370
FREUDIAN doctrine, 1506
FREYER, Sir Peter Johnston, 1507
V. FRIEDRICH, L., prize to, 295
FRIEDREICH'S DISEASE: See Ataxia, hereditary
FRÖHLICH'S syndrome caused by injury to sella turcica, [Hendry] 1449
FRON'S syndrome, [Greenfield] 890
FUCHS, statue of, unveiled at Vienna, 295
FULTON'S Diabetic Compound, 1595
FUMIGATION, new regulations in Berlin in regard to, 2074
FURUNCULOSIS in infants, treatment of, [Grulee & Rose] *37
FUSOSPIRILLAR infection of mouth, [De Angelis] 74

G

- GADE**, F. G., Norwegian medical editor touring United States, 1979
GAFFKY, monument to, 1985
GALEOTTI, memorial to, 133
GALLBLADDER, biliary colic following attempted drainage of, [Dowden & Einfield] *1890
calculi, achylia in, [Rydgaard] 238
calculi and duodenal ulcer, relations between, [Kelling] 824
calculi and surgery of bile ducts, [Riese] 1850
calculi, behavior of stomach in, [Rohde] 238
calculi, cholangiolitis in relation to pain following operations for, [Popper] 2010
calculi, cholecystectomy for, [Barling] 2002
calculi, cholesterol from, 1358
calculi, closure of abdominal cavity without drainage after operations for, [Finkenheim] 1378
calculi in children, [Freundlich] 1851
calculi, initial symptoms of, [Binet] 973
calculi, minor signs of, [Ramond & others] 2151
calculi, operative indications in, [Heidenhain] 2153
calculi or dyspepsia, [Ramond] 893
calculi, origin and structure of, [Naunyn] 162
calculi, recurrence after operations, [Liek] 1776
concentrating activity of, [Rous & McMaster] 230
Courvoisier, and cholecystogastrostomy, [Ileyd] *339
Disease: See also Bile Tract
diseases, disturbance of gastric secretion of hydrochloric acid in, [Behm] 1610
diseases, Lyon-Meltzer method of diagnosis of, [Cook & Wilhelm] 403
echinococcus of, [Gutiérrez] 977
foreign body in, [Schulze] 1215
formation of, after cholecystectomy, [Specht] 2097
functioning, peptone test of, [Stepp] 328
functions of bile ducts and, 1738—E
infection relation of liver and pancreas to, [Judd] *197, [Reynolds] 483—C
inflammatory diseases of, results in treatment of, [Meland] 966—ab
lesions simulating other affections, [Einhorn] 2148

- GALLBLADDER**, nonsurgical drainage of, [Niles] 2149
perforation, spontaneous, [Gallo] 1929
propancreatic and peripancreatic disease, with consideration of anatomic basis of infection from gallbladder to pancreas, [Deaver & Sweet] *194
puncture of, [Burkhardt] 78
stomach-gallbladder crises, [Enriquez & others] 820
surgery of, [Goodwin] 2086—ab
- GALL-DUCTS**: See Bile Ducts
- GALLSTONE**: See Gallbladder Calculi
- GAMES** for girls, 1668
- GANGLION** cells, polynuclear, pathologic import of, [Shimoda & Kondo] 823
- GANGRENE**, diabetic, [Massary & Girard] 71
experimental, [Milian & Périn] 737
following measles, [Thorpe] 1525
of Lung: See Lung, Gangrene of
progressive gangrene, syphilis and diphtheria, [Voss] 2012
spontaneous, in children, [Frenkel] 501
- GARAGES**, closed, carbon monoxide poisoning in, 1186—E
- GARDEN CITY** Sanatorium, 210
- GARDLOLEK**, 722—P
- GAS** Bacillus: See Bacillus Aerogenes Capsulatus
cysts in abdomen, [Steindl] 499
gassing and tuberculosis, [Hawes] 316
pathologic anatomy of air passages in gassed, [Mcnetrier & Coyon] 737
poison gas in war, 144
war, 799
war gases and influenza, 381—E
war gases, information on effects of, [Gilchrist] 482—C
- GASSERIAN GANGLION**, subtotal resection of, [Frazier] *1387
tumors involving, [Shelden] *700
- GASTRECTOMY**, blood changes in gastrectomized patient simulating pernicious anemia, [Hartman] 1045
- GASTRIC JUICE**: See Stomach Secretion
- GASTRITIS**, medicinal, [Agasse-Lafont] 893
streptococcus, [Cange & Michéleau] 894
- GASTRO-ENTEROLOGY**, teaching of, [Hirschman] *981
- GASTRO-ENTEROSTOMY**, analysis of, and its failures, [Roeder] *1565
causes of unfavorable symptoms following, [Clendening] *1241
complications of, [Torres Martinez] 76
disconnecting gastro-enterostomy stomata, [Webb] 2001
emergency, for perforated ulcer, [Basset & Uhlrich] 973
experimental research on, [Zroncati] 75
functioning, [Gutiérrez] 1929
marginal and jejunal ulcers following, [Schuldt] 965—ab
peptic ulcer of intestine after, [Ashe] 1051
roentgen irradiation for functional disturbances following, [Lenk] 1933
supplementary, [Aicvoli] 1055
with loop of ileum, [Dubs] 239
- GASTRO-INTESTINAL TRACT**, cancer of, necessity for early recognition of, [Blackburn] 1127—ab
disorders, feces in, [Coope] 406
disorders of endocrine-sympathetic origin, [Lyon] 974
diverticulosis, cancer in, [Mellon & others] 734
fibromas, [van Woerden] 1144
hemorrhage, [Simon] 403
hemorrhage in new-born, [Andérodias] 1211
hemorrhage, occult, [Peiper] 162
nervous communication between genito-urinary and digestive organs, 913—ab
roentgen-ray examination of, [Nessa] 399—ab, [Lafferty] 730
secretion, investigation of, [Dodd] 1287
- GASTROJEJUNAL** and jejunal ulcers, report of 21 cases, [Lewisohn] *442
ulcer, relation of surgical technique to, [Roeder] 1841
- GASTROJEJUNOSTOMY**, gastric function before and after, [Bonar] 1846
- GASTROPEXY**, [Havlicek] 501
- GASTROPTOSIS**: See Splanchnoptosis
- GASTROTONOMETER**, [Gauthier] 818
- GELATIN**, behavior of salts with, [Scala] 1927
- GENERAL** Medical Council, 2072
- GENICULATE** ganglion syndrome, [Roger & Reboul-Lachaud] 1771
- GENITALS**, effect of active substance of corpus luteum and placenta on growth of, 421—ab
focal infections in, as cause of arthritis, [Cunningham] 69
surgical treatment of lesions in internal genital organs, associated with chronic infections, [Bell] *696
tuberculosis in male, genesis of, [Sussig] 1142
tuberculosis in women, [Kundrat] 327, [Fuhrmann] 1293
tuberculosis, roentgen-ray treatment of, [Stephan] 415
- GENITO-URINARY** and digestive organs, nervous communication between, 913—ab
clinic, creation of, 1749
tract of female, irradiation in cancer of, results in 313 cases, [Clark & Keene] *613
- GENOU**, appointment of, 300
- GENTIAN VIOLET** for sterilization of closed cavities, description of technique, [Churchman] *24
in empyema, [Major] 1365
- GEORGIA** state board June examination, 1041
- GERHARDT**, Dietrich, death of, 1118
memorial to, 2070
- GERMANIUM** dioxide, erythropoietic action of, 1578—E
- GERMANY**, dog meat as food in, 802
efforts of Germans to establish a council on pharmacy and chemistry, 475
financial straits of hospitals in, 1031
German chemical propaganda, 1027—E
German losses in the war, 1347
German medicolegal society, 1191
German relief expedition to Russia, 1347
German scientists make prohibition appeal, 296
German Universities, attendance at, 1907
gratitude expressed by German pediatricians, 211
movement of population in German empire, 1117
occupational diseases in, 1400—ab
proposed reforms in medical curriculum in, 1265
reciprocity between Germany and Spain advocated, 796
- GILCHRIST**, Lieutenant-Colonel, medal awarded to, 387
- GIRLS**, adoration experienced by certain overemotional psychasthenic girls for their physician, [Laignel-Lavastine] 820
games for, 1668
- GLANDS**, DUCTLESS: See Ductless Glands
- GLANDULAR** FEVER, [Morse] *1403
acute, in children, [Zimmerman] 64—ab
- GLAUCOMA** as manifestation of multiple sclerosis, [Wernicke] 1057
operations, outcome of, [Tresling] 502
operative treatment of, [Holth] 1457
treatment of, [Holth] 1613
- GLIOMAS**, giant cells in, [Kimura] 823
- GLOSSOPHYOSIS**, [Beall] 2086—ab
- GLOVER**, K. K., study of relapsing fever—a record of personal heroism, 1659—E
- GLUCOSE**, radiation of heat because of plethoria due to mobilization of, 1892—E
solutions, preparation of, 1838
tolerance test in the obese, [Paulin] 1996—ab
- GLYCEMIA**, estimation of, [Labbé] 892
ether glycosuria and, in rabbits, [Fujii] 1612
in exophthalmic goiter, [Sainton & others] 1373, 1770
physiologic, [Izquierdo] 897
- GLYCOSURIA** and diabetes in exophthalmic goiter, [Holst] 744
and hyperglycemia in frightened rabbits, [Fujii] 237
ether glycosuria and, in rabbits, [Fujii] 1612
of examinations, [Malmvirtta & Mikkonen] 1380
of malarial origin, [Castellani & Willmore] 1049, [Harrison] 1686
of mixed origin, [Holst] 1144
renal, [Marsh] 489
- GOETSCHE** TEST, epinephrin hypersensitivity and hyperthyroidism, [Peabody & others] 643, [Garnier & Block] 892
- GOFFE** operation for uterine prolapse, 1441
- GOITER**: See also Hyperthyroidism; Thyroid
basal metabolism as guide in treatment of, [Eberts] 1521
basal metabolism in, [Frazier & Adler] 812
congenital, [Porter & Vonderlehr] 1762
different forms of, in different endemic foci, [Woeiz] 821
exophthalmic, [Schmidt] 899
exophthalmic, and suprarenals, [Swiecicki] 1137
exophthalmic, fibrinous bronchitis with, [Weber] 1932
exophthalmic, glycosuria in, [Sainton & others] 1373, 1770
exophthalmic, glycosuria and diabetes in, [Holst] 744
exophthalmic, influence of operation on thyroid as affecting autonomic nervous system in, [Grunenberg] 498
exophthalmic, operative treatment of, [Bär] 498, [Sudeck] 1774
exophthalmic, operative versus roentgen-ray treatment of, [Liek] 1776
exophthalmic, possible new light on nature of, 1184—E
exophthalmic, psychic factor in, [Bram] *282
exophthalmic, quinin test for, [Sainton & Schulmann] 1770
exophthalmic, skin rashes in, [Gundrum] 886
exophthalmic, thyroid excretion in blood in, [Rogoff & Goldblatt] 815
exophthalmic, treatment of, [Hernaman-Johnson] 576
in Norway district, [Kjølssstad] 1613
lingual, and pregnancy, [Rubell] 78
malignant, [Wolff] 77
operation, encapsulation of goiter remnant after goiter resection, [Capelle] 1216
operations, [Fritzsche] 2152
operations, mishaps with paravertebral nerve blocking for, [Holm] 1379
operations, trachea after, [Denk & Winkelhauer] 1214
operative treatment of, [Wathen] 1128—ab, [Sistrunk] 1523, [Jastram] 1531, [Bloch & Charrier] 1927
retrogression of, after shifting of part of thyroid, [Strauli] 498
roentgenotherapy, [Gaarenstroom] 1060
roentgenotherapy, experimental study on formation of adhesions as result of, [v. d. Hütten] 1376
simple, and iodine, 1574—E
simple, prevention of, in man, [Marine & Kimball] *1068
strumitis, [Hagenbuch] 162
- GOLD** Medal Compound Pills, 393—P
- GON-KURE**, 218—P
- GONNA** Specific, 958—P
- GONO** Capsules, 761, 958—P
- GONORRHEA**, arsenical salts in treatment of, [Lévy-Weissmann] 1373
complement fixation test, [Kil-duffe] 644
complement fixation test in women, [Lailley & Cruikshank] 1523
Gram stain in diagnosis of, [Burke] *1020
heat in treatment of, 2135
in children, [Frassi] 1928
in women, 806—ab
infantile, causes of recurrences in, [Valentin] 414
infection from bath tub, [Dowd] 1920
means of determining cure of, in male, 1894—E
- GONORRHEA**, pessary in prophylaxis of, in male, [Saudek] 2143
vaccine and serotherapy in diagnosis and treatment of complications of, [Frassi] 1290
vaccine therapy, [Sezary] 73, [Richard] 652
- GONOSAN**, 140—P
- GORE'S** indol test, [Goré] 735
- GORGAS**, joint resolution for monument to, 1666
memorial Institute elects, 1666
street named for, in Havana, 294
- GÖTEBORG** plan for dispensaries, 211
- GOUT**, oxalic acid gout, [Loeper] 893
- GRADUATE** course of American Academy of Ophthalmology and Oto-Laryngology, [Keiper] 1593—C
courses at University of Toronto, 1828
courses in Argentina, 474
courses in France, 133
courses in Germany, 295
courses in medical schools, 538
courses in pediatrics in Italy, 1981
courses in public health, 538
instruction in surgery, [Muller] *503
medical education in Europe, opportunities for, [Kress] 569—C
medical education in London and Paris, 1503
medical instruction for country practitioners, government promotion of, 1588
medical schools, 539
medical study, classification of expenditures for, 1756
medical teaching in London, 297
postgraduate lectures at Sheffield hospitals, 1583
postgraduate study, 1883—ab
postgraduate study, influence of, [Cutter] 815
postgraduate work in Paris, [Kress] 1357—C
training in nervous and mental diseases, [Hamilton] *659
Vienna as a graduate medical center [Kress] 2142—C
- GRAM** reaction, [Churchman] 574
- GRANULOMA**, calymmatobacterium granulomatous, [Giuliani] 1448
combined roentgen and heliotherapy in, [Lahmann] 2153
lingual, [Lynch] *925
lingual, treatment of, [Reed & Wolf] 403
lingual, tropical, [Randall & others] 1447
malignant, of nose, [Woods] 576
tuberculous, obstructing pylorus, [Lusena] 1927
- GRAVES' DISEASE**: See Goiter, Exophthalmic
- GREAT** BRITAIN, census of, 1114
new opium laws in, 1026—E
- GREEK** and modern scientific methods, comparison of, 1024—E
- GREENLAND**, medical bibliography of, [Bertelsen] 980
- GROUP** PRACTICE, [Dock] 1835—C, [McLester] 1836—C, [Billings] 1910—C, [Cabot] 1911—C, [Davis] 1987—C, [Malone] 1987—C, [Dunn] 2080—C, [Blumer] 2081—C
- GROWTH** and nutrition on fat free diets, [Drummond & Coward] 1450
checking of, by sodium fluoride, [Goldenberg] 1930
disturbances in child with diabetes insipidus, [Gayler] 2009
influencing growth by feeding, [Kassowitz] 2098
parabiosis for study of factors affecting, [Rubenstein] 236
rapid, of abnormally small child, [Davidson] 1210
rapidity of development in relation to constitution, [Salge] 1143
relationship of growth and carcinoma, [Robertson & Ray] 814
- GRUEL**, Tunis, [Bardou] 1847
- GÜEMES**, retirement of, 719, 949
- GUMMATOUS** tumors in calf, [Lemierre & Weissenbach] 578
- GUMS**, tuberculosis of, [Stratton] 1600
- GUNN'S** Blood and Nerve Tonic, 394—P
- GURJUN**, oil of, 959
- GYNECOLOGY**, autoplasmic peritoneal grafts in gynecologic operations, [Fuchs] 241
interpretation of vesical symptoms in gynecologic diagnosis, [Keene] 400—ab
new trend in therapy, [Gellhorn] 1203—ab

GYNECOLOGY, operations under local anesthesia, [Farr] 1203—ab
questions of day in, [Seltz] 1058
spontaneous infection in, [Salomon] 327
treatment based on anaphylactic shock applied in, [Bouché & Hustlin] 1052
unsolved problems in, [Bell] 314—ab

H

HAIR, premature loss of, treatment of, [MacKee & Andrews] 1522
superfluous, [Laignel-Lavastine] 1926
superfluous, plus diabetes, [Achard & Thiers] 891
white, 1823—E

HALL OF FAME, anesthetists to place bust of Morton in, 795

HALLUCINATIONS, auditory, [Price] 646

HALLUX VALGUS, [Monberg] 1380
operative treatment of, [Olivecrona] 164

HAMMAR festschrift, 1457

HAMMARSTEN, Olof, 1578—E

HAND, aneurysm of, 929—ab
deformity of, from work, [Pichler] 239

hypogentil hand or acrocyanosis, [Maranon] 1057

minor surgery of, [Strauss] 1376

paralysis, tendon transplantation for, [Ney] 1523

spread of typhoid through conveyance by, 874

suture of tendon in, [Kaufmann] 653

HANDWRITING, microscope as an aid in expert examination of, 1194

HARELIP and cleft palate, cause of, [Thompson] 1683

and congenital cleft palate, correction of, [Moorehead] *1951

operations, nasal relation of, [Brown] *1954

HARRISON NARCOTIC LAW, decisions under, 728—MI

new regulations on, 1427—E, 1431

physician issuing to addict prescription to be filled through innocent agency, 884—MI

regulations for recording morphin given hypodermically, 2082

HARVARD Infantile Paralysis Commission, report of, [Peabody] 886

School of Public Health, Rockefeller Foundation gifts for, 714

HASKIN'S Nervine, 958—P

HATS for summer wear, [Teh] 1768

HAVANA, memorials to physicians in, 715

HAWAII July examination, 1200

HAY-FEVER, hemoclastic crisis in, [Lermoyez] 1052

limitation of treatment with pollen extracts, 791—E

palliation; a new use for influenza mask, [Watson & Kibler] 1273—C

(pollen disease), 791—E

protein hypersensitivity and its importance in etiology of disease, [Longcope] *1535

tuberculin in asthma and, [Van Leeuwen & Verekamp] 1778

HAZEN'S theorem applied to a Spanish town, 138

HEAD, injury of hearing from congestion of, [Matsui] 655

injuries, treatment for soldiers with, 1667

shape and pigmentation, sexual differentiation in regard to, 1266

unusual instance of foreign body penetrating head, [Hagemann] *2053

HEADACHE, lower-half, [Sluder] *689

method for administration of sodium chlorid for, [Hughson] *1859

pituitary, and migrainous contrasted, [Hodges] 734

posttraumatic, [Benon & Kerbrat] 821

rôle of diet in etiology and treatment of migraine and, [Brown] *1396

HEADLIGHT, electric, with 2 periscopes, [Reaves] *1653

HEALTH authorities, imperative need of union of medical profession and, [McLean] *827

boards of health required to abate nuisances, 1518—MI

center for Tokyo, 1903

HEALTH council, new, 719

education by federal government, 1026—E

essentials of successful leadership for public work on a county basis, [Welch] 1995—ab

Maine Medical Association's plan for coordinating health activities in the state association, [Bryant] 1976

national, in England, 566

officer, duties of, 775—ab, 943—ab

officers, measures for increasing supply of, [Ferrell] *513

officers, schools for, 712—E

officers, training of, 2073

problems, of Far East, [Mendelson] 1361—ME

public, and private practice, [Lumsden] *779, [Lukin] 1038—C

public, graduate courses in, 538

public health organization in Ohio, 4 years' progress in, [Freeman] *1639

public health legislation in 67th Congress, 793—E

public, in Australasia, 1903

public, new ministry of, in France, 952

Rockefeller Foundation gifts for Harvard's School of Public Health, 714

state department of health, authority of, 964—MI

teaching prevention in public schools, [Williams] 1922

visitors, training of, in Poland, 1903

HEARING, injury of hearing from congestion of head, [Matsui] 655

HEART, access to, [Constantini] 409

action, alternating, [Koch] 1292

action, disordered, from extracardiac causes, 809

action of emetin on, [Guglielmetti & Arrillaga] 1140

action of quiniidin on, [Frey] 77, [Drury & Hiescu] 1448, [Lewis & others] 1449, [Arrillaga & others] 1530, [Chenisse] 1688, [Ellis & Clark] 1768, [Hewlett & Sweeney] *1793, [Hamburger] *1797, [Oppenheimer & Mann] *1800, 1822—E, [White & others] 2089, [Van Tilburg] 2100

and liver angle, [Cattani] 159

anomaly of, [Ratner] 1762

aortic insufficiency, nonrheumatic, [Gallavardin] 820

aortic insufficiency in children, [Nobécourt] 1051

apex beat, [Lian] 73

auricular fibrillation of, cause of, [de Boer] 1216

auricular fibrillation, treatment of [Arnell] 1380

beat and vagus, [Haberlandt] 1293

beat, specific action of atropin in relieving certain irregularities of, [Bishop] *31

bigeminal pulse in atrioventricular rhythm, [White] 885

block, congenital, [White & others] 1599

block, electrocardiograms from complete bundle branch block, [Smith] 1520

block, sino-auricular, [Eden] 414, [Smith] 1682

block, 3 cases, [Griffith] 155

block, traumatic, [Laubry & others] 1925

cardiography of exposed heart, [Kapff] 77

classification of cardiac diagnosis, [White & Myers] *1414

conduction of impulse, [Edens] 1141

conduction of impulse, medicinal influence of, [Weiser] 1141

dilatation of, acute, [Menne] 972

disease and pregnancy, [MacKenzie] 156, 321, [Dice] 1202—ab

disease, congenital, [Taillens] 1605

disease, Hutinel's cardiocirrhosis, [Navarro] 233

disease in children of school age, [Halsey] *672

disease in 1921, [Lereboullet & Heitz] 819

disease, jaundice in, [Castex & González] 1530

disease, prevention of, [Emerson] 67

disease, principles underlying treatment by exercise, [Barringer] *7

disease, referred pain in, [Hensel] 966—ab

HEART disease, significance and diagnosis of cardiac anginal pains, [Paulus] 2086—ab

disease, spinal deformity cause of, [Finley] 1764

disease, vital capacity of lungs, exercise tolerance and heart disease, [Wilson & Edwards] 1762

disease, vital capacity of lungs in, [Ulrich & Nathanson] 966—ab, 2091

during physical exercise, [Boigey] 1137

electrocardiography of dying heart, [Yamada] 823

failure, treatment of [O'Brien] 316

failure, truer standards in diagnosis of, hitherto unemphasized form of pulse irregularity, [Wiel] *749

foreign body in, (rifle bullet), [Hayes] 1449

impulse, derangement in conduction of, [Rehfish] 329

in children, [Doxiades & Hamburger] 1532

in diptheria, [Smith] *765

in growing body, [Groedel] 327

in tuberculous, [Benvenuti] 496

injection into, [Cheinisse] 1848

injection of epinephrin into, [Bermann] 1774

injection of epinephrin in cardiac standstill occurring during anesthesia, [Frenzell] 741

injection of epinephrin-strophanthin in acute cardiac paralysis, [Guthmann] 741

insufficiency, oxygen therapy in, [Barach & Woodwell] 1519

irregular action of, [Mackenzie] 321

localization of typhoid infection in, [Minet & Légrand] 1688

masked dissociation of auricle-ventricle beat, [Lutembacher] 407

massage, resuscitation by, with partial success, [Blackburne] 1422

mitral stenosis, [Clark] 412

murmurs, accidental, from hypotonia of heart, [Zuelzer] 1777

muscle, effect of morphin on, [Hanzlik] 815

muscle, regeneration of, in wounds, [Klose] 77

neurosis, psychosexual, [Nathan] 1451

new method of estimating morphologic changes in, [Hirsch] 576

organotherapy, 476

outline of right heart, [Neumann] 1292

perforation of intraventricular septum of, [Youmans] 1520

power of, 1043

pure mitral stenosis, [Aguirre] 2095

rapid, prognosis in, [Hay] 1524

right ventricle in pulmonary tuberculosis, [Boas & Mann] 489

roentgen-ray studies, [Martin] 730

rupture of, [Davis] 1524

size of, in healthy and ill infants as revealed by fluoroscopy, [Lange & Feldmann] 1531

small-sized, [Tallqvist] 1380

so-called presystolic murmur, [Reid] *1648

sounds and murmurs, nomenclature of, [Janowski] 891

sounds, recording and reproduction of, 1426—E

surgery, results of operations on orifice, [Carrel] 1842

symptoms suggesting ileus, [Sohn] 1215

syphilis of, [Stobie] 1769

syphilis of, pain in, 1022—ab

tricuspid insufficiency, pneumococcus, [Lutembacher] 1212

useful method for experimental work, [Drinker] 152

valvular defects and pulmonary tuberculosis, [Kellner] 1852

valvular disease, pulmonary edema in, [Gallavardin] 891

valvular disease with acute psychoses, [Höst] 1457

voluntary arrest of pulse and, [Gillies & Sear] 1135

wound of left ventricle of, [Warner] *1572

HEAT, effect of, on oxidation and antiscorbutic vitamin, [Dutcher & others] 969

HEEL, access to heel through Achilles tendon, [Nuzi] 976

HEELS, high, defense of, 1760

HEISKELL'S ointment, 59

HELPERICH foundation, 1347

HELIOTHERAPY, 135

artificial, metabolism and blood picture under, [Koenigsfeld] 1933

in laryngeal tuberculosis, [Stafford] 889

institute planned as memorial to Codivilla, 871

of wounds, [Torraca] 654

preventive, [Armand-Delille] 234

Rollier's graduate course in, 295

von HELMHOLTZ centenary, 1109—E

HELMINTHIASIS, congenital, [Necu-Lemaire] 323

in children at Bonn, [Gottberg] 237

in children in Northern Brazil, [Da Matta] 2096

inducing colic, [Glock] 1533

HEMAGGLUTININ, immune, isolation of, [Furuhata] 1845

HEMAL NODES, hemangiolymphoma of, [Symmers] 1520

HEMANGIOLYMPHOMA of hemal nodes, [Symmers] 1520

HEMANGIOMA in new-born, cure of, [Adams] 969

of duodenum, [Carman] 1046

of liver, [Peck] 1285

HEMATEMESIS, [Copello] 1530

and melena in chronic appendicitis, [Bassler] *28

digestion of esophagus cause of, [Pringle & others] 1604

HEMATOMA, extradural, from lesion of middle meningeal artery, [Cosentino] 1607

HEMATOMYELIA, traumatic, [Rimbaud & Giraud] 324

HEMATURIA, [Fullerton] 405

essential, [D'Agata] 1138, [Kerpeler] 1292

monosymptomatic, in children, [Nassau] 500

HEMERALOPIA, and malingering of night blindness, [Smith] *1001

HEMIANOPSIA following migraine, [Wiener] 1943

HEMIHYPERTROPHY, [Gesell] 1281

HEMOBLASTOSIS, manifestations in skin of, [Martinotti] 1139

HEMOCLASIS crisis, 992—ab

crisis as test of liver functioning, [Sömjen] 2008

crisis during roentgen-ray treatment, [Giraud & others] 1688

crisis, experimental, [Le Calvé] 2150

crisis in infants, [Schiff & Stransky] 1532

digestion, modification of, [Pagniez & Plichet] 819

HEMOCONIAS in children, [Zibordi] 821

HEMOGLOBIN after childbirth, [Rucker] 149

HEMOGLOBINOMETER, colorimeter as, [Dunger] 1378

HEMOGLOBINURIA, paroxysmal, from chilling, apparent cure of, [Salén] 1296

paroxysmal, renal factor in, [Silvestri] 1291

HEMOLYSINS, natural, [Hyde] 228

HEMOLYSIS in ileus, [Ribeyrolles] 1056

protection of red blood cells against, 484

HEMOLYTIC FEVER, 128—E

HEMOPHILIA, familial, [Stewart] 972

familial, cure of, [Weil] 737

HEMOPHTYSIS, casual factors in, [Bockhoudt] 1295

effect of ergot on, [Maeda] 237

HEMORRHAGE, arrest of, by sutured scrap of muscle, [Hilgenberg] 161

circulatory reactions to, 204—E

controlled by calcium chlorid injection, [Grove & Vlnes] 493

discoloration in region of umbilicus with internal hemorrhage, [Hendall] 826

effect of, on sympathetic nerves, [McGuigan & Atkinson] 967

idiopathic, in skin, [Meyer & Nassau] 239

influence of thyroid on, [Oddo & Mattei] 1770

leukocytes after, [Musser] 812

occult, in infants, [Fürstenau] 2099

of ovarian and tubal origin not associated with ectopic pregnancy, [Schumann] *692

reaction to, [Meek & Eyster] 65

serotherapy of, [Dufour & Le Hello] 1053

suction, during delivery, [Schwartz] 163

- HEMORRHAGE, visual disturbance after, 715
HEMORRHAGIC diathesis, symptomatic, [Henkel] 1933
disease of new-born, etiology, [Gelston] 1444
HEMORRHOIDS, strangulated, [Leven] 894
HEPATIC DUCTS, cancer of common bile ducts and, [Pallin] 77
HEPATITIS, relation of, to cholecystitis, [MacCarty & Jackson] 154
HEPATO-DUODENOSTOMY, report of case with observations on Lyon-Meltzer method of biliary drainage, [Dunn & Connell] *1093
HEREDITY and alcoholism, 1343—E
and selection, [Frets] 1778
foundation of society for study of, 1030
HERMAPHRODITISM, [Doenecke] 1292
HERNIA, amniotic, corrected by operation, [Formichella] *464
appendix in hernial sac, [Niedlich] 77
cannot require submission to major operation or one for hernia, 1678—M1
diaphragmatic, [Roos] 887
diaphragmatic, eventration of diaphragm, [Korns] 885
diaphragmatic, its clinical aspects from trauma in children, [Truesdale] *993
epigastric, [Bloch] 971
eversion of hernial sac, [Taddei] 159
femoral, in children, radical cure of, [MacLennan] 1287
femoral, operation for, [Bile] 654, [Asteriades] 897, [Savini] 1522
incarcerated, in infants, [Krause] 161
incarceration of colon transverse in hernial sac, [Royer] 1445
inguinal, modified Bassini method for cure of, [Chatterji] 406
internal, radiologic diagnosis of, [Kummer] 1372
lipoma in, [Ruben] 164
loose bodies in hernial sac, [Oliva] 1607
of omental bursa, [Pfanner] 161
on linea alba, [Mandl] 238
operation, iliotibial band grafts in, [Hume] 2093
operation, suture after, [Blanc] 237
operations, results of, [Niedlich] 1142
reduced "en bloc," [Eliason] *2049
retrocecal, [Zoepffel] 1215
retrograde incarceration of intestine in, [Hempel] 499
(Treitz' incarcerated), [Crescenzi] 654
umbilical strangulated, [Castro] 1849
HEROISM, study of relapsing fever—a record of personal heroism, 1659—E
HERPES as type of vicarious menstruation, [Solomons] 70
zoster a primary ascending neuritis, [Montgomery] 1998
HERRICK, Myron T., recipient of medal betokening gratitude of French people, 800
HERXHEIMER reaction, [Speroni] 1056
HEXAMETHYLENAMIN, reduction of phagocytosis by, 1912
HICCUP, epidemic, [Pontano & Trentl] 1138
necropsy in, [Pierre-Kahn & others] 324
persisting, with erysipelas, [Casteran & Railliet] 1925
HIGH FREQUENCY CURRENT, [Folmer] 80
in surgery, [Heitz-Boyer] 409, 975
HIP arthroplasty, muscle flap for, [Skinner] 404
caries of, treatment of, [Bradford] 2001
complications of malta fever, [Cignozzi] 1055
diagnosis and treatment of chronic lesions of, [Gacnslen] 399—ab
disease, estimation of, [Scherb] 498
disease, shortening with, [Timmer] 330
dislocation, congenital rôle of heredity in etiology of, [Roch] 1934
dislocation from coxitis, cure of, [Maragliano] 74
Perthes' disease of, 484
tuberculosis of, [Vacchelli] 74
HIP tuberculosis, arthrodesis by implantation of strip of bone close to joint, [Kappis] 1059
typhoid disease of, [Rodriguez] 75
HIRSCHSPRUNG'S DISEASE, [Moser] 978, [Hellez & Blechmann] 1136
origin of, [Goebel] 1531
HISTORY given physicians viewed as evidence, 1364—M1
HOBBS Kidney and Bladder Remedy, 218—P
HODGKIN'S DISEASE and sarcoma, [Mueller] 1766
HOFFMAN'S Celebrated Mixture, 481—P
HOMICIDAL obsession impulse, [Barbé] 819
HOOKWORM DISEASE: See Uncinariasis
HOOPER'S Female Pills, 394—P
HORSLEY, VICTOR, memorial fund, 1982
HOSPITAL, additional hospitals at soldiers' homes, 951
and necropsy percentage, [Richards] 1754—C
approved for intern training, 1122—ME
as diagnostic center, [Hunt] 1205
board to coordinate government hospital work, 1348
case records, 33—ab
case taking at St. Andrews' Institute, [Paton] 1287
Cleveland's hospital supply, 1595—ME
crisis in London, 297
financial straits of, in Germany, 1031
for mental diseases, Colonel Forbes advises on, 1192
for negro service men, 1981
for soldiers, Senate committee to investigate, 564
for speech disorders, [Greene] *1726, [Kolb] 2082—C
in Newfoundland and Labrador, 1902
legislation for additional hospitals for veterans, 1432
maternity, 1093—ab
method for increasing efficiency within, [Nuzum] 1991—ME
neuropsychiatric, for Public Health Service, 1748
opening of new Peking Union Medical College Hospital, 953
organization and management, 1643—ab
purchase of hospitals authorized by government, 565
ships to be commanded by line officers, 950
social service and the child, [Chapin] *279
social service, organization of, 463—ab
Speedway Hospital renamed, 1432
HOSPITALIZATION, American Legion promulgates resolution on, 210
Board, recommendations of, 51
Committee makes announcement, 473
Federal Board of, 1584, 1749
HOUSING distress in Germany, 1829
HOWELL'S Lymphine Tablets, 1439—P
HOWE'S Compound Damiana Tablets, 723—P
HUMERUS, fracture of lower end of, rare, [Paul] 813
fractures, operative treatment of, [Ryerson] 1995—ab
pseudarthrosis of, mechanical treatment of, [Marsigial] 580
HUMORAL antibodies in tuberculosis, [Petroff & Ornstein] 889
HUNGER strike, to arrest, [Mesdag] 416
HUTINEL'S cardiocirrhosis, [Navarro] 233
HYDATID CYSTS: See Echinococcosis
HYDATIDIFORM MOLE, [Hinselmann] 1215, [Velasco] 1844
and lutein cysts in ovaries, [Potocki] 1687
case of, [Henderson & Sherrill] 231
chorio-epithelioma following hydatid degeneration, [Payne] 969
indications for treatment of, [Cottalorda] 1136
HYDRANION, prospects for the child with, [Krahula] 2009
HYDRARTHROSIS, intermittent, [Bierring] *785
HYDROA vacciniforme, [Carrau & Aristegui] 1453
HYDROCEPHALUS, experimental, absorption from ventricles in, [Wislocki & Putnam] 1599
HYDROLOGY, International Society of Medical Hydrology, 1902
HYDRONEPHROSIS, 2133
with perinephritis, [Cassuto] 496
HYDROPHOBIA and typhus in Spain, 1113
antirabic inoculation for dogs, 203—E
desiccated virus for antirabic vaccination, [D'Aunoy] 1131
myelitis after antirabies treatment, [Kraus] 1608
prophylaxis of, [Hulshoff Pol] 80
spontaneous recovery from, [Philips & others] 318
HYDROSALPINX, [Jagerroos] 413
HYGIENE, colonial, 137
expositions, 1031
personal and business efficiency, 866—E
state institute of, in Berlin, 1436
HYPERADRENALISM cause of pyloric stenosis, [Gray & Reynolds] 2150
HYPERCHLORHYDRIA and duodenal ulcer, [Schlesinger] 1378
and peptic ulcer, [González Campo] 824
HYPERCHOLESTERINEMIA and albuminuric retinitis, [Gaudisart] 2005
HYPERGLYCEMIA and glycosuria in frightened rabbits, [Fujii] 237
HYPERNEPHROMA, [Michaelson] 237, [Mosti] 580
of sternum, [MacLeod & Jacobs] 2091
HYPERSENSITIBILITY: See Anaphylaxis
HYPERTENSION: See Blood Pressure, High
HYPERTIRICHOSIS: See Hair, Superfluous
HYPERTHYROIDISM, basal metabolic rate in, [Boothby] *252
blood sugar and basal metabolism, findings in, [McBrayer] *861
epinephrin test in, [Garnier & Bloch] 892, [Peabody & others] 643
surgery versus roentgen ray in, [Crile] *1324
transient, from tracheobronchocopy, [Rist & Weiss] 2094
variable factors in, 709—E
HYPODERMIC needles, care of, [Lévy] 1528, [Werley] 1674—C
HYPOPHYON, protein therapy of, [Almeida Huerta] 327
HYPOTIREPSIA, diagnosis and treatment of, [Marfan] 1450
HYPSTERECTOMY, abdominal, draining peritoneum after, [Darigues] 1927
HYSTERIA, dysphagia due to, [Wilson] 966—ab
senile, [Friedländer] 1215
ICE CREAM, poisoning from, [Broers] 1621
ICHTHYOSIS, congenital, case of, [Dean] *465
hereditary, [Guerrero] 1453
ICTERUS: See Jaundice
IDAHO practice act, 1358
state board April examination, 1595
state board October examination, 2083
IDIOCY: See also Feeble-Mindedness
IDIOCY, mongolian, [Comby] 1211
mongolian, blood picture with, [Nadolny & Weinberg] 163
of parathyroid origin, [Comby] 233
IDIOSYNCRASIES, [Doerr] 1772
ILEOCOLITIS, in infants, cocoa in, [Picard] 1132
ILEUM, congenital occlusion of, [Morley] 649
ILEUS, acute, [Gottschalk] 1293
acute, prognosis in, [Guillaume] 1772
duodenal, chronic, [Wilkie] 1924, 2002
enterostomy in peritonitis and, [Wortmann] 1533
fatal factors in, [Felsch-Thebeslus] 161
from foreign body, [Boerner] 1058
heart symptoms suggesting, [Sohn] 1215
hemolysis in, [Ribeyrolles] 1056
ILEUS, jejunostomy, a treatment of acute ileus and a preventive of postoperative ileus, [McKinnon] *273
postoperative, enterostomy in, [Vollhardt] 1058
ILIOSACRAL joint, [Allen] *854
ILLINOIS practice act of 1917 declared void, 639—ME
state board February and March examination, 60
ILLUMINATOR, instantaneous, for surgeons, [Morse] *1182
IMBECILITY: See Idiocy
IMMIGRANTS, committee on welfare of, 1582
IMMORTALITY, Sir Arthur Keith on, 798
IMMUNITY, old and new knowledge of, [Hektoen] *1935
production of, [Pratt-Johnson] 1845
specific hypersensitiveness in bacterial infections, [Zinsser] 1842
IMPERIAL PHYSICIANS, Peking, office of, [Crowdy] 307
IMPETIGO, chronic, [Balzer] 1527
IMPLANTS: See Grafts
IMPOTENCE quoad hanc, 297
INANITION FEVER, toxic protein end-products the cause of, [Sherman & Lohnes] *1720
INCISION, best, in acute appendicitis, [Ballance] 1208
INCOME tax and physicians, 959
distinction between current expenses and investments, 2143
tax bill, deductions for contributions in, 1666
INDIA, census of, 52
INDIANA state board July examination, 1675
INDICANURIA in children, [Nigro] 1928
INDICTMENT, a good indictment, medical law not discriminatory, 487—M1
INDIGESTION: See Dyspepsia
INDOL, detection of, [Malone & Goré] 735
no indol production by staphylococci, [Bayne-Jones & Zininger] 1283
test, Böhm's solutions for, 959
test, Goré's, [Goré] 735
INDUSTRIAL accident cases, restaurant treatment in, [Marshall] 1273—C
accidents, meniscus operation after, [Dubs] 496
accidents, official tariff for treatment of, [Decourt] 738
dermatoses among printers, 1760
disease, lung cancer as an, 2123—E
diseases, [Balthazard] 738
diseases in Germany, 1400—ab
skin diseases, 38—ab
skin disease (pyrethrum dermatitis), [McCord & others] *448
INFANTILISM and dwarf growth, [Brandis] 656
INFANTS, appetite curve in, [Panzer] 163
concentrated food for, [Helmreich & Schick] 1377, 2099
connection between difficult birth and mental and nervous disturbances later, [Hannes] 1216
creatin output in, [Schiff & Bálint] 581
denutrition in, [Marfan] 495
digestible mixtures for malnourished infants, [Chapin] 1207
digestive disturbances in, [Marfan] 2005
dyspepsia in artificially fed infants, [Veronese] 1928
evacuation of bowel in, 1660—E
fecal flora of, [Davison & Rosenthal] 1599
feeding, butter-flour mixture in, [Griffith & Mitchell] 888, [Krasemann] 850, [Mendelssohn] 2099
feeding buttermilk for, [Gaing] 1055, 1453
feeding, buttermilk plus fat in, [Gaing] 1140
feeding, Czerny and Kleinschmidt butter-flour mixture, [Griffith] 227—ab
feeding, effect of compressed yeast in food of infants, [Ladd] 312—ab
feeding, fat in, [Nobécourt & others] 2005
feeding, 4-hour nursing and feeding interval, [Southworth] 312—ab
feeding, index for, [Peyrot] 578
feeding, maternal nursing during sickness, [Moldenhauer] 162

- INFANT** feeding, metabolic findings in infants on butter-flour mixture and cream-milk, [Noack] 581
feeding, modified buttermilk in, [Gaing] 2095
feeding, nem system of, [Van Leersum] 1060
feeding, Pirquet method the best, [Fisher] 2148
feeding, progress of breast-fed infants since the war, [Hammann] 825
feeding, use of saccharin in, 1990
feeding, use of thick cereal mixtures in difficult feeding cases, [Chapin] 227—ab
mortality, 294
mortality and syphilis, 1939—ab
mortality at Messina, [Bonfiglio] 236
mortality in Java, [Habich-Veenhuijzen] 826
mortality in Peru, [Eyzaguirre] 2007
mortality in Prague, 54
mortality in the United States, 2064—E
mortality, reduction of, [Schreiber] 974
new-born, arterial pressure in, [Balard] 1450
new-born, bilirublnemia in [Hellmuth] 499
new-born, birth trauma of, from standpoint of obstetrician, [Ehrenfest] *103
new-born, blood studies in, [Dearling & Hoobler] 225—ab
new-born, cure of large hemangioma in, [Adams] 969
new-born, etiology of hemorrhagic disease of, [Gelston] 1444
new-born, gastro-intestinal hemorrhage in, [Andérodias] 1211
new-born, inanition temperature of, [Grulee & Bonar] 401
new-born, intracranial hemorrhage in, [Rosamond] 2087—ab
new-born, investigations on genesis of arm paralysis in, [Weil] 1934
new-born, removal of aspirated masses from air passages of, [Klee] 1932
new-born, skin and sweat glands in, [Becker] 1143
new-born, sole print identification of, [Robinson] 1766
new-born, swelling of mammary glands in, [Guber] 2099
new-born, transitory fever in, 628—E
nutritive disturbance in, [Engel] 2099
open air treatment of, [Elias] 1370
parenteral infections in, [Helmholz] 399—ab
premature, care of, [Carr] 225—ab
premature, causes of mortality of, [Eden] 577
premature, fate of, [Huber] 2098
premature, influence of diet on growth and development of, [Neubauer] 978
weight at birth of, in India, [Curjel] 1134
welfare congress in Brazil, 1980
welfare work, [Dubost & Francois] 495, [Lédé] 1687
- INFECTION**, alkali reserve, sugar concentration, and leukocytes of blood in, [Hirsch] 317
bacterial, specific hypersensitivity in, [Zinsser] 1842
doctrine of prepared soil in, [Cabot] 1520
focal, and appendicitis, [Rosenow] 319
focal, in genital organs as cause of arthritis, [Cunningham] 69
iodin injections for septic conditions, [De Castro] 2003
location of parasitic invaders in body, 1187—E
parenteral, in infancy, [Helmholz] 399—ab
terminal, phagocytosis in, 2125—E
- INFECTIOUS DISEASES** at places of recent massacre in Turkey, 874
bone marrow in, [Müller] 2098
do bacteria suffer from, 126—E
etiology of, [Tobez] 237
fragility of erythrocytes in, [Green-thal & O'Donnell] 729
in 1921, [Dopter] 324
morphologic changes in leukocytes in, [Alder] 74
- INFLAMMATION**, distribution of leukocytes in blood in inflammatory processes, [Unger & Wlsotzki] 414
- INFLUENZA**, 801
and war gases, 381—E
bacilli, grouping of, [Yabe] 890
bacilli, growth requirements of, [Rivers & Poole] 67, [Davis] *683
bacilli, immunologic study of, [Chesney] 490
bacilli, meningitis from, [Christiansen & Kristensen] 80
bacilli of adenoids and tonsils, [Pilot & Pearlman] 317
bacilli, pneumococci, and hemolytic streptococci in nasopharynx [Meyer & others] 317
bacilli, reactions of, producing meningitis, [Rivers & Kohn] 1842
bacteriology of, [Grelg] 1134
blood in, [Rütimeyer] 1212
epilepsy following report of case, [Hannah] *40
experimental, [Olitsky & Gates] 230
in Buenos Aires, 718
in insane, pathology of, [Lewis] 645
iodin applied to tongue as prophylactic against, [Taylor] 155
leukocytes in, [Bunting] 812
new bacterium in, [Olitsky & Gates] 152
paralysis agitans as sequel of, [Moren] 231
surgical complications of, [Wilde-gans] 899
vaccine treatment, effect of, [Yabe] 1845
- INJECTIONS**, intracardiac, [Vogt] 741, [Cheinisse] 1848
intracardiac, of epinephrin, [Frenzel] 741, [Bermann] 1774
intracardiac, of epinephrin-strophanthin in acute cardiac paralysis, [Guthmann] 741
intraperitoneal, administration of fluids by, 1893—E
intraperitoneal, in infants, [Weinberg] 163
intraspinal, of air in diagnosis of tumors, [Widerøe] 826
intravenous, device for steadying needle during, [Rosenbaum] *40
route of administration of drugs in relation to toxicity in chemotherapeutic investigations with special reference to intrapleural injections of ethylhydrocuprein hydrochlorid, [Kolmer] 814
subcutaneous, of salt in infants, [Stoltenberg] 1377
- INSANE** asylums in war region, 871
criminal, new hospital for, 133
delinquents, colony for, 871
imposition of penalties on mentally deranged, 954
pathology of influenza in, [Lewis] 645
- INSANITY**: See also Psychiatry
INSANITY and divorce, 389
basis and weight of opinions as to, 147—MI
decline of lunacy during war, 1905
ex-soldiers in lunatic asylums, 1982
familial, [Kolb] 657
in Dutch East Indies, [van Loon] 1456
mental disease in olden times, [Breukink] 658
mental diseases in 12 states during 1919, 809
mental diseases, simulation of, 1033
mental disorders, Colonel Forbes advises on proposed hospital for, 1192
puerperal, fixation abscess in treatment of, [Gomez Calvo] 76
results of treatment in mental cases, [Bond] 1281
- INSECTS**, plague of, 1193
- INSOMNIA** in children after encephalitis, [Reh] 2094
- INSTITUTE** for clinical pharmacologic research, German, 803
- INSTRUMENT**: See also Apparatus
INSTRUMENT, multiple blade retractor, [Buka] *707
- INSURANCE** act, national, 873
club, demand for free choice of physician in, 876
crisis in panel practice, 1349
death from erysipelas of insured physician, 1761—MI
for laborers, 2070
health, compulsory, 1515
health, in Czechoslovakia, 133
health, in England still an experiment, 1656—E
health insurance physicians, strike of, 54, 390
- INSURANCE**, health, municipal medical socialism, 2072
Holland's national health insurance bill, 477
physicians, remuneration of, in England, 1507, 1667
proposed social insurance in France, [Boudin] 738
- INTERDEPARTMENTAL** Social Hygiene Board, report of, 1980
- INTEREST** on expenses for physician and at hospital, 148—MI
- INTERNATIONAL** anthropology institute, 950
committee on military medicine and pharmacy, permanent, 796, 798
Congress: See under Congress
hygiene exposition, 631
League against Tuberculosis, 390
Medical-Anthropologic Social Academy, 474
Society of Medical Hydrology, 1902
- INTERNS**, fourth annual meeting of French interns, 796
hospital intern year, 546
hospitals approved for training interns, 1122—ME
in army hospitals, 475
- INTESTINE**, abscess complicating cancer of, [Goldschmidt] 1531
anaerobic bacteria in, of infant, [Porter] 312—ab
anastomosis between large and small intestine, [Duboucher] 2005
cancer in relation to schistosomiasis, [Kazama] 1778
disturbance from Jackson's membrane, [Gaetano] 1453
diverticula, diverticulitis and peridiverticulitis of small intestine, [Gant] *1415
fermentation, [Freudenberg & Heller] 1532, 1850
flora, effect of diet on, [Cannon] 1369
flora, simplification of, 626—E
iced, [Winnen] 1292
invagination in children, [Wortmann] 1691
nervous system of, [Müller] 1614
obstruction, acute, [Hendon] 2086—ab
obstruction, acute, mechanical, [Robinson] 1600
obstruction, diagnosis of, 382—E
obstruction, water balance in, [Bacon & others] 1841
passage of bile pigments into, with normal course arrested, [Brule & Spilliaert] 407
perforation in course of rectal cancer, [Renon & Blamoutier] 494
perforation, spontaneous closure of, report of case of double infection with typhoid and paratyphoid B, [Randolph & Hunter] *2111
polypoid lipoma of, [Carlucci] 969
protozoa, prevalence of, and related organisms in Porto Rico, [Hegner] 1439—C
protozoan cysts, human, resistance of, to heat, 2065—E
resection, care of stump after, [De Martel] 1137
retrograde incarceration of, in hernia, [Hempel] 499
retrograde strangulation of, [Patel & Vergnory] 1606
roentgenography of, [Ziegler] 162
rupture from compressed air, [Jean] 1137
rupture, self-inflicted, [Moir] 1524
small, topography of, [Guillaume] 325
soaps in the bowel, [Goiffon & others] 1847
stasis, chronic, [Fouarge & Houdmont] 1135
stenosis of tuberculous intestine, [Schüppel] 1932
stricture and pernicious anemia, [Meulengracht] 242, 1931
suture of, [Robineau] 1606
tube, Einhorn, method for sealing distal end of, [Odén] *1889
tuberculosis, [Brown & Sampson] 491
tuberculosis and famine edema, [Wiechers] 581
tuberculosis in children, [Pitts] 1764
worms, [Hodson] 1371
- INTRAVENOUS** Compound (Löffler) its position and peculiar methods by which it is exploited, 1591—P
Products Company of America, 1912
specialties, 1912
- INTUBATION**, experiences with [Hohlfe'd] 740
tube, to fasten, [D'Anna] 411
- INTUSSUSCEPTION**, [Goldschmidt] 1851
acute, in children, [MacAuley] 320
analysis of cases of, [Edington] 1208
- INVAGINATION** in adult, [Tournex] 650
- INVALIDS**, social service for chronic invalids, 1237—ab
- IODIN**, application of, to tongue as prophylactic against influenza, [Taylor] 155
centennial of introduction of, 397
injections for septic conditions, [De Castro] 2003
treatment, intensive, of tuberculosis, [Boudreau] 1605
- IODINOL**, an "intensified iodine" at an intensified price, 637—P
- IODIPIN** 10 per cent., 1655
- IOWA** state board April examination, 143
state board January examination, 60
state board June examination, 1596
- IPECAC** in constipation in infants, [García de Diestro] 2007
- IRIS**, radial rupture of, [Campos] 2096
- IRON**, blood regeneration and anemia 379—E
- ITALIAN** Institute for Social Relief, 1492—ab
Council on Pharmacy and Chemistry for, 565
medical legislators, 295
- IVY**, Poison: See Rhus Poisoning
- J
- JACKSON'S MEMBRANE**, embryology of, [de Gaetano] 2006
intestinal disturbance from, [Gaetano] 1453
- JAPAN**, department of health for, 715
- JAPANESE** medical men, association of, 719
- JAUNDICE**, and Banti's disease, [Pallin] 1614
biliary obstruction in, [McMaster & Rous] 153
catarrhal, during lactation, [Thélin] 1607
familial, [Brockwell] 2003
hemolytic, [Gram] 242
hemolytic, acquired, [Pollitzer & others] 742
hemolytic, aggravated by altitude, [Frenkel-Tissot] 410
hemolytic, inherited, splenectomy with, [Wideroe & Jervell] 242
heredity of, [Meulengracht] 77
icterohemorrhagic spirochetosis, pathology of, [Basile] 159
in heart disease, [Castex & González] 1530
infectious, 1270
new investigations on, 1821—E
obstructive, preoperative preparation in cases of, [Walters] 2001
- JAVA** pithecanthropos, [Ramström] 1614
- JAW**, bone implants for reconstruction of, [Cavina] 1374
cancer of, [Bercher] 1289
cysts of, etiology, pathology and treatment of, [Dorrance] *1883
dislocation of, habitual, [Kon-zetny] 1774
fracture of, [Nejrotti] 1689
joint anomalies in, [Vischer] 1053
subluxation of, operation for, [Ashhurst] 149
tumors, [Pettit] *1881
- JEJUNUM**, diverticula of, [Mackech-nie] 573
gastrojejunal ulcers, report of 21 cases, [Lewisohn] *442
ulcer, [Judd] 733
- JEJUNOSTOMY**, treatment of acute ileus and a preventive of post-operative ileus, [McKinnon] *273
- JENNER** medal, award of, 1748
- JEWISH** vital statistics, 797
- JEWS**, immunity of, from certain diseases, 2135
- JOB MOSES**, J. CLARKE'S FEMALE PILLS, 958—P
- JOHNS HOPKINS HOSPITAL**, newspaper comments on attitude of, on doctor's fee, 960—ME
resolutions of medical board of, limiting fees, 631
- JOINT** and bone tuberculosis from standpoint of workmen's compensation, [Broca] 323

- JOINT** anomalies in jaws, [Vischer] 1053
disease in acute tabes, [Lemierre & others] 1052
disease in diseases of central nervous system, [Robinski] 329
disease, neuropathic, [Hildebrand] 237
diseases, serotherapy and vaccination in, 1749
flail, [Dittrich] 1058
grafts of long bones and joints, [Fieschi] 1373
loose bodies in, [Buchner & Rieger] 2008
streptothricosis of, [Bolognesi] 739
syphilitic disease of, [Broca] 2005
tuberculosis, early diagnosis and treatment of, [O'Ferrall] 1995—ab
tuberculosis of ankle in adult, treatment of, [Gaenslen & Scheider] *1168
tuberculosis, roentgen-ray treatment of, [Stromeyer] 162
wounds of cartilage in, repair of, [Ciociola] 579
- JOURDEN, L. N.**, study of relapsing fever—a record of personal heroism, 1659—E
- JOURNAL, Acta Radiologica**, 1667
International, of Gastro-Enterology, 132
new Cuban, 871
new Italian medical, 1265
of Orthopaedic Surgery, 1582
Revista de Higiene of Bogotá reappears, 949
Swedish, and money exchange difficulties, 2070
- JOURNALISM**, Willard Grosvenor Bleyer on standards in, 1426—E
- JOYNER'S GUI-A-COL COMPOUND**, 1119—P
- JURISPRUDENCE**: See Medical Jurisprudence
- JUXTA-ARTICULAR nodules**, [Da Matta] 1374
- K**
- KAHLER'S DISEASE**, [Cantieri] 1054
- KALA-AZAR**: See Leishmaniasis
- KALINA TABLETS**, 1439—P
- KALMERID** Germicidal Tablets Potassium Mercuric-Iodide, 1573
- KANSAS City**, medical week in, 294
state board February examination, 640
state board June examination, 2083
- KAOLIN** in cholera, [Walker] 890
- KEITH, Sir Arthur**, on immortality, 798
- KELLOGG'S Sanitone Wafers**, 879—P
- KENTUCKY state board** May examination, 305
- KERATOCONUS**, origin of, [Wernicke] 1056
- KERATO MALACIA**, nutritional, [Ross] 1599
- KERATOSIS follicularis**, (Darier's disease) in infant, [Borghoff] 1918
- KETOGENESIS**, nature of, 864—E
- KIDNEY**, absence of one, congenital, [Venzmer] 2099
accessory renal vessels, [Petrén] 1614
agenesia of both kidneys in fetus with absence of amniotic fluid, [Hurzeler] 330
and liver disease secondary to gastric ulcer, [Le Noir & others] 233
arteries and high blood pressure, 1669
calculi and colon bacillus, [Cyranaka] 1774
calculi, differential pain with, [Goyena] 327
calculi in renal pelvis, extraction by natural routes, [Rico] 76
calculi, large, [Hermans] 1534
calculi in pelvis of, [Christian] 72
calculi, multiple, unilateral and bilateral, [Geraghty & others] 1901
calculi, treatment of renal colon in, [Nin Posadas] 1454
cancer, [Quinland] 1282
cancer, primary, [Bugbee] 402
capillary blood pressure and glomerular filtration theory, [Hill & McQueen] 1845
contracted, Ambard index with, [Guggenheimer] 1292
cystic, [Rumpel] 1291, [Zondek] 1532
- KIDNEY cysts, multiple**, [Tansini] 580
cysts, suppuration in polycystic kidneys, [Chevassu] 651
decapsulation in chronic nephritis, [Comby] 1372
disease, acute element in chronic nephropathies, [Emerson] *745
disease and high blood pressure, [Moschowitz] *1075, [Kylin] 1296
disease, blood with, [Poggio] 1928
disease, classification of renal diseases, [Caretti] 822
disease in pregnant, [Hüssy] 1848
disease, urea and residual nitrogen in, [Aiello] 1773
effect of phenylcinchoninic acid on, [Myers & Killian] 1684
effect of water diuresis on, [Carr] 1684
elimination of acid by, [Rohonyi] 1378
fragility of, [Salazar] 647
function, colorimeter tests for, [Lian & Siguret] 737
function, hippuric acid test for, [Vielle] 156, [Vielle] 407, [Snapper] 658, [Kingsbury & Swanson] 885, 1295
function in chronic interstitial nephritis, [Snowden] 1918
function in infants, [Stransky] 239
function, induced chloriduria test for, [Kummer] 894
function, new test of, [Silverton] 322
function, pituitary extracts as test for, [Brunn] 1142
function, potassium iodid test of, [Narath] 1851
function, removal of bile and blood from urine in performing phenol-sulphonaphthalein test of, [Burwell & Jones] *462
function, test for early renal insufficiency, [Magath] 68
function, tests of, [Schwarz] 979, [McLean & Boyd] 1286
hemorrhage from postoperative, [Legueu] 157, 651
hemorrhage, spontaneous, in bed of, [Sohn] 897
infections, etiology of, [MacKenzie] 1764
insufficiency, diabetic coma with, [Mördre] 2100
irritation from high protein diet, [Squier & Newburgh] 488, 708, —E
lavage of renal pelvis, an experimental study, [O'Connor] *1088
malformation of, [Gruber & Bing] 1611
osteofibroma of, [Desnos] 652
pararenal lipoma, [Cantoni] 1139
pneumoradiography of, 1108—E, [Carelli & Finochietto] 1140
position and size of, in Filipinos, [Nanagas] 1685
postoperative care in surgical conditions of, [Walther] 1996—ab
ptosis of cecum and, [Chutro] 1057
resection, partial, [Berti] 579, 1054
roentgenograms of kidney, ureter and suprarenal gland after induced emphysema in perirenal adipose tissues, 1108—E
rupture, complete, traumatic, [Graves & Casper] 231
sarcoma, in infant, [Variot & Cailliau] 578
secretion, thresholds in, [Ambard] 1527
surgery, factors which influence results and mortality rate in, analytic study of 263 operations, [Caulk] *843
syphilitic disease of, [Waldorp] 412, [Weisfelt] 658, [Waldorp & Behr] 977
transperitoneal approach to, [Quinby] 2148
tuberculosis, [Sappington] *525, [Wolf] 744, [Grant] 1525, [Caulk] 2148
tuberculosis, conservative treatment of, [Wossidlo] 1611
tuberculosis, early diagnosis of, [Salleras] 1773
tuberculosis, impacted pelvic calculus in, [Fowler] 402
tuberculosis in pregnancy, [Graebke] 1215
tuberculosis, ureter with, [D'Agata] 411
tuberculosis, value of cultures, smears and guinea-pig inoculations in diagnosis of, [Hyman & Mann] *1012
- KIDNEY tumors**, [Heppner] 2099
tumors, combined, [Graves & Templeton] 1446
- KIELLAND'S forceps**, 142
- KNEE, arthroplasty of**, [Campbell] 1370
joint, flail, [Mühlhaus] 1142
injury, diagnosis and treatment of, 63—M1
removal of pus in, [Southam] 576
resection of, [Pascalis] 1137
snapping, [Budde] 1531
suppuration in, [Läwen] 328
tuberculosis of, [Sacco] 74
- KÖHLER'S DISEASE**, [Bauman] *1086
of scaphoid bone, [Sonntag] 655
- KONRICH stain** for tubercle bacilli, [De Mestral] 1452
- KOPLIK SPOTS**, 144
not constantly present in measles, 299
- KRAUROSIS vulvae** and malignant inguinal adenitis, [Reder] 1922
- KRAUS goes to Brazil**, 801
tribute to, 1264
- KROPLE Bobrowe**, 722—P
Laurowe, 722—P
Maciczne, 722—P
Nazemcowe, 722—P
- L**
- LABBÉ in Brazil**, 1583
to lecture at Buenos Aires, 631
- LABOR**: See also Obstetrics
- LABOR**, action of commoner eccholics in first stage of labor, [Rucker] 1202—ab
Bandl's ring, moving upward of, [Lange-Nielsen] 826
childbirth case—error in referring to pus, 1994—M1
connection between difficult birth and mental and nervous disturbances later, [Hannes] 1216
forced, [Polak] 400—ab
hemoglobin after childbirth, [Rucker] 149
hemorrhage, aorta clamp in, [Lörincz] 1059
hemorrhage, modification of Sehr's aorta clamp and its use in, [Becker] 1059
hemorrhage, Sehr's abdominal aorta clamp in, [Fleischer] 78
hemorrhages, suction, during delivery, [Schwartz] 163
induction hemorrhage in, [Davis] 488
induction, puncture of fetal membranes plus quinin for induction of labor, normal or premature, [Fulöp] 1456
influence of labor pains on angiospasm, [Hinselmann] 1456
left lateral posture for perineal protection, objections to, [Abernetty] 1934
normal, method of delivery in cases of, [Tate] 1203—ab
obstetric version, [Nijhoff] 416
organized, and preventive medicine, 238—E
paralysis after forceps extraction, [Kofferath] 1215
Potter version, [Coventry] 965—ab, [Speidel] 1203—ab
prolapse of uterus and vagina during, [Ilannak] 2009
rectal examination in, [Kehrer] 2098
spontaneous delivery at term with frontal presentation, [Heymann] 78
- LABORATORY**, clinical laboratory service for physicians, 1498—E
cooperation between a central state laboratory and local municipal and county laboratories, [Wadsworth] *512
- LACTATION**, catarrhal jaundice during, [Thélin] 1607
- LACTOSE**, influence of, on peristalsis, [Rasor] 1850
- LALLEMAND'S Rheumatism, Gout and Neuralgia Treatment**, 219—P
- LAMBLIA intestinalis infestation** and its treatment, [Simon] 2087—ab
- LAMINECTOMY** for meningitis, [Hill] 1285
- LA NOBLEZA and Sin Igual**, 481—P
- LANZ point** in appendicitis, [Mertens] 1294
- LAPAROTOMY**: See Abdomen, Surgery
- LARVA MIGRANS**: See Creeping Eruption
- LARYNGECTOMY**, total, [Moure & Portmann] 738
- LARYNGITIS**, hypoglottic, and tracheotomy, [Schulz] 1775
tuberculous, [Cetrángolo] 1454
- LARYNGOLOGY**, postgraduate work in, [Skillern] *1145
- LARYNGOSCOPY**, direct bronchoscopy, esophagoscopy and, as diagnostic aids, [Hoagland] 64—ab
direct suspension, [Castillo] 580
- LARYNGOSPASM** and tetany in adults, [Frontali] 896
- LARYNX**, cancer, intrinsic, [Thomson] 405
diphtheria, [Hogan] *662
endoscopic removal of sand spurs from tracheo bronchial tree and, [Taylor] *683
in tabes, [Lannois] 72
primary scleroma of, [Watkins] 319
suture of, [Ladnivar & Bogliano] 412
tuberculosis, heliotherapy in, [Stafford] 889
tuberculosis, prognosis and treatment in, [Gregg] 64—ab
- LAXATIVES**, mode of action of some common laxatives, 468—E
- LEAD POISONING**, early diagnosis of, 357—ab
- LEAGUE OF NATIONS** and international health, 872
- LECITHIN**, brain, 290—E
- LEG**: See also Extremities
- LEG**, arteries in legs in diabetes, [Heitz] 72
artificial, a lighter type for soldiers, 1831
damages allowed for loss or injury of, 148—M1
efforts should be used to save injured arm or leg, 1044—M1
- LEGISLATION**, changes in educational methods and legislation advocated, [Anders] 570—C
public health legislation in 67th Congress, 793—E
- LEISHMANIASIS**, epinephrin test in, [Mazzoni] 74
formol-gel test in, [Fox & Mackie] 2003
internal, antimony metabolism in, [Mallardi] 1773
internal, cyst in spleen in, [Mallardi] 1928
Ray's test for, [Sai] 2093
- LEKARSTWO Na Szkorbut**, 722—P
Przeciw Pijanstwu, 722—P
- LEMON JUICE** tablets to prevent scurvy, [Bassett-Smith] 890
- LENS**, dissection of, complete, by V-shaped method, [Ziegler] *1100
specific precipitin reaction of, [Hektoen] *32
- LEONARDI'S Injection No. 1**, 880—P
- LEONTIASIS ossea**, [Apert & Bordet] 819
- LEPROSARIUM**, national, improvements at, 134
- LEPROSY**, Calcutta leprosy conference, resolutions of, 1546—ab
chaulmoogra oil in, [Rogers] 736
Colombia invites a German expert to study leprosy, 1112
cured by anthrax vaccine, [Rous-sel] 1602
in England, [Yorke & Adler] 1636
in Herzegovina, 215
in northern Brazil, [da Matta] 739
Public Health Service announcement on treatment of, 2070
segregation of lepers in Philippines, [Albert] 1844
treatment in the Philippines, 1980
treatment of, progress in, 292—E
- LERAY, A.**, memorial to roentgen ray victim, 715
- LESLIE'S Emmenagogue Pills**, 304—P
- LEUKEMIA**, acute, [Kaltenbach] 71, [Sabrazes] 891
acute aplastic, [Paisseau & Alcheck] 2151
acute, monocyte, [Valero] 159
acute myeloid, with proliferation in malpighian corpuscles, [Villala & Magarinos Torres] 1213
in children, [Bass] 1917
lymphatic, skin lesions with, [Salilgren] 502
skin manifestations in, [Martiniotti] 412
- LEUKERT, O. F.**, study of relapsing fever—a record of personal heroism, 1659—E
- LEUKOCYTES**, [Mauriac] 1527
after hemorrhages, [Musser] 812
count variations in, in normal, [Mauriac & Cabouat] 72

- LEUKOCYTES, destruction of, following protein therapy, 291—E
distribution of, in blood in inflammatory processes, [Unger & Wisotzki] 414
effect of benzyl benzoate on, [Emge & Jensen] 153
in influenza, [Bunting] 812
morphologic changes in, in infectious diseases, [Alder] 74
- LEUKOCYTOZON syphilis, [McDonagh] 649
- LEUKOLYTIC serotherapy, [Lindstrom] 71
- LEWIS' Nerve Pills, 304—P
- LEZAJSKI Lecnicze Wino Elixir, 393—P
- LIABILITY of a city corporation for poisoning from berries in a public park, 1982
- LICEAGA, monument to, 1117, 2132
- LICENSE, refusal of examination on account of school, 1916—MI
revocation of license for conviction of selling morphin—"moral turpitude," 1916—MI
- LICENSURE certificates lost or stolen, 1029
medical papers lost, 1113
reprieve for Missouri in medical licensure, 469—E
revocation of, for unprofessional conduct or deceiving patient into submission to treatment by one not a physician, 1279—MI
- LIMA bean, nutritive value of, [Finks & Johns] 66
- LIMBS: See Extremities; Leg
- LIMPING in children, [Frazer] 232
Intermittent: See Claudication
- LIP, plastic operation on, [König] 656, [Tzaico] 1606, [Kazanjan] *1959
sarcoma of, primary, [Sweltzer & Michelson] *1563
- LIPMANN, Gabriel, death of, 634
- LIPODYSTROPHIA, progressive, [Janson] 502, [Smith] 1919
- LIPOMA in hernia, [Ruben] 164
pararenal, [Cantoni] 1139
polypoid, of intestine, [Carlucci] 969
- LIPOVACCINES, [Gay] 1369
vs. saline, [Johnson] 1845
- LIQUOR, prescriptions for, in Canada, 1665
- LIVE wire mind, 129—E
- LIVER, action of anesthetics on, 52
action of salts on, [Einhorn] 1048
alcoholic disease of, with acute tuberculosis, [Fiessinger & Brodin] 1847
amebic abscess of, [Brown] 574
and heart angle, [Cattani] 159
and kidney disease secondary to gastric ulcer, [Le Noir & others] 233
and specific dynamic action of protein, 942—E
cancer in African native, [Massey] 1051
cirrhosis in infant, [Lindemann] 825
coagulation after roentgen exposures of spleen and, [Hütten] 979
disease, basal metabolism in, [Aub & Means] 885
disease, Hutinel's cardiocirrhosis, [Navarro] 233
disease, pseudosclerosis without, [Wimmer] 1612
extract (soluble) as a remedial agent, [Levin] 2087—ab
function, effect of benzoate on, [Delprat & Whipple] 2147
function, phenoltetrachlorophthalin test for, [Aaron & others] *1631
functioning and surface tension, [Trosier] 2094
functioning, hemoclastic crisis as test of, [Sömjen] 2008
hemangioma of, [Peck] 1285
in pregnancy, [Didier & Philippe] 325
incompetence, surgical significance of, [Mayo] 1922
injury from chloroform, effect of cyanids on, [Davis] 488
injury, during general anesthesia, [Balkhausen] 898
insufficiency in pregnancy, [Crainichanu & Popper] 234
necrosis of, acute, [Dagnini] 1054
relation of pancreas and, to infection of gallbladder, [Judd] *197, [Reynolds] 483—C
role of, in nutrition, [Brodin] 1527
- LIVER, syphilitic disease of, [Tallqvist] 900, [Carnelli] 1529, [Alvarez] 1609
syphiloma of, [Florand & Girault] 1847
trauma of, [Davies] 1287
tuberculous cirrhosis of, [Roque] 893
volume of, decreased by vasomotor depressants, [Edmunds] 1131
yellow atrophy of, acute, [Kahn & Barsky] 885
- LOCOMOTOR ATAXIA: See Tabes Dorsalis
- LOMBROSO, memorial to, 1432
- LONDON Fellowship of Medicine and Post-Graduate Medical Association 1981
graduate medical teaching in, 297
healthy, 1114
- LORENZ, Professor, again, 2065—E
- LOUISIANA state board June examination, 960
- LOZON Pills, 481—P
- LUDENDORFF receives honorary medical degree, 1123
- LUETIN, [Ward] 968
- LUMBAR PUNCTURE: See Rachicentesis
- LUMBOSACRAL region, [O'Reilly] *1394
spine, roentgen-ray study of, [O'Reilly] 1995—ab
- LUMINAL in epilepsy: See under Epilepsy
- LUNCHES, school, [Gaultier] 1451
- LUNG abscess, bronchoscopic studies of, [Lynah] *1548
abscess following tonsillectomy under general anesthesia, [Fisher & Cohen] *1313, [Clendening] 1593—C, [Lewis] 1990—C
abscess, treatment of, [Giese] 2087—ab
abscesses, pneumococcus, [Coulaud] 1052
aspergillosis of, [Lapenta] 2148
blastomycosis of, [Howes & Morse] 1129
cancer as an industrial disease, 2123—E
cancer, hypertrophy osteoarthropathy with, [Weinberger] 742, 979
carcinoma of, [Barron] 966—ab
circulation through, study of, [Underhill] 1923
collapsed, restoration of function to, [Pescher] 2150
complications, postoperative, statistics on, [Mandl] 79, 1142
decortication of, for chronic pleural empyema, [Fischer] 979
disease, axilla in diagnosis of, [Mouriquand] 72
disease, neo-arsphenamin in putrid lung disease, [Savolin] 1380
disease, roentgenoscopy in, [Guzman] 1448
distomiasis, brain symptoms caused by, [Kawamura & Yamaguchi] 1209
edema in valvular disease, [Gallavardin] 891
foreign body in, prognosis of, [Jackson] *1178
functions of, [Roger] 1688
gangrene, arsphenamin treatment in, [Molnar] 415
gangrene, spirochetal, [Kline] *1874
hydatid cyst of, [Prat] 408, [Ferro] 1689, [Acevedo] 1848
immobilization by detaching the adherent pleura, [Roux-Berger] 2152
lipolytic function of, [Roger] 1687
perforation during artificial pneumothorax, [Roch & Saloz] 579
phonendoscopy of, [May & Rouquet] 407
physical findings in one sound lung, [Salomon] 892
pneumococcal infections, pathology of, [Armstrong & Gaskell] 1604
sarcoma of, [Pritchard] 1763
sclerosis in children, [Duhem] 2004
streptothrichosis of, [Lenhartz] 413
syphilis, [Minton] 154, [Benoit] 157
topographic distribution of elasticity and of air currents in, [Rohrer] 1138
Tuberculosis: See Tuberculosis, Pulmonary
tuberculous edematous infiltration of, [Caussade & Doumer] 579
tumors, primary, diagnosis of, [Blumgarten] 1365
- LUNG, vital capacity of, and physical weakness, [Peahody & Sturgis] 1918
vital capacity of, in cardiac disease, [Ulrich & Nathanson] 966—ab, 2091
vital capacity of, exercise tolerance and heart disease, [Wilson & Edwards] 1762
- LUPUS, carbon dioxide snow in, [González Uruena] 897
erythematosus discoides, etiology of, [Goeckerman] 150
Institute of Vienna, 1589
pathology and treatment of, [Handley] 2150
treatment of, by general practitioner, 1269
- LYMPH NODE puncture, new method for demonstrating spirochetes by, [Sutton] *1889
relations between tuberculosis of bronchial and cervical glands, [Gerhartz] 978
tuberculosis, [Drügg] 898
- LYMPHADENITIS, mesenteric, simulating appendicitis, [Struthers] 817
- LYMPHADENOMA and tuberculosis, [Fox] 407
- LYMPHANGIOMA, cystic, [Kraus] 1928
- LYMPHOCYTOMA in mediastinum, [Babonneix & others] 1526
- LYMPHOCYTOSIS as diagnostic sign of chronic periapical dental infection in adults, [Daland] *1308
- LYMPHOGRANULOMA, malignant, [Jemma] 1452
periodic pyrexia with lymphogranulomatosis, [Lorenzini] 896
subacute, inguinal lymphogranulomatosis, [Ravaut] 494
- LYMPHOID tissue, action of radium and roentgen rays on normal and diseased tissue, [Levin] *930
- LYMPHOPLASMA, [Diemer] 499
- LYMPHOSARCOMA, congenital, [de Lange & Van Goor] 2011
familial, [Richards] 1367
in child, [Macera] 1055
- LYON-MELTZER method of biliary drainage, [Dunn & Connell] *1093
method of diagnosis of gallbladder disease, [Cook & Wilhelm] 403
- M
- McLEANS Sarsaparilla Compound, 879—P
- McPHAIL, Sir Andrew, wounded, 1828
- MADELUNG'S DISEASE, [Masmon-teil] 652
- MADRID, medical societies and school of medicine of, 874
- MADURA FOOT, (mycetoma) in South Africa, [Welchman & Pirie] 1288
- MAGHEE'S epilepsy treatment, 1037—P
- MAGNESIUM sulphate solution as aid in anesthesia, [Curtis] *1492
- MAGNETIC field is not a health hazard, 1499—E
- MAINE Medical Association's plan for coordinating health activities in the state association, [Bryant] 1976
state board March examination, 221
- MALARIA, adjuvant causes of, [Regnault] 578
and tuberculosis, [López] 412
and yellow fever, 2132
campaign in Spain, 718
chronic, activation of, [Schlesinger] 742
destroys cities of Ceylon, [Nicholls] 2002
diagnosis of tender point in, [Pagnello] 1849
disappearance of, in temperate climates, 1578—E
glycosuria in, [Castellani & Willmore] 1049, [Harrison] 1686
in Buenos Aires, 718
in Portuguese India, 909—ab
in the Netherlands, [Eisendrath] 2100
myoclonic encephalomyelitis of malarial origin, [Marinisco] 1133
neo-arsphenamin in, [Nieuwen-huyse] 980
- MALARIA, prevention of, fish as a factor in, 1351
quinin prophylaxis, value of, [Acton] 1209
rebellious, [Peutz] 2011
recurs after splenectomy, [Jiménez & Pittlinga] 1209
role of meteorology in, [Gill] 1209
survey of Calcutta, [Iyengar] 735
syncopal, pernicious, [Leone] 896
treatment by intravenous injection of antihemolytic quinin solution, [Brahmachari] 817
Wassermann test in, value of, [Iyengar] 232
- MALFORMATIONS of hind end of body, [Eddington] 1845
- MALNUTRITION: See under Nutrition
- MALPIGHIAN corpuscles, acute myeloid leukemia with proliferation in, [Vilella & Magarinos Torres] 1213
- MALPRACTICE case, proper charge to jury in, 642—MI
company held liable for malpractice of physicians, 148—MI
no liability without evidence of, 2146—MI
time limit to beginning actions for, 224—MI
- MALTA FEVER, hip joint complications of, [Cignozzi] 1055
- MALUM perforans pedis, [Hofmann] 1292
- MANDIBLE: See Jaw
- MANHOOD Pills, 303—P
- MAN'S CAPSULES, 1120—P
- MANUSCRIPTS, right of publishers with respect to manuscripts offered for publication, 1433
- MARAGLIANO, tribute to, 211, 1735—ab
- MARRIAGE a disqualification for an official post, 1585
and syphilis, [Kleeberg] 1293
effect of intermarriage of kin on offspring, 724
law of Ontario, new, 294
- MARYLAND state board June-July examination, 2083
- MASSACHUSETTS practice act sustained, federal court upholds state law and board, 310—MI
state board July examination, 1912
state board March examination, 571—E
state board May examination, 807
state board September examination, 2144
- MASSAGE, centripetal, of scars, [Scenes] 2008
- MASTICATION, influence of, on gastric secretion, [v. Friedrich] 1931
- MASTITIS, conjunctivitis of newborn in relation to, [Lang] 416
cystic, chronic, [Bloodgood] 1841
puerperal, [Dormau & Mossman] *509
- MASTOID, sequester in, [Barajas y de Vilches] 1849
- MASTOIDITIS, recurring, [Cadenaule & Retrouvey] 1210
when shall we operate for, [Franchere] 64—ab
- MATCH-BOX dermatitis, [Rasch] 1296
- MATERNITY and child welfare, 873
Bill: See Sheppard-Towner Bill
hospital, 1093—ab
maternal death rates and stillbirth, causes of high rate, 423—ab
"M.D." and "Dr.," [Bassler] 2143—C
- MEASLES, contagiousness of, [Baur] 742
convalescents' serum in prophylaxis of, [Rietschel] 500, [v. Torday] 501, [Kutter] 1144, [Maggiore] 1773, [Manhot & Reiche] 2098
effectual serum prophylaxis of, 1509
experimental, [Blake & Trask] *192, [Nevin & Bittman] 1369, 1895—E
gangrene following, [Thrope] 1525
immunization against measles, [Blechnmann & Geismar] 1926
in 1920, [Zerbino] 822
Koplik's spots not constantly present in, 299
nervous complications of, [Bénard] 2151
prophylactic inoculation against, [Hiraishi & Okamoto] 1846
recurrent, unusual occurrence of, during convalescence and in course of attack of scarlet fever, [Carballeira] *377

- MEASLES**, Schick reaction in, [Lereboullet & others] 1526
virus of, [Sellards & Bigelow] 318
- MEDAL**, award of honor medals discontinued, 1830
Berzellus medal awarded to Abderhalden, 1348
new, for original discovery in medicine, 295
- MEDIASTINUM**, calcification in, [Samagja] 159
lymphocytoma in, [Babonneix & others] 1526
- SARCOMA**, 3 cases of, [Duncan] 491
- MEDICAL Brotherhood of Missions**, 1979
corps and army appropriation, 51
corps, army, general organization of, and its relation to Red Cross, 798
corps in the Melilla campaign, 1832
corps reserve units, 797
corps, resignations from, 797
corps, Secretary Weeks presents opinion on disabled emergency officers, 1114
examiner, knowledge and fraud of, 311—M1
examiners, decision of, not to be disturbed, 487—M1
jurisprudence, [Bermann] 1375
jurisprudence, an interesting forensic medical case, 2135
jurisprudence, general rules of law governing compensation of physicians and surgeons, [Steinhardt] *98
jurisprudence, justice and legal medicine, 389
Library Association, meeting of, 50
officers, assignment of, 1031
officers, distinguished service medals for, 1749
officers, federal, national association of, 564
officers, graduation of, 475
officers, instruction of, 1830
officers, reassignment of, 1031
officers, reunion of, 564
officers, Secretary Denby rules on authority of, 51
officers, technical courses for, 951
officers, training for, 134
officers, United States Navy, relieved from active duty, 296, 951, 1584
practice act, Florida's new practice act, 382—E
Reserve Officers and care of disabled, 387
Reserve Officers, assignments of, 1904
Reserve Officers' Corps, regulations for, 1584
Reserve Officers, course for, 1506
Reserve Officers retained on duty, 134
Reserve Officers, Senate committee reports favorably reserve retirement bill, 212
Reserve Officers to retire from active duty, 951
Reserve Officers' training camp, report on, 1031
service of the army after the war, 1585
socialism, municipal, 2072
Women's Association, officers of, 209
- MEDICINE**, awards for medical discovery, 566
history of, congress of, 717
history of, in Spain, [Mariscal] 1849
illegal practice, a good indictment—medical law not discriminatory, 487—M1
illegal practice, enjoining the illegal practicing of medicine, 1044—M1
Imperative need of union of medical profession and health authorities, [McLean] *827
Internal, progress in, [Maragliano] 1138
military, influenzal pneumonia with reference to military service statistics, 62—M1
military, permanent international committee on, 796, 798
novelties in, 1667
practice of, law relating to, upheld, 2146—M1
practice of, restrictions on, 719
preventive, and organized labor, 288—E
preventive, (from cure to prevention), 1343—E
recent progress in, [Lyon] 1136
state, 1515
- MEDICINE**, state, municipal medical socialism, 2072
- MEDICOLEGAL** and medicosocial questions of the day, [Cornet & Peytel] 738
society founded at S. Paulo, 1903
society, German, 1191
- MEDIUM**, culture medium and agglutination of meningococcus, [Hall & Tilsley] 1134
special culture medium for hemolytic streptococci, [Havens & Taylor] 228
- MEGACOLON**: See Colon
- MEINICKE** test, [Epstein & Paul] 1777
- MELANODERMIA**, syphilitic, [Crouzon & de Brun] 578
unilateral, [Gutmann & Dalsace] 737
with phthiriasis, [Tixier & Duval] 737
- MELANO-EPITHELIOMA** of palate, [New] *19
- MELANOSARCOMA** of conjunctiva, [Oyenard] 326
- MELENA** and hematemesis in chronic appendicitis, [Bassler] *28
neonatorum, [Jorgensen] 164, [Müller] 1377
neonatorum, transfusion of blood for, [Jervell] 2012
- MELLON** issues beer regulations, 1425—E., [Herz] 1594—C, [Rayle] 1594—C, [Davis] 1673—C, [Cracraft] 1673—C, [Moser] 1755—C, [Ashe] 1836—C
- MEMBRANES**, dialyzing, disinfection of, [de Angelis] 1213
mucous, and chilling, [Mudd & others] 230
- MENINGES**, involvement of, with tuberculous choroiditis, [Gilbert] 1141
ossification of, [McKendree & Imboden] 1841
reaction of, to tuberculosis, [Flatau & Zilberlastand] 1288
- MENINGITIS**, corynebacterium trichodiphtheroides as cause of, [Miller & Lyon] 1682
diagnosed from eye, [Ribon] 159
early diagnosis of, [Sainton & Schulmann] 323
epidemic, [Lewkowicz] 891, [le Dentu] 1053
from influenza bacillus, [Christiansen & Kristensen] 80
from micrococcus catarrhalis, [Cot & Robert] 1926
Gaertner bacillus meningitis complicating enteritis, [Smith] 1450
hemolysins in spinal fluid in, [Schleissner] 2008
in infants, [Pestalozza] 2006
laminectomy for, [Hill] 1285
meningococcus, [Lewkowicz] 1372
meningococcus, ventricular form of, [Woringer] 322
micrococcus catarrhalis, [Arce] 2007
neck sign of, [Segagni] 2007
otogenous, vaccine therapy in, [Lortat-Jacob] 73
prognosis of, [Caprario] 1055
reactions of influenza bacilli producing, [Rivers & Kohn] 1842
serous, [Høst] 1457
serous, spinal, [Grossmann] 162
tuberculous, [Regan & Cheney] 1762
tuberculous, and inherited syphilis, [Hutinel & Merklen] 1372
tuberculous, Binda shoulder sign of, [Tronconi] 1529
tuberculous, in adults, [Ramond] 410, [Lortat-Jacob & Turpin] 1528
tuberculous, simulating epidemic form, [Riser & Roques] 1210
- MENINGOCELE**, sacral anterior, [Weber] 1451
- MENINGOCOCCUS**, antimeningococcic and antipneumococcic serums, potency of, 247
antimeningococcus serum, opsonic reactivation of, [Hektoen & Tunnelcliff] 1919
culture medium and agglutination of, [Hall & Tilsley] 1134
infection in children, [Lozano] 75
septicemia, chronic, [Morgan] 814
- MENINGO-ENCEPHALITIS**, [Nixon & Sweetser] 730
- MENISCUS**, operations after industrial accidents, [Dubs] 496
- MENSTRUATION** and ovulation and postoperative considerations, [Watkins] 400—ab
- MENSTRUATION**, basal metabolism in, [Wiltshire] 1050
fluidity of menstrual blood, [Janzen] 2006
fundectomy after salpingectomy to preserve menstrual function, [Culbertson] 1997
influence of, on chronic uterine disease, [Meyer] 2006
vicarious herpes as type of, [Solomons] 70
- MENTAL Defective**: See Feeble-Mindedness
disease: See Insanity
hygiene, [Toulouse] 1210
- MENTHOL-EUCALYPTUS** oil in feverish patients with pulmonary tuberculosis, [Gerty & Cori] 825
- MERCUROCHROME**, as a general germicide, [Young & others] *93, 402
- MERCURY** and Potassium iodide—P.W.R., 1971
Benzoate-P.W.R., 1423
chlorid poisoning, liver factor in prognosis of, [Turrettini & Piotrowski] 2094
clean inunction treatment of syphilis with, preliminary report, [Cole & others] *2022
Cyanide-P.W.R., 1423
mercuric chlorid, and solution of hypophysis, use of, by midwives, 1749
mercuric cyanid intravenously in syphilis, [Lane] 1525
mercuric oxycyanide, 863
purification of, 1358
sore throat due to, [Almkvist] 2012
Succinimide-P.W.R., 1423
tonsillitis, [Almkvist] 2012
- MESENTERY**, chronic occlusion of duodenum from compression by, [Leveuf] 235
fibroma of, [Niosi] 1290
occlusion of superior mesenteric vessels, [Klein] 1523
plastic operations with, [Torraca] 1138
vascular occlusion with report of 9 cases in which operation was performed, [Loop] *369
- MESOTAN**, 41
- MESOTHELIOMA**, primary, of pleura, [Wood & Walter] 888
- METABOLISM** and blood picture under artificial heliotherapy, [Koenigsfeld] 1933
basal and blood sugar in chronic pulmonary tuberculosis and hyperthyroidism, [McBrayer] *861
basal, and ocular findings, [Stegman] 1132
basal, apparatus for determination for, [Bailey] 1843
basal, as guide in treatment of goiter, [Eberts] 1521
basal, determination of, as method of diagnosis and as guide to treatment, [Means] *347
basal, determination of, from carbon dioxide elimination, [King & Pearl] 1282
basal, fundamental ideas regarding, [Lusk] *250
basal, in fever, [Du Bois] *352
basal, in liver disease, [Aub & Means] 885
basal, in menstruation, [Wiltshire] 1050
basal in pregnancy, [Baer] 1366
basal, in thyroid disease, [Mayo] 646, [Frazier & Adler] 812, [Rowe] 1045
basal, measurement and standards of, [Benedict] *247
basal metabolic rate in hyperthyroidism, [Boothby] *252
basal, of energy in children, [Klein & others] 2007
basal, of man in the tropics, 2124—E
basal, of normal women, [Blind & Dye] 152
calculation, gasometer method for, [Boothby & Sandiford] 1205
data, interpretation of, 624—E
effect on, of removing suprarenals, [Marine & Baumann] 967
in diabetes insipidus, [Rabinowitch] 1205
in infantile atrophy, 205—E
in infants, [Uthelm] 1444
in malnutrition, [Talbot] 1444
in pulmonary tuberculosis, [Kocher] 1842
in rickets, [Findlay & others] 1051
in the tuberculous, [Ferrannini] 1608
- METABOLISM**, influence of exercise on, [Rancken] 900
is catalase a measure of metabolic activity? 1259—E, [Seymour] 1673—C
miscellaneous, 792—E
of underweight children, [Blunt & others] 2147
recent studies in, 378—E
sugar, test for, [Staub] 1878
value of knowing metabolic rate, [Cheney & Bogart] 1133
- METATARSUS** varus, [Bankart] 1767
- METEORISM** in diagnosis, [Bayer] 1932
- METEOROLOGY** in medicine, 1193
rôle of, in malaria, [Gill] 1209
- METHEMOGLOBINEMIA**, nitrobenzene poisoning and Winckel's disease, 1108—E
- METHYL ALCOHOL**, detection of, 1199
fuchsin-sulphurous acid tests for, 1274
poisoning, ocular menacc of, [Rostedt] 164, [Ziegler] *1160
- METRIC** system, plea for, 1259—E
- METRITIS**, hemorrhagic, radium treatment of, [Koenig] 2004
- METORRHAGIA**: See Uterus, Hemorrhage
- MEXICAN Academy of Medicine**, 567, 2132
Medical Association, Merida branch of, 474
- MICAJAH** Wafers, 1441
- MICHIGAN** state board June examination, 1757
- MICROSCOPY**, improved darkfield microscopy, [Hoffmann] 1142
- MIDOL**, 1674
- MID-WESTERN Association of Anesthetists**, resolutions of, 1902
- MIDWIVES**, regulation of midwifery in Massachusetts, 1123
use of pituitary extract and mercuric chlorid by, 1749
- MIGRAINE**, 137
and anaphylaxis, [Lubbers] 1778
and pituitary headache contrasted, [Hodges] 734
hemianopsia following, [Wiener] 1843
nitrogen and cholesterol content of blood in, [Remond & Rouzard] 325
ophthalmoplegic, [Martin Amat] 2096
rôle of diet in etiology and treatment of migraine and other types of headache, [Brown] *1396
treatment of, [Slcard & others] 1052, 1358
- MIKULICZ** syndrome and tuberculosis, [Marsh] 644
- MILITARY** duty, revision of unfit for, [Rist] 72
medicine: See Medicine, Military
- MILK**, Beebe Protein Milk, 863
citric acid content of, [Supplec & Bellis] 1765
curdling of, 864—E
different proteins of milk, 1424—E
dry, value of, [Bosworth] 1762
experimental research on digestion of, [Pfaundler & Schübel] 1143
home grown rations supply sufficient protein, [Hart & Humphrey] 1765
human, anaphylaxis to, [Sztark] 1372
human, and food proteins, [Hartwell] 156, 1340—E, [Shannon] 1599
human, effect of undernutrition on fat content of, [Pasch] 416
human, test for adulteration of, [Edelstein] 2099
poisonous, from cows fed on beets, 1510
proteins, anaphylaxis from, [Wells & Osborne] 490
regulation concerning delivery of, in Paris, 476
trying to kill the milk compound industry, 45—E
tuberculous antigens in, of tuberculous cows, [Epstein] 740
typhoid, epidemic at Hillsdale due to, [Olin] *1717
- MINERAL WATER**: See Water, Mineral
- MINISTRY of Health** report and League of Nations, 872
- MINNESOTA** state board April examination, 143
state board June examination, 807
- MISSIONS**, Medical Brotherhood of, 1979

- MISSISSIPPI state board June examination, 1276
Valley conference on tuberculosis, 714
- MISSOURI, reprieve for Missouri in medical licensure, 469—E
state board June examination, 1276
Valley Medical Society, new officers of, 2069
- MISTAKES, inexcusable, instruction of patients and contributory negligence, 2085—MI
- MOLINA, retirement of, 137
- MONEY, bacteria on coins and currency, [Ward & Tanner] 1682, 1737—E
- MONILIASIS, bronchial, [Najib Farah] 1373
monilia psilosis and sprue, 1657—E
- MONSTER, an unusual monster delivered by cesarean section, [Licht & Calicchio] *622
an adult living case of total phocomelia, [O'Brien & Mustard] *1964
parasitic, [Franke] 238
- MONTANA state board April examination, 1441
- MORBIDITY among wage-earners, [Mazzone] 739
reports, reasonableness of requiring, 728—MI
- MORPHIN, action of, in tuberculosis, [Corper & others] 1600
colorimetric estimation of, [Gauss] 1843
effect of, on heart muscle, [Hanzlik] 815
Harrison narcotic law regulations for recording morphin given hypodermically, 2082
in septicemia, [Kraft & Leitch] 153
revocation of license for conviction of selling morphin—"moral turpitude," 1916—MI
- MORQUIO, tribute to, 50
- MORTALITY, in controllable and uncontrollable diseases, trend of, 1108—E
influence of war on mortality of civilian population, 1833
statistics: See Vital Statistics
- MORTON, anesthetists to place bust of, in Hall of Fame, 795
- MOSQUITOES, fish as an anti-mosquito agency, [Leprince] 1996—ab
gift of collection of, 50
- MOTHERS' benefits, modification of, 1268
- MOTT'S Compound Female Pills, 958—P
- MOUNTAIN climate for sick children, [Feer] 73
- MOUTH, cancer, conservative treatment of cervical lymphatics in, [Quick] *436
cancer, from chewing betelnut, [Ellis] 1204
fusospirillar infection of, [De Angelis] 74
plastic radium applicator for, [Perthes & Jüngling] 979
- MOVEMENTS, associated, [Ozorio] 1374
study of, [Binet] 1527
voluntary, norms for amplitude of, [Gilliland] 1357—C
- MOVING PICTURE advertising chiropractic, 1660—E
exhibitions showing mental derangements, 873
in teaching of obstetrics, 2071
use of, in demonstrating neurologic cases, 1033
use of, in medicine, 876
- MUMPS: See Parotitis
- MURDERER, a boy murderer, 2132
- MURRI, A., Eightieth birthday of, 1432
- MUSCLE, electric localization of bacteria in, 1498—E
electrophysiology of diseased muscles, [Rehn] 78
in new-born, [Thoenes] 1850
muscular fitness and oxygen, 380—E
reconstruction of, [Charbonnel] 1210
role of oxygen and heat production in function of, 468—E
smooth, experimental transformation of, into striated muscle, [Carey] 2088
static activity of, [Mourgué] 819
striated, development of, [Schmitz] 1143
- MUSCLE, trigonal, anatomy and surgery of, [Young & Wesson] 315
voluntary, contraction of, after certain efforts, [Pinkhof] 1216
- MUSEUM, Italian war, 1505
of Ophthalmologic and Otolaryngologic Pathology, 1980
- MUSIC centers, diseases in, [Ribón] 1056
- MYASTHENIA gravis, [Coriot] *270, [Posey] *1007, [Zuccola] 1773, [D'Amato] 1848
progressive, [Maric & others] 2004
- MYATONIA or amyotrophy, [Leenhardt & Sentis] 322
- MYCETOMA: See Madura Foot
- MYCOSIS, bronchopulmonary tropical, [Mendelson] *110
- MYELITIS after antirabies treatment, [Kraus] 1608
and myelomalacia, [Bassoe & Hassin] 229
central, case of, [Wechsler] *1728
- MYELOENCEPHALITIS, [Houda] 646
- MYELOMA, multiple, [Ofstedal] *1547
- MYELOMALACIA and myelitis, [Bassoe & Hassin] 229
- MYIASIS, urethral, case of, [Leon] 575
- MYOCARDITIS, chronic, [Christian] 816
syphilitic, [Lenoble] 494, 1525
- MYOCARDIUM, clinical estimate of myocardial damage, [White] 965—ab
influence of thyroid secretion on, [Goodpasture] 1369
myocardial degeneration and arrhythmia, [Davidson & Butterfield] 406
myocardial lesions in schoolchildren, [Dana] 969
- MYOMA of rectum, [Hunt] 969
uterine, pulmonary embolism in, [Farrar] 1366
uterine, with severe anemia, [Senge] 1776
- MYOSITIS, etiology of, [Rosenow & Ashby] 1204
ossificans, traumatic, [Painter] 489
syphilitic, [Laederich & Tassin] 578
- MYOTONIA atrophica with cataract, [Vogt] 976
- N
- NAIL, cancer in matrix, [Pinheiro] 326
discoloration of, 724
ringworm of, [Hodges] 315
- NAPHTHALIN, poisoning of infants with anilin, naphthalin, etc., [Neuland] 1215
- NAPOLEON Hill's Magazine, doctors, beware! 1660—E
- NARCOLEPSY during pregnancy, [Nervemann] 1931
- NARCOTICS: See under Drug
- NASOPHARYNX, endothelioma of, [Eloesser & Read] 70
fibromas, technic for removal of, [Botey] 897
pneumococci, hemolytic streptococci and influenza bacilli in, [Meyer & others] 317
- NATIONAL Anesthesia Research Society, 1582
Bio-Chemical Laboratory, 1675
Board of Medical Examiners, 867—E, 881—ME
Board of Medical Examiners, report of 11th examination, 724—ME
Board of Medical Examiners, first examination under new plan, 1992
Child Health Council to make demonstration, 795
Health Council admits American Society for Control of Cancer, 948
Health Council issues biweekly reports on health legislation, 631
Hospital for Speech Disorders, [Greene] *1726
Medical Association, meeting of, 948
Parks, sanitary work for, 473
Research Council, appointment of E. D. Ball to, 1829
Safety Council, meeting of, 948
Society for Promotion of Occupational Therapy, 870, 1582
Tuberculosis Association, appointment of consultants to, 871
- NATIONAL Tuberculosis Association, Christmas seal sale, 1431
Tuberculosis Association conference, 132
- NAVY, assignments in medical corps of, 872, 1904
medical naval reserve abolished, 1192
plan to attract young physicians to, 1194
positions in, for army interns, 950
reduction of personnel of naval reserve force, 872
- NEBRASKA state board June examination, 1442
- NECROPSIES, Army Medical Department encourages necropsies, 715
percentage in general hospital, [Doane] 1198—C, [Richards] 1754—C
provisions for, 884—MI
- NEEDLE, device for steadying needle during intravenous work, [Rosenbaum] *40
hypodermic, care of, [Werley] 1674—C
new, for collecting blood for serologic tests, [Petroff] *1495
sterilization of, [Lévy] 1528
- NEGRO, diabetes mellitus in, [Lemann] 403
hospital for negro service men, 1981
myopathic muscular atrophy in, [Corson] 1287
syphilis and diabetes mellitus in, [Lemann] 1045
tuberculosis in negro of southern states: a suggested means of control, [Roe] 2142—C
- NEM SYSTEM, [Van Leersum] 1060
- NEOARSPHENAMIN in malaria, [Nieuwenhuysen] 980
in putrid lung disease, [Savolin] 1380
in pyelitis, [Necker] 501
intramuscular administration of, [Voegtlin & others] 153
- NEOCINCHOPEN, chemical and clinical studies with salicylates, and cinchopen and neo-cinchopen in arthritis, [Chase & others] *1230
- NEPHRECTOMY and pregnancy, [Theodor] 1611, [Matthews] *1634
aseptic nephro-ureterectomy, technic and indications [Beer] *1176
- NEPHRITIS, acute, [Petrén] 737
acute, infectious, [Runeberg] 2012
and digestive disorder, [Nathan] 72
arterial pressure before onset of, [Kylin] 2100
blood sugar in, [Bierry & others] 1053
chronic, nonprotein blood nitrogen in, [Williams] 1520
chronic, with Bence-Jones proteinuria, [Walters] 1843
decapsulation in, [Comby] 1372
effects of high protein in, [Squier] 1601
experimental, toxic, [Suzuki] 823
extrarenal factors in clinical picture of, [Ferrannini] 1529
following scarlet fever, [Pepper & Lucke] 150
hemorrhagic, with positive tuberculin reaction, [Müller-Deham & Kothny] 742
high blood pressure in, causes and treatment, [Alder] 1053
in children, [Beretervide] 2095
influence of alkaline reaction of urine on, [Hara] 740
interstitial, chronic, kidney function in, [Snowden] 1918
is chronic nephritis a progressive disease? 1106—E
of pregnancy, capillary insufficiency with, [Hinselmann] 978
potassium chlorid in, with edema, [Blum & others] 650, 1526
surgical treatment of, [Pousson] 651, [Rovsing] 1456, [Rubritius] 2099
transient detachment of retina in, [Weisfelt] 1295
treatment of, without edema, [McLester] *88
uncinaria, [Rojas & Morengo] 1918
with uremic syndrome, 634
- NEPHROPATHIES, chronic, acute element in, [Emerson] *745
- NEPHROPEXY, transperitoneal, [Noble] 1204—ab
- NERVE, anomalous response to direct faradic stimulation of, [Stopford] 493
blocking: See under Anesthesia
- NERVE, divided, rapid recovery after suture of, [Wirth] 2150
eighth, anatomy of, [Sachs & Alvis] 731
fibers, determining early regeneration of, [Malone] 1841
freezing nerve to arrest pain, [Wiedhopf] 1292
motor oculi nerve, paralysis of, [Bistis] 823
optic, in encephalitis, [Waardenburg] 1216
phrenic, temporary exclusion of, [Kroh] 1456
posterior tibial, lesions of, [Drought] 320
sympathetic, effect of hemorrhage on, [McGulgan & Atkinson] 967
tumors involving gasserian ganglion, [Shelden] *700
- NERV-MINTZ, 393—P
- NERVOSEX Tablets, 1119—P
- NERVOUS and Mental Diseases, Association for Research on Treatment of, 386
and mental diseases, graduate training in, [Hamilton] *659
and mental diseases in China, 214
and vascular symptoms from skeletal anomalies, [Schiassi] 739
diseases, bad effects of bromid treatment for, [Hunt] 491
diseases, early symptoms of, [Bury] 1209
diseases in ex-soldiers, sanatorium for, 871
diseases, orthopedic treatment in, [Boorstein] 971
symptoms in ex-soldiers, [Brown] *113
system, and internal secretion, [Löffler] 821
system, bone and joint disease in diseases of, [Robinski] 329
system, sympathetic, [Desfosses] 235
system, sympathetic, anatomy of, [Desfosses] 820
system, sympathetic, research on periarterial sympathetics, [Leriche] 1683
system, syphilis, [Staemmler] 655, [Hagelstam] 900, [Lafora] 1375
system, syphilis, arsenphenaminized serum in, [Samovici] 1375
system, syphilis, cerebromeningeal syphilis, [Forand & Nicaud] 892
system, syphilis, genesis of neurosyphilis, 315
system, syphilis, studies in familial neurosyphilis; conjugal neurosyphilis, [Moore & Keidel] *1
system, syphilis, treatment of, [Farbach] 1128—ab
system, syphilis, with negative spinal fluid, [Solomon & Klauder] *1701
system, vegetative, and the blood picture, [Breuer] 1058
- NETHERLANDS East Indies, public health service in, [Stort] 1144
Neurologic Association, semicentennial of, 1903
- NEURALGIA, trigeminal, [Magnus] 242, [Payr] 1610, [Silverman] *1802
herpes zoster a primary ascending neuritis, [Montgomery] 1998
optic, cured by protein therapy, [Marin Amat] 1375
retrobulbar, secondary to diseases of nasal sinuses, [Stark] *678
trigeminal, surgical treatment of, [Jeanneney] 158
trigeminal, treatment of, [Kodziej] 1143
- NEUROFIBROMATOSIS: See Recklinghausen's Disease
- NEUROLOGY, borderland of rhinology, ophthalmology and, [Sluder] *688
comparative, [Ochoterena] 1055
in 1921, [Camus] 1771
limits of field of, 1104—E
use of drugs in psychiatry and, [Campbell] *1228
- NEUROMA in obliterated appendix, [Masson] 652
- NEUROSES in business life, [Casamajor] 1285
tetanoid, [Levison] 1613
"war," and allied conditions in ex-service men, as observed in Public Health Service hospitals for psychoneurotics, [Benton] *360
- NEUROSYPHILIS: See Nervous System, Syphilis

- NEVADA state board May examination, 485—Me
- NEVI, vascular, radium treatment of, [Laborde] 409
- NEW HAMPSHIRE state board March examination, 1595
- NEW MEXICO state board January examination, 1276
- state board July examination, 1200
- NEW YORK state board January examination, 1200
- NICOTIN poisoning with recovery, [McNally] *377
- NIGHT Blindness: See Hemeralopia
- terror, treatment of, in children, 802
- NIPPLE, Paget's disease of, [Sekiguchi] 823, [Kilgore] 1047
- NITROBENZENE poisoning, [Paterni] 1054
- poisoning, acute, [Loeb & others] 643
- poisoning, methemoglobinemia and Winckel's disease, 1108—E
- NITROGEN, residual, in tissues in various diseases, [Strauss & Hecher] 80
- NORTH CAROLINA state board June examination, 882
- NORTH DAKOTA state board July examination, 1676
- NOSE, anesthesia in nose and throat work, [Mayer & others] *1337, [Cahn & Lévy] 1753—C, [Mayer] 1836—C
- bacteria in throat and, 43—E
- cancer, clinical study of, [Sutton] *1561
- fracture of, [Jaques] 1289
- malignant granuloma of, [Woods] 576
- model, internal, [Fisher] *1183
- plastic surgery, [Esner] 898, 1040, [Eitner] 1215
- plastic surgery with special reference to saddle nose, [Blair] *1479
- sarcoma in nasal fossa, [Bilancioni] 412
- sinuses, retrobulbar neuritis secondary to diseases of, [Stark] *678
- submucous resection of nasal septum, use of hollow tube following, [Goodyear] *1103, [Frank] 1514—C, [Glogau] 1674—C
- syphilitic infection, report of case, [Jaenicke] *1889
- NOSOLOGY, statistic, [Rist] 409, [Jullien] 894
- NOSTRILS: See Patent Medicines; Proprietary Medicines
- NOTE to be paid by medical examinations, 1994—MI
- NOTOCHORD, primitive, tumors from, [Lewis] 1520
- NOVARSENOBILLON: See Neovararsphenamin
- NUCLEOPROTEIDS and the endocrine organs, [Grobly] 160
- NUISANCES, boards of health required to abate nuisances, 1518—MI
- NUÑEZ, memorial to, 295, 871
- NURSERIES, day, in factories, 796
- NURSES, American, memorial to, in France, 294, 386, 476
- hotel nursing, 136
- nursing force for Veterans' Bureau, 1192
- of South Africa raise color question, 388
- public health, in Brazil, 133
- training school for, in Rio, 949, 1505
- training school for, in Roumania, 949
- training school inaugurated by Public Health Service, 565
- NUTRITION and growth on fat free diets, [Drummond & Coward] 1450
- choice between adequate and inadequate diet, [Mitchell & Mendel] 2147
- disturbances in infants, [Marfan] 2005
- disturbances and dyspepsia in 1920, [Lortat-Jacob] 892
- disturbances, digestible mixtures for malnourished infants, [Chapin] 1207
- disturbance in infants, [Engel] 2099
- effect of undernourishment, 1973—E
- NUTRITION, effect of undernourishment on mammalian ovary and sexual cycle, [Loeb] *1646
- index of state of, [Peiser] 825
- index of state of, conference on, 631
- indexes of, [Rohrer] 979
- influence of famine on disease, 2064—E
- malnutrition in children of well-to-do, [Kerley] 226—ab
- malnutrition, metabolism in, [Talbot] 1444
- nutritional rehabilitation, 289—E
- malnutrition, transfusion in infants with, [Burk & Fischer] 1601
- of children, 1115
- of Viennese children, [Gibbon & Paton] 1524
- Pirquet standard of normal body weight as compared with other standards, [Barden] 1988—C
- Pirquet system of, [Horwitt] 1756—C
- Pirquet system of, and its applicability to American conditions, [Carter] *1541, [Faber] 1837—C, [Carter] 1911—C, [Weymouth] 2080—C
- rôle of fatigue in malnutrition of children, [Veeder] *758
- rôle of liver in, [Brodin] 1527
- state of, and physical measurements, [Huth] 1143
- NUXATED Iron and "Jack" Dempsey, 130—E
- NYAL'S Prescription "23" and Nyal Prescription "23" Pills, 482—P
- NYSTAGMUS, [Lafon] 819
- and equilibration, [Brabant] 494
- in anaphylaxis, [Pentimall] 580
- ocular and railroad, [Bárány] 1457
- O**
- OBESITY, glucose tolerance test in obese, [Paullin] 1996—ab
- in children, [Begtrup] 980, [Emerson] 1520
- transient, after encephalitis, [Roger & Aymès] 1770
- OBSTETRICS: See also Labor; Midwives
- OBSTETRICS, conduct of, [Anspach] 1366
- deaths, [Hirst] *1406
- defective instruction in midwifery at the Indian universities, 52
- fads and fancies of, [Holmes] 314—ab
- in ancient times, [Josephson] 1458
- newer fads of, [Speidel] 1128—ab
- motion pictures in teaching of, 2071
- operative complications, [Newell] 1133
- report of Rotunda hospital, [English & Davidson] 493
- unsolved problems in, [Bell] 314—ab
- what is progress in, 1258—E
- OCCULTISM, 876, [Zeehandelaar] 1295
- OCCUPATIONAL DISEASES: See Industrial Diseases
- OCCUPATIONAL THERAPY, National Society for Promotion of, 870, 1582
- OCULOCARDIAC Reflex: See Reflex, Oculocardiac
- ODRIOZOLA, life work of, [Valdizan] 1929
- OERTEL'S "General Pathology," review of, [Oertel] 1040—C
- OHIO, 4 years' progress in public health organization in, [Freeman] *1639
- report of committee on anesthesia, [Jennings] 59—C
- state board April examination, 571
- state board January examinations, 395
- state board May-June examination, 1441
- OIL soup, so-called, [Boschán] 1376
- OKLAHOMA state board April examination, 807
- state board July examination, 1596
- OLD AGE, growing old, [Siegmond] 2008
- psychologic and anatomic study of senility, 300
- urinary function in aged, [Zak] 2008
- OLFACTORY lobe, unilateral involvement of, [Uyematsu] 731
- OMENTUM, stump of, [Taddei] 654
- ONTARIO Medical Association, 1112, 1902
- ONYCHIA due to colon bacillus, [Hollander] 1129
- ONYCHOGRYPOSIS, familial, [McGlasson] 1448
- OÖPHORECTOMY: See Ovary, Removal
- OPERATING TABLE, plea for routine examination on, as preliminary to abdominal operations, [Keefe] 1204—ab
- OPERATION, cannot require submission to major operation or one for hernia, 1678—MI
- guide for determining necessity for, 1202—MI
- required by compensation law, 810—MI
- requires submission to operations despite danger, 2085—MI
- OPHTHALMIA neonatorum, effect of obligatory prophylaxis on, [Hirsch] 2098
- OPHTHALMOLOGISTS, convention of, in Vienna, 1195
- OPHTHALMOLOGY, borderland of rhinology, neurology and, [Sluder] *688
- report of committee on local anesthetics in, [Bulson & others] *1730
- value of drugs in, [Wilmer] *1223
- OPIUM, new opium laws in Great Britain, 1026—E
- OPSONIC sensitization, [Amato] 1689
- OPSONINS, adaptability of bacteria to, [Gulino] 976
- OPTIC THALAMUS, carbon dioxide excretion after destruction of, [Rogers & Wheat] 1131
- lesions of, [Malan & Civalleri] 580
- ORBIT, abscess of, with frontal sinusitis, [Sunée] 1374
- fracture of, [Kehl] 1292
- hydatid cyst of, [Tiscornia] 326
- ORCHITIS, tuberculous, in child, [Zerbino] 1453
- OREGON state board January examination, 305
- ORGANOTHERAPY, cardiac, 476
- pluriglandular treatment of acquired myxoidiocy, [Rodenacker] 1775
- ORIENTAL University, more diplomas of, 1433
- ORTHOFORM, 41
- OS CALCIS, fracture of, new method of treating, [Straus] *176
- OSGOOD-SCHLATTER'S DISEASE: See under Tibia
- OSLER, SIR WILLIAM, personal appreciation of, [Finney] *2013
- OSMOSIS, history of, [De Feyfer] 1534
- OSSIFICATION, familial disease of, [Léri] 1526
- OSTEITIS, deforming, fibrous, [de Castro Freire] 233
- fibrous, and osteomalacia, [Naumann] 897
- syphilitic, of skull, [Merklen & Desclaux] 1526
- OSTEO-ARTHROPATHY, hypertrophic, in pulmonary tuberculosis, [Corper & Cosman] 813
- hypertrophic, with cancer of lung, [Weinberger] 742
- with cancer of lung, [Weinberger] 979
- OSTEOCHONDRITIS deformans juvenilis of hip, 484
- deformans of upper epiphysis of femur, [Mouchet] 2152
- parosteogenic juvenile osteochondropathy, [Zaaijer] 655
- OSTEOFIBROMA of kidney, [Desnos] 652
- OSTEOMALACIA and fibrous osteitis, [Naumann] 897
- OSTEOMYELITIS, acute, bone reaction in, [Mitchell] 156
- acute, hematogenous, [Baneroff] 149
- and syphilis, [Rodríguez Gómez] 822
- chronic, [Komoda] 160
- diagnosis and treatment of, [Stokes] 64—ab
- nitrate in, 59
- of pelvic bones, [Geist] *1939
- pathogenesis of, [Hobo] 159
- potassium nitrite in, [Pennington] 2091
- sclerosing, nonsuppurative, as described by Garré, report of case with roentgenographic and pathologic findings and review of literature, [Jones] *986
- OSTEOPSATHYROSIS, [Glorgi] 895, [Hanssen] 1457
- OTITIS externa, treatment with acriflavine, [Sacl] *1102
- in infants, [Renaud] 1847, 1925
- radium treatment of, [Nicolini & Balado] 1140
- OUTPATIENT department, educational function of, [Shambaugh] 1275—ME
- OVARY, analysis of ovaries, [Häggström] 1458
- cancer, relations between ovarian and gastric cancers, [Frankenthal] 2097
- cystic disease of, [Erdmann & Spaulding] 1523
- cystoma, polypous, [Kusuda] 655
- cysts, operative treatment after manner of Klapp's hydrocele operation, [Schäfer] 2010
- cysts, perforating, hemorrhagic (chocolate), [Sampson] 400—ab, 1046
- cysts, torsion of pedicle of, [Delhet] 1848
- dermoid cysts, [Chucco] 1930
- dermoid cysts, cancerous, [Eisenstädter] 499
- effect of undernourishment on mammalian ovary and the sexual cycle, [Loeb] *1646
- gonads and development of sex, [Halban] 413
- grafts of, [Tuffler] 974
- hemorrhages of ovarian and tubal origin, not associated with ectopic pregnancy, [Schumann] *692
- hydatidiform mole and lutein cysts in, [Potocki] 1687
- noninflammatory ovarian and tubal disturbances, [Dalché] 1528
- removal, experimental studies following, [Bailey] 488
- removal, pregnancy diagnosed as tumor after, 2146—MI
- teratomas of, [Porter] 1203—ab
- OVULATION and menstruation and postoperative considerations, [Watkins] 400—ab
- OXIDATION, effect of heat and, on antiscorbutic vitamin, [Dutcher & others] 969
- OXYGEN and muscular fitness, 380—E
- deficiency, results of exposure to, 1440
- injections in recurrent pleurisy, [MacFarlane] 2148
- subcutaneous injection of, [Van der Starp] 2154
- therapy in cardiac insufficiency, [Barach & Woodwell] 1519
- therapy in encephalitis, [Barach & Woodwell] 1520
- therapy in pneumonia, [Barach & Woodwell] 1519
- therapy, problem of, 1821—E
- OXYL-IODIDE not admitted to N. N. R., 57—P
- OXYTOCIC, placenta extract as, [Guggisberg] 414
- OXYURIASIS, bismuth carbonate in, [Hallez] 1212
- OZENA and tuberculosis, [Linthicum] 1045
- P**
- PAGET'S DISEASE: See Osteitis Deformans
- of Nipple: See Nipple, Paget's disease of
- PAIN, chronic, control of, [Dyas] 734
- sensations, latent interval in, in hyperalgesic areas, [Kauffmann] 2009
- PALATE, cleft, and harellp, cause of, [Thompson] 1683
- cleft, congenital, correction of harellp and, [Moorehead] *1951
- infantile, size of, [Denzer] 1762
- melano-epithelioma of, [New] *19
- perforation from false teeth, [Rouget & Pommerau] 1926
- PALMO Tablets, 303—P
- PAN-AMERICAN sanitary conference, [Garcia Medina] 1139
- PANCREAS abscess, drainage of, [Ochsner] 1683
- antipancratic ferment serum, effect of, on blood sugar, [Wago] 1846
- cyst following acute pancreatitis, [Carslaw] 577
- necrosis, acute, [Zoepffel] 499

- PANCREAS**, prepancreatic and peripancreatic disease, with consideration of anatomic basis of infection from gallbladder to pancreas, [Deaver & Sweet] *194
pseudocyst apparently due to hemorrhagic necrosis occurring during course of a general sepsis, [Russ] *620
relation of liver and pancreas to infection of the gallbladder, [Judd] *197, [Reynolds] 483—C
secretion, nature of, [Crofton] 493
secretions, absence of, in sprue, [Brown] 643
tumors, [Lockwood] *1554
- PANCREATITIS**, [Schoenling] 1851
acute, followed by pancreas cyst, [Carslaw] 577
chronic, [Grote & Strauss] 1931
traumatic, [Delatour] 1683
- PANOTITIS**, idopathic, [Calderin] 1453
- PAPAVERINE** Sulphate-Roche, 287
- PAPER** cups, crimped, for embedding, [Woody] *1255
- PAPILLA**, Vater's, radium therapy in carcinoma of, [Abell] 1048
- PAPILLOMA** of breast, [Cheatle] 2002
- PARABIOSIS** for study of factors affecting growth, [Rubinstein] 236
- PARAFFIN** oil tumor, [Stokes & Scholl] 315
work, crimped paper cups for embedding, [Woody] *1255
- PARALYSIS** after forceps extraction, [Kofferrath] 1215
agitans following influenza, [Moren] 231
agitans, transplantation of parathyroid glands for, [Kühl] 1692
birth, classification of, as endocrines, [Clarke] 2087—ab
cerebral, in children, [Wachendorf] 1851
diphtheric, [Achard] 819
diphtheric, cured by serotherapy, [Labbé] 1605
diphtheric, of accommodation, [Poulard] 894
diphtheritic diaphragmatic paralysis, report of 8 fatal cases in 4,259 cases, [Mixsell & Giddings] *590
facial, correction of deformity from, [Ombrédanne] 1053
facial, operation for, [Gibson] 1922
general, [Marchand] 1137
general, in the aged, [Herschmann] 2097
general, treatment by inoculations with malaria and recurrent fever, 1268
in children due to bite of wood-ticks, [McCornack] *260
juvenile general paresis, [Martinez] 1056, [Key & Piper] 1687
median, operative correction of, [Huber] 78
of lower arm, cyst of rib as cause of, [Meyer] 2002
of motor oculi nerve, [Bistis] 823
of vocal cords secondary to breast cancer, [Turner] 818
radial, tendon transplantation for, [Riosalido] 497, [Ney] 1523
spastic, spinal, on heredosphyllitic basis, [Mingazzini] 151
- PARAMETRITIS**, [Walter] 1850
- PARAPIRENIA**, [Sanchis Banus] 76
- PARAPLEGIA**, canine, [Gwyn] 1120—C
- PARASITES**, location of parasitic invaders in body, 1187—E
- PARASITOLOGIC** Research Institute opened at Cambridge, 2073
- PARATHYROID**, curable idiocy of parathyroid origin, [Comby] 233
extract in treatment of varicose ulcers, [Grove & Vines] 1767
feeding, effect on growth of, [Cameron & Carmichael] 2088
hyperplasia of, in rickets, [Pappenheimer & Minor] 1766
removal of, influence on blood sugar content, [Underhill & Nellans] 1766
transplantation of, for paralysis agitans, [Kühl] 1692
- PARATYPHOID**, [Zamorani] 158, [Rosing-Schow] 242
agglutination of paratyphoid group, [Aoki] 1612
B infection, atypical, [Morgan] 67
spontaneous closure of intestinal perforation, report of case of double infection with typhoid and, [Randolph & Hunter] *2111
- PARATYPHOID** bacillus C, nature systematic position of, [Andrewes & Neave] 889
carried in head cheese, 1025—E
epidemic among university students, [McKinlay] 966—ab
pneumonic, [Pinesohn] 1141
- PARENCHYMA** of organs, restoration of, [Nathan & others] 2150
- PARENTS**, elderly, children of, [Peiper] 1851
- PARIS**, City of Paris and the new University City, 135
clinics, arrangements for foreign assistants in, 296
postgraduate work in, [Kress] 1357—C
- PARKINSONIAN** symptoms after encephalitis, [Falzl] 1452, [Langer] 1850
- PAROTITIS**, diabetes after, [Labbé & Dcbré] 1770
diphtheria antitoxin in, [Villegas] 326, [Chelnissel] 1137
- PARESIS**: See Paralysis, General
- PARTO-GLORY**, 303—P
- PARTURITION**: See Labor
- PASTEUR**, centenary of, 1981
Institute, work of, during the war, 477
- PATELLA**, luxation of, [Hohlbaum] 77
spontaneous fracture of, [Wagner] 655
- PATENT MEDICINES**: See also Proprietary Medicines
- PATENT MEDICINES** and druggists, 1350
expensive "poor man's medicine," [Schultz] 958—C
high cost of, 867—E
interests in British parliament, influence of, 1107—E
prison term for exaggerated advertising of nostrum in France, 950
strange defense of, 1893
- PATIENTS**, instruction of patients and contributory negligence—inexcusable mistakes, 2085—M1
where do our clients come from? 1267
- PAWLOW**, fate of, 801
Ivan P., still alive, [Benedict] 1039—C, [Cannon] 1040—C
- PEAS**, pigmentation and fat-soluble vitamin of, [Steenboch & others] 575
- PEDIATRICS**, graduate course in, in Italy, 1981
recent progress in, [Lassablière] 1211
- PEKING**, Office of Imperial Physicians, Peking, [Cowdry] 307
Union College clubs, 214
Union Medical College, dedication of, 50, 211, 1679
Union Medical College Hospital, opening of, 953
- PELLAGRA**, acute, in childhood, [Galbraith] 1845
in the southern part of Transylvania and Bukowina, 299
increase in, in the South, 385
problem, 560—E
Public Health Service aids in prevention of, 475, 564, 715
with special reference to pathologic evidence of infection, [Giannini] 1128—ab
- PELVIMETRY** by means of roentgen ray, [Chamberlain & Newell] 66
external, difference in measurement of true conjugate and external conjugate, 638
external pelvic measurements, [Adair] 1366
outlet pelvimeter, [Rucker] *1255
- PELVIS** abscess, rectal access to, [Bosch Arana] 497
adhesions, use of sigmoid flexure and cecum in pelvic peritonization, [Culbertson] *772
anastomosis between ureter and, [Lichtenberg] 743
osteomyelitis of pelvic bones, [Geist] *1939
significance of pelvic outlet in perineal laceration, cystocele, and prolapse, [Morse] 967
superior symphysiotomy for permanent enlargement of, [Costa] 1213
unilateral luxation of, [Haumann] 1455
- PENDLETON'S** Vegetable Panacea, 304—P
- PENIS**, diphtheria of, [Cochrane] 492
- PENNSYLVANIA** state board January examination, 881
- PENSION**, increase of, for tuberculous soldiers, 477
standards for estimating degrees of disability as basis for, [Rieux] 738
- PENSLAR** Saneop Pearls, 393—P
- PEPSIN**, administration of, [Loeper & Baumann] 975
dosage of, [Takata] 1612
- PEPYS' diary**, [Kniskern] 1674—C
- PERCUSSION** findings, [Schlagintweit] 656
- PERGOLA'S** egg medium for diphtheria bacilli, 1358
- PERIARTERITIS** nodosa, [Lambright] 1045
- PERICARDITIS**, [MacLachlan] 1917
in children, [Baumel] 1211, [Poynton] 1603
pericardial fluid and intrapericardial pressure, [Stephens] 156
rheumatism, in children, [Nobécourt] 820
with effusion in children, new diagnostic sign, [Haas] *1969
with effusion, clinical study of 23 cases, [Williamson] *2050
with effusion, Thomayer's distribution of percussion sound a symptom in, 1596
with effusion, treatment of, [Hedblom] 965—ab
- PERICOLITIS**, adhesive, [Durand & Cade] 2094
- PERICYSTITIS** and periprostatitis, [Taddei] 896
- PERINEPHRITIS**, with hydronephrosis, [Cassuto] 496
- PERINEUM**, impalement injuries of, [Feron] 408
laceration, significance of pelvic outlet in, [Morse] 967
lacerations, immediate repair versus delay, [Pickett] 1128—ab
- PERISTALSIS**, influence of lactose on, [Rasor] 1850
- PERITONEUM**, absorption by, influence of hypertonic solutions on, [Reschke] 2008
absorption of fluid from peritoneal cavity, [Denzler & Anderson] 65, [Bolton] 1604
administration of fluids by intraperitoneal injection, 1893—E
autoplasmic peritoneal grafts in gynecologic operations, [Fuchs] 241
pseudomyxoma of, [Michaelsson] 242
tuberculosis, pedunculated, [Ray] 1046
tuberculosis, roentgen-ray treatment of, [Stephan] 415
- PERITONITIS**, bile, [Neuber] 1690
chronic, [Gilbert] 411
circumscribed, acute, [Palier] 1921
enterostomy in, [Delors & Conrozier] 235, [Wortmann] 1533
ether treatment of, [Lienhardt] 976
irrigation treatment of, [Willis] 1523
nonperforative appendicitis causing, [McWhorter] 887
pneumococcus, in children, [Heiman] 226—ab, [Provinciali] 236
purulent treatment of, [Strauss] 656
tuberculous, [Armand-Delille] 1925
tuberculous, in children, [Vásquez-Lefort] 1929, 2007
tuberculous, Thomayer's distribution of percussion sound in, 1596
typhoid, [Richter & Amreich] 415
- PERRIER**, Edmond, death of, 800
- PERTUSSIS**: See Whooping Cough
- PEYOTE**, the narcotic mescal button of the Indians, [Stafford] 1278
- PHAGOCYTOSIS**, calcium chlorid promotes, [Nagai & Ito] 740
capacity for, in dead animals, [Cross] 574
in pathologic processes, [del Rio-Hortega & Jimenez] 822
in terminal infections, [Cross] 1919, 2125—E
reduction of, by hexamethylenamin, 1912
- PHARMACISTS** and "patent medicine," 1350
need no special permit to supply malt liquors, 1582
wrong drug given by druggists' wife, (fatal error), 875
- PHARMACOLOGIC** observations on the sick and well, [Bornstein] 2097
research, clinical, institute for, in Germany, 803
- PHARMACOPEIA**, committee of revision of, conference of, 473
Italian, new edition of, 133
United States, tenth revision, 1994
- PHARYNX**, aberrant vessels in surgery of palatine and pharyngeal tonsils, sigmoid or tortuous cervical internal carotid artery and visible pulsating arteries in wall of pharynx, [Schaeffer] *14
abscess, retropharyngeal, [Frank] *517
dilation of, to aid swallowing, [Hasty] 2149
tuberculous lesions in, [Barajas] 76
tumors of, diathermy in, [Milligan] 818
- PHENOLPHTHALEIN** dermatitis, [Ayres] *1722
- PHENOLS**, detection of, produced by bacteria, [Bell] 1369
- PHENOLSULPHONEPHTHALEIN** test, removal of bile and blood from urine, in performing, [Burwell & Jones] *462
- PHENOLTETRACHLORPHTHALEIN** test for liver function, [Aaron & others] *1631
- PHILIPPINES** need more doctors, 1725—ab
- PHILEGMON**, abdominal contusion with phlegmon 15 months later, [Lavenant] 1373
treatment of, [Schlesinger] 249
- PHOCOMELIA**, an adult living case of total phocomelia, [O'Brien & Mustard] *1964
- PHOENIX** Skin Success Ointment, 303—P
Tasteless Chill Cure, 303—P
- PHONENDOSCOPY** of lungs, [May & Rouquet] 407
- PHOSPHATES**, behavior of, in body, 1496—E
- PHOSPHATURIA**, decapsulation for, [Birt] 655
- PHOSPHORUS**, dangers of, in fireworks, [Stacy] 1514—C
- PHOTOGRAPHY** in skin diseases, [Fox] 315
photographic record of physical signs, [Robin] *1023
- PHOTOTHERAPY**, [Vignard] 409
in rachitis, [Erlacher] 328
- PHTHIRIASIS** and melanoderma, [Tixier & Duval] 737
- PHTHISIS**: See Tuberculosis, Pulmonary
- PHYSICAL** demonstrations in court, admissibility of, 1126—M1
education, 873
education, compulsory, in Belgium, 1588
efficiency and rest periods, 562—E
examination, court refuses to order a blood test, 2085—M1
examination of food handlers, results of, [Gloyne] 1997
fitness and vital capacity, 1105—E
signs, photographic record of, [Robin] *1023
standards for working children, 943—E
therapy clinics for physicians, 1980
training, [Vidal] 409
training, compulsory, 1118
- PHYSICIANS**: See also Medical Officers, Medicine
- PHYSICIANS**, adoration experienced by certain overemotional psychasthenic girls for their physician, [Laignel-Lavastine] 820
advertising by, rulings on questions as to, 1761—M1
appointment of, as minister of religion and justice, 1984
as witnesses—causes of death—provisions for necropsies, 884—M1
as witness, injury from Bon-Opto Eyewash, 486—M1
bookkeeping course for wife of, 796
damages allowed physician for personal injuries, 1280—M1
demand for free choice of, in sickness insurance clubs, 876
geographical location of, members of International Congress of Eugenics, (where is this country, anyway?) [Pusey] 219—C
foreign, in Spain, 1984
foreign, to study in America, 1264
history given physicians viewed as evidence, 1364—M1
in France, number of, 796
injury to physician being taken to see patient, 1443—M1
instruction of patients and contributory negligence—inexcusable mistakes, 2085—M1

- PHYSICIANS**, issuing to addict by, a prescription to be filled through innocent agency, 884—Ml
Italian physicians honored by historical tablets at Naples, 2070
medical responsibility, [Courtois-Suffit & Bourgeois] 1212
no shortage of, in United States, 46—E
not liable for death of other child, 148—Ml
organization of, in Uruguay, 386
panel, proposed reduction of capitation fee of, 1267
passing of the general practitioner, 1012—ab
precarious position of "house physicians" in Vienna, 216
privilege not waived as to physician as witness, 1201—Ml
souvenir volume of medical victims of the world war, 1981
status of, appointed by court, 1678 Ml
strike of, in Austria, 215
sufficient visits by, 398—Ml
suits by physicians under compensation acts, 1364—Ml
unlicensed practitioners to be prosecuted, not enjoined, 1916—Ml
- PHYSIOLOGY**, aims of, [Fletcher] 1209
- PIERCE**, Robert J. Pierce's Empress Brand Tansy, Cotton Root, Pennyroyal and Apio Tablets, 219—P
- PIGMENTATION**, soluble vitamin and yellow pigmentation in animal fats, [Steenbock & others] 152
- PIL. MIXED TREATMENT** (Chichester), 1355—P
- PILDORAS** Uriseptic, 1513—P
- PILOCARPIN**, action of, on brain lesions, [Besta] 496
- PINEAL** tumors, removal of, [Dandy] 733
- PINTA**, etiology of, 1116
- PIPET** holder, new, [Moody] *941
- PIRQUET SYSTEM OF NUTRITION**, [Horwilt] 1756—C
and its applicability to American conditions, [Carter] *1541, [Faber] 1837—C, [Carter] 1911—C, [Weymouth] 2080—C
standard of normal body weight as compared with other standards, [Barden] 1988—C
the best, [Fisher] 2148
- PITUITARY** and adiposis dolosa, [Lopez Albo] 76
and gestation, [Perez] 497
cells, staining granules in, [Bailey] 1766
depressor and bronchoconstrictor substances in, [Roca] 971
disorders treated nonsurgically, [de Schwelnitz] 734
during pregnancy, [Perez] 412
extirpation in frogs, [Giusti & Houssay] 1140
extract, action of, on cerebral polyuria, [Houssay & Hug] 1530
extract and mercuric chlorid, use of, by midwives, 1749
extract as test for kidney functioning, [Brunn] 1142
extract, contradictory actions of, [Houssay] 326
extract, effect of, on stomach, [Galan] 326
extract, response of children to pituitary test, [Fabris] 822
extract, use of, in third stage of labor, [Ryder] 488
in children, [Fraser] 1286
pathology of, [Monakow] 821
polyuria, [Schulmann] 893
relations between adenoids and, [Poppi] 737
relations between diabetes insipidus and, [Villa] 1848
syndrome, unusual, [Friedman] 733
traumatic lesions of, [Reverchon & others] 1688
- PLACENTA**, demonstration of integrity of, [Ederer] 1143
effect of active substance off corpus luteum and, on growth of sexual organs, 421—ab
extract as oxytocic, [Guggisberg] 414
functions of, 1500—E
hemorrhage in separation of, [Hesselberg] 1613
hypertrophy of, [Lévy-Solal] 1136
manual separation of, [Hammer-schlag] 78
prævia causing sloughing of lower uterine ligament, [Canney] 1049
- PLACENTA**, praevia, tamponing uterus for hemorrhage with, [Ribas] 1690
premature separation of, [Belaval] 1448
premature separation of normally located placenta, [Frank & Hiess] 413
tumor, [Roscher] 79
turgidization of, [Moltved] 1613
- PLAGUE**, acute endocarditis from, [Teissier & others] 1770
at Paris, [Comby] 2004
bacilli, agglutination of, [Kling & Hesser] 2012
bubonic, in children, [Guinon & de Pfeffel] 2004
cutaneous manifestations of, [Araujo] 977
in China, 214
in Madagascar, 874
in Tampico, 478
prevention in Manchuria, 1030
vaccines, utility of antiplague vaccines, 42—E
- PLANTEN'S Capsules**, 304—P
- PLASMOCYTOMA** associated with Bence-Jones protein, [Speares] 70
- PLEOMORPHISM** among bacteria, 1184—E
- PLEURA**, adhesion of layers of, experimental, [Deist] 656
effusion, [Saint Girons] 1605
effusion, artificial pneumothorax in, [Comino] 1138
effusion in course of therapeutic pneumothorax, management of, [Stivelman & Rosenblatt] *12, [Dumarest & Parodi] 896
effusion, resorption of, [Landsberg] 742
ether in, [Torraca] 1608
examination of, for artificial pneumothorax, [Burnand] 2094
mesothelioma of, primary, [Wood & Walter] 888
tumor of, primary, [Eastwood & Martin] 650
- PLEURISY**, apical, relationship of pulmonary tuberculosis to, [Van Zwaluwenburg & Grabfield] 229
ethylhydrocupreine in experimental pneumococcus pleuritis, [Kolmer & Sands] 152
oxygen injection of, [MacFarlane] 2092, 2148
prognosis of, in children, [Nobel] 1852
syphilitic, [Castex & others] 1530
tuberculous, [Landgraf] 1852
- PLUMBING** inspection, 1993
- PNEUMOCOCCUS** and nonhemolytic streptococci of adenoids and tonsils, [Pilot & Pearlman] 317
antipneumococcal serum, potency of, 247—ab
antipneumococcus protective substances, [Bull & McKee] 228
hemolytic streptococci and influenza bacilli in nasopharynx, [Meyer & others] 317
immunity, [Cecil & Steffen] 1130
infection, [Paraf] 1525
lung infections, pathology of, [Armstrong & Gaskell] 1604
rapid typing of, [Oliver] 1919
relation of, to "colds," [Gordon] 1919
tricuspid insufficiency, [Lutembacher] 1212
- PNEUMOCOCCUS**, [Grahn] 1372
- PNEUMONIA**, acute arteritis complicating, [Head] 1045
carbon sulphid in, [Masciaglioli] 1055
dissecting, necrotic, [Letulle & Bezacon] 892
experimental streptococcus empyema and, [Gay & Rhodes] 1131
immunization against, from aspiration, [Delfino] 654
in children, [Lyon] 886
influenzal, with reference to military service, 62—Ml
oxygen therapy in, [Barach & Woodwell] 1519
serum therapy of, [Niles] 154, [Sacquépée] 324, [Howard] 1764, [Thomas] *2101
symptomatic treatment of, [Means & Barach] *1217, 1256—E
treatment of, [Renaud] 578
- PNEUMOPERITONEUM**, [Douarre] 1372
as aid in roentgenologic diagnosis of lesions of urinary tract, [Sante] *982
- PNEUMOPERITONEUM** as aid to more accurate obstetric and gynecologic diagnosis, [Peterson] 400—ab
as diagnostic aid in gynecology, [Benthin] 1611
- PNEUMORACHIS**, artificial, [Sharp] 1998
- PNEUMOTHORAX**, Artificial: See also Tuberculosis, Pulmonary
artificial, [Mory] 79
artificial, case of sudden death following, [Giese & Conway] 732
artificial, cauterization of adhesions in pneumothorax treatment of tuberculosis, [Jacobeaus] 69
artificial, duration of, [Jaquerod] 2094
artificial, effect of, on collapsed lung, [Simon] 1600
artificial, effusions in course of, [Stivelman & Rosenblatt] *12
artificial, examination of pleural cavity for, [Burnand] 2094
artificial, in pleurisy with effusion, [Comino] 1138
artificial, 9 years of, [von Niederhäusern] 1848
artificial, other lung with, [Betchov] 2095
artificial, perforation of lung during, [Roch & Saloz] 579
artificial, pleural effusion with, [Dumarest & Parodi] 896
artificial, results of, [Saxtorph] 330
artificial, severing adhesion impeding, [Jacobeaus] 163
open, [Amreich & Sparmann] 2008
spontaneous, in infant, [Schoenstein] 822
subphrenic, resulting from perforated gastric ulcer, [Schottmüller] 1293
tension, [Von Thun] 1296
- POLIO-ENCEPHALOMYELITIS**, acute, [Careizo] 75
- POLIOMYELITIS**, acute anterior, [Hannah] 971
prognosis of, [Wahler] 327
report of Harvard Infantile Paralysis Commission, [Peabody] 886
surgery of, [Rugh] 573
third year in, [Lovett] *1941
treatment, [Bordier] 411
treatment with immune horse serum, [Rosenow] *588
- POLLEN** disease, 791—E
- POLYCLONIA** plus epilepsy, [Niccolai] 192
- POLYCYTHEMIA**, [Zuccola] 158
radiotherapy in, with enlargement of spleen, [Rydgard] 582
roentgenotherapy in, [Böttner] 978
- POLYGRAPH**, clinical, [Lutembacher] 974
- POLYMORPHISM** among bacteria, [Ritter] 1514—C
- POLYMEROSITIS**, [Maggesi] 895
- POLYURIA**, cerebral, action of pituitary extract on, [Houssay & Hug] 1530
nocturnal, [Barach] 643
pituitary, [Schulmann] 893
- POPULATION**, effect of war on, 2074
overpopulation, 298
- PORAK**, Charles, death of, 135
- POROSE PILLS**, 393—P
- PORTAL VEIN**, ectasia of, [Glaser] 1690
suture of, [Giorgi] 1773
- PORTO RICO** April examination, 60
common pyrexias in, [Torregrosa] 1447
prevalence of intestinal protozoa and related organisms in, [Hegner] 1439—C
- POSTURE**, debilitate slouch, [Norsworthy] 647
effect of, on health of child, [Dickson] *760
- POTASSIUM** chlorid, action of, in nephritic edema, [Blum & others] 650, 1526
content of blood, [Myers & Short] 1284
mercuric iodid, 1274, 1971
nitrate and sulphur, chronic poisoning from mixture of, [Windmeuller] *858
nitrite in osteomyelitis, [Pennington] 2091
- POTASUL** Potash Sulphur Water, 218—P
- POTATO**, asthma from idiosyncrasy to, [Roch & Schiff] 495
- POTTER** version, analysis of, [Speidel] 1203—ab
- PRACTICE** act, Illinois practice act of 1917 declared void, 639—ME
- PRACTICE** act, Massachusetts practice act sustained (federal court upholds state law and board), 310—Ml
act of Idaho, 1358
illegal, sufficient indictment of illegal practitioner, 1840—Ml
- PRECIPITIN REACTION**, [Fujiwara] 655
specific, of lens, [Hektoen] *32
- PREGNANCY**, acidosis in, [Labbe & others] 234
after nephrectomy, [Matthews] *1634
albuminuria of, [Gibson] 69
and diabetes, [Bell] 1202—ab
and fibroma, [Grosse] 1289, [Totta] 1689, [Poney] 1930
and heart disease, [Mackenzie] 156, 321, [Dice] 1202—ab
and lingual goiter, [Rubell] 78
and myomas, [Helmann] 415
and tuberculosis, [Petruschky] 2010
anomalies of thyroid function during, [Fruhinsholz & Parisot] 1770
basal metabolism in, [Baer] 1366
blood chemistry in, [Caldwell & Lyle] 488
blood pressure in eclampsia and albuminuria of, [Balard] 975
calcium in blood in, [Mazzocco & Morón] 1929
chemical studies in, [Killian & Sherwin] 488
diagnosed as tumor after ovariectomy, 2146—Ml
duration of, [Ruge] 327
during Parkinsonism following epidemic encephalitis, [Guillain & Gardin] 2151
encephalitis in, [Vincent & Gaudoux] 73, [Jorge] 324
extramembranous, [Costa] 1056
extra-uterine, [Wiegand] 79, [Polak] 1366
extra-uterine, abdominal, with living child, [Moore] 320
extra-uterine, early primary ovarian pregnancy, [Hunter] 1686
extra-uterine, experiences with own blood transfusion in, [Schweitzer] 741
extra-uterine, origin of bleeding in, [Polak & Welton] 1203—ab
extra-uterine, ruptured, [Leicester] 1525
extra-uterine, ruptured, tubal, [Vanverts] 1289
hygiene, Washington convention concerning employment of women before and after childbirth, 51
kidney disease in, [Hüssy] 1848
kidney tuberculosis in, [Graebke] 1215
liver in, [Crainiclanu & Popper] 234, [Didier & Philippe] 325
narcolepsy during, [Nevermann] 1931
nephritis of, capillary insufficiency with, [Hinselmann] 978
of 331 days allowed, 716
pituitary body during, [Perez] 412, 497
prenatal care, end results of, [Beck] *457, [Hill] 1521
prenatal care of women, [Hill] 1521
pyelonephritis of, [Achard] 579
sexual intercourse during, [Ruge] 1692
signs of, [Holzapfel] 980
thyroid in relation to, 1586
toxicooses, serotherapy in, [Cortabarra] 326
twin tubal, case of, [Hunter] 322
vomiting of, [Harding] 891
- PRENATAL CARE**, [Beck] *457, [Hill] 1521
- PREPANCREATIC** and peripancreatic disease, with a consideration of anatomic basis of infection from gallbladder to pancreas, [Deaver & Sweet] *194
- PRESCRIPTION** 999, 879—P
- PRESCRIPTIONS** for liquor in Canada, 1665
physician issuing to addict prescription to be filled through innocent agency, 884—Ml
writing, [Lyonnet] 1211
- PRESENTATION**, transverse, spontaneous evolution in, [Marshall] 967
- PRINTERS**, industrial dermatoses among, 1760
- PRISONS** and anthropology, 389

- PRIVILEGE** not waived as to phys-
cian as witness, 1201—Ml
PRIVY vaults, cleaning of, 1040
PRIZE, Benoist prize, 1192, 1268,
1748
bestowed by Academy of Sciences,
1749
for Antonl, 1903
for research on nervous system,
133
for research on sexual science, 1667
German, won by Hungarian phys-
ician, 801
Nobel, in medicine, 1748
of Académie des Sciences at Paris,
1583
offered by the Havana Academy of
Sciences, 796
offered to French inventor with 3
children, 211
psychoanalysis, 631
to Brachet, 871
to Friedrich, 295
to Jacobaeus, 1829
tropical disease, 631
Zambaco, 211
PROCAIN-Abbott, 1423
dermatitis, 395, [Morris] 1357—C
in nose and throat work, [Report
of Committee] *1336, [Cahn &
Lévy] 1753—C, [Mayer] 1836—
C
PROCTECTOMY, sacral, [McKay]
2003
PROCTOLOGY, teaching of, [Hirsch-
man] *981
PROFESSORS, increase of salaries
of professors and assistants in
Vienna 876
proposed international sanatorium
for tuberculous professors and
students, 133
PROFETA'S and Colles' laws, 904—
ab
PROHIBITION, British health officer
on, in America, 1506
commissioner to issue beer regu-
lations, 473
German scientists make prohibition
appeal, 296
Mellon issues beer regulations,
1425—E, [Herz] 1594—C,
[Rayle] 1594—C, [Davis] 1673
—C, [Cracroft] 1673—C, [Mos-
ser] 1755—C, [Ashe] 1836—C
Senate committee reports favorably
new dry bill, 210
Senate deadlocks on Volstead
amendment, 795
Willis-Campbell antibeer bill de-
layed, 385
Willis-Campbell prohibition bill
goes to conference, 630
PROPRIETARY MEDICINES BILL,
pigeonholing of, 1107—E
PROSTATE, cancer of, [Chute] 1600
enlarged, eosinophilia with, [Cas-
suto] 1291
enlargement, pathogenesis of,
[Strominger] 1372
hypertrophy, [Mastrosimone] 236
hypertrophy, a general disease,
[Pousson] 892
hypertrophy, diagnosis of, [Bar-
trina] 653
hypertrophy, roentgen-ray treat-
ment of, [Stern] 730
hypertrophy, surgical treatment of,
[Karo] 2010
infection, chronic, [Nelken] 1996
—ab
obstruction, blood nitrogen esti-
mations in, [Vaughan & Morse]
1047
periprostatis and pericystitis,
[Taddei] 896
syphilis of, [Warthin] 968
PROSTATECTOMY, [Caulk] 68
at two sittings, [Reverter] 822,
[Marsan] 975, [Rubritius] 979
in bad surgical risks, [Bugbee]
*905
ischio-rectal, [Orth] 826, [Fischer
& Orth] 974
open, [Walker] 1050
suprapubic, [Marion] 652
PROSTATITIS after cystostomy,
[Alappy] 1774
colon bacillus, [Suter] 1138
PROSTITUTION, regulation of, 1930
PROTEASES, tissue, [Nakagawa]
740
PROTEIN, anaphylaxis to food pro-
teins in breast-fed infants and
its probable relation to certain
diseases of nursing infant, espe-
cially exudative diathesis, [Shan-
non] 964—ab
anaphylaxis from protein of milk,
[Wells & Osborne] 490
PROTEIN, evil effect of excess of,
on milk secretion, [Hartwell]
156
food proteins in breast milk,
[Shannon] 1599
high protein diet and renal irrita-
tion, [Squier & Newburgh] 488,
708—E
home grown rations supply suffi-
cient protein, [Hart & Hum-
phrey] 1765
hypersensitivity and its impor-
tance in etiology of disease,
[Longcope] *1535
in spinal fluid, quantitative esti-
mation of, [Ayer & Foster] *365
intoxication, [Pentimalli] 412
intoxication, experimental, [Penti-
malli] 654
liver and specific dynamic action
of, 942—E
nonspecific protein in horse serum
and soluble toxin, [Cowie &
Greenthal] 318
poor diet, [Rabe & Plaut] 1292
relative digestibility of various pro-
teins, [Waterman & Jones] 574
requirements for children, [Holt &
Fales] 312—ab
shock, alkali reserve of blood
plasma during, [Eggstein] 230
therapy, [Millo] 895, [Rolly] 978,
[Marin Amat] 1057, [Martinez]
1375, [Uddgren] 1380
therapy, destruction of leukocytes
following, 291—E
therapy for infants, [Epstein] 1058
therapy in ophthalmology, [De
Haan] 1934
therapy, intravenous, in arthritis,
[Snyder & Ramirez] 489, [Wag-
goner] 1049, [Cowie] 2000
therapy of hypopyon, [Almeida
Huerta] 327
therapy, percutaneous, [Funck]
1610
PROTEINURIA, Bence-Jones, chronic
nephritis with, [Walters] 1843
Bence-Jones', plasmocytoma asso-
ciated with, [Speares] 70
Bence-Jones, source of error in
testing for, [Miller & Sweet]
1283
postural, [Harrison] 1924
PROTISTA and disease, [Clarke]
1134
PROTOLAC, 1183
PROTOZOA, invisible phase of patho-
genic protozoa, [Kraus & others]
822, 1608
protozoan cysts, intestinal, resist-
ance of, to heat, 2065—E
PROTOZOOLOGY, medical, plea for,
205—E
PROVISIONAL Health Committee,
210
PRUSSIAN public health council,
new, 719
PSEUDARTHIROSIS, serum treatment
of, [Imbert] 73
PSEUDODIPHTHEROID bacilli,
[Hartmann] 895
PSEUDOHOMOPHILIA, [Opitz &
Frei] 239
PSEUDOHOMOPHRODITE, torsion
of testicle in, [Pignatti] 654
PSEUDOLEUKEMIA: See Hodgkin's
Disease
PSEUDOMYXOMA, peritoneal, [Mi-
chaelson] 242
PSEUDO-RUBELLA, [Westcott] 1365
PSEUDOSCIENCE, fad for, [de Tar-
nowsky] *859
PSEUDOSCLEROSIS without liver
disease, [Wimmer] 1612
PSEUDOTABES, treatment of, [Kou-
indjy] 1207
PSILOPSIS, study of tropical sprue
or, [Bovald] *753
PSORIASIS, treatment of, 1441,
[Sutton] 1918
PSYCHALGIA, [Harris] 2150
PSYCHANALYSIS, criticism of,
[Prince] 1998
waning of, [Mills] 1998
PSYCHIATRY clinics in univer-
sities, 390
use of drugs in neurology and,
[Campbell] *1228
PSYCHOLOGY, experimental, in
practice of medicine, [Jacobson]
*342
of every day life, [Dock] 142—C
of the present trend, 1185—E
PSYCHOSES: See also Insanity;
Neuroses
PSYCHOSES, puerperal, etiology of,
[Giménez Zapiola] 823
PSYCHOSES, acute, with valvular
disease, [Høst] 1457
after spinal anesthesia, [Blanchi]
2006
Cheyne-Stokes, [Wassermann] 978
PUBLIC HEALTH SERVICE, addi-
tional duties for, 1830
announcement on treatment of lep-
rosy, 2070
bill for reorganization of, 1830
examination for, 1265, 1981
exhibit at Cincinnati, 715
exhibits at pageant, 565
inaugurates nurses' training
school, 565
increase in scope of, 134
Institute in Washington postponed,
212
Institutes, 950, 1026—E
legislation to commission officers
in, 1349
men to Veterans' Bureau, 1114
neuropsychiatric hospital for, 1748
officers on duty in England, 631
opens new hospitals, 1904
proposed increase in, 2065—E
publication, circulation of, 50
reduction in personnel of, 872
reserve, American Legion adopts
resolution on, 1748
reserve officers organized, associa-
tion of, 1748
Surgeon-General defends, in case
of soldiers, 1265
takes over Navy hospital, 212
to open new hospitals, 2070
PUBLISHERS, rights of, with re-
spect to manuscripts offered
them for publication, 1433
PUERICULTURE, teaching [Mola]
2095
PUERPERAL INFECTION, [Gonzá-
lez] 1774
hysterectomy in, [Péry & Balard]
1451, 1586, [Potvin] 1770
protein therapy in, [Lévy-Solal]
1053
quinin as a prophylactic against,
390
turpentine treatment in, [Herm-
stein] 241
PUERPERIUM, mania in, fixation
abscess in treatment of, [Gomez-
Calvo] 76
reduction of mortality in puerperal
state, 1560—ab
PULMO OIL Compound emulsion
for the lungs, 141—P
PULMONARY Tuberculosis: See
Tuberculosis, Pulmonary
PULSE, alternating, [Lyons] 2087—
ab
alternating, respiratory false pulsus
alternans, [Aguilar] 1374
bigeminal, in atrioventricular
rhythm, [White] 885
irregularity, hitherto unempha-
sized form of, [Wiel] *749
pressure findings after ingestion
of alcohol, [Engelen] 1060
substandard, in children, [Schiff
& Bálint] 740
voluntary arrest of heart and,
[Gillies & Sear] 1135
wave, velocity of, [Weitz & Hart-
mann] 1141
PUNCTURE of lymph gland, new
method for demonstrating spiro-
chetes by, [Sutton] *1889
simple and inexpensive apparatus
for diagnostic or therapeutic
punctures, [Morris] *286
to obtain arterial blood, [Högler]
743
PURPURA, chronic, [Bonaba] 1055
hemorrhagic, [Mouzon] 1607
PUSTULAR condition, peculiar,
[Rush] 1921
PYELITIS, neo-arsphenamin in,
[Necker] 501
pyrexia in infants due to, [Olaran
Chans] 1055
treatment of, [Kretschmer] 2001
PYELOGRAPHY at the urologic
congress, 717
PYELONEPHRITIS, foci of infec-
tion in, [Bumpus & Meisser]
*1475
hemorrhagic, [Pizzetti] 1138
of pregnancy, [Achar] 579
unilateral, chronic, [Cavina] 1529
PYEMIA, puerperal, ligation of veins
with, [Birnbbaum] 1850
thrombophlebitic, ligations in,
[Martens] 1774
PYKNOLEPSY, [Stargardter] 825
PYLEPHLEBITIS, [Grønning] 1777
PYLOROSPASM in adults, [Flinney
& Friedenwald] 1682
pure, [Mohr] 500
PYLORUS, hypertrophy with perni-
cious anemia, [Mayeda] 1053
PYLORUS hypertrophy in infants,
[Fredet] 2152
pyloric sphincter, control of, 638
reaction of, to atropin, [Otvos] 77
stenosis a self-limited disease,
[Thomson] 2149
stenosis, hyperadrenalism cause of,
[Grey & Reynolds] 2150
stenosis, hypertrophic in new-born
infant, [Thorling] 1614
stenosis in infants, [Rohmer]
495, [Péhu & Pinel] 1450
stenosis, thick cereal in, [Sauer]
729
stenosis with intestinal obstruction,
[Glover] 2149
tuberculous granuloma obstructing,
[Lusena] 1927
PYONEPHROSIS in floating kidney,
[Molina] 1375
spina bifida with associated diver-
ticulum of bladder, (Urachus)
and pyonephrosis, [Smith] 1996
—ab
without symptoms, [Marogna]
1607
PYORRHEA alveolaris, secondary,
[Rosenthal] 1294
PYOSALPINX, hot sand baths in,
[Aschenbach] 826
PYRAMIDAL disease, Barre's leg
sign of, [Angela] 412
PYRETHRUM, [Plummer] 805
dermatitis, [McCord & others]
*448
PYREXIA: See Fever
PYROGENIC therapy, [Auld] 2092
PYURIA, so-called aseptic renal
pyuria, [Runeberg] 1852

Q

- QUACK**, (from shepherd to million-
aire) 955
QUACKERY investigation in the
Netherlands, an "untoward by-
effect, of, 1981
QUARANTINE, improving quaran-
tine service at Staten Island,
134
isolation not warranted by sus-
picion of disease, 1280—Ml
power to quarantine, but jail not
proper place, 1598—Ml
QUASSIA Compound Tablets, 141—P
QUINIDIN in auricular fibrillation,
[Frey] 77, [Boden & Neukirch]
413, [Drury & Iliescu] 1448,
[Lewis & others] 1449, [Arril-
laga & others] 1530, [Bock]
1610, [Cheinisse] 1688, [Ellis &
Kennedy] 1768, [Hewlett &
Sweeney] *1793, [Hamburger]
1797, [Oppenheimer & Mann]
*1800, 1822—E, [White &
others] 2089, [Van Tilburg] 2100
QUININ amaurosis, [Rathery &
Cambessédès] 892
as prophylactic against puerperal
infection, 390
in malaria: See under Malaria
test for exophthalmic goiter,
[Sainton & Schulmann] 1770

R

- RABBIT**, belladonna poisoning from
eating rabbit, [Bentley] 1768
RABIES: See Hydrophobia
RACE decadence of civilized nations
in light of biologic research,
1034
changes in facial types from
blending of races, [Lundborg]
1614
RACHICENTESIS, dangers of, in
Pott's disease, [Guillain &
Laroche] 324
modification of tendon and skin
reflexes by, [Guillain] 651
RACHITIS, Abderhalden reaction in,
[Corica] 1291
and adenoids, cause of, [Merrall]
1924
and experimental tetany, [Mysen-
bug & McCann] 970
and vitamin A, 383—E
calcium and phosphorus in,
[Howland & Kramer] 729, 865
—E
cod liver oil in, value of, [Park
& Howland] 1919
deformity due to pathogenesis of,
[Maass] 825
deformity of thorax due to,
[Brusa] 896
dwarf growth due to, [Gerstl] 327
experimental, [Hess & others] 575,
[Korenchevsky] 1524, [McCol-
lum & others] 1681

- RACHITIS**, fat soluble vitamin in, rôle of, [Iless] 313—ab
hyperphasia of parathyroids in, [Pappenheimer & Minor] 1766
metabolism in, [Findlay & others] 1051
phototherapy in, [Erlacher] 328
produced by diet, [Sherman & Pappenheimer] 732, [McCollum & others] 970
seasonal variation of, [Hess & Unger] 729
sunlight cure of, [Hess & Unger] *39
tardy, [Sauer] 239, [Henze] 1378
- RADICULITIS**, painful, [Villaverde] 1140
- RADIOGRAPHICAL** Society of North America, 1979
- RADIUM**, action of roentgen rays and, on normal and diseased lymphoid tissue, [Levin] *930
dangers of, 298, [Broca] 323, [Tuffier] 323
findings in uterus after radium exposures, [Tuffier] 323
found in the Congo, 386
hospital, 1431
in Brazil, 294
in gynecologic cases, [Jones] 1523
in precancerous conditions, [Da Costa] 2095
injurious combined effect of roentgen rays or radium and topical remedies, [MacKee & Andrews] *1489
mines in Austria, 1583
plastic applicator for buccal cavity, [Perthes & Jüngling] 979
puncture, [Schwartz & Richard] 495
shipment of, from United States, 1588
simple method to retain radium in cervix and uterus, [Furniss] *623
Therapy: See also under Cancer therapy, 1587
treatment, notation in, [Laborde] 1136
- RADIUS**, dislocation of lower, radio-ulnar articulation, [Neuberger] 824
fracture, Colles', [Power] 648
fracture, motor disturbance in wrist after, [Mocquot] 1136
- RAHTJEN**, Philip, and his discoveries, 1755—P
- RAISINS**, why eat raisins? 1256—E
- RALES**, classification of, [Guthrie] 1365
- RAT-BITE DISEASE**, [Stretti & Mantovani] 739
- RATS**, antirrat measures at Berlin, 1981
- RAWSON**, G., centennial of Argentine medical statesman and hygienist, 1140
tribute to, 718
- RAY'S TEST** for kala-azar, [Sai] 2093
- RAYS**, actinic, action of, [Kagawa] 820
- RAZI** (Rhazes), the great Persian physician, 1975—E
- REACTION**, focal, [Petersen] 66
time in arm and fingers, [Rolder] 80
Tuberculin: See Tuberculin Reaction
- RECKLINGHAUSEN'S DISEASE**, [Levin] 1129
botanical nature of neurofibromatosis, [Merk] 1294
- RECONSTRUCTION**: See under Soldiers
- RECTUM** affections observed in children, [Hanes] 1128—ab
atresia of anus and, congenital, [Vetri] 1291
cancer, [Lynch] *988, [Asman] 1127—ab, [Schwartz] 2152
cancer, perforation of small intestine in course of, [Renon & Blamoutier] 494
diverticula, diverticulitis and peridiverticulitis of, [Gant] *1415
foreign bodies in sigmoid and, [Linthicum] *941
foreign body in, unique case of, [Hartwig] *1654
inflammation, nonulcerative, hemorrhagic, [Bonorino] 1140
myoma, [Hunt] 969
prolapse in children, [Møller] 502
prolapse in children, treatment of, [Pienz] 330
removal, (sacral proctectomy), [McKay] 2003
- RECURRENT FEVER**: See Relapsing Fever
- RED CROSS**, American, and Society of Friends, charity work of, 954
medical supplies for Russia, 1666
war work of, 1349
- RED CROSS Tansy Pills**, 722—P
- REDUCING** substances in dead tissues, test for, [Geschwind] 1458
- REFLEXES**, abdominal, in diagnosis, [Söderbergh] 744
in early infancy, [Burr] 65
modification of tendon and skin reflexes by lumbar puncture, [Guillain] 651
muscular, [Ozorio] 897
oculocardiac, in epileptics, [Roubinovitch & Chavany] 323
pilomotor, [Thomas] 1772
plantar, inversion of, [Monrad-Krohn & Lossius] 2012
radius extensor reflex, [Pastine] 580
- REFRACTOMETRY** in syphilis, [Tokuda] 1281
- REGIATTERO** No. 1, 722—P
- RELAPSING FEVER**, [Pino-Pou] 1454
a record of personal heroism, 1659—E
hemorrhagic form of, [Cawadias] 892
in India, [Cragg] 735
- RENOL** Capsules, 958—P
- REPRODUCTIVE** life of women in India, [Curjel] 1134
- RESEARCH**, American Pharmaceutical Association grant for, 385
medical, [Mackenzie] 155
scientific, endowment in support of, 873
- RESPIRATION**, apparatus measuring depth of, in infants, [Pacchioni] 739
artificial, action on circulation and lung of apparatus for, [Bruns & Schmidt] 1932
Bretschneider's alternating hot and cold respiration procedure, [Koch] 1533
center, action of drugs on, [Ishiwari] 76, [Rohrer] 1373
effect of ether on, [Smith] 1999
in children, study of, [Eckstein & Rominger] 1609
mode of production of so-called vesicular murmur of, [Bushnell] *2104
research on, [Lundsgaard & Schierbeek] 1380
- RESPIRATORY TRACT**, bacteria in upper air passages, [Bloomfield] 1283
serial quantitative method of culture in study of, [Bloomfield] *187
efficiency, exercises for establishing, [Flack] 1524
efficiency in health and disease, [Flack] 1287
insufficiency in children, [Dumoutet] 1688
overlapping infections of, [Nobécourt] 652
pathologic anatomy of, in the gassed, [Menetrier & Coyon] 737
relationship of hemolytic streptococci in, [Valentine & Mishulow] 1999
removal of aspirated masses from air passages of new-born, [Klee] 1932
sounds, recording and reproduction of, 1426—E
variations of temperature and mucosa of air passages to correspond to thermic stimulation of certain areas of skin, [Azzì] 326
- REST** periods and physical efficiency, 562—E
- RESTAURANT** treatment in industrial accident cases, [Marshall] 1273—C
- RESTIFORM** body, nucleus in, [Hirose] 1446
- RESUSCITATION**, basis for intracardiac injections for, [Vogt] 741
by cardiac massage with partial success, [Blackburne] 1422
- RETINA** detachment, bilateral, globular, in renal retinitis, [Calhoun] *1240
detachment in nephritis, transient, [Weisfelt] 1295
detachment, roentgen-ray treatment of, 110—ab
vital stain for, [Knüsel & Vonwiller] 1212
- RETINITIS**, albuminuric, and hypercholesterinemia, [Gaudissart] 2005
bilateral globular detachment of retina in, [Calhoun] *1240
uremic, [Terrien] 1137
- RETRACTOR**, multiple blade, [Buka] *707
- RHAZES**, the great Persian physician, 1975—E
- RHEUMATISM**, acute, articular, and chorea, [Pfaundler] 1378
acute, articular, postchoreic, [da Silva] 1454
acute, articular, treatment of, [Lutembacher] 2005
aortic endocarditis in children due to, [Nobécourt & de Toni] 1373
chronic, [Wernicke] 2096
chronic rheumatic disease of joints, [Petrén] 744
deforming, syphilitic origin of, [Dufour & Ravina] 1526
Delano's cure, 1838
jaw-neck syndrome in rheumatic diseases, [Herbert] 2150
spinal, [Del Valle] 2153
tuberculous, articular, case of, [Michels] 79
- RHINOLOGY**, borderland of neurology, ophthalmology and, [Sluder] *688
- RHINOPLASTY**: See Nose, Plastic Surgery
- RHODE ISLAND** state board April examination, 2144
state board January examination, 305
- RHUBARB** leaves, poisoning by, 135
- RHUS** poisoning, toxin treatment of dermatitis venenata, [Strickler] *910
- RIBS**, anomalies in, [Klapp] 1774
cyst of rib causes lower arm paralysis, [Meyer] 2002
fracture, [Wen Horn] 1295
pressure causing brachial plexus paralysis, [Bramwell & Dykes] 817
rudimentary, and brachial plexus lesions, [Sargent] 1133
- RICKETTSIA-LIKE BODIES** in typhus fever, cultivation of, [Loewe & others] *1967
- RINGWORM** of nails, [Hodges] 315
of scalp, treatment by roentgen rays, [Fox & Anderson] *1302
- ROBINSON**, Edward Percy, 1675
- ROCKEFELLER FOUNDATION** and American Commission for Relief in Belgium, 137
gifts for Harvard's School of Public Health, 714
in France, activities of, 1350
in London, 298
representatives, dinner in honor of, 209
- RODRÍQUEZ**, Pedro González, distinguishes himself, 950
- ROENTGEN RAYS**, action of radium and, on normal and diseased lymphoid tissue, [Levin] *930
American Roentgen-Ray Society appoints committee of safety, 385
apparatus, new, 388
control of laparotomies, [Drüner] 1215
damages because physician did not use roentgen ray in treating fracture of femur, 2072, 2131
dermatitis, curietherapy of, [Bergonie] 409
exposures, coagulation after roentgen exposures of spleen and liver, [Hütten] 979
exposures, incisions after, [Arnould] 974
exposures of spleen from gynecologic and obstetric standpoint, [Vogt] 1690
in diagnosis, [Pozzo] 1375
influence of, on brain, [Brunner] 2008
injurious combined effect of roentgen rays or radium, and topical remedies, [MacKee & Andrews] *1489
Institute of the Dresden Gynecologic Clinic, 295
skin tolerance to, [Auer & Witherbee] 153
victim, memorial to A. Leray, 715
workers, protection of, 51, 387
- ROENTGENOGRAMS**, as evidence, 1761—M
of kidney, ureter and suprarenal gland after induced emphysema in perirenal adipose tissues, 1108—E
ownership of, 1121, 1358
- ROENTGENOLOGISTS** in hospitals, 1433
- ROENTGENOLOGY** and urology, 2134
- ROENTGENOTHERAPY**: See also under Cancer
- ROENTGEN THERAPY**, deep, [Vaquez & others] 894, [Espinola] 1531, [Béclère] 1926
deep, in internal medicine, [Böge] 1691
hemoclastic crisis during, [Giraud] & others] 1688
in polycythemia, [Böthner] 978
postoperative irradiation, [Jüngling] 1774
sensitization in, [Palugyay] 1142
- ROTUNDA HOSPITAL**, report of, [English & Davidson] 493
- ROUMANIA**, medical organization in, 1352
- RUBEOLA**: See Measles
- RUBIN** test simplified, [Furniss] 1922
- RUMINATION** in infants, [Pastore] 1452
- RUSSIA**, aid to, 952
appeal for scientific literature for, 1980
bill to give surplus medical supplies to, 1979
cry from Russia for help, 1035
legislation introduced for relief of, 714
Red Cross medical supplies for, 1666

S

- SACCHARIN**, use of, in infant feeding, 1990
- SACHS-GEORGI** and Wassermann tests, comparison of, [Taniguchi & Yoshinore] 972, [D'Aunoy] 1766
test for syphilis, [Parker & Haigh] 315
- SACROCOXALGIA**, [Delbet] 1848
- SACRO-ILIAC** joint arthrodesis, [Gaenslen] 404, [Smith-Petersen] 970
- SAL HEPATICA**, 1438—P
- SALARIES**, increase of, of professors and assistants in Vienna, 876
- SALICYLATES**, chemical and clinical studies with salicylates, and cinchopen and neocinchopen in arthritis, [Chace & others] *1230
is free salicylic acid liberated from salicylate in the circulation, 2064—E
liberation of free salicylic acid from, [Hanzlik] 153
- SALIGENIN**, a new nontoxic local anesthetic, [Hirschfelder] 154
- SALIVARY GLANDS**, calculus in, 304
in encephalitis, [Netter & others] 72
tumors, [Keunon] 648
- SALPINGECTOMY**, disposition of uterus following salpingectomy when it is desirable to preserve menstruation, [Culbertson] 314—ab
fundectomy after, to preserve menstrual function, [Culbertson] 1997
- SALPINGITIS** a disease common to both sexes, 487—M
significance of vaginal secretion in differential diagnosis of acute appendicitis and, [Wolfring] 1777
- SALT** free diet for hypertension, [Konikow & Smith] 1129
gastric juice and health, 2125—E
solution, injection of, in intracranial tension, [Foley] 733
subcutaneous injection of, in infants, [Stoltenberg] 1377
- SALTS**, behavior of salts with gelatin, [Scala] 1927
- SALT-SULPHUR WATER**, 1513—P
- SALVARSAN**: See Arspheamin
- SAN METHYL**, 304—P
- SANATORIUM**, Garden City, 210
proposed international sanatorium for tuberculous professors and students, 133
- SAND** spurs, endoscopic removal of, from larynx and tracheobronchial tree, [Taylor] *683
- SANTAL BOWNE**, 219—P
- SAPROPHYTES**, acid-fast saprophytes resembling tubercle bacilli, [Lange] 161
- SARCOID** and syphilis, [Stillians] *1615
multiple benign, [Finnerud] 1129
- SARCOMA**, and Hodgkin's disease, [Mueller] 1766

- SARCOMA**, blastomycetoid bodies in sarcoma-like tumor of leg, [Weidman & Douglas] 150
bone, [Greenough & others] 1920
bone, roentgen-ray therapy of, [Morrison] 1763
from injury of eye, [Møller] 1613
in nasal fossa, [Bilancioni] 412
in scar tissue, [Nassetti] 412
medullary, 3 cases of, [Duncan] 491
melanosarcoma of conjunctiva, [Oyenard] 326
of appendix, primary, [Goldstein] 730
of choroid, [Arganaraz] 326
of kidney in infant, [Variot & Calliaud] 578
of lung, [Pritchard] 1763
of mamma, [Norden] 980
of upper lip, primary, [Sweitzer & Michelson] *1563
of vertebrae, primary, [Kesmodel] 1763
tar, [Yamaguchi & others] 823
SATO, memorial to, 1030
SAVATAN, 303—P
SCABIES in infants, [Lemaire] 495
SCALP, ringworm of, treatment by roentgen rays, [Fox & Anderson] *1302
suppurating and cicatrizing disease of, [Wise & Parkhurst] 1998
SCANDINAVIAN physicians, meeting of, 720
SCAPHOID BONE, Kohler's disease of, [Sonntag] 655
fracture of carpal scaphoid, [Todd] 648
SCAPULAR, cracking sound in scapular region, [Jastram] 1531
fracture of neck of, [Cotton & Brickly] 1130
SCAR: See Cicatrix
SCARLET FEVER and tonsils, [Bulowa] 401
arthritis in, [Van Amstel] 825
differential diagnosis of, [Reymond] 1054
epidemic of, 1830
etiology of, [Pryer] 645
experimental inoculations in, [Dick & Dick] *782, [Takahashi] 1371
nephritis following, fatal, [Pepper & Lucke] 150
prophylactic inoculation against, [Takahashi] 406
relapse and recurrence of, [Hutinet & Nadal] 1136
serotherapy of, [Bode] 237
skin blanching by injection of scarlet fever serum, [Mulsow] 1919
spread of hemolytic streptococci in, [Tunncliffe] 317
tonsillectomy as prophylactic against, [Gregory] 1445
treatment with immune human serum, [Weaver] *1420
unusual occurrence of recurrent measles during convalescence and in course of attack of, [Carralreira] *377
SCHAUDINN, fiftieth anniversary of birth of, 950
SCHICK TEST: See also under Diphtheria
SCHICK TEST in measles, [Lereboullet & others] 1526
SCHISTOSOMES in urine, [Cawston] 1371
SCHISTOSOMIASIS, intestinal cancer in relation to, [Kazama] 1778
SCHIZOPHRENIA, [Minowski] 495
treatment of, [Repond] 821
SCHMIDEBERG, Oswald, death of, 720
SCHOLARSHIPS, in medical schools, 537
SCHOOL districts cannot maintain clinics, 398—M1
lunches, [Gautier] 1451
medical, choice of, 540
medical, Homeric description of first medical school, 809
medical, plan for new medical school in Chile, 796
medical, requirements for admission to, 561—E
medical inspection, [Costa] 1138, 1351, 1353, 1906
medical inspectors of, chief, in Berlin, 217
new, of medicine, 801
of Medicine of Montpellier, seventh centenary of, 1905
prophylaxis in, 1906
refusal of examination on account of, 1916—M1
SCHOOL, teaching prevention of disease in, [Williams] 1922
temporary closing of, in an epidemic, 1906
SCIATICA, differential diagnosis of coxitis and, [Schlesinger] 1294
epidural injections in, [Ott] 2091
treatment of, [Ott] 399—ab
SCIENCE, comparison of Greek and modern scientific methods, 1024—E
SCIENTIFIC AMERICAN to become monthly periodical, 1029
SCLERA, blue sclerotics with fragile bones, [Blegvad & Haxthausen] 1934
wounds (including rupture) near limbus, repair of, [Francis] *1099
SCLERODERMA and organotherapy, [Lereboullet] 1052
sclerodermic dystrophy, [Curschmann] 2097
SCLEROMA, primary, of larynx, [Watkins] 319
SCLEROSIS, amyotrophic, lateral, incipient, [Achar] 653
disseminated, cause of, [Gye] 1133
disseminated, etiology of, [Magnus] 2012
disseminated, pathogenesis of, [Birley & Dudgeon] 1133
marrow, hematopoietic splenomegaly with, [Wade] 1844
multiple, glaucoma as manifestations of, [Wernicke] 1057
multiple, left by encephalomyelitis, [De Tomas] 1055
of brain, abortive, [Shimoda] 823
of lung in children, [Duhem] 2004
of spinal cord and anemia, [Cadwalader] 816
posterolateral, in anemia, [Wilson & McIver] 2092
SCOLIOSIS, habitual, [Decref] 977
treatment, [Decref] 497
SCORBUTUS: See Scurvy
SCOTOMA, apparatus to test for scotoma and color blindness, [Holth] 2012
SCROFULA, modern conception of, [Marfan] 409
scrofulous eye disease, [Steiner] 2006
SCURVY, blood picture in, [Bedson] 1924
effect of heating antiscorbutic vitamin, [Smith & Medes] 1765
experimental, [Findlay] 1605
in breast fed infants, [Tupas] 69
in infants, [Comby] 2004
prescurvy, [Godlewski] 1137
prevention of, [Macklin & Husey] 890
prevention of, lemon juice tablets in, [Bassett-Smith] 890
SECRECY, professional, 388, 632
professional, again in the courts, 298
professional, and the courts, [Pereau] 738
SECRETIN in anemia, [Downs & Eddy] 2147
SECRECTIONS, INTERNAL, and functional syphilis, [Merklen] 893
and nervous system, [Löffler] 821
classification of birth paralyses as endocrines, [Clarke] 2087—ab
endocrinology and pseudo-endocrinology, 1499—E
insufficiency of, [Frisch] 1376
of skin, [Doegge] 1133
some current trends in endocrinology, [Hoskins] *1459
SEIERT'S aorta clamp and its use in postpartum hemorrhage, [Becker] 1059
SELENI-BASCCA, 1672—P
SELLA TURCICA, Fröhlich's syndrome caused by injury to, [Hendry] 1449
SEMI-LUNAR BONE, dislocation of, [Sonntag] 1932
SEPTICEMIA arrested by vaccine, [Merklen & others] 578
morphin, in, [Kraft & Leitch] 153
Puerperal: See Puerperal Infection
subacute venous, [Spangenberg] 1530
SERBIAN commission visits American medical institutions, 1451
physicians, commission of, 1191
SERGEANT'S White Line: See under Vagotonia
SERODIAGNOSIS: See also under names of various diseases
SERODIAGNOSIS, rate of fixation of complement in, [Kahn] 1130
SEROSITIS, multiple, [Orr-Ewing] 1845
SEROTHERAPY: See also under names of various diseases as, Pneumonia, serotherapy of, 1749
SEROTHERAPY and vaccino-therapy in affections of bones and joints, 1749
integral autoserotherapy, [Escomel] 1930
leukolytic, [Lindstrom] 71
SERUM, cytotoxic, [Marcora] 1529
foreign, prevention of untoward manifestations following injection of, [Kraus & others] 2153
nonspecific protein in horse serum and soluble toxin, [Cowie & Greenhal] 318
shock, slight, [Bouché & Hustin] 1689
sickness, tardy, [Lafforgue] 72
SERUMAL calculus, 304
SEWAGE disposal, soil pollution a public health problem of today, [Bishop] 1996—ab
SEX, determination of, influence of war on, 1751
education in educational institutions, 612—ab
form in relation to, 1117
gonads and development of, [Halban] 413
hygiene, establishment of a professional chair for, 1035
international conference on sexual science, 474, 1268
mechanism of inheritance of, [Péterfi] 581
predetermination-of-sex expert, 1981
sexual differentiation in regard to head shape and pigmentation, 1266
SHANGHAI Medical Society, 565
SHEPPARD-TOWNER BILL, [Kindred] 723—C
amendment to, introduced, 210
committee to push, 1504
congresswoman denounces, 474
further opposition to, 631
House debate on, 1913—ME
in the House, 1427—E
passes, 1737—E
passes Senate, 386
status of, 1666
to be voted on soon, 132
SHOCK, alkali reserve of blood plasma during protein shock, [Eggestein] 230
capillary pressure and circulation in, [Hill & McQueen] 493
traumatic, [Guyot & Jeanneney] 1288
traumatic, diagnosis of, [Guyot & Jeanneney] 73
treatment based on gynecology, [Bouché & Hustin] 1052
SHORT STOP Injection and Short Stop Capsules, 219—P
SHOULDER, dislocation of, operation for, [Henderson] 319
dislocation, recurring, [Sandes] 1050
dropped, as early sign of tuberculosis, [Delmege] 1769
SIAM, some public health problems of the Far East, [Mendelson] 1361—ME
SIGMOID, cystoscopy with tumors in sigmoid flexure, [Michon] 652
diverticulitis and cancer of, [Mayo] 1922
foreign bodies in rectum and, [Linthicum] *941
SILOS, danger in filling, 711—E
SILVER Citrate—PWR., 1423
foil to prevent abdominal adhesions, [Puls] 734
Lactate—PWR., 1423
nitrate solution, blindness following prophylactic use of, 802
stains, removal of, 395, 724
SILVERSTONE'S Internal Remedy, 482—P
SINGULTUS: See Hiccup
SINUS cavernosus, symptoms from pressure on, [Ledoux] 408
frontal, causes of failure in radical operations on, [Harris] *1147
frontal, inflammation of, with orbital abscess, [Suñé] 1374
longitudinal, puncture of, [Krasemann] 978
superior longitudinal, venipuncture of, in new-born, results of 231 cases, [Gordon] *1721
SIPPY method of treating peptic ulcer, [Shattuck] *1311
SKELETON, nervous and vascular symptoms from anomalies of, [Schlissl] 739
SKIN and sweat glands in fetus and new-born, [Becker] 1143
arteriosclerosis of vessels of, [Watanabe] 1212
calcification in infant, [Morse] 1444
cancer, radium treatment of, [Miescher & Guggenheim] 1373
cancer, therapeutic aspect of irradiation in superficial malignancy, [Soiland] *1560
diseases, crude coal tar in, [White] 1998
diseases, medical photography in, [Fox] 315
diseases, occupational, 38—ab
diseases, pathogenesis of itching skin diseases, [Pulay] 2008
grafts, Braun's, [de Sauson] 977
idiopathic hemorrhages in, [Meyer & Nassau] 239
internal secretion of, [Dodge] 1133
rashes in exophthalmic goiter, [Gundrum] 886
synovial lesions of, [MacKee & Andrews] 730
tests, influence of arsenic preparations on, [Strickler] 731
tuberculosis, [Wise & Satenstein] 1918
tuberculosis, association of skin and visceral tuberculosis, [Lanchashire] 1524
variations of temperature and mucosa of air passages to correspond to thermic stimulation of certain areas of, [Azzì] 326
SKULL: See Cranium
SLEEP, blood pressure during, [Müller] 2100
delusion of, [Janet] 1841
SLEEPING SICKNESS: See Trypanosomiasis
SLIDE holder, adjustable multiple cover glass and, [Wagoner] *1423
staining rack, [Robinson] *707
SMALLPOX, 1435
and vaccination in recent months, 1823—E
diagnosis of, [Hoffmann] 1920
differential diagnosis of variola, [Romanelli] 895
in Chile, 1750
in Glasgow, 1171—ab
initial exanthem in, [Tsurumi & Isono] 490
outbreak of, 1032
revaccination against, [Ilvento] 496
vaccination during epidemic of, [Pollaci] 1054
vaccination in Paris, statistics on, 1115
vaccination, subcutaneous, [Fearnside] 735
SMOKING in pulmonary tuberculosis, [Duncan] *526
versus chewing, [Baumberger & others] 59—C
SNAKE venoms, adsorption of, by charcoal, [de Houssay] 1608
SNOWBLINDNESS, [Ormond] 1332
SOAPS in the bowel, [Goffon & others] 1847
SOCIAL hygiene in liberated regions, 389
hygiene in Poland, 950
service for chronic invalids, 1237—ab
service, relation between the child and hospital social service, [Chapin] *279
SOCIETIES, foundation of 2 medical societies in Brazil, 715
medical, and School of Medicine of Madrid, 874
of Friends and American Red Cross, charity work of, 954
SODIUM bicarbonate, postoperative tetany due to, [Healy] 967
chlorid for headaches, method for administration of, [Hughson] *1859
fluorid, checking of growth by, [Goldenberg] 1930
linate and sodium morrhuate in tuberculosis, value of, [Davies] 1286
morrhuate and chaulmoogra oil in tuberculosis, [Rogers] 972
morrhuate and sodium linate in tuberculosis, value of, [Davies] 1286
salicylate, [Cassade & Charpy] 410
SOIL pollution, a public health problem of today, [Bishop] 1996—ab
SOL SANAT, 1113

- SOLDIERS**, additions to soldiers' homes, 134
disabled, medical fees for care of, 800
ex-soldiers in lunatic asylums, 1982
hearings on care of veterans, 134
legislation for additional hospitals for veterans, 1432
medical associations to advise on care of disabled ex-soldiers, 385
nervous symptoms in ex-soldiers, [Brown] *113
rehabilitation of wounded, [Dijon-neau & others] 323
sanatorium for grave nervous diseases in ex-soldiers, 871
Secretary Weeks presents opinion on disabled emergency officers, 1114
Senate committee makes recommendations on care of disabled, 949
Surgeon-General defends Public Health Service in care of, 1265
treatment for soldiers with head injuries, 1667
tuberculous, increase of pension for, 477
tuberculous, sanatorium care of, by federal government, [Palmer & Hoagland] *506
"war" neuroses, and allied conditions in ex-service men, as observed in Public Health Service hospitals for psychoneurotics, [Benton] *360
- SOUTH CAROLINA** state board June examination, 1839
- SOUTH DAKOTA** state board January examination, 1359
- SOUTHERN Medical Association**, meeting of, 1582, 1829
- Society of Anesthetists**, a new medical society, 1431
- SPAIN**, reciprocity between Germany and Spain advocated, 796
- SPANISH NO-KINK**, 303—P
- SPASMOPHILIA**, calcium concentration in, [Van Paassen] 1778
manifestations of spasmophilic diathesis in older children, [Scherer] 966—ab
- SPASMS**, arsenicals in spastic conditions, [Pourru] 1773
physiochemical elements in spasmodic phenomena, [Leroy] 1688
- SPECIALIST**, medical treatment by, by means of an annual payment, 1266
one may be an expert without being a specialist, 224—M
training of, [Demaria] 1140, [Cetrangolo] 1375, 1434
- SPECIMENS**, crimped paper cups for embedding, [Woody] *1255
preparation of microscopic specimens, [Heringa] 1216
- SPEECH**, delayed speech development in children, 639
disorders, medical significance of, [Blanton] *373
disorders, National Hospital for, [Greene] *1726, [Kolb] 2082—C
evolution of, [Naunyn] 1141
- SPERMATOZOA**, have spermatozoa functions or effects other than fertilization? 42—E
- SPIRINOID BONE**, tuberculosis of, [Kurzak] 1059
- SPINA BIFIDA**, familial, [Pybus] 1287
occulta and retention, [Chute] 402
operative treatment of incontinence from, [Lichtenberg] 743
with associated diverticulum of bladder (urachus) and pyonephrosis, [Smith] 1996—ab
- SPINACH**, canned, botulism from, [Koser & others] *1250, [Wells] 1601
- SPINAL CORD**, complete severance of cervical cord, [Hightower] *623
compression of, [Paulian] 494
effect of cold on spinal nerve cells, [DaFano] 490
recovery following trauma of, [Cobb & Coleman] 316
sclerosis of, and anemia, [Cadwalader] 816
section of cord in cord lesions, [Leighton] 1285
transection, early reactions in spinal cats, [Prewitt] 1131
tuberculoma of, [Waring] 2090
tumor, [Gill] 1686
tumor, intraspinal injection of air in diagnosis of, [Widerøe] 826
tumors, present status of treatment, [Wallgren] 658
- SPINAL PUNCTURES**: See Rachi-centesis
- SPINE**, actinomycosis of, [Rising] 658
ankylosing operations of, results of, [Brackett & others] 1521
cervical, malformations of, [Feil] 653
deformity as cause of heart disease, [Finley] 1764
fracture of vertebrae from contusion, [Müller] 1058
primary sarcoma of vertebrae, [Kesmodel] 1763
tuberculosis, [Valtanoli] 74
tuberculosis, bone grafting in, [Gutiérrez] 1057
tuberculosis, dangers of lumbar puncture in, [Guillain & Laroche] 324
tuberculosis, streptothricosis simulating, [Silhöl] 818
tuberculosis, treatment of, [Cole] 964—ab, [Scherb] 1290, [Vorschütz] 1932
typhoid, [Bureau & Marchand] 407
- SPIROCHAETA PALLIDA**, defensive reactions of animals infected with, [Brown & Pearce] *1619
new method of demonstrating by lymph gland puncture, [Sutton] *1889
note on venereal spirochetosis of rabbits, new technic for staining treponema pallidum, [Noguchi] *2052
viability of, [Lacy & Haythorn] 968
- SPIROCHETES**, cultivation of, [Twort] 1525
nature of, [Mesnil] 1527
new method for demonstrating spirochetes by lymph gland puncture, [Sutton] *1889
- SPIROCHETOSIS**, bronchial, [Castellani] 1774
Icterohemorrhagic: See under Jaundice
venereal, of rabbits, new technic for staining treponema pallidum, [Noguchi] *2052
- SPIROCIDES** and inhalation method of treating syphilis, [Cole] 394—C
- SPLANCHNOPTOSIS**, [Schisler & Brown] 1843, [Harris & Chapman] 2086—ab
as cause of "stomach trouble," [Reid] 151
diagnosis and treatment of nervous disturbances from, [Parlavachio] 159, 1928
normal incidence, preliminary report, [Bryant] *1400
- SPLEEN**, alleged functions of, 1577—E
as index of tuberculous involvement, [Rensch & Moore] 1367
coagulation after roentgen exposures of liver and, [Kurtzahn] 239, [Hütten] 979
cyst, [Bevers] 1288
cyst in internal leishmaniasis, [Mallardi] 1928
cysts, surgery of, [Fowler] 573
fatal hemorrhage following puncture of, [Wohlgemuth] 240
in digestion, [Inlow] 1365
internal secretions of, [Eddy] 813
radiotherapy in polycythemia with enlargement of, [Rydgard] 582
roentgen-ray exposures of, from gynecologic and obstetric standpoints, [Vogt] 1690
rupture, spontaneous rupture of malarial spleen, [Leighton] 573
ruptures, spontaneous and subcutaneous, [Connors] 573
surgery of, [Martelli] 1291
- SPLENCULUS**, enlargement of, following splenectomy, [Eccles & Freer] 1449
- SPLENECTOMY**, bacteria in bile following, 1823—E
enlargement of spleniculus following splenectomy, [Eccles & Freer] 1449
in splenic anemia and Banti's disease, [Mayo] *34, [Sweetser] 1523
- SPLENOMEGALY**, hematopoietic, with marrow sclerosis, [Wade] 1844
telangiectatic, [Symmers] *2019
tuberculous, primary, [Bufalini] 75
- SPONDYLITIS** and spondylosis, [Modinos] 234, [Schröder] 1060
technic for fixation of spine in, [Pólya] 658
- SPONDYLOLISTHESIS**, traumatic, 2 cases of, [Kleinberg] 316
- SPONDYLOSIS** and spondylitis, [Modinos] 234, [Schröder] 1060
rhizomelic, [Banchieri] 75
- SPOROTHRIX**, bronchial asthma caused by, [Stansfield] 2089
- SPOROTRICHOSIS**, [Tennant & Dennis] 886
- SPRUE**, absence of pancreatic secretions in, [Brown] 643
and monilia psilosis, 1657—E
study of tropical sprue, or psilosis, [Bovaird] *753
- SPUTUM**, examination of, [Philibert] 234
tubercle bacilli in, prognostic value of, [Bardswell] 2093
tuberculous, bacteriology of, [Bazancon & Biros] 494
- STAIN**, Albert's, for diphtheria bacillus, 1838
for bacterial flagellae, [Paine] 649
Gram, in diagnosis of chronic gonorrhea, [Burke] *1020
Gram, made with formaldehyd solution, 1122
Gram, modification of, [Hucker] 645
Konrich, for tubercle bacilli, [De Mestral] 1452
new slide staining rack, [Robinson] *707
vital staining after injection of cytotoxic serum, [Ogata] 76
vital, for human cornea and retina, [Knüsel & Vonwiller] 1212
- STAPHYLOCOCCI**, no indol production by, [Bayne-Jones & Zinner] 1283
- STAPHYLOMA**, description of operation for, [Tenner] *1724
- STATUS THYMICOLYMPHATICUS**, [Sternberg] 581
sudden death in, [Ryser] 411
- STEINACH Operation**: See under Testicle
- STERILITY**, defective diet as a cause of, [Reynolds & Macomber] *169, 314—ab
in women, causes and treatment of, [Winter] 977, 1057
induction of temporary infertility by injection of semen in blood stream, 479
transuterine insufflation as diagnostic aid in, [Rongy] 1204—ab
- STERILIZATION**: See also Disinfection
STERILIZATION of puncture needles, [Lévy] 1528
sexual, temporary, [Van de Velde] 582
- STERLING Injection**, 1513—P
- STERNUM**, hypernephroma of, [MacLeod & Jacobs] 2091
- STETHOSCOPE**, soft rubber tip for bell type of, [Odén] *623
suggestion regarding, [Prentiss] *1182
- STIENON, LEON**, demonstration in honor of, 137
- STILLBIRTHS**, compulsory notification of, 53
definition of term, 1107—ab
prevention of, [Browne] 735
- STOMACH**, action of atropin on, [Hecht] 656
analysis, the gastric equilibrium zone, [Fowler & others] *2118
benign disease of, operative treatment of, [Schüller] 823
cancer, [Mau] 1214
cancer and anemia, [Loeper & others] 579
cancer and ulcer not shown by roentgen ray, [Carman] 1046
cancer developing on gastric ulcer, [Mayo] *177
cancer, diagnostic significance of leukocyte blood count for, [Weinberg] 1141
cancer, gastrectomy for, [Olivier] 1137
cancer in elderly, [Van Lier] 2011
cancer, inflation in diagnosis of, [Faltin] 1380
cancer, recurring cardiospasm with, [Loeper & Forestier] 1846
cancer, relations between ovarian and gastric cancers, [Frankenthal] 2097
cancer, ulcerating, new roentgen-ray sign of, [Carman] *990
contents, significance of absence of hydrochloric acid in, [Wilkinson] 1210
critique of gastric analysis, 202—E
dentated outline of greater curvature of, [Barsony] 500
- STOMACH**, digestive symptomatology, interpretation of, relative to change in symptoms and extrinsic factors, [Gaither] *1407
dilatation, acute, postoperative, [Novak] *81
disease, rationale of digestive therapy, [Gaither] 1996—ab
disturbance of gastric secretion of hydrochloric acid in affections of gallbladder, [Behm] 1610
duration of stay of food in infant stomach, [Krüger] 1376
effect of pituitary extract on, [Galan] 326
fork in, [Carossini] 1054
fractional method of gastric analysis, [Lyon & others] 1048
gallbladder-stomach crises, [Enriquez & others] 820
hair ball in, [Davies] 1525
hemorrhage, surgical treatment of, [Finsterer] 1777
hour-glass, [Ramond & others] 325, [Ewart] 648
hour-glass, gastrogastrostomy for, [Rose] 1842
hour-glass, of ulcer origin, [Alivisatos] 1847
in cholelithiasis, [Rohde] 238
inflammation of, nerve division in, [Braun] 1216
interpretation of digestive symptomatology relative to change in symptoms and extrinsic factors, [Gaither] *1407
leather bottle, retrogression of, [Enriquez & Gaston-Durand] 650
motor function of, tests of, [Alv-Nielsen] 416
motor functioning of, after contrast meal, [Wissing] 1778
secretion, [Takata] 1612
secretion and water, 129—E
secretion, influence of mastication on, [v. Friedrich] 1931
secretion of pyloric region of, 1257—E
secretion, reciprocal relations between composition of blood and gastric juice, [Leist] 742
secretion, salt, gastric juice and health, 1215—E
sensitiveness of, to temperature, [Glanter] 1142
spasm of, [Ramond & others] 1136
spread to medulla of toxins in, [Debray & Forestier] 1528
surgery, [Schwarz] 399
surgery, resection by Billroth II and its results, [Suermondt] 238
surgery, diagnostic and therapeutic aspects of late sequelae of gastric surgery, observations based on 6,400 operations for chronic gastric and duodenal ulcers, [Eusterman] *1246
surgery, further extension of principle of Billroth I method in resection of, [Haber] 582
surgery, regional anesthesia for, [Carulla] 897
symptoms, analysis of 1,000 cases, [Blackford] *1410
syphilis of, [Rinker] 889, [Sparman] 898
syphilitic ulceration of, [Brams] 498
syphiloma of, [Florand & Girault] 1847
tube, use of, before operations for perforating ulcer, [Roedelius] 657
ulcer, ameba in relation to, [Birt] 1142
ulcer and aerophagia, [Full & v. Friedrich] 1851
ulcer and cancer, elimination of water as test for, [Gundermann & Düttmann] 899
ulcer and cancer of duodenum and, [Crile] 1049
ulcer and cancer of stomach and duodenum, [Crile] 1049
ulcer, bismuth in, [Rabinovici] 1772
ulcer, carcinoma developing on, [Mayo] *177
ulcer, cure of, following perforation, [Meyer] 1445
ulcer, diagnostic and therapeutic aspects of late sequelae of gastric surgery, observations based on 6,500 operations for chronic gastric and duodenal ulcers, [Eusterman] *1246
ulcer, differential diagnosis of duodenal ulcer, [Parturier & Vasselie] 2005
ulcer, emergency gastroenterostomy for perforated ulcer, [Basset & Uhlrich] 973
ulcer, end results of surgical treatment of, [De Quervain] 579

- STOMACH** ulcer, duodenal contents in peptic ulcer, [Einhorn] *1471
ulcer, gastrojejunal and jejunal ulcers, report of 21 cases, [Lewinson] *442
ulcer, hyperchlorhydria and peptic ulcer, [González Campo] 824
ulcer in body of, operative treatment of, [Gross] 824
ulcer, indications and contraindications for operative treatment, [Le Noir & others] 894
ulcer, liver and kidney disease secondary to, [Le Noir & others] 233
ulcer, nervous origin of, [Jatrou] 743
ulcer, new roentgen-ray sign of ulcerating gastric cancer, [Carman] *990
ulcer, occult bleeding in diagnosis of, [Lutz] 581
ulcer of duodenum and, [Koehler] 160, [Schmidt] 1776
ulcer of duodenum and cholelithiasis, relations between, [Kelling] 824
ulcer of duodenum and hyperchlorhydria, [Schlesinger] 1378
ulcer of duodenum, false, [Singer] 1931
ulcer of duodenum in children, [Alsberg] 498
ulcer, peptic, [Denk] 1214, [Müller] 1292
ulcer, perforated, [Sträuli] 74
ulcer, perforated, roentgen diagnosis of, [Bager] 1457
ulcer, perforation without previous pain, [Muller and Ravdin] 969
ulcer, postoperative peptic ulcer, [Mandl] 655, [Meunier] 738, [Haberer] 823
ulcer, prevention and operative treatment of jejunal peptic ulcer, [Baum] 163
ulcer, relation of surgical technic to gastrojejunal ulcer, [Roeder] 1841
ulcer, resection of pylorus for, [Doege] 316
ulcer, ruptured, [Souther] 1049
ulcer, signs of impending perforation of, [Ryser] 1927
ulcer simulating crises of tabes, [Klippel & Weil] 973
ulcer, study of early effects of Sippy method of treating peptic ulcer, [Shattuck] *1311
ulcer, subphrenic pneumothorax resulting from perforated ulcer, [Schottmüller] 1293
ulcer, surgery of, [Frank] 971, [Zoepffel] 1058, [Brütt] 1455
ulcer, tenderness on tapping with, [Bakowski] 824
ulcer, use of stomach tube before operations for perforating ulcer, [Roedelius] 657
ulcer with tabes dorsalis, [Crohn] *2023
ulcer with uncontrollable vomiting, [Le Noir & others] 1846
volvulus of, [Siegel] 80
STOMATITIS, aphthous vaccine against, [Thomas] 1851
arsphenamin stomatitis and aplastic anemia, [Moore & Keidel] 731
ulcerosa cachectica as complication in bacillary dysentery [Kundratitz] 2009
STOOL: See **FECES**
STRABISMUS, when shall we operate? [Green & Green] *1003
STREPTOCOCCUS epidemic, 214
hemolytic, in normal throats, [Davis] 1919
hemolytic, in respiratory tract, relationship of, [Valentine & Mishulow] 1999
hemolytic, of adenoids, [Pilot & Pearlman] 317
hemolytic, special culture medium for, [Havens & Taylor] 228
lesions in rabbit, [Topley & Weir] 649
pneumococci, and influenza bacilli in nasopharynx, [Meyer & others] 317
pneumococci and nonhemolytic streptococci of adenoids and tonsils, [Pilot & Pearlman] 317
virulence of, in tonsils, [Gottlieb] 1602
STREPTOTHRICOSIS of joints, [Bolognesi] 739
of lung, [Lenhartz] 413
simulating Pott's disease, [Silhol] 818
STRIAE distensae in skin of consumptives, [Hammer] 71
STRIKE, medical, end of, 1435
medical officers of insurance association on, 54, 390
of medical officers in Portugal, 2070
one day strike of physicians in Austria, 215
STROPHANTHIN in fractionated doses, [Daniélopou] 1451
intracardiac injection of epinephrin-strophanthin in acute cardiac paralysis, [Guthmann] 741
STRYCHNIN poisoning under therapeutic dosage, [Arnesen] 826
stable solution of, 1441
STUDENTS, courses for foreign students in Paris, 1508
decrease in number of, 52
information for prospective students, 561—E
plight of, 1035
restriction of number of, 875
SUBMAXILLARY GLAND, calculus in, [Hopkins] 1282
SUDAN, disease in, [Engelsen] 826
SUGAR in Blood: See **Blood**, **Sugar** in
in Urine: See **Urine**, **Sugar** in
SUICIDE, factors in, [Ring] 2089
increase in, 1026—E, 1510
SULPHUR, chronic poisoning from mixture of potassium nitrate and, [Windmeuller] *858
in dermatology, [Pautrier] 73
SUNLIGHT and health, 1506
SUPPURATION, acute, treatment of, [Saner] 1768
SUPRARENALS and exophthalmic goiter, [Swieckicki] 1137
and thyroid in experimental tuberculosis, [Webb & others] 67
aplasia of, with Addison's disease, [Schnyder] 895
cortex, [Tokumitsu] 823
Extract: See **Epinephrin**
insufficiency, [Sergent] 1772
insufficiency, acute, in infants, [Victor] 1143
insufficiency, total, [Soler] 1930
removal of, effect on metabolism of, [Marine & Baumann] 967
removal of, in treatment of genuine epilepsy, [Steinthal] 657, [Sándor] 657
roentgenograms of kidney, ureter and, after induced emphysema in perirenal adipose tissues, 1108—E
suppuration in, [Deglos] 495
tumor in abdominal wall, [Curtis & Potel] 651
tumor, malignant, [Orthmann] 413
tumor (medullary malignancy), [Carter] 1599
SURFACE tension and liver functioning, [Troisier] 2094
SURGEONS, errors of surgeons no defense for wrongdoers, 1443—M
necessary qualities for a surgeon, 397
SURGEON - GENERAL'S OFFICE, training division in, 296
SURGERY and pathologic constitution, [Bauer] 78
graduate instruction in, [Muller] *503
in case of doubt, operate, [Lanz] 1060
in 1921, [Mathieu] 2151
in Porto Rico, [del Toro] 647
plastic, of lip, [Kazanjan] *1959
postoperative catheterization in Korea, [Mills] 1050
postoperative lung complications, statistics on, [Mandl] 79
present status of, [Sauerbruch] 656
regulations proposed for sale of surgical supplies, 1829
surgical mortality in children, [Lanman] 1600
technic, simple and efficient method of anchoring ends of a subcuticular suture, [VanMeter] *789
SUTURE, subcuticular, simple and efficient method of anchoring the ends of, [Van Meter] *789, [Caddick] 958—C
SWEAT GLANDS and skin in fetus and new-born, [Becker] 1143
of axilla, roentgen irradiation for inflammation of, [Basch] 1293
SWEATING, suppression of, after toxic dermatitis, [Patzschke & Plaut] 1933
SWEDISH Medical Association, foreign members elected by, 2070
SWEET BILL, agreement reached on, 473
SWEET BILL passed by senate, 385
reorganizes veteran relief, 627—E
to President Harding, 564
SWISS Medical Society, 50th anniversary of, 1583
SYMPATHECTOMY, periarterial, influence of, on healing of wounds, [Leriche & Haour] 1927
SYMPATHETICOTONIA, [Papastratigakis] 897
abdominal phenomena from, [Castano] 1530
SYMPHYSECTOMY for permanent enlargement of pelvis, [Costa] 1213
partial, [Costa] 235
SYNOVIAL lesions of skin, [MacKee & Andrews] 730
SYPHILIS a rural problem, [Highman] *583
and alopecia areata, relation between, [Sabouraud] 894
and diabetes, 880—ab
and diabetes in negro, [Lemann] 1045
and industry, [Thomson] 1130
and infant deaths, 1939—ab
and marriage, [Kleeberg] 1293
and osteomyelitis, [Rodríguez Gómez] 822
and sarcoïd, [Stillians] *1615
arsenical treatment of, reactions following treatment of, [Moore & Keidel] 151
as etiologic factor in epilepsy, [Barbaren] 497
cerebrospinal fluid in, chemistry of, [Seham & Nixon] 1918
changes in weight during treatment for, [Almkvist] 416
circumcision in prevention of, [Irvine] 734
Colles' and Profeta's laws, 904—ab
comparative value of syphilitic drugs, [Michelson] 399—ab
congenital, [Steinert] 1609
congenital and tuberculous meningitis, [Hutinel & Merklen] 1372
congenital, cardiac and vascular disturbances in, [Hahn] 1295
congenital, clinical diagnosis of, [Stoll] *919
congenital, car test for, [Ramadier] 975
congenital, fate of children with, [Husten] 327
congenital, frequency of Hutchinson teeth in, [Davidsohn & Davidsohn] 1775
congenital, incidence of, [Jeans & Cooke] 1444
congenital, problems of, [Fischl & Steinert] 580
congenital, treatment of, [Fernet] 408
congenital, visceral changes in, [Fraser] *1623
conjugal neurosyphilis, [Moore & Keidel] *1
defensive reactions of animals infected with spirochaeta pallida, [Brown & Pearce] *1619
diagnosis, [Godeau] 1135
diagnosis, (simplified test), [Dold] 1533
dispensary in maternity, 133, [Couvelaire] 1052
early history of, [Sigerist] 2154
early, treatment of, [Smith] 1997
effects of, on families of syphilitics, 128—E
experimental, in man, [Pinard & Deguignand] 2151
flocculation tests for, [Sachs & Georgi] 1690
floccule inhibition reaction in, [Kilduffe] 1767
formalin test for, [Suffern] 2150
functional, and endocrine glands, [Merklen] 893
in family, 1700—ab
in third and fourth generation, 587—ab
inactive, active, latentactive, [Thaysen] 658
intraspinal treatment of, [Jacobi] 1059
intravenous treatment of, [Alvarez] 530
iodin-phosphoric acid reaction in urine in, [Kilduffe] 887
is syphilis an accident? 1352
laboratory findings in early and late syphilis, review of 1,064 cases, [Fordyce & Rosen] *1696
late, treatment of, 1977—ab
latent, spirocheticidal properties of blood serum in, [Ebersson] 1281
lumbar puncture in, [Sézary] 1771
SYPHILIS, management of, [Swayne] 1448
mercuric cyanid intravenously in, [Lane] 1525
mercury inunction treatment of, [Cole & others] *2022
mortality from, in Budapest in 1919, 1510
new treatment for, (potassium sodium bismuthate) 298
of Nervous System: See **Nervous System**, **Syphilis** of
of nose, [Jaenieke] *1889
polariscopy of urine in, [Taylor] 821
progressive gangrene, syphilis and diphtheria, [Voss] 2012
recent observations on, 1661—E
refractometry in, [Tokuda] 1281
registration of syphilitics in Denmark, 296
Sachs-Georgi test for, [Parker & Laigh] 315
serodiagnosis of, [De Villa & Ronchi] 496
serology of, [Epstein & Paul] 1215
silver arsphenamin in, study based on 4,290 injection, [Parounagian] *1706
Spiroside and inhalation method of treating syphilis, [Cole] 394—C
suggestion for avoidance of Wassermann fast state in treatment of chronic syphilis, [McNeil] *1970
syphilitic fever of relapsing type, [Maggesi] 1213
syphilitic hemisymphyses, [Wimmer] 1612
tardy manifestations of, [Abadic] 407
traumatic, [Simon] 408
treatment, [Guy], 968, 1031, [Brandweimer] 1691, [Stokes] 1998
treatment for, effect of, [Foucar & Stokes] 1917
treatment of, with persistent Wassermann reaction, [Marshall & Shera] 321
tuberculosis activated by, [Bonner] 1051
tuberculosis and syphilis, simultaneously, [Hollander & Narr] 730
two hundred and fifteen cases after 5 years, [Irvine] *1620
visceral, 632, [Jacobaeus] 900
what is best treatment of, [Vasconcelos] 1139
white patches on neck suggesting, [Gougerot] 1925
SYPHILOMA, stomach-liver syphiloma, [Florand & Girault] 1847
SYRINGE, for local anesthesia, [Dunn] *2055
SYRINGOMYELIA, [Krohn] 1457, [Girotti] 1849
in children, [De Villaverde] 1608
joint disturbances in, [Koopmans] 2011
radiotherapy in, [Lhermitte] 1771
SOCIETIES
A.—Association
Acad.—Academy
Am.—American
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
Internat.—International
M.—Medical or Medicine
Nat.—National
Phar.—Pharmaceutical
Phys.—Physicians
Ry.—Railway
S.—Society
Surg.—Surgical or Surgeon, Surgery
Am. Acad. of Ophthal. & Oto-Laryn., 728, 884, 1263, 1430, 1503
Am. A. of Obst., Gynec. & Abdom. Surg., St. Louis, 399, 572, 728, 884
Am. A. of Ry. Surg., 728, 811, 884, 1504
Am. Child Hygiene A., 884
Am. Coll. of Surg., 811, 884
Am. Dietetic A., 1264
Am. Electrotherapeutic A., 132, 225, 312, 399, 572, 728, 1503
Am. Gastro-Enterological A., 630
Am. Gynecological S., 132
Am. Hosp. A., 1029
Am. Roentgen Ray S., 572, 630, 728

- Am. S. for the Advancement of Science, 630
Am. S. of Experimental Biology, Federation of, 1902
Am. S. for Pharm. & Exper. Therap., 1761
Colo. Cong. of Ophthal. & Oto-Laryn., 64, 225, 312
Colo. State M. S., 225, 312, 399, 572, 1344
Cuba, Fifth Nat. M. Cong. of, 1030
Del. State M. S., 64, 225, 312, 399, 572
Dist. of Col., M. S. of, 1501
Ga. Ry. Surg. A., 868
German Urologic S., Fifth Cong. of, 1030
Idaho State M. A., 572, 728, 884
Ind. State M. A., 572, 884, 1188
Internat. Cong. for Comparative Pathology, 1030
Internat. Cong. for Protection of Maternity, 1030
Internat. S. of M. Hydrology, 1902
Internat. Urological S., 565
Ky. State M. A., 572, 728, 1189
Maine M. S., 131
M. A. of New Jersey, 48
Minn. State M. A., 64, 225, 312, 399, 572, 945
Miss. Valley M. A., 728
Mo. State M. A., 208
Mo. Valley, M. S. of, 811
Mont. M. A., 64, 384
Mont. Public Health A., 208
Nat. A. of Federated M. Officers, 564
Nat. M. A., 572, 948
Nat. S. for Promotion of Occupational Therapy, 870
Netherlands Neurologic A., 1903
Nevada State M. A., 208
New England Surg. S., 728, 811
N. C. M. S., 209
N. D. M. A., 49
N. Y. State S. of Industrial M., 1827
North Pacific M. A., 293
Ohio State M. A., 714
Ore. State M. A., 293
Ontario M. A., 563, 1902
Pacific A. of Ry. Surg., 945
Pa., M. S. of the State of, 572, 811, 1029, 1263
Radiological S. of N. Am., 1264, 1761
South African M. Cong., 1903
Medicina Legal e Criminologia, 1903
S. D. M. A., 49
Southwest, M. A. of, 811, 884, 1666
Texas, State Pathological S. of, 1112
Tri-State meeting, 64
Tri-State M. A., 210
Uruguay M. Cong., 1903
Utah State M. A., 312, 399, 572, 870, 1112
Vermont State M. S., 728
Virginia, M. S. of, 728, 1430
Wash. State M. A., 312, 399, 572, 1263
Wis. State M. S. of, 225, 312, 399, 572, 630, 1029
Wyo. State M. S., 312, 399, 572
- T**
- TABES DORSALIS**, acute tabetic joint disease, [Lemierre & others] 1052
cause of dementia paralytica and praecox and, [Van Trotsenburg] 1295
curable form of ataxia in, [Guillain] 578
existence of gastric ulcer with, [Crohn] *2023
gastric crisis in, operative treatment of, [Jean] 652
gastric crisis in, treatment of [Rembe] 1294
larynx in, [Lannois] 72
pathogenesis of tabetic ataxia, [Lafora] 76
sign occurring in, complicated by Charcot's joints, [Eloesser] *604
syphilitic fever in, [Edhem] 1526
- TACHYCARDIA**, paroxysmal, [Lasslett] 1769
paroxysmal, classification of, [Yacoe] 973
paroxysmal, mechanism of, [Danielopolu & Danulesco] 1210
- TALIPES PLANUS**, peculiar pain in flatfoot, [Immelmann] 499
planus, value of bone pin arthrodesis in treatment of, [Soule] *1871
valgus, operation for valgus feet, [Roberts] *1571
- TAR** cancer, experimental production of, 127—E
sarcoma, [Yamagiwa & others] 823
- TARSUS**, fracture of, [Pirazzoli] 1374
- TEACHERS**, plan of full-time clinical teachers, [Dodson] 141—C
- TEETH**, histopathology of apical region of teeth with partly filled root canals, [Hatton] *1805
Hutchinson, frequency of, in congenital syphilis, [Davidsohn & Davidsohn] 1775
infected, lymphocytosis as diagnostic sign of chronic periapical dental infection in adults, [Daland] *1308
nation's, 1266
radical antrum operations, and damage that may be done to the nerve and blood supply of, [Myers] 2081—C
report of case of cephalic chancreoid, and case of encephalitis following extraction of tooth that had infection at apex, [Potts] *1885
worst teeth in the world, 1982
tooth in nares, [Rosenblatt] 887
- TEKARKIN** Cancer Cure, 142, 1675
- TELANGIECTASIS**, intracranial, [Hammes] 1129
telangiectatic splenomegaly, [Symmers] *2019
- TEMPERAMENTAL** peculiarities, 1102—ab
- TEMPERATURE**, inanition, of newborn, [Grulee & Bonar] 401
local, in differential diagnosis, [Scitz] 239
- TENDON**, reconstruction of, [Charbonnel] 1210
restoration of triceps tendon by transplantation of peroneus longus, [Henderson] *1572
transplantation, [Mayer] 1922
- TENDOVAGINITIS**, [Troell] 1852
- TENNESSEE**, child welfare in, 1042—ME
- TERATOMA** of ovary, [Porter] 1203—ab
of testicle, radium therapy of, [Barringer & Dean] *1237
- TEST MEAL**, alcohol, [Lanz] 160, [Sanfilippo] 976, 1364—ab
- TESTAMENTARY** capacity and fantastic beliefs, 487—MI
provision, 1670
- TESTICLE** anomalies, [Balduzzi] 496
atrophy, procedure for preservation of, [Hammesfahr] 1379
effect of ligation of vas deferens on, [Veckl] 880—C
gonads and development of sex, [Halban] 413
imperfectly descended, treatment of, [Pannett] 1050
pain in appendicitis, [Cope] 2002
perineal displacement of, [Dangschat] 1531
physiology of, [Ocaranza] 1055
rejuvenation operations, [Lorand] 1057
Steinach operation, possible complications of, 1577—E
Steinach's research on puberty gland, 1358
Steinach's so-called puberty gland, [Woerdeman] 1144
teratoid tumors of, radium therapy of, [Barringer & Dean] *1237
tissue promotes healing, [Aievoli] 1928
torsion of, in a pseudohermaphrodite, [Pignatti] 654
transplantation of, [Lichtenstein] 743, [Bolognesi] 1926
transplantation, mange in rats and its relation to Steinach's rejuvenation experiments, [Fiebiger] 1294
undescended, new growth in, [Cunningham] 887
- TESTIMONY** as to pus 3 months after injury, 964—MI
barred, of physician and of assistant, 1126—MI
hints regarding expert testimony—duty of surgeon, 1598—MI
- TETANUS**, bovine antisera for diphtheria and, [Kraus & others] 1608
deaths from, in general hospital of Madrid, 874
prevention of trismus in, [Moser] 1691
spinal deformity from, [Spieth] 161
spores, low grade, infection with, [Lacy & Murdock] 2090
toxin, action of bile on, [Ninni] 158
treatment of, [Freedlander] 730
treatment with antitetanic serum, [Denyer] 322
- TETANY**, [Elias & Spiegel] 742
and laryngospasm in adults, [Frontali] 896
calcium in pathogenesis of, [Freudenburg & Gyöngy] 1850
experimental, and rickets, [Meysenbug & McCann] 970
infantile, [Kramer & others] 1762
infantile, blood in, 2062—E
influence of calcium on electric overexcitability in, [Ochsenius] 1932
postoperative, due to sodium bicarbonate, [Healy] 967
- TEXAS** state board June examination, 1675
- THEOBROMINE**—P. W. R., 1891
and Sodium Acetate—P. W. R., 2061
- THERAPEUTIC** revulsion, [Quinke] 1294
- THOMAS** Emmenagogue Pills, 482—P
- THOMAYER'S** distribution of percussion sound in tuberculous peritonitis and a symptom in pericardial effusion, 1596
- THORACOSCOPY**, practical importance of, [Jacobaeus] 657
- THORAX**, lagging half of chest, [Waller] 416
photographic record of physical signs, [Robin] *1023
projectiles left in, [Jehn & Mayer] 239
rachitic deformity of, [Brusa] 896
surgery of, [Gask] 321, [Vorderbrügge] 1775
tumors of bony chest wall, [Hedblom] 315
wounds of abdomen and, [Bryan] 406
- THROAT**, bacteria of, 43—E, [Perkins & Spreng] 1919
fusospirillar sore throat and enteritis, [Bouchut & Leroux] 1689
infections, abdominal pain in, [Brennemann] 312—ab, 1762
mercurial sore throat, [Almkvist] 2012
- THROMBOPHLEBITIS** of sinus cavernosus, [Abente Haedo] 1294
- THROMBOSIS**, bilateral, of lateral sinuses not originating from otitis, [Fenton] 154
of abdominal aorta, [Hesse] 581
of lateral sinus, without usual ear and mastoid signs, [Newton] *2121
of pulmonary artery, primary, [Billings] 2092
of sinus cavernosus, [Höston] 980
of superior vena cava, acute, [Arons] 1293
postoperative pulmonary embolism and, [Rupp] 238
- THRUSH**: See Stomatitis
- THYMUS**, enlarged, and position of diaphragm, [Gerstenberger] 65
enlarged, clinical and roentgenology study of, in infants, [Blackfan & Little] 313—ab
epitheliomas of, [Summers & Vance] 1204
metamere, fourth, congenital hyperplasia of, [Settellen] 1528
pathology of, [Bircher] 821
persisting, [Yamanoi] 411, 2063—E
stridor in young children, [Cozzolino] 1290
- THYROID**: See also Goiter; Hyperthyroidism
- THYROID** and creatin metabolism, [Iseke] 2009
and suprarenals in experimental tuberculosis, [Webb & others] 67
disease, basal metabolism in, [Mayo] 646, [Rowe] 1045
excretion in blood in exophthalmic goiter, [Rogoff & Goldblatt] 815
feeding, effect on growth of, [Cameron & Sedziak] 2088
function, anomalies of, during pregnancy, [Fruhsholz & Parisot] 1770
in relation to pregnancy, 1586
influence of diet on, [Tsuiji] 77
influence of, on hemorrhage, [Oddo & Mattei] 1770
influence of operation on, as affecting autonomic nervous system in exophthalmic goiter, [Grunenberg] 498
influence of, on antibody formation, [Houssay & Sordelli] 1530
influence of thyroid secretion on myocardium, [Goodpasture] 1369
insufficiency, acquired, [Rodenacker] 1775
intericoid-thyroid general anesthesia, [Rosenthal] 1212
- THYROID** Interrelationship of function of, and of its active agent, thyroxin, in tissues of body, [Plummer] *243
ligation of superior thyroids, [Jones] 404
malignant tumors of, [Wilson] 968
strumitis, [Hagenbuch] 162
tuberculosis of, [Nather] 898
- THYROIDECTOMY**, effect of, on immune body production, [Ecker & Goldblatt] 1130
susceptibility to infection and intoxication after, [Houssay & Sordelli] 1530
without draining, [Dubs] 655
- THYROIDITIS**, woody, [Nichols] 1764
- THYROXIN**, Interrelationship of function of thyroid, and of its active agent, thyroxin, in tissues of body, [Plummer] *243
- TIBIA** fracture, experimental study of nonunion of, [Eliason] 1922
fracture of spine of, [Kurlander] *855
hydatid cyst in, [Lesi] 1928
Osgood-Schlatter disease, [Solieri] 739
substitution of fibula for, [Flori] 411
- TICKS**, wood, paralysis in children due to bite of, [McCormack] *260
- TINEA** imbricata, treatment of, [Luhn] 973
- TISSUE** implants, evolution of connective tissue implants, [Poletini] 411
proteases, [Nakagawa] 740
- TOBACCO**, effect of, on man, [Gies & others] 154
smoking and, sensory factors, 291—E
smoking versus chewing, [Baumberger & others] 59—C
visual disturbance from abuse of alcohol or, [Terson] 73
- TOMATO** seed press cake, nutritive value of, [Finks & Johns] 812
- TONGUE**, cancer, a preventable disease, [Bloogood] 220—C, *1381
cancer, radium for, [Quick] 150
papillae of, genesis, [Hellman] 1458
- TONOLINE TABLETS**, 722—P
- TONSIL**, aberrant vessels in surgery of palatine and pharyngeal tonsils, [Schaeffer] *14
and scarlet fever, [Bullowa] 401, [Gregory] 1445
as foci of infection, [Kelty] 1766
cancer, radiotherapy for, [Orbaan] 1534
diphtheria bacilli and diphtheroids of adenoids and, [Pilot] 317
influenza bacilli of adenoids and, [Pilot & Pearlman] 317
physiology of, [Farmachidis] 1849
pneumococci and nonhemolytic streptococci of adenoids and, [Pilot & Pearlman] 317
roentgen-ray therapy of, [Murphy & others] 153
streptococci in, virulence of, [Gottlieb] 1602
tuberculosis, [Weller] 150
- TONSILLECTOMY**, anesthesia for, [Jacobson] 80
forceps, new, [Warren] *285
instrument for enucleation of tonsils in capsule, [Flannery] *201
instrument, new, [Goodyear] *201
lung abscess following, [Lewis] 1990—C
lung abscess in adults following, under general anesthesia, [Fisher & Cohen] *1313, [Cleudening] 1593—C
palate-tonsil retractor, [Greene] *39
- TONSILLITIS**, mercurial, [Almkvist] 2012
- TOOTH**: See Teeth
- TORONTO** University Medical School limits admission, 1112
- TORTICOLLIS**, congenital, [Feil] 653
- TOURNIQUET**, changes in circulation below constricting band, [d'Oelsnitz] 408
in treatment of vascular disorders, [d'Oelsnitz] 157
- TOXICIDE**, report of Council on Pharmacy and Chemistry on, 1197—P
- TRACHEA** after operations for goiter, [Denk & Winkelbauer] 1214
removal of bread crumbs by suction, report of case, [McWhorter] *2121

- TRACHEA**, syphilis of bronchi and, [Stimson] 644
- TRACHEOBRONCHIAL** glands, tuberculous, [Méry] 1925
- endoscopic removal of sand spurs from larynx and tracheobronchial tree, [Taylor] *683
- TRACHEOBRONCHOSCOPY**, transient hyperthyroidism from, [Rist & Weiss] 2094
- TRACHEOTOMY** and hypoglottic laryngitis, [Schulz] 1775
- fatal hemorrhage after, [Schlaffer] 498
- TRACHOMA**, experimental studies on, 943—E, [Young] 1121—C
- nonmalignancy of, in tropics, [Santos Fernández] 897
- stamping out trachoma in Southern Illinois, 1974—E
- TRANSFUSION**: See Blood Transfusion
- TRAUMA** and syphilis, [Simon] 408
- cancer following, [Bernier] 2012
- diabetes insipidus after trauma of head, [Catterina] 75
- impalement injuries, [Haggstrom] 502
- relationship between trauma and malignant disease from an industrial standpoint, 466—E
- sarcoma from injury of eye, [Möller] 1613
- TREPHINING** as told in Dr. Pepys' diary, [Kniskern] 1674—C
- decompressive, [Bodewig] 77
- early, with fractures in children, [Jorge] 1453
- TRIATOMAS**, [del Ponte] 1608
- TRIGEMINAL TRACT**, surgery of, [Frazier] *1387
- TRINITROTOLUENE** poisoning, [Hamilton] 1130
- poisoning and phagocytic anemia, 809
- TROPICAL** medicine, Far Eastern association of, 1113
- medicine, influence of, on medical science, 1151—ab
- TROPICS**, best hats for summer wear, [Teh] 1768
- basal metabolism of man in, 2124—E
- cancer in, [de Langen] 1534
- TRYPANOSOMES**, intracorpuseular forms of, [Dios & Oyarzábal] 1608
- TRYPANOSOMIASIS**, blood serum treatment of, [Marshall] 1768
- British expedition to study, 1347
- German expedition to combat, 1751
- in Roumania, 1510
- mission to tropical Africa, 1193
- trypanosomiasis in, [Pearce] 1998
- TRYPANASAMID** in trypanosomiasis, [Pearce] 1998
- TUBERCULIN**, action of digestive ferments on, [Franceschelli] 1849
- allergy to, [Dietl] 240
- hypersensitiveness, [McJunkin] 153
- in asthma and hay-fever, [Van Leeuwen & Varekamp] 1778
- reaction, intradermal, [Fischer] 2094
- reaction, positive, in hemorrhagic nephritis, [Müller-Deham & Kothny] 742
- skin test, modification of, [Salmony] 581
- skin tests, serial, [Debré & others] 737
- test, diagnostic-therapeutic, [Viton] 236
- test in children, [Dietl] 1609
- test, subcutaneous, [Bardswell] 736
- therapy, reasons for failure of, [Fischel] 1371
- treatment, [Offrem] 240
- TUBERCULOMA** of brain, [Valabrega] 1055
- of brain, numerous convulsions in case of, [Randolph] 1600
- of spinal cord, [Waring] 2090
- TUBERCULOSIS**: See also under names of various organs, as kidney, tuberculosis of; Eye, tuberculosis of
- TUBERCULOSIS**, action of morphin in, [Corper & others] 1600
- activated by syphilis, [Bonnert] 1051
- acute, with alcoholic liver disease, [Fiessinger & Brodin] 1847
- and Chvostek's sign in children, [Pollitzer] 976
- and emigration to Australia, 1350
- and gassing, [Hawes] 316
- and high altitude, [Amrein] 1769
- and lymphadenoma, [Fox] 407
- TUBERCULOSIS** and malaria, [Lopez] 412
- and ozena, [Linethicum] 1045
- and pregnancy, 299, [Petruschky] 2010
- and syphilis, simultaneous, [Hollander & Narr] 730
- and the constitution, [Bauer] 1610
- and vitamin deficiency, [Gloyne & Page] 1769
- antibodies, [Armand-Delille] 1925
- Arneth's leukocyte count and Döhle's inclusion bodies in, [Tominaga] 1845
- atmosphere for cure of, [Cornick] 647
- auto-urine reaction in, [Kotzulla] 163, [Liebhardt] 240, 570, [v. Bergen] 895, 1121, 1274, [Farago & Randt] 1455, [Weisz] 1532, [Schmid] 2095
- bacilli, acid-fast saprophytes resembling, [Lange] 161
- bacilli, biology of, [Lockemann] 162
- bacilli, bovine, in surgical tuberculosis, [Poliakoff] 1060
- bacilli, carbon dioxide inhibits growth of, [Corper & others] 1368
- bacilli, demonstrating granules in, [Kieffer] 1600
- bacilli, experimental exaggeration of phagocytosis for, [Yoannovitch] 1925
- bacilli in blood, [Rumpf] 162
- bacilli in duodenal fluid, [Carnot & Libert] 892
- bacilli in sputum, prognostic value of, [Bardswell] 2093
- bacilli, Konrich stain for, [De Mestral] 1452
- bacilli septicemia, [Nather] 979
- bacteriology of, tuberculous sputum, [Bezanon & Biros] 494
- biologic tests for, [Nasso] 1213
- bone and joint tuberculosis from standpoint of workmen's compensation, [Broca] 323
- bronchomonilliasis complicating, [Macfie & Ingram] 155
- campaign, child's place in, [Slater] 399—ab
- campaign in army, 799
- campaign, silver anniversary of, [Helm] 329
- care of tuberculous, [Lindhagen] 1692
- care of tuberculous cripples, [Martin] 649
- chaulmoogra oil in, [Culpepper & Abelson] 68, [Rogers] 736, [Voegtlin] *1017
- chaulmoogra oil and sodium morrhuate in, [Rogers] 972
- clinical treatment of, 54
- conference in Argentina, 1347, 1750
- congress, 2010
- conjugal, [Barnes] 1600
- cost of, 44—E
- danger for small children in tuberculous homes, [Schram] 1613
- diploma in, 623—ab
- does infection in adults come from outside or from within the body? 1340—E
- dropped shoulder early sign of, [Delmege] 1769
- epithelioid and giant cells in human tuberculous tissue, 1668
- experimental, effect of gases on, [Rogers] 1600
- experimental, suprarenals and thyroid in, [Webb & others] 67
- exposure in infancy and childhood and its relation to manifest pulmonary tuberculosis in the adult, [Taylor & Moorman] 2087—ab
- factors predisposing to, [Lundborg] 330
- flavine compound in, value of, [Petroff] 1600
- Framingham community health and tuberculosis demonstration, [Armstrong & Bartlett] *585
- frequency of venereal disease, cancer and tuberculosis in general practice, [Hendriks] 1216
- fresh air treatment in, [Aschenheim] 2098
- Friedmann's remedy, appropriation asked for further research on, 505
- glandular, [Drügg] 898
- heart in, [Benvenuti] 496
- hospital contagion with, [Peyrer] 581
- humoral antibodies in, [Petroff & Ornstein] 889
- TUBERCULOSIS**, immunity in children to, [de Luca] 736, [Wallgren] 1051
- immunity to, [Neufeld] 329, [Wasermann] 1852
- in childhood, diagnosis of, [Smith] 314—ab
- in negro of Southern states: a suggested means of control, [Roe] 2142—C
- in Poland, 1627—ab
- in recent medical congresses, [Simon] 1059
- in the young, [Ickert] 240
- infection in the family, observations on, [Köfller] 2009
- International League against Tuberculosis, 390
- intra-abdominal, in infancy, [Mixer] 1841
- iodine treatment of, intensive, [Boudreau] 1605
- metabolism in, [Ferrannini] 1608
- miliary, acute, in a diabetic, [Caussade & Doumer] 650
- Mississippi Valley conference on, 714
- mortality, influence of food on, [Selter & Nehring] 240
- mortality of phthisis, 1115
- mountain climate in, value of, [Hudson] 1923
- municipal tuberculosis welfare centers, 1985
- notification, 1032
- of fascia [Blackburn] 404
- of gums, [Stratton] 1600
- of male genital organs, genesis of, [Sussig] 1142
- of uropoietic system, 2133
- v. Pirquet test in, 2082
- portals of entry and mode of spread of, [Scott] 1685
- pretuberculosis stage in children, [Richard] 233
- prevention of, in Hungary, 1269
- primary focus in children, [Simon] 979
- prophylaxis of, [Jaenicke] 79, [Granjux] 234, [Fontes] 897, 1291
- prophylaxis of, [Fontes] 1689
- prophylaxis of, in kindergartens and allied institutions, 1353
- protection of children against, in the home, [Ickert] 979
- protein therapy in, in children, [Epstein] 740
- pulmonary, and valvular defects, [Kellner] 1852
- pulmonary, and war injuries, [Austgen] 79
- pulmonary, artificial pneumothorax in, [Saugman] 894, 1059
- pulmonary, artificial pneumothorax treatment, 9 years of, [von Niederhäusern] 1848
- pulmonary, artificial pneumothorax treatment, results of, [Saxtorph] 330, 1983
- pulmonary, blood pressure in, [Grant] 71, [Betchov & Fargarge-Vail] 1289
- pulmonary, blood sugar and basal metabolism findings in, [McBrayer] *861
- pulmonary, causing pain in arm, [Moren] 971
- pulmonary, cauterization of adhesions in pneumothorax treatment of tuberculous, [Jacobeaus] 69
- pulmonary, contagiousness of, in infants, [Cuzzolino] 976
- pulmonary, clinical signs with various types of, [Rouberg] 329
- pulmonary, direct exposure to tuberculosis in infancy and childhood and its relation to manifest pulmonary tuberculosis in adult, [Taylor & Moorman] 2087—ab
- pulmonary, early case of, [Stuteville] 68
- pulmonary, early diagnosis of, [Renon] 234
- pulmonary, effect of artificial pneumothorax on collapsed lung, [Simon] 1600
- pulmonary, hypertrophic osteoarthropathy in, [Corper & Cosman] 813
- pulmonary, in children, surgical treatment of, [Brauer] 2010
- pulmonary, in infant, [Shurlock] 1923
- pulmonary, in the elderly, [Stephan] 240
- pulmonary, in young children, [Oldenburg] 164
- pulmonary, limiting respiratory excursions in, [Sewall & Swezey] 1367
- TUBERCULOSIS**, pulmonary, metabolism in, [Kocher] 1842
- pulmonary, natural healing processes of, 53
- pulmonary, nature of annular shadows in, [Amberson] 2088
- pulmonary, or interlobar empyema, [karström] 1296
- pulmonary, phrenic sign in, [Ragot] 158
- pulmonary, presence, absence and location of râles in prognosis of, [Trudeau] *1326
- pulmonary, râles persisting after clinical healing, [Löwenhjelml] 1295
- pulmonary, relations between asthma and, [Lueg] 1934
- pulmonary, relationship of, to apical pleuritis, [Van Zwaluwenburg & Grabfield] 229
- pulmonary, right ventricle in, [Boas & Mann] 489
- pulmonary, roentgenography in diagnosis of, [Graft] 329, [McLester] 403, [Sergeant] 1925, [Staub-Oetiker] 2006, [MacRae] 2086—ab
- pulmonary, roentgen therapy of, 54, [Wilkinson] 66
- pulmonary, smoking in, [Duncan] *526
- pulmonary, surgical treatment of, 54, [Sauerbruch & Brunner] 330, [Jaeger] 822, [Sauerbruch] 2010
- pulmonary, suspension stability of erythrocytes in, [Frisch & Starlinger] 1932
- pulmonary, temperature in, [Prest] 736
- pulmonary, treatment of fever in, with injections of menthol-eucalyptus oil, [Gerty & Cori] 825
- pulmonary, tuberculous hilus glands in adults, [Rüppel] 1142
- pulmonary, tuberculin in, [Cowan] 2003
- pulmonary, vitamins in treatment of, 1136—ab
- reaction of meninges to, [Flatau & Zilberlastzand] 1288
- reinfecting in, [Baldwin & Gardner] 1046
- relations between tuberculosis of bronchial and cervical glands, [Gerhartz] 978
- rest and exercise in, [Sewall] 66
- routes of infection with, [Koch & Möllers] 162
- sanatorium, 473
- sanatorium care of tuberculous soldiers by federal government, [Palmer & Hoagland] *506
- sanatorium, first, [Cureton] 973
- sanatorium, fundamental factors in control of, with especial reference to sanatorium, [Boswell] *523
- sanatorium model, [Jorge] 1773
- sanatorium treatment, indications for, [De Bloeme] 1216
- sanatorium treatment, end-results of, [Landis] 815
- sanatoriums near large cities, 711—E
- scutell arc in, [Lortat-Jacob & Turpin] 737
- sero-agglutination in, in children, [Kharina-Marinucci] 821
- serodiagnosis of, in children, [Fried & Mozer] 235, [Sevi] 410, [Kharina-Marinucci] 654, [Grumbach] 1373
- serodiagnosis, value of, [Punch] 1134
- skin and visceral, association of, [Lanchashire] 1524
- sodium morrhuate and sodium linoleate in tuberculosis, value of, [Davies] 1286
- speed of sedimentation of erythrocytes in, [Westergren] 1379
- spleen as index of tuberculous involvement, [Rensch & Moore] 1367
- striae distensae in skin of consumptives, [Hammer] 71
- studies on, [Igersheimer & Schlossberger] 161
- superposed infections in, [Lavergne] 739
- surgical, [König] 2008
- surgical, bovine tubercle bacilli in, [Poliakoff] 1060
- surgical, conservative treatment of, [Bier] 329, [Schonbauer] 898, [Bier] 1214

- TUBERCULOSIS**, surgical, institutional treatment in, [Telford] 492
surgical, test for urochromogen, in, [Düttmann] 1455
surgical, treatment of, [König] 415, [Harrass] 499
temperature in, [Palmer] 1445
therapy, experimental basis of, 53
therapy, history of, [Herrera Vegas] 1374
therapy, practical knowledge of, 560—ab
therapy, reasons for failure of, [Fischel] 1371
therapy, specific, past results and future prospects of, 1669
treatment of diarrhea in tuberculosis, [Lassabliere] 234
Tuberculin Treatment: See under Tuberculin
vaccination of cattle against, [Calmette] 234
vaccines, in, [Minnig] 813
wards in general hospitals, 296
Weisz' urochromogen reaction in, value of, [Bonnert] 1371
with Mikulicz syndrome [Marsh] 644
- TULAREMIA**, 1497—E
- TUMORS**: See also under names of various organs
- TUMORS**, and reducing substance in blood, [Leyton & Leyton] 232
diathermy in malignant tumors of pharynx, [Milligan] 818
endotherapy for malignant disease, [Wyeth] 1767
grown in ethmoid bones of horses, 1668
irritation of tumor necessitating an operation, 642—MI
of bony chest wall, [Hedblom] 315
paraffin oil, [Stokes & Scholl] 315
phantom, of bladder, [Mayer] 79
roentgen-ray treatment of, 216, [Espinola] 1929
transplantation of fowl tumors, [Yamamoto] 654
- TUNGSSTEN RAYS** in superficial suppuration, [Burroughs] 1768
- TURBINATES**, hypertrophy of, in childhood, treatment of, 1674
- TURPENTINE** treatment in puerperal sepsis, [Hermstein] 241
- TYPHOID** abscess of breast, [Dyke] 891
agglutination in, [Cervera] 897
aphasia [following, [Bonaba] 1930
bacilli, isolated cultures of bacilli of typhoid group, [Lévy] 1289
bacilli, variations in, [Morishima] 68
cardiac form of typhoid sepsis, [Minet & Legrand] 157, 1688
carriers, sterilization of, 136
cholecystitis, acute, [Söderlund] 1614
control in rural communities, [Harrison] 1996—ab
dangers of colloidal metals in, [Glatad] 819
decrease of, 213
hip disease, [Rodriquez] 75
in children, [Nobécourt] 1211
in infancy, clinical aspects of, [Larsson] 2009
in Spain, 138
increase in, a correction, 1031
is disappearing, 1199—ab
milk-borne epidemic in Hillsdale, [Olin] *1717
perforation in, [Rosso] 1454
perforation, spontaneous closure of intestinal perforation, report of case of double infection with, and paratyphoid B, [Randolph & Hunter] *2111
peritonitis, [Kichter & Amreich] 415
physicians not liable for, 642—MI
protein therapy in, [Natali] 1689
relapse after 43 days, [Higgins] 1208
spine, [Bureau & Marchand] 407
spread of, through conveyance by hands, 874
vaccination, 50
vaccination, experimental prophylactic inoculation against typhoid, [Kusama] 406
vaccination in army, [Anselmi] 1609
vaccination, preventive, [Morquio] 2095
vaccination, resolution advocating prophylactic injection against, 1980
- TYPHOID** vaccination, results of, 635
vaccine therapy of, [d'Oelsnitz] 1526
water-borne outbreaks in Spain, 138
- TYPHUS**, agglutination test in, [Naslund] 502
among immigrants, [Olitsky] 1369
and rabies in Spain, 1113
bacillus proteus in spinal fluid in, [Anderson] 1605
bacteriology of, [Pérez Canto] 1608
campaign against, 134
cultivation of Rickettsia-like bodies in, [Loewe & others] *1967
histopathology of, [Stevenson] 649
in Argentina, [Kraus] 1608
in Chile, 871
in Poland and Galicia, 1829
prevention of, in hospital personnel, [Ranson] 1120—C
research on biologic reactions in, [Kraus & Barrera] 1608
serotherapy of, [Monjaras] 1139
treatment of, [Brenner] 1690
typhus-like fever in India, [Megaw] 2003
Wassermann reaction positive in, [Bauer] 2153
- U**
- ULCERS**: See also under names of organs, as Stomach, ulcer of
ULCERS of leg, conservative treatment of, [Ekstein] 163
chronic, of leg, ambulatory treatment of, [Gurd] 2089
rodent, of vulva, [Kusauda] 655
trophoneurotic, of foot, treatment of, [Kleinschmidt] 328
- ULNA**, bilateral congenital backward dislocation of lower end of, [Holzberg] *2056
dislocation of radio-ulnar articulation, [Neuberger] 824
- ULTRAVIOLET RAYS**, diphtheria carriers sterilized by, [Donnelly] 1132
- UMBILICAL CORD**, best method of tying, [Broadhead] 1754—C
- UMBILICUS**, diphtheria of, [Comby] 1051
discoloration in region of, with internal hemorrhage, [Heliendall] 826
infections, bacteriology of, [Wheeler] 1282
sign, [Pisani] 1055
- UNANUE**, Hipólito, memorial to a physician in Pan-American Hall of Fame, 871
- UNCINARIASIS**, carbon tetrachlorid for removal of uncinaria, [Hall] *1641
detection of hookworm ova, [Willis] 2003
in Eastern Europe, 1269
in El Salvador, 1583
investigation on activities of infective hookworm larvae in soil, preliminary report, [Cort & others] *2035
nephritis due to, [Rojas & Mengo] 1918
therapeutic values of anthelmintics in, [Gaius & Mhaskar] 232
- UNITED STATES**, foreign physicians to study in, 1264
- UNIVERSITY** autonomy in Madrid, 1984
of Buenos Aires, centennial celebration of, 1747
of Jerusalem, 1265
of Minnesota, report of special committee regarding, 959—ME
of Montpellier, oldest medical faculty in world, 1505
of Toronto, 1902
universities bureau for the advancement of learning, 1034
- UREA** and uremia, [Leiter] 1205, 1496—E
- UREMIA** and urea, [Leiter] 1205, 1496—E
intense, wave of, [Chabanier & others] 578
prophylaxis and treatment of eclampsia and, [Gessner] 2154
residual nitrogen with, [Brouardel & Renard] 72
retained nitrogenous products and, Host & Hatlehol] 1769
- URETER**, anastomosis between pelvis and, [Lichtenberg] 743
calculi, [Rafin] 651, [Catterina] 895, [Marion] 975, [Grant] 1525
calculi, anuria from, [André & Grandineau] 652
- URETER** calculi in pelvic portion of, [Kielleuthner] 741
calculi, removal of stones from pelvic portion of, [Battle] 492
cancer, primary, [Judd & Struthers] 2148
dilatation of lower end of, [Giuliani] 1373
diverticulum of, [Neff] 404
fistula, to locate a, [Lichtenberg] 826
obstruction, [Sanes] 1204—ab
reflux, [André & Grandineau] 974
roentgenograms of kidney, ureter and suprarenal gland after induced emphysema in perirenal adipose tissues, 1108—E
surgery of, [Judd] 399—ab
surgical anatomy of bladder and, 2133
uretero-ureteral anastomosis, case of, [McEachern] 573
with renal tuberculosis, [D'Agata] 411
- URETERECTOMY**, aseptic nephro-ureterectomy, technic and indications, [Beer] *1176
- URETERO-URETERAL** anastomosis, case of, [McEachern] 573
- URETHRA**, accessory urethral passages, [Oudard & Jean] 72
calculi, new nonoperative technic for removal of, [Jacobs] *852
cancer in male, [Rizzi] 825
cancer, primary, [O'Neil] 402
epithelioma of, [Barabino] 327
hard tumors in, in male, [Grauhan] 1214
myiasis, case of, [Leon] 575
prolapse, electrotherapy of, [Livermore] 70
reconstruction, new procedure for, 1034
temporary exclusion of, [Lichtenberg] 743
trauma of, remote results of, [Serés] 1690
tumor, high frequency current in, [Pellecchia] 579
when the catheter breaks off in, [Lichtenberg] 743
- URETHRITIS**, chronic, posterior, [Gautier] 409
gonococcus, rapid treatment of, [Phélip] 1211
- URIC ACID** in blood, [Theis & Benedict] 1843
- URINARY TRACT** calculi in children, [Thomas & Tanner] 964—ab
diagnosis and treatment of pathogenic conditions of, in children, [Stevens] *1081
diseases, importance of infection as cause of, [Horder] 1924
disturbances after fifty, [Blum] 1215
pneumoperitoneum as aid in roentgenologic diagnosis of lesions of, [Sante] *982
roentgen-ray diagnosis of disease of, [Baensch & Boeminghaus] 826
surgery, high frequency current in, [Heltz-Boyer] 975
tuberculosis of uropoietic system, 2133
- URINE**, acetone in, test for, [Scharf] 1691
albumin and casts in, significance of, [Dublin] 228
alkaline reaction of, and its influence on nephritis, [Hara] 740
amino-acids in, [Mestrezat] 1527
bile pigments in, in anemia, [Canelli] 654
composition of, during fasting, [Suzuki & Hasui] 160
creatin output in infants, [Schiff & Bálint] 581
effect of hydrochloric acid ingestion on, [Stehle & McCarty] 575
fulminating urine fever, [Piron-dini] 496
hemolysis in, [Condorelli] 895
hippuric acid in, determination of, [Kingsbury & Swanson] 1283
incontinence from spina bifida, operative treatment of, [Lichtenberg] 743
incontinence in women, operative treatment of, [Rübsamen] 1849
incontinence, nocturnal, [Gottfried] 979
incontinence, treatment of, [De Haan] 2154
iodin-phosphoric acid reaction in, in syphilis, [Kilduffe] 887
obstruction, apparatus to aid in differentiation between an obstruction in urinary outlet and paralysis of bladder, [Walker] *286
perirenal urine cysts, [Kaiser] 743
polariscopy of, of syphilitics, [Taylor] 812
retention and spina bifida occulta, [Chute] 402
- URINE** retention, chronic, more common causes of, in male children, [Frontz] 1996—ab
retention following operations, prevention of, [Polya] 416
schistosomes in, [Cawston] 1371
sugar, determination of, [Benedict & Osterberg] 1283
sugar, dinitrosalicylic acid for estimation of, [Summer & Graham] 152
surface tension of, [Doumer] 1210
unnamed organism in, [Cornwall & Lafrenais] 1449
urea in, gasometric determination of, [Stehle] 152
- UROBILIN**, test for, [Pittarelli] 159
- UROBILINURIA**, physiologic, [Brulé & Garban] 738
- UROCHROMOGEN**, test for, in surgical tuberculosis, [Düttmann] 1455
vs. diazo reaction, [Wahlberg] 1380
- UROLOGY** and general practitioner, [Smith] *833
and roentgenology, 2134
diagnosis of urologic diseases, [Briggs] 1127—ab
in 1920-1921, [Papin] 975
International Society of, first congress of, 634
plea for early recognition of symptoms of urologic lesions, [O'Neil] *417
value of drugs in, [Young] *1327
- URTICARIA**, Quincke's edema with, [Alessandri] 497
- UTAH** state board April examination, 640
state board July examination, 1839
state board October examination, 2144
- UTERUS** after radium exposures, [Tuffier] 323
anteversion of, bladder disturbances from, [Oralson] 975
anticoagulating substances in uterine mucosa, [King] 1763
atony of, [Jervell] 980
calculus, urinary calculus in uterus, [Hahn] 826
cancer, [Frank] 1127—ab
cancer, combination radium and roentgen treatment of, [Amreich] 1777
cancer, control of mortality of abdominal operations for, [Crile] 1203—ab
cancer, early squamous cells carcinoma of cervix, [Cullen] 734
cancer, early symptoms of, [Zweifel] 1611
cancer, observations and results of radium treatment in 300 cases, [Duncan] *604
cancer of cervix, [Leicester] 1525
cancer of cervix during gestation, [Vignes] 653
cancer of cervix, retained sponge simulating, [Smith] *1653
cancer of cervix, radical abdominal hysterectomy for, [Okabayashi] 1523
cancer of cervix, valuable methods used to extend operability in, [Brown] 1203—ab
cancer of cervix, treatment of, [Skeel] 1203—ab
cancer operations, improved technic for, [Schweitzer] 413
cancer, operative treatment of, 1833
cancer, radiotherapy of, [Clark] 1454
cancer, radium treatment of, [Barrow] 1127—ab, [Hartmann] 2004, [Frank] 2086—ab
cancer, recovery after hysterectomy for, report of case in which radium had been used under diagnosis of fibroid, [Ashhurst & White] *1494
cancer, treatment of, [Schmiltz] *608, [Adler] 899
cervix, metritis of, [Douay] 1136
chancre, primary, syphilitic, on vaginal portion of, [Llegner] 415
changes due to gas bacilli, [Marx] 502
cyst in posterior wall of, [Chueco] 327
fibroids, in what cases is operative removal still required? [Taussig] *357
fibroma, evils of, [Dalche] 410
fibroma in pregnant uterus, [Grosse] 1289, [Totta] 1689, [Poney] 1930
fibroma, radium treatment of, [Faure] 2004
fibroma, roentgenotherapy of, [Béclère] 1687

- UTERUS, fibroma, surgical treatment of, [Alieri] 2005
fibromyoma, treatment of, [Tracy] 1921
fixation of, technic for, [Gaifami] 1607
flooding of peritoneum from rupture of varicose vein on fibromyoma, [Chalier & Morénas] 651
hemorrhage, certain metrorrhagias, [Dalché] 1289
hemorrhage, radium in, [Poucy] 1052
hemorrhage, roentgen treatment of, [Ratera] 497
hydatidiform mole, [Velasco] 1844
inertia, cause of, [Bell] 1524
myoma, and pregnancy, [Helmann] 415
myoma, pulmonary embolism in, [Farrar] 1366
myoma, suppurating, [Darnall] 1203—ab
myoma with severe anemia, [Senge] 1776
prolapse and cystocele, [Earl] 965—ab
prolapse, Goffe operation for, 1441
prolapse of vagina and, during delivery, [Hannak] 2009
prolapse, operative treatment of, [Fox] 1056
prolapse, permanent fixation by fascial flaps, [Thorning] *101
prolapse, significance of pelvic outlet in, [Morse] 967
retrodisplacement, with suggestions regarding their proper treatment, [Black] 2086—ab
rupture of, at term, [Peña] 1774
simple method to retain radium in, [Furniss] *623
torsion of uterine adnexa occurring before puberty, [Smith & Butler] 400—ab
ventrifixation, [Gemmell & Robinson] 321
UVEAL TRACT, immune reactions following injuries to, [Woods] *1317
- V
- VACCINATION: See also under names of diseases, as Typhoid, vaccination in
VACCINATION, compulsory, in Cuba, 1747
in Haiti, 1583
in Paris, statistics on, 1115
intracutaneous, [Hoffmann] 1212, [Leiner] 1377
VACCINE THERAPY: See under names of diseases
VACCINE THERAPY and sarotherapy in affections of bones and joints, 1749
autogenous, [Buc & Jasquelin] 1289
VACCINES, bacterial mixed, 1103
mechanism of action of, [Auricchio & Jemma] 1528
residual, [Jenkins] 232
saline versus lipovaccines, 1845
standardization of, by opacity method, [Holker] 1604
VACUUM, device to induce, [Munoz Urra] 1930
VAGINA, artificial, [Frank] 1215, [Fohr] 2154
atresia and stricture of, [King] 1203—ab
cancer, radium therapy in, [Bailey & Bagg] 314—ab
cysts, [Ingraham] *1487
cysts, multiple, [Bérard & Dunet] 1136
development of, [Taussig] 1997
prolapse of uterus and, during delivery, [Hannak] 2009
VAGISBPTIC DISCS, 304—P
VAGITUS UTERINUS, (prenatal crying), [Sprod] 1135
VAGOTONIA, adrenal white line, in diagnosis of, [Kay & Broeck] 644
quantitative test for, [Kahn] *1573
tests for, [Mosler & Werlich] 1933
VAN SKIETEN'S diary, [Van der Kleij] 1534
VARICOSE VEINS, fatal hemorrhage from varices, [School] 1060
on a fibromyoma, flooding of peritoneum from rupture of, [Chalier & Morénas] 651
new method of treatment for varicose ulcers of leg, [McKnight] *1890
parathyroid extract in treatment of varicose ulcers, [Grove & Vines] 1767
- VARICOSE VEINS, treatment of, [Löhr] 1214, [Aeby] 2006
treatment for varicose ulcers of leg, [Kuhn] 2082—C
VARIOLA: See Smallpox
VASCULAR DISORDERS, tourniquet in treatment of, [d'Oelsnitz] 157
VASECTOMY, effect of, on testes, [Veckl] 880—C
statute, due process of law denied by, 1995—M1
VASOMOTOR depressants, volume of liver decreased by, [Edmunds] 1131
VATER'S PAPILLA: See Papilla, Vater's
VENEREAL DISEASES, 873, 1112
at Paris, 796
campaign, 799
campaign in Mexico, 1116
campaign, results of, 300
conference on, 390
control of, in Roumania, 802
criticism of London clinics for, 872
frequency of cancer, tuberculosis and, in general practice, [Hendriks] 1216
in Germany, 295
legal liability for, 14—ab
prevention of, 2072
prevention of, policy of British government, 213
prophylactics, effect of, [Schumacher] 414
protein therapy in, [Trossarello] 1452
results of census of persons affected with, 719
self-disinfection in prevention of, 2131
spread of, 300
VENESECTION, residual nitrogen in blood under influence of, [Löwy & Mendl] 78
VENIPUNCTURE of superior longitudinal sinus in new-born, results in 231 cases, [Gordon] *1721
VENTILATION, weather, and common cold, [Palmer] 1047
VERBRUGGE'S "De Aneurysmate," [Hoeven] 1534
VERMIN, extermination of, 1191
VERMONT state board June examination, 640
VERONAL: See Barbitol
VERRUCA, Peruvian, [Odrozola] 153
VERTEBRA: See also under Spine
VERTEBRA, fifth lumbar, malformation of, [Aimes & Jagues] 1848
fifth lumbar, resection of spinous process of, [Bonniot] 1606
fifth lumbar, sacralization of, [Lupo] 2152
malformations of, congenital, [Mills] 151
sacralization of, [Léri] 1526
sacralization of, radiotherapy of pain from, [Japiot] 1606
VERMONTANUM, comparative and pathologic anatomy of, [Heller & Sprinz] 1611
VERWORN, MAX, death of, 2074
VESICULAR MURMUR, so-called, of respiration, mode of production of, [Rushnell] *2104
VETERANS' BUREAU: See also Sweet Bill
VETERANS' BUREAU, 715
A. D. Dean appointed to, 870
change in medical personnel of, 715
decentralization in care of veterans, 1432
investigators report to, 950
nursing force for, 1192
Public Health Service men to, 1114
purchases hospital, 1349
Senate committee makes recommendations on care of disabled, 949
survey of staff in, 872
takes over naval hospital, 1432
work of, 1506
VETERINARY and human medicine, cooperation between, 1350
VIENNA clinics, enlargement of, 953
as graduate medical center, [Kress] 2142—C
nutrition of Viennese children, [Gibbon & Paton] 1524
University, expression of gratitude by, 871
VINCENT, George, on responsibility of physician (from cure to prevention), 1343—E
VINEGAR, "four thieves' vinegar," [Boinet] 819
VIRCHOW, RUDOLF, [Aschoff] 2097
celebration of birthday of, 1903
centenary, 1427—E, 1903
VIRGINIA state board June examination, 1359
VIRUSES, neurotrophic, filtrable, [Harvler] 495
- VISCEROTOMY: See Splanchnotomy
VISION, defective, in schoolchildren, [Holm] 900
disturbance of, after loss of blood, 715
disturbance of, from abuse of alcohol or tobacco, [Terson] 73
VITAL CAPACITY and physical fitness, 1105—E, [Peabody & Sturgis] 1918
of lungs, exercise tolerance and heart disease, [Wilson & Edwards] 1762
of lungs in heart disease, [Ulrich & Nathanson] 2091
VITAL STATISTICS, 925—ab, 2131
Arizona's opportunity for passing law on, 945—E
for first 6 months of 1921, 1833
for 1920, French, 800
Jewish, 797
mortality statistics, 1504
mortality statistics in France and United States, 873
trend of mortality in controllable and uncontrollable diseases, 1108—E
VITALITAS, 722—P
VITAMIN, [Van Leersum] 241
A and rickets, 383—E
A, deprivation of, [Tozer] 649
and their distribution, 570
B, bacteria not source of, [Damon] 1765
biochemical and clinical research on, [Damianovich] 1140
biochemical research on, [Damianovich] 1140
clinical research on, [Pillado Mathieu] 1140
deficiency and tuberculosis, [Gloyne & Page] 1769
distribution of, 561—E
effect of heat and oxidation on antiscorbutic vitamin, [Dutcher & others] 969, [Smith & Medes] 1765
fat-soluble vitamin and pigmentation of peas, [Steenbock & others] 575
fat-soluble vitamin and yellow pigmentation in animal fats, [Steenbock & others] 152
importance of avitaminosis in childhood, [Vogt] 1690
in fish cod liver oil, 1168—ab
in treatment of tuberculosis, 1146—ab
physiology of, [Cowgill & Mendel] 2088
report on, 806
requirements of yeasts and bacteria, [Funk & Dubin] 1765
result of feeding fat soluble vitamin poor diet, [Steenbock & others] 2088
rôle of fat soluble vitamin in rickets, [Hess] 313—ab
VITILIGO, genital and abdominal, in women, [Jayle & Aubry] 653
VITREOUS HUMOR, hydrogen ions in, in fetus, [Nordenson] 1614
VIVISECTION, antivivisectionists, 843—ab
antivivisectionists attempt suppression of truth, 792—E
layman's defense of animal experimentation, 469—E
medical support of antivivisectionists, 559—E
Woman's Home Companion on, 792—E, 1029
VOCAL CORDS, paralysis of, secondary to breast tumor, [Turner] 818
VOCATIONAL orientation, [Mira Lopez] 76
training, Colonel Forbes denounces present methods in, 1432
VOLSTEAD ACT amendment, Senate deadlocks on, 795
Mellon issues beer regulations, 1425—E, [Herz] 1594—C, [Rayle] 1594—C, [Davis] 1673—C, [Cra-craft] 1673—C, [Moser] 1755—C, [Ashe] 1836—C
Willis-Robinson bill amending the Volstead act, 1739—E
VOLTA Powder, 1513—P
VOLVULUS, subacute, of sigmoid colon, [Harbison] 1924
VOMITING, neurotoxic, breathing treatment of, [Bescher] 819
VRBENSKY, B., new minister of health in Czechoslovakia, 1435
VULVA, rodent ulcer of, [Kusuda] 655
- W
- WADE'S Golden Nervine, 393—P
WADHAMS, Colonel, retirement of, 387
WAMPOLE'S phosphorus, Nux and Damiana, 1439—P
WAR: See also Army; Soldiers; Wounds
WAR, effect of, on population, 2074
influence of, on mortality of civilian population, 1833
museum, Italian, 1505
souvenir volume of medical victims of, 1981
WART: See Verruca
WASHINGTON convention concerning employment of women before and after childbirth, 51
state board July examination, 1757
WASKIA INTESTINALIS: its cultivation and cyst formation, [Hogue] *112
WASP sting, death of Danish minister from, 1115
WASSERMANN REACTION and formal reactions, comparison of, [Ecker] 1369
comparison of Sachs-Georgi and, [D'Aunoy] 1766
effect of cholesterinemia on, [Craig & Williams] 968
fast state, suggestion for avoidance of, in treatment of chronic syphilis, [McNeil] *1970
icebox modification of, [Keidel & Moore] 1283
in malaria, value of, [Iyengar] 232
in typhus, positive, [Bauer] 2153
negative, with active syphilis, [Pinard & others] 2151
reliability of, 1789—ab
spontaneous variations in, [Tha-sen] 744
standardization of, [Kolmer] *776
with brain tumors, [Lotmar] 2152
WATER and gastric secretion, 129—E
bacteriologic examination of, [Mesa] 1930
balance in intestinal obstruction, [Bacon & others] 1841
chlorinated, death erroneously attributed to, 1740—E
diuresis, effect of, on kidney, [Carr] 1684
effect of drinking water with meals, 638
elimination by infants, [Wengraf] 1144
hard, as a physiologic source of calcium in body, 625—E
in living beings and in colloids, [Scala] 895
mineral, and composition of blood, [Grigaut & others] 235
mineral, repression of fraud in sale of, 567
pollution of, 382—E
purification and sterilization of, 800
supply of London, 1585
typhoid outbreaks in Spain due to, 138
WEATHER, common cold and ventilation, [Palmer] 1047
WEIGHT, von Pirquet standard of normal body weight as compared with other standards, [Barden] 1988—C
WEIL'S DISEASE: See Jaundice, Infectious
WELSH National School of Medicine, 211
WEST VIRGINIA state board July examination, 1757
WESTERN Society of Psychologists, meeting of, 630
WHISKY: See also Alcohol, Beer, Prohibition, Volstead Act
WHISKY, medicinal, proposed increase of tax on, 1979
WHITFIELD'S ointment, 2082
WHITMAN loop operation for equinovagis, [Kleinberg] *1390
WHOOPIING COUGH, [Weill] 1211
diagnosis of, 484
ether in, [Vaccarezza & Indla] 2096
in adults, [Neurath] 2008
intradermal test for, [Modigliani & de Villa] 74
prophylaxis of, [Miller] 1445
serum therapy, [Stern] 238
syncope and apparent death in, [Martinez Vargas] 976
WIDAL TEST, modification of, [Goré] 735
WILLIS-CAMPBELL antibeer bill delayed, 385
adopted by Senate, 1748
prohibition bill goes to conference, 630
WILLIS-ROBINSON BILL amending Volstead act, 1739—E
WILLS, fantastic beliefs and testamentary beliefs, 487—M1

- WILLS, testamentary provision, 1670
WILSON, James Sprigg, order of Rising Sun conferred on, 872
WILSON'S DISEASE, [Chiappori] 1140
 pathogenesis of, [Sjövall & Soderbergh] 1379
WINCKEL'S DISEASE, nitrobenzene poisoning and methemoglobinemia, 1108—E
WISCONSIN state board January examination, 60
 state board June examination, 2144
 state board March examination, 143
 state board September report, 1676
WITNESS, physicians as witnesses—causes of death—provisions for necropsies, 884—M1
 privilege not waived as to physician as, 1201—M1
WOMAN'S HOME COMPANION on vivisection, 792—E, 1029
WOMEN, first woman professor in Argentine, 1747
 future of race affected by women in industry, 1880—ab
 in science and medicine, 868—E
 increased attendance of women at Prussian universities, 1436
WOMEN, Washington convention concerning employment of women before and after childbirth, 51
 woman in medical chair, 1265
WOMEN'S Aid Society, 719
 Medical Association of Philippine Islands, 1666
WORDS, why shun short words? [Heald] 958—C
WORKMEN COMPENSATION acts, suits by physicians under, 1364—M1
 bone and joint tuberculosis from standpoint of, [Broca] 323
 for loss of one eye, [Siegrist] 1528
 report of committee on estimating compensation for eye injuries, [Black & others] *1654
WORMS, criticism of remedy for, 1515
WOUNDED: See also Soldiers; War; Wounds
WOUNDS: See also under names of organs and regions
WOUNDS, death from wounds resulting in septic poisoning, 810—M1
 evolutionary, 633
 healing, factors in, 1973—E
 healing of, influence of periarterial sympathectomy on, [Leriche & Haour] 1927
WOUNDS, healing of, promoted by testicle tissue, [Aievoli] 1928
 heliotherapy of, [Torraca] 654
 infected, treatment of, [Hellendall] 239
 tidal irrigation of, by means of liquid-tight closure, with special reference to treatment of empyema of thorax, [Taylor] *1393
 treatment of infected abdominal wounds by closed method, [Watkins] *676
WRIST, fractures, mechanics of, [Schurmeier] *2119
 motor disturbance in, after fracture of radius, [Mocquot] 1136
WURTZ, memorial to, 2070
WYOMING state board June examination, 1442
- X**
- XANTHOMA tuberosum multiplex in childhood, with visceral and tendon sheath involvement, [Knowles & Fisher] *1557
XEROFORM, S. and G., 1971
- Y**
- YEAST, effect of compressed yeast in food of infants, [Ladd] 312—ab
 nutritive value of, in bread, [Hawk & others] 66
 vitamin requirements of bacteria and, [Funk & Dublin] 1765
YELLOW FEVER, 1270
 and malaria, 2132
 campaign against, 295, 1426—E
 convention, 2073
 etiology of, 397
 experimental, heart symptoms in, [Cohn & Noguchi] 152
 fish as factor in extermination of, [Connor] 1139
 in Mexico, 478, 1116, 1264
 prophylaxis and serum therapy of, [Noguchi] *181
YELLOW PINE COMPOUND, 482—P
YOKOHAMA hospitals closed by Navy, 212
- Z**
- ZINC CHLORID poisoning, [v. Csánky] 1531

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in THE JOURNAL, the names of those who have read papers before Societies as published in THE JOURNAL and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in THE JOURNAL. The author's name is followed by a brief clue to the subject of the article.

A

- Aaron, A. H., Tetrachlor test, *1631
 Abadie, C., Tardy manifestations of syphilis, 407
 Abbott, M. E., Cardiac anomaly, 1762
 Abderhalden, E., Speed of erythrocyte precipitation, 1376
 Abeil, I., Cancer of Vater's papilla, 1048
 Abente Haedo, F., Thrombophlebitis, 1609
 Abernathy, C., Posture for perineal protection, 1934
 Ableson, M., Chaulmoogra oil in tuberculosis, 68
 Abt, I. A., Sequelae of communicable diseases, *665
 Acevedo, B., Hydatid cyst of lung, 1848
 Achard, C., Pregnancy pyelonephritis, 579; Sclerosis, 653; Diphtheric paralysis, 819; Diabetes of bearded women; 891; Associated diabetes, 1769
 Acton, H. W., Quinin prophylaxis, 1209
 Adair, F. L., External pelvic measurements, 1366
 Adams, D. S., Cure of large hemangioma, 969
 Adkins, G. E., Diphtheria and streptococcus carriers, 2087
 Alder, A., Changes in leukocytes in infectious diseases, 74
 Alder, A. E., High blood pressure in nephritis, 1053
 Adler, F. H., Basal metabolism in goiter, 812
 Adler, L., Carcinoma of uterus, 899
 Adler, S., Leprosy, 1686
 Agasse-Lafont, E., Medicinal gastritis, 893
 Aggstern, A. A., Alkali reserve during anaphylactic shock, 645
 Aguilar Feliu, A., Pulsus alternans, 1374
 Aiello, G., Uremia, 1773
 Aievoli, E., Cancer of rectum, 326; Gastro-enterostomy, 1055; Surgery in carotid region, 1213; Testicle tissue promotes healing, 1928
 Aimes, A., Sacralization of lumbar vertebra, 1848
 Alapy, H., Prostatitis after cystostomy 1774
 Albanese, A., Absorption of hematoma, 1138
 Albert, J., Leper segregation, 1844
 Alcheck, E., Acute aplastic leukemia, 2151
 Alessandri, C., Quinke's edema with urticaria, 497
 Alfieri, E., Uterine fibromas, 2005
 Alivisatos, A. S., Rapid biloculation of stomach, 1847
 Allen, H. R., Iliosacral joint, *854
 Allison, N., Bone atrophy, 1285
 Almkvist, J., Weight during treatment for syphilis, 416; Mercurial tonsillitis, 2012
 Alsberg, J., Duodenal ulcer, 498
 Als-Nielsen, A., Tests of motor function of stomach, 416
 Alurralde, M., Cystic brain tumor, 1056
 Alvarez Mouliá, A., Febrile syphilitic hepatitis, 1609
 Alvarez Sainz de Aja, E., Intravenous treatment of syphilis, 580
 Alvarez de Toledo, R., Acute leukemia, 159
 Alvis, B. Y., Anatomy of eighth nerve, 731
 Amato, A., Opsone sensitization, 1689
 d'Amato, L., Myasthenia gravis, 1848
 Ambard, L., Thresholds in kidney secretion, 1527
 Amberson, J. B., Jr., Annular shadows in tuberculosis, 2088
 Amreich, J., Typhoid peritonitis, 415; Radiotherapy of uterine cancer, 1777; Open pneumothorax, 2008
 Amrein, O., High altitude and tuberculosis, 1769
 Andérodias, J., Gastro-intestinal hemorrhage, 1211
 Anders, J. M., Changes in educational methods and legislation advocated, 570
 Andersen, E., Bilirubin in blood, 1292
 Anderson, A. F., Absorption from peritoneal cavity, 65
 Anderson, E. D., Blood examination in cancer as aid in prognosis, 70; Blood in breast cancer, 405
 Anderson, J. M., Bacillus proteus in spinal fluid in typhus, 1605
 Anderson, T. B. H., Ringworm, *1302
 André, Anuria from calculus after nephrectomy, 652; Ureter reflux, 974
 André-Thomas, Hexamethylenamin in encephalitis, 1771; Pilomotor reflex, 1772
 Andrewes, C. H., Poisoning by cantharidin, 1371
 Andrewes, F. W., B. paratyphosus C, 889
 Andrews, E. W., Duodenal diverticula, *1309
 Andrews, G. C., Synovial lesions of skin, 730; Irradiation, *1489; Loss of hair, 1522
 Angela, C., Barre's leg sign of pyramidal disease, 412
 de Angellis, F., Vincent's angina, 74; Epinephrin test, 822; Disinfection of dialyzing membranes, 1213
 d'Anna, C., Means to prevent coughing up of tube, 411
 Anselmi, A., Antityphoid vaccination, 1609
 Anslow, R. E., Intestinal obstruction, 1841
 Anspach, B. M., Conduct of obstetrics, 1366
 d'Antona, S., Symptomatology of encephalitis, 821
 Anzoletti, A., Coxa Vara, 739
 Aoki, K., Agglutination of paratyphoid group, 1612
 Aperle, G., Tansini's technic for amputation of mamma, 2096
 Apert, E., Incipient leontiasis, 819
 Araujo, E., Plague, 977
 Arce, J., Micrococcus catarrhalis meningitis, 2007
 Arcelin, F., Radiologic exploration of carpus, 1372
 Argañaraz, R., Flat sarcoma of choroid, 326
 Arijón Gende, J., Electric conductivity of body fluids, 977
 Aristegui, M. A., Hydroa vacciniforme, 1453
 Armand-Deville, P. F., Preventive heliotherapy, 234; Tuberculous antibodies, 1925; Tuberculous peritonitis, 1925
 Armstrong, D. B., Tuberculosis, *585
 Armstrong, R. R., Pneumococcal lung infections, 1604
 Arnavas, G., Osmic acid to promote healing of fractures, 75
 Arnell, P., Quinidin in auricular fibrillation, 1380
 Arnesen, A., Strychnin poisoning, 826
 Arnold, H. R., Three blood volume methods compared, 149
 Arons, H., Thrombosis of superior vena cava, 1293
 Arnould, Incision after X-ray exposures, 974
 Arrillaga, F., Action of emetin on heart, 1140; Action of quinidin on heart, 1530
 Aschenbach, R., Hot sand baths, 826
 Aschenheim, E., Open air treatment in tuberculosis, 2098
 Aschner, P. W., Auscultatory sign, 1917
 Aschoff, L., Rudolf Virchow, 2097
 Ashby, W., Blood destruction in pernicious anemia, 732; Myositis, 1204
 Ashe, E. O., Peptic ulcer of intestine after gastro-enterostomy, 1051
 Ashe, H. P., "Mellon issues beer regulations," 1836
 Ashhurst, A. P. C., Operation for subluxation of jaw, 149; Hysterec-tomy, *1494
 Asman, B., Malignancy of rectum, 1127
 Asteriades, T., Siraud technic for femoral herniotomy, 897
 Atkinson, H. V., Effect of hemorrhage on sympathetic nerves, 967
 Aub, J. C., Basal metabolism in liver disease, 885
 Aubel, E., Potassium chlorid in renal dropsy, 1526
 Aubert, L., Transperitoneal cesarean section, 73
 Aubry, H., Vitiligo in women, 653
 Auer, J., Skin tolerance to X-rays, 153
 Augustine, D. L., Hookworm larvae, *2035
 Auld, A. G., Pyrogenic therapy, 2092
 Aurel, E., Potassium chlorid as a diuretic, 650
 Auricchio, L., Mechanism of vaccine therapy, 1528
 Austgen, H. G., Pulmonary tuberculosis after war wounds, 79
 Austin, M. L., Luminal in epilepsy, 1602
 Avilés, J., Chronic appendicitis, 646
 Aviragnet, E. C., Antitoxin by mouth, 1052
 Ayer, J. B., Proteiu in spinal fluid, *365
 Aymès, G., Obseity after encephalitis, 1770
 Ayres, S., Jr., Phenolphthalein dermatitis, *1722
 Azzi, A., Action of thermic stimulation of skin on mucosa of trachea bronchi, 325
- B**
- Babonneix, Mediastinal lymphocytoma, 1526
 Bacon, D. K., Intestinal obstruction, 1841
 Baehr, E. M., Tumors of corpus callosum, 1049
 Baehr, G., Periarthritis nodosa, 1045; Typhus, *1967
 Baensch, W., Diagnosis of disease in urinary apparatus, 826
 Baer, J. L., Metabolism in pregnancy, 1366
 Baer, W. S., Ankylosing operations of spine, 1521
 Bager, B., Perforation of ulcer, 1457
 Bagg, H. J., Vulval and vaginal cancer, 314; Effect of radium on brain, 1367
 Bagger, S. V., Sigmoid-bladder fistula, 900
 Bahr, L., Mucous colitis, 658
 Bailey, C. V., Basal metabolism, 1843
 Bailey, H., Radium in vulval and vaginal cancer, 314; Ophorectomy, 488
 Bailey, P., Staining granules in pituitary cells, 1766
 Bailey, W. H., Blood chemistry, 2086
 Bakowski, W., Tenderness to percussion in abdominal disease, 824
 Balado, M., Otitis media and interna, 1140
 Balard, P., Pregnancies after cesarean section, 235; Blood pressure in eclampsia, 975; Blood pressure in new-born, 1450; Puerperal fever, 1451
 Balduzzi, A., Testicle anomalies, 496
 Baldwin, E. R., Reinfection in tuberculosis, 1046
 Baldwin, W. I., Arthroplasty, *1860
 Balfour, A., Histopathology of typhus, 649
 Balfour, D. C., Postoperative biliary fistulas, 1841
 Bálint, A., Creatin and creatinin in infants, 581; Pulse and thyroid and pituitary extracts, 740
 Balkenhausen, Injury of liver from anesthetization, 898
 Ballance, H., Best incision in appendicitis, 1208
 Ballin, M., Method of cranioplasty, 320
 Balthazard, V., Occupational diseases, 738
 Balzer, F., Chronic impetigo, 1527
 Bambären, C. A., Syphilis as factor in epilepsy, 497
 Banchieri, E., Rhizomelic spondylosis, 75
 Bancroft, F. W., Osteomyelitis, 149
 Bankart, A. S. B., Metatarsus varus, 1767
 Bär, E., Operative treatment of goiter, 498
 v. Barabás, Z., Injection of blood, 1144
 Barabino Amadeo, S., Epithelioma of urethra, 327
 Barach, A. L., Pneumonia, *1217; Oxygen in cardiac insufficiency, 1519; Oxygen in pneumonia, 1519; Oxygen in encephalitis, 1520
 Barach, J. H., Nocturnal polyuria, 643
 Barajas y de Vilches, J. M., Tuberculous lesions in pharynx, 76; Sequester in mastoid, 1849
 Bárány, K., Ocular and railroad nystagmus, 1457
 Barbé, A., Homicidal obsession impulse, 819; Cancer statistics, 1210
 Barber, W., Convulsions in infants, 1603
 Barbier, Necropsy in hiccup, 324
 Barbour, H. G., Blood content and antipyretic drug action, 1684; Toxic effects of chlorin antiseptics, 1684
 Barbour, P. F., Colitis, 1128
 Bard, L., Patent arterial duct, 407; Pulsating pleurisy, 578
 Bardach, M., Suspension stability of erythrocytes, 2007
 Barden, C. R., Von Pirquet standard of normal weight, 1988
 Bardouf, Tunis gruel, 1847
 Bardswell, N., Subcutaneous tuberculin test, 736; Tubercle bacilli in sputum, 2093
 Barker, L. F., Neutrophilic myelocytes in spinal fluid, 69; Symptoms in encephalitis, 731; Value of drugs, *1151
 Barkman, A., Brain sarcoma, 1295; Cerebellar disease, 1379
 Barling, G., Cholecystectomy for gallstones, 2002
 Barnes, H. L., Conjugal tuberculosis, 1600
 Barraquer, I., Vacuum extraction of cataract, 977
 Barré, J. A., Leg sign of pyramidal disease, 1689; Encephalitis, 1771
 de la Barrera, J. M., Biologic reactions in typhus, 1608
 Barret, H. P., Culture medium for blastocystis, 647
 Barringer, B. S., Teratoma, *1237
 Barringer, T. B., Treatment of heart disease by exercise, *7
 Barron, M., Cancer of lung, 966
 Barrow, W., Malignant uterine conditions, 1127
 Barsky, J., Acute yellow atrophy, 885
 Bársony, Dentated outline of greater curvature of stomach, 500
 Bartle, H. J., Gastric analysis, 1048
 Bartlett, P. C., Tuberculosis, *585
 Barton, H. J., Suppurative appendicitis, 64
 Barton, L. G., Fracture frame, *2058
 Bartrina, J. M., Prostatism without hypertrophy, 653
 Basch, J., Roentgen irradiation for inflammation of sweat glands, 1293
 Basile, C., Icterohemorrhagic spirochetosis, 159
 Bass, M. H., Leukemia, 1917

- Basset, A., Gastro-enterostomy for perforation, 973
- Bassett-Smith, P. W., Lemon juice tablets in scurvy, 890
- Bassler, A., Hematemesis, *28; "Dr." and "M.D.", 2143
- Bassoe, P., Myelitis and myelomalaria, 229; Calcification of cerebral vessels, 1281; Sequels of encephalitis, 2001
- Bast, T. H., Bone cells, 811
- Battle, W. H., Removal of stones from ureter, 492
- Bauer, J., Constitution and tuberculosis, 1610
- Bauer, K., Positive Wassermann reactions in typhus fever, 2153
- Bauer, K. H., Pathologic constitutions and surgery, 78
- Baum, E., Jejunal peptic ulcer, 163
- Bauman, G. I., Köhler's disease, *1086
- Baumann, E. J., Effect on metabolism of removing suprarenals, 967
- Baumann, J., How to administer pepsin, 975
- Baumberger, J. P., Smoking vs. chewing, 59
- Baumel, L., Acute pericarditis, 1211
- Baumgardt, G., Influence of reaction of food, 237
- Baur, M., Measles, 742
- Bayer, C., Meteorism as aid in diagnosis, 1932
- Bayne-Jones, S., No indol production by staphylococci, 1283
- Bazy, P., Incomplete evacuation of bladder, 651
- Beall, K. H., Glossopyrosis, 2086
- Beattie, W. W., Cardiac anomaly, 1762
- Becher, E., Residual nitrogen, 80
- Becht, F. C., Volume changes of spinal fluid, 149
- Beck, A. C., Prenatal care, *457; Cesarean section, 1285
- Beck, E. C., Tetrachlor test, *1631
- Becker, H., Modification of Sehrt's aorta clamp, 1059
- Becker, J., Skin and sweat glands in new-born, 1143
- Réclère, A., Roentgenotherapy of fibromyomas, 1687; Deep roentgenotherapy, 1926
- Bedson, S. P., Blood platelet origin, 1605; Scurvy, 1924
- Beer, E., Nephro-ureterectomy, *1176
- Begtrup, E., Metabolic findings in obese boy, 980
- Behan, R. J., Appendicitis, 1917
- Behm, M., Gastric secretion and gall-bladder disease, 1609
- Behr, O., Syphilis of kidneys, 412, 977
- Belaval, J. S., Premature separation of placenta, 1448
- Belfield, W. T., Hereditary blindness, 2059
- Belk, W. P., Tropical granuloma, 1447
- Bell, G. H., Intra-ocular infections, *1096
- Bell, J. N., Diabetes in pregnancy, 1202
- Bell, W. B., Unsolved problems in gynecology and obstetrics, 314; Lesions in internal genital organs, *696; Uterine inertia, 1524
- Bell, W. H., Phenols produced by bacteria, 1369
- Bellis, B., Citric acid content of milk, 1765
- Beltrami, P., Normal beef serum in anthrax, 1608
- Bénard, R., Rubella, 2151
- Benedict, F. G., Metabolism measurements, *247; Pawlow still alive, 1039
- Benedict, S. R., Blood volume determination, 1047; Sugar in normal wine, 1283; Ammonia in blood, 1765; Uric acid in blood, 1843
- Benoit, E. P., Syphilis of lung, 157
- Benon, R., Posttraumatic headache, 821
- Bensaude, R., Esophagoscopy, 158; Dilatation of esophagus, 325
- Benthin, W., Pneumoperitoneum in gynecology, 1611; Artificial vagina, 2154
- Bentley, J. R., Belladonna poisoning from rabbit, 1768
- Benton, G. H., "War" neuroses, *360
- Benvenuti, E., Tuberculosis of myocardium, 496
- Bérard, L., Multiple vaginal cysts, 1136
- Bercher, J., Tumors of jaws, 1289
- Beretervide, E., Nephritis, 2095
- Bergeim, O., Nutritive value of yeast, 66
- v. Bergen, J., Urine test for tuberculosis, 895
- Bergman, E., Hereditary ataxia, 1457
- Bergmark, G., Lesions in oblongata and pons, 1458
- Bergonie, J., Radium treatment of roentgen dermatitis, 409
- Bermann, Intracardiac injection of epinephrin, 1774
- Bermann, G., Forensic medicine, 1375
- Berner, J. H., Posttraumatic cancer, 2012
- Bernheim, B. M., Blood transfusion, *275
- Berry, F., Spontaneous recovery from rabies, 318
- Bertelsen, A., Medical bibliography of Greenland, 980
- Berti, G., Partial resection of kidney, 579; Resection of kidney, 1054
- Bertrand, I., Necropsy in hiccup, 324; Progressive myasthenia, 2004
- Besançon, J., Glycemia in goiter, 1373
- Bessau, G., Acute dyspepsia, 824
- Besson, A., Infection with Morgan's bacillus, 324
- Besta, C., Manifestations from pilocarpin in brain lesions, 496
- Betchov, N., Blood pressure in tuberculous, 1289; Other lung with artificial pneumothorax, 2095
- Beth, I. H., Pathology of secretion of bile, 743
- Beyers, E. C., Splenic cyst; extra-peritoneal fibromyoma, 1288
- Bezanson, F., Asthma, 234; Tuberculous sputum, 494; Necrotic pneumonia, 892
- Bianchi, G., Psychosis after spinal anesthesia, 2006
- Bie, V., Serotherapy of diphtheria, 1144
- Bier, A., Surgical tuberculosis, 329, 1214
- Bierring, W. L., Hydrarthrosis, *785
- Bierry, H., Blood sugar in nephritis, 1053
- Biffs, P., Digestive tract in anemia, 739
- Bigelow, G. H., Virus of measles, 318
- Biggs, M. H., Intussusception, 1922
- Bilancioni, G., Sarcoma in nasal fossa, 412
- Bile, S., Operation for femoral hernia, 654
- Billet, H., Traumatism of skull, 820
- Billigheimer, E., Test injection of epinephrin, 77
- Billings, F., Past, present and future policies of American Medical Association, 1742; Group practice, 1910
- Billings, F. T., Primary thrombosis of pulmonary artery, 2092
- Binet, L., Study of movements, 1527
- Binet, M. E., Stomach-gallbladder crises, 820; Cholelithiasis, 973
- Bing, L., Malformations of kidneys, 1611
- Bircher, E., Thymus, 821
- Birley, J. L., Disseminated sclerosis, 1133
- Birnbaum, R., Puerperal pyemia, 1850
- Biros, A., Tuberculous sputum, 494
- Birt, E., Decapsulation in phosphaturia, 655; Fractures, 1058; Ameba and gastric ulcer, 1142
- Bishop, E. L., Soil pollution, 1996
- Bishop, L. F., Heart beat, *31
- Bisseling, G. H., Dentistry, 1778
- Bistis, J., Recurring paralysis of motor oculi, 823
- Bith, H., Surgery in diabetes, 892
- Bittman, F. R., Experimental measles, 1369
- Blittorf, A., Pigmentation in Addison's disease, 656
- Bjüre, A., Effect of epinephrin on healthy persons, 1458
- Black, L. T., Hypertrophic osteoarthropathy in tuberculosis, 813
- Black, N. M., Compensation for eye injuries, *1654
- Black, W. T., Retrodisplacement, 2086
- Blackburn, J. H., Tuberculosis of fascia, 404; Gastro-intestinal tract cancer, 1127
- Blackburne, G., Resuscitation by cardiac massage, *1422
- Blackfan, K. D., Enlarged thymus in infants, 313
- Blackford, J. M., Gastric symptoms, *1410
- Blair, V., Rhinoplasty, *1479
- Blaisdell, J. H., Radium in cancer of antrum, 1842
- Blake, F. G., Measles, *192
- Blamoutier, P., Ulceration with rectal cancer, 494
- Blanc Fortaehn, J., Suture after herniotomy, 237
- Blankenhorn, M. A., Blood pressure, *90
- Blanton, S., Speech disorders, *373
- Blatherwick, N. R., Blood fat in diabetes, 2147
- Blechlmann, G., Hirschsprung's disease, 1136; Desquamating erythrodermia, 1451
- Blegvad, O., Blue sclerotics with fragile bones, 1934
- Bloch, J. C., Goiter, 1927
- Bloch, O., Epigastrie hernia, 971
- Bloeh, R., Syncope at spinal anesthesia, 653
- Bloch, S., Epinephrin thyroid test, 892
- de Bloeme, P., Proper candidates for sanatorium treatment, 1216
- Bloodgood, J. C., Cancer of tongue, 220, *1381; Cystic mastitis, 1841
- Bloomfield, A. L., Respiratory disease, *187
- Blum, L., Potassium chlorid as a diuretic, 650; Potassium chlorid in edema, 1526
- Blum, V., Disturbance in urination, 1215
- Blumer, G., Extensive cavernous angioma, 489; Group practice, 2081
- Blumgarten, A. S., Primary lung tumors, 1365
- Blunt, K., Basal metabolism of normal women, 152; Basal metabolism of underweight children, 2147
- Boas, E. P., Right ventricle in tuberculosis, 489
- Bock, A. V., Nitrobenzol poisoning, 643; Blood sugar in diabetes, 1765
- Bock, G., Quinidin in arrhythmia, 1610
- Bodansky, M., Zinc and copper content of brain, 1765
- Bode, P., Scarlet fever, 237
- Boden, E., Action of quinidin, 413
- Bodewig, G., Decompressive trephining, 77
- Boehm, G., Treatment of cardio-spasm, 656
- Boekhoudt, H. B., Causal factors in hemoptysis, 1295
- Boeminghaus, H., Disease in urinary apparatus, 826; Operations on bladder, 1214
- de Boer, S., Delirium cordis, 407; Cause of fibrillation, 1216
- Boerner, E., Strangulation of intestine by tube, 1058
- Bogart, F. B., Metabolic rate, 1133
- Böge, H., Deep roentgenotherapy, 1691
- Bogliano, H., Suture of larynx, 412
- Boigey, Heart during physical exercise, 1137
- Boije, O. A., Eclampsia, 164
- Boinet, E., Four thieves' vinegar, 819
- Bolaffio, M., Edema from undernourishment, 1374
- Bolognesi, G., Streptothricosis of joints, 739; Testicle transplants, 1926
- Bolton, C., Absorption from peritoneal cavity, 1604
- Bon, G. J., Transfusion in anemia, 502
- Bonaba, J., Hemorrhagic purpura, 1055; Posttyphoid aphasia, 1930
- Bonansea, S. J., Meat of cattle with malignant edema, 497
- Bonar, B. E., Inanition temperature of new-born, 401
- Bonar, T. G. D., Gastric function before and after gastrojejunostomy, 1846
- Bond, E. D., Mental diseases, 1281
- Bonfanti, G., Inguinal aneurysm, 75
- Bonfiglio, G., Infant mortality, 236
- Bonnert, D., Tuberculosis activated by syphilis, 1051; Urine test in tuberculosis, 1371
- Bonnet, M., Emetin in bilharziasis, 974
- Bonnet, V., Anesthesia and acidosis, 652
- Bonniot, A., Painful sacralization of lumbar vertebra, 1606
- Bonorio Cuenca, J., Bovine antitoxins, 1608
- Bonorio Udaondo, C., Rectitis, 1140
- Boorstein, S. W., Orthopedic treatment in nervous diseases, 971
- Boothby, W. M., Basal metabolic rate, *252; Gasometer method for metabolism calculation, 1205
- Bordet, E., Deep roentgenotherapy, 894; Ventricle group in electrocardiogram, 973
- Bordet, F., Incipient leontiasis, 819; Blood sugar in nephritis, 1053
- Bordet, J., Theories of blood coagulation, 574; Anaphylaxis, 814
- Bordier, H., Infantile paralysis, 411
- Borghoff, J. A., Darier's disease, 1918
- Bornstein, A., Pharmacologic observations, 2097
- Borrien, Hour-glass stomach, 325; Aerophagia, 494; Gastric spasm, 1136; Gases in colon at splenic flexure, 1846; Minor signs of gallstones, 2151
- Borries, G. V. T., Otogenous encephalitis, 1534
- Bosch Arana, G., Encysted pelvic abscess, 497; Cineplastic amputations, 1849
- Boss, W., Mammary cancer, 328
- Boswell, H., Control of tuberculosis, *523
- Bosworth, A. W., Dry milk products, 1762
- Botey, R., Nasopharyngeal fibromas, 897
- Böttner, A., X-ray in polycythemia, 978
- Bouché, G., Protein therapy in gynecology, 1052; Serum shock, 1689
- Bouchut, M., Vincent's angina and intestinal spirillosis, 1689
- Boudin, P., Social insurance, 738
- Boudreau, Intensive iodine treatment, 1605
- Bourgeois, F., Medical responsibility, 1212
- Bouttier, H., Cleidocranial dysostosis, 819; Progressive myasthenia, 2004
- Boutwell, P. W., Pigmentation and fat-soluble vitamin of peas, 575
- Bovaird, D., Tropical sprue, *753
- Boveri, P., Permanganate test, 1848
- Boyd, F. D., Renal efficiency test, 1286
- Boyd, M. F., Bacillary dysentery, 1448
- Brabant, V. G., Nystagmus and equilibration, 494
- Brackett, E. G., Ankylosing operations of spine, 1521
- Bradford, E. H., Caries of hip joint, 2001
- Brahmachari, U. N., Treatment of malaria, 817
- Bram, I., Exophthalmic goiter, *282
- Brams, W. A., Multifocal syphilitic gastric ulcer, 498
- Bramwell, E., Rib pressure and brachial plexus, 817
- Brancati, R., Experimental gastroenterostomy, 75
- Brandis, G., Infantilism and dwarfism, 656
- Brandweiner, A., Syphilis, 1691
- Brattström, E., Results of operations for cancer, 328
- Brauer, Surgical treatment of tuberculosis, 2010
- Braun, H., Local anesthesia, 1214
- Braun, W., Severing of nerves to combat gastric inflammation, 1216
- Brennemann, J., Abdominal pain and throat infection, 312, 1762
- Brenner, A., Typhus, 1690
- Breslauer, F., Sensibility of abdominal cavity, 161
- Breuer, F., Vegetative nervous system and blood picture, 1058
- Breukink, H., Conceptions of insanity, 658
- Brickley, W. J., Fracture of neck of scapula, 1130
- Briggs, A. P., Excretion of acetone from lungs, 1765
- Briggs, W. T., Urologic diseases, 1127
- Brinchmann, A., Alimentary anemia, 1377
- Brindeau, S., Diphtheria in new-born, 1925
- Brioso Vasconcelos, A., What is best treatment for syphilis? 1139
- Brizard, Schick reaction in measles, 1526
- Broca, Dangers of radium, 323
- Broca, A., Tuberculosis after industrial accidents, 323; Brain tumors, 975; Articular syphilis, 2005
- Broca, R., Prognosis with high blood pressure, 1688
- Brock, S., White adrenal line, 644
- Brockwell, J. B. C., Familial jaundice, 2003
- Brodhead, G. L., Best method of tying umbilical cord, *1754
- Brodin, P., Role of liver in nutrition, 1527; Tuberculosis with liver disease, 1847
- Broekman, J., Inherited diabetes insipidus, 330
- Broers, C. W., Ice cream poisoning, 1612

- Bronner, H., Bladder tumors, 1128
Brooks, B., Bone atrophy, 1285
Brouardel, Residual nitrogen with uremia, 72
Brown, A., Blood transfusion, 1447
Brown, E. E., Splachnaptosis, 1843
Brown, G. V. A., Operability in advanced cancer, 1203
Brown, G. V. I., Harelip, *1954
Brown, L., Intestinal tuberculosis, 941
Brown, R., Amiebie abscess, 574
Brown, S., Nervous symptoms, *113
Brown, T. R., Absence of pancreatic secretions in sprue, 643; Headache, *396
Brown, W. H., Experimental syphilis of eye, 732; Syphilitic reactions, *1619
Browne, F. J., Prevention of stillbirths, 735
Brulé, M., Bile pigments in intestines, 407; Physiologic urobilinuria, 738
de Brun, R., Syphilitic melanoderma, 578
Brüning, F., Abdominal pain, 1774
Brunn, F., Pituitary extract as kidney test, 1142
Brunner, A., Surgery in pulmonary tuberculosis, 330
Brunner, C., Trephining for rupture of meningeal artery, 2097
Brunner, H., Action of roentgen rays on brain tissue, 2008
Bruns, Mechanical artificial respiration, 1932
Brusa, P., Rachitic deformity of thorax, 896
Brusch, P., Giant bladder calculi, 1926
Brütt, H., Surgical treatment of ulcer, 1455
Bryan, C. W. B., Abdominothoracic wounds, 406
Bryant, B. L., Maine Medical Association's plan for coordinating health activities in the state association, 1976
Bryant, J., Visceroptosis, *1400
Buc, Autovaccine therapy, 1289
Buchbinder, J. R., Cholecystectomy, *256
Buchner, L., Loose bodies in joints, 2008
Budde, M., Snapping knee, 1531; Distal bifurcation of femur, 1932
Buell, M. V., Fat soluble vitamin and yellow pigmentation in animal fats, 152
Bufalini, M., Tuberculous splenomegaly, 75
Bugbee, H. G., Carcinoma of kidney with impacted ureteral calculus, 402; Prostatectomy, *905
Buhre, G., Splanchic anesthesia by Braun method, 501
Buka, A. J., Multiple blade retractor, *707
Bull, C. G., Antipneumococcus protective substances, 228
Bullowa, J. G. M., Tonsils and scarlet fever, 401
Bulson, A. E., Jr., Local anesthetics in ophthalmic work, *1730
Bumpus, H. C., Jr., Pyelonephritis, *1475
Bunting, C. H., Leukocytes in influenza, 812
Burekhardt, H., Puncture of gallbladder, 78; Capping cystic duct stump, 1692
Bureau, M., Typhoid spine, 407
Burgess, A. H., Bronchobiliary fistula, 2002
Burk, S. B., Transfusion and malnutrition, 1601
Burke, J. G., Arsphenamin apparatus, *2057
Burke, V., Gram stain, *1020
Burnand, R., Artificial pneumothorax, 2094
Burns, C. W., Fragilitas ossium, 1282
Burr, C. W., Reflexes in early infancy, 65
Burroughs, W. J., Tungsten rays, 1768
Burwell, C. S., Removal of bile and blood from urine, *462; Quinidin sulphate in heart disease, 2089
Bury, J. S., Early symptoms of nervous diseases, 1209
Busacchi, P., Nervous manifestations after diphtheria, 739; Diphtheria toxin in serum during diphtheria, 2006
Buschke, A., Arsphenamin eruption, 1215
Bushnell, G. E., Vesicular murmur, *2104
Bustos Morón, R., Calcium in blood of pregnant, 1929
Butler, W. J., Torsion of uterine adnexa, 400
Butterfield, H. C., Arrhythmia with myocardial degeneration, 406
Byford, H. T., Multiple scarification in cervical endometritis, 400, 1445
Byford, W. H., Dupuytren's contraction, 1284
- C**
- Cabot, H., Prepared soil in infections, 1520
Cabot, R. C., Group practice, 1910
Cahouat, P., Variations in leukocyte count in normal, 72
Cabrera, C., Iso-agglutination group percentages of Filipino bloods, 1603
Caddick, E. L., Anchoring the ends of subcuticular suture, 958
Cade, A., Adhesive pericollitis, 2094
Cadenaule, Mastoiditis, 1210
Cadwalader, W. B., Sclerosis of spinal cord and anemia, 816
Cady, D. W., Anthrax, *2120
Cahn, L. R., Anesthesia in nose and throat work, 1753—C
Caille, E., Stenosis of thoracic aorta, 407
Cailliau, F., Teratoma, 578
Cairns, R., Veterinary chiropractic, 1122
Caius, J. F., Anthelmintics, 1209
Cajal, S. Ramon, Innervation of scar tissue, 1455
Calandre, L., Congenital bradycardia, 896
Calderin, A. M., Idiopathic panotitis, 1453
Caldwell, W. E., Blood chemistry in pregnancy, 488
Calhoun, F. P., Retinitis, *1240
Calicchio, D. J., Unusual monster, *622
Caliceti, Caustic destruction of cancer, 1139
Calmette, A., Vaccination of cattle against tuberculosis, 234
Cambessedès, Protracted encephalitis, 737; Quinin amaurosis, 892; Jacksonian epilepsy, 1770
Cameron, A. T., Effect on growth of feeding thyroid, 2088; Effect on growth of feeding parathyroid, 2088
Cameron, J., Partial absence of corpus callosum, 1206
Cambridge, P. J., Sugar content of blood, 1604
Campbell, C. M., Drugs in neurology and psychiatry, *1228
Campbell, M. F., Drainage tube fixation, *1890
Campbell, W. C., Arthroplasty of knee, 1370
Campos, E., Rupture of iris, 2096
Camus, J., Neurology, 1771
Canelli, A. F., Billrubin in urine and stools, 654; Endocarditis with deformed thorax, 739; Banti's disease, 1452, 1773
Cange, A., Streptococcus gastritis, 894
Canney, J. R. C., Sloughing of lower uterine segment, 1049
Cannon, P. R., Diet and intestinal flora, 1369
Cannon, W. B., Pawlow is still alive, 1040
Cantieri, C., Kahler-Bozzolo's disease, 1054
Canton de Houssay, M. A., Absorption of snake venous by charcoal, 1608
Cantoni, V., Renal lipoma, 1139
Cantonnet, A., Nongonococcus ophthalmia neonatorum, 234
Capelle, W., Encapsulation of goiter remnant, 1216
Capette, Restoration of parenchyma of organs, 2150
Caprario, E., Prognosis in meningitis, 1055
Carballeira, J. C., Recurrent measles, *377
Carelli, H. H., Injection of gas to outline kidney, 1108; Pneumoradiography for exploring kidney, 1140
Caretti, H. L., Kidney disease, 822
Carey, B. W., Diphtheria control, *668
Carey, E. J., Transformation of smooth muscle into striated muscle, 2088
Carlson, A. J., Vagus control of esophagus, 1131
Carlucci, G. A., Polypoid lipoma of intestine, 969
Carman, R. D., New X-ray sign of gastric cancer, *990; Adenocarcinoma and ulcer of stomach, 1046; Hemangioma of duodenum, 1046
Carmichael, J., Effect on growth of feeding parathyroid, 2088
Carnelli, R., Syphilitic disease of liver, 1529
Carnot, P., Tubercle bacilli in duodenum, 892
Carossini, G., Fork in stomach, 1054
Carp, E. A. De E., Sequels of encephalitis, 1612
Carr, A. D., Effect of water diuresis on kidney, 1684
Carr, W. L., Care of premature babies, 225
Carrasco, E. A., Support for artificial eye, 1375
Carrau, A., Hydroa vacciniforme, 1453
Carrel, A., Homotransplantation of cornea, 1842; Operations on pulmonary orifice of heart, 1842
Carslaw, R. B., Acute pancreatitis followed by cyst, 577
Carter, W. E., Pirquet system, *1541, 1911; Suprarenal malignancy, 1599
Carulla Riera, V., Sympathetic anesthesia for surgery of stomach, 897
Carver, A., Epilepsy, 2093
Casamajor, L., Neuroses, 1285
Casper, J. A., Rupture of kidney, 231
Cassuto, A., Sclerous perinephritis, 496; Eosinophilia with enlarged prostate, 1291
Castaño, C. A., Abdominal sympathetic syndromes, 1530
Castellani, A., Bronchitis clinically resembling tuberculosis, 320; Glycosuria of malaria origin, 1049
Casteran, Hiccup with erysipelas, 1925
Castex, M. R., Jaundice in heart disease, 1530; Syphilitic pleurisy, 1530
Castilho Marcondes, F., Suspension laryngoscopy, 580; Foreign body in bronchus, 1529
Castilla, C. R., Foreign body stools, 1056
Castro, A., Strangulated umbilical hernia, 1849
de Castro Freire, L., Osteitis deformans, 233
de Castro Galhardo, A., Paroxysm of intense uremia, 578
Cattani, G., Heart-liver angle, 159
Catterina, A., Diabetes insipidus after trauma of head, 75; Ureteral calculus, 895
Caulfield, A. H. W., Diagnosis of intra-ocular tuberculosis, 66
Caulk, J. R., Prostatectomy, 68; Kidney surgery, *843; Renal tuberculosis, 2148
Caussade, G., Sodium salicylate, 410; Tuberculous infiltration of lung, 579; Miliary tuberculosis in diabetic, 650
Cavina, G., Reconstruction of jaw, 1374; Pyelonephritis, 1529
Cawadlas, A., Hemorrhagic form of relapsing fever, 892; Brain complications of relapsing fever, 892
Cawston, F. G., Bilharzia disease, 58; Schistosomes in urine, 1371; Antimony and emetin in bilharziasis, 2093
Cecil, R. L., Pneumococcus immunity, 1130
Cervera, E., Agglutination test in typhoid, 897
Césari, Salivary glands in encephalitis, 72
Cetrángolo, A., Training in specialties, 1375; Tuberculous laryngitis, 1454
Chabanier, H., Paroxysm of intense uremia, 578; Dieting in diabetes, 892
Chace, A. F., Arthritis, *1230
Chalfant, S. A., Torsion of cecum, 400
Chalier, A., Rupture of varix on fibroma, 651
Chamberlain, W. E., Pelvimetry by means of X-ray, 66
Chamberlin, W. B., Local anesthesia, *1336
Chans, O., Fever from pyelitis, 1055
Chapin, H. D., Use of thick cereal mixtures, 227, 1207; Child and hospital social service, *278
Chapman, J. P., Gastroptosis, 2086
Charbonnel, Reconstruction of fractured long bone, 408; Reconstruction of muscles and tendons, 1210
Charpy, P., Sodium salicylate, 410
Charrier, J., Goiter, 1927
Chattaway, D., Intraperitoneal rupture of bladder, 1525
Chatterji, K. K., Modified Bassini method for hernia, 406
Chavany, J. A., Oculocardiac reflex, 323
Chavigny, P., Medicolegal aspect of encephalitis, 974
Cheatle, G. L., Papilloma of breast, 2002
Chenisse, L., Quinidin in arrhythmia, 234; Shock and arsphenamin injections, 579; Serotherapy of mumps, 1137; Intracardiac injections, 1848
Cheney, W. H., Metabolic rate, 1133; Tuberculous meningitis, 1762
Chesney, A. M., Immunologic study of influenza bacillus, 490
Chevassu, M., Suppuration in polycystic kidney, 651
Chiappori, R., Wilson's disease, 1140
Chih, P. T., Bacteriology of eye, 736
Christian, E., Calculi in kidney pelvis, 72
Christlan, H. A., Chronic myocarditis, 816
Christiansen, M., Meningitis from influenza bacillus, 80
Christoffersen, N. R., Chlorids in blood, 1296
Chueco, A., Hydatid cyst in uterine wall, 327; Dermoid cysts, 1930
Churchman, J. W., Gentian violet, *24; Gram reaction, 574
Chute, A. L., Spina bifida occulta and retention, 402; Cancer of prostate, 1600
Chutro, P., Ptosis of cecum and kidney, 1057
Cibils Aguirre, R., Pure mitral stenosis, 2095
Cicconardi, G., Tuberculosis of foot, 74
Cignozzi, O., Joint disease in Malta fever, 1055; Extragenital chancre, 1849
Ciocola, F., Injury of joint cartilages, 579
Citelli, Caustic destruction of cancer, 1139
Civalleri, A., Lesions of optic thalamus, 580
Claessen, M., Carcinosarcoma, 2097
Clark, O., Mitral stenosis, 412; Cancer, 1454; Radiotherapy of uterine cancer, 1454
Clark, W. A., Cerebral sarcoma simulating encephalitis, 1284
Clarke, J. G., Cancer of female genito-urinary organs, *613
Clarke, J. J., Protista and disease, 1134
Clarke, L. B., Birth paralyses, 2087
Clark-Kennedy, A. E., Quinidin in fibrillation, 1768
Clément, J., Prognosis with high blood pressure, 1688
Clendening, L., Gastro-enterostomy, *1241; Lung abscess after tonsillectomy, 1593
Cluver, E. H., Influence of dust on growth of bacteria, 1687
Cobb, S., Recovery following trauma of spinal cord, 316
Coburn, R. C., Acapnia theory, *424
Cochrane, G., Diphtheria of penis, 492
Cohen, A. J., Pulmonary abscess, *1313
Cohn, A. E., Etiology of yellow fever, 152
Cohn, I., Injuries to elbow, 1047
Cole, H. N., Spiroside and inhalation method of treating syphilis, 394; Mercurial inunctions, *2022
Cole, W. H., Tuberculosis of spine, 964
Coleman, C. C., Recovery following trauma of cord, 316
Colistro, C. P., Endocarditis consecutive to abortion, 326
Collings, C. W., Gonorrheal arthritis, *1789
Colver, B. N., Botulism, 1601
Colwell, N. P., Cooperation with state medical associations, 1825
Comby, J., Idiocy from parathyroid insufficiency, 233; Umbilical diphtheria, 1051; Encephalitis, 1135; Mongolian idiocy, 1211; Decapsulation in nephritis, 1372; Schick reaction, 1605; Bubonic plague, 2004; Scurvy, 2004
Comino, E., Pneumothorax treatment of pleurisy, 1138
Condat, Pernicious anemia, 2004
Condorelli, L., Hemolysins in urine, 895
Connell, J. T., Vaccine treatment of asthma, 971
Connell, K., Hepatoduodenostomy, *1093
Connor, M. E., Fish in extermination of mosquito, 1139

- Connors, J. F., Arteriovenous aneurysm, *118; Ruptured spleens, 573
- Conrozic, Enterostomy in peritonitis, 235
- Constantini, H., Access to heart, 409
- Conway, L. A., Sudden death following pneumothorax, 732
- Cook, J. E., Lyon-Meltzer method of diagnosis of gallbladder disease, 403
- Cooke, J. V., Hereditary syphilis, 1444; Ammonia dermatitis, 1762
- Coon, C. E., Chronic arthritis, 2000
- Coope, R., Feces in alimentary disorders, 406; Sugar in spinal fluid, 1769
- Cope, Z., Testicular pain in appendicitis, 2002
- Copeland, G. G., Cesarean section, *449
- Copello, O., Hematemesis, 1530
- Corbett, J. E., Painful scars, 965
- Corbus, B. C., Bladder tumors, 1922
- Cori, K., Febrile tuberculosis, 825
- Coriat, I. H., Myasthenia gravis, *270
- Corica, A., Abderhalden reaction in rachitis, 1291
- Corley, C., Vaccine treatment of asthma, 971
- Cornet, P., Signs of encephalitis, 72; Medico-social and medicolegal questions of day, 738
- Cornick, B., Climate for tuberculosis, 647
- Cornwall, J. W., Unnamed organism in urine, 1449
- Corper, J., Hypertrophic osteoarthropathy in tuberculosis, 813; Carbon dioxide and resistance to tuberculosis, 1368; Action of morphin in tuberculosis, 1600
- Corson, J. F., Myopathic muscular atrophy in negro, 1287
- Cort, W. W., Hookworm larvae, *2035
- Cortabarría, F., Serotherapy in pregnancy toxemia, 326
- Cortelezzi, E. D., Arsphenamin, 1375
- Cosentino, A., Hematoma from middle meningeal artery, 1607
- da Costa, Jr., A. F., Radium in precancer lesions, 2095
- Cosman, P., Hypertrophic osteoarthropathy in tuberculosis, 813
- Costa, G. F., Extramembranous pregnancy, 1056
- Costa, P., Medical inspection of schools, 1138
- Costa, R., Symphysiotomy, 235, 1213
- Cot, Micrococcus catarrhalis meningitis, 1926
- Cottalorda, J., Ovarian lutein cysts and mole, 1136
- Cotte, G., Hysterectomy in puerperal infection, 1771
- Cotton, F. J., Fracture of neck of scapula, 1130
- Coulaud, Pneumococcus abscess of lung, 1052
- Courtois-Suffit, Traffic in cocaine, 494; Medical responsibility, 1212
- Couvelaire, A., Antisiphilis dispensary in maternity, 1052; Abdominal cesarean section, 2004
- Coventry, W. A., Potter version, 965
- Cowan, D. R. W., Tuberculosis, 2003
- Coward, K. H., Nutrition and growth on fat free diets, 1450
- Cowdry, E. V., Office of Imperial Physicians, Peking, 307
- Cowgill, G. R., Physiology of vitamins, 2088
- Cowie, D. M., Nonspecific protein in horse serum and soluble toxin, 318; Blood fat, *1493; Nonspecific protein therapy in arthritis, 2000
- Coyon, A., Lesions in air passages of gassed, 737
- Cozzolino, O., Contagiousness of tuberculosis, 976; Thymus stridor, 1290
- Cracraft, C. C., Mellon issues beer regulations, 1673
- Cragg, F. W., Relapsing fever, 735
- Craig, A. R., Cooperation in organization, 1824
- Craig, C. F., Carriers, *827; Cholesterolemia and Wassermann, 968
- Craig, S. L., X-ray therapy of diseased tonsils, 153
- Crainicianu, A., Pregnancy insufficiency of liver, 234
- Crenshaw, J. L., Vesical calculus, *1071
- Crescenzi, G., Incarcerated Treitz' hernia, 654
- Crey, Lesions of bony wall of thorax, 408
- Crichlow, N., Bacillary dysentery, 973
- Crile, G. W., Studies in exhaustion, 316; Gastric ulcer and cancer, 1049; Drugs in surgery, *1155; Mortality of cancer operations, 1203; Hyperthyroidism, *1324
- Cristol, P., Anesthesia and acidosis, 652
- Crofton, W. M., Nature of pancreas secretion, 493
- Crohn, B. B., Ulcer and tabes, *2023
- Cross, G. H., Plastic repair of eyelids, *1233
- Cross, H. B., Capacity for phagocytosis in dead animals, 574; Phagocytosis in terminal infections, 1919
- Crothers, B., Lesions of corpus striatum, 729
- Crouzon, Syphilitic melanoderma, 578; Cleidocranial dysostosis, 819
- Crowell, P. D., Aneurysms, *2114
- Cruikshank, H. C., Gonorrhea complement fixation test, 1523
- v. Csányi, T., Zinc chlorid poisoning, 1532
- Culbertson, C., Disposition of uterus following salpingectomy, 314; Pelvic peritonization, *772; Fundectomy after salpingectomy to preserve menstrual function, 1997
- Cullen, T. S., Early squamous cell carcinoma of cervix, 734
- Culpepper, W. L., Chaulmoogra oil in tuberculosis, 68
- Culver, G. D., Multiple epitheliomas, 1447
- Cunningham, J. H., Focal infections in genital organs as cause of arthritis, 69; New growth in undescended testicle, 887
- Cureton, E., History of tuberculosis, 973
- Curjel, D. F., Reproductive life of Indian women, 1134; Weight of new-born in India, 1134
- Curschmann, H., Sclerodermic dystrophy, 2097
- Curtis, A. H., Bacteriology and pathology of fallopian tubes removed at operation, 400, 2001; Magnesium sulphate, *1492
- Curtis, F., Suprarenal tumor in abdominal wall, 651
- Cutler, G. D., Empyema in children, 65
- Cutter, I. S., Post-graduate study, 815
- Cyranka, H., Colon bacillus and kidney stones, 1774
- Cyriax, E. F., Unilateral alterations in blood pressure, 1050
- D**
- Da Fano, C., Effect of cold on spinal nerve cells, 490
- D'Agata, G., Ureter in renal tuberculosis, 411; Hematuria, 1138
- Dagnini, G., Acute necrosis in liver, 1054
- Daland, J., Lymphocytosis, *1308
- Dalché, P., Uterine fibromas and retroflexion, 410; Metrorrhagia, 1289; Adnexitis, 1528
- Dalmeier, J. J., Hematin or porphyrin in stools, 1609
- Dalsace, J., Unilateral melano-dermia, 737
- Da Matta, A., Leprosy, 739; Juxta-articular nodules, 1374; Helminthiasis, 2096
- Damianovich, H., Biochemical research on vitamins, 1140
- Damon, S. R., Bacteria not source of B. vitamin, 1765
- Dana, C. L., Seat of emotions, 1998
- Dana, H. W., Myocardial lesions, 969
- Dandy, W. E., Removal of pineal tumors, 733; Brain tumors, *1853
- Dangschat, E., Perineal testicle, 1531
- Daniel, P., Abdominal diagnosis, 1448
- Daniélopou, D., Paroxysmal tachycardia, 1210; Strophanthin in fractionated doses, 1451
- Danulesco, V., Paroxysmal tachycardia, 1210
- Darnall, W. E., Suppurating uterine myomas, 1203
- Dartigues, M., Draining after abdominal hysterectomy, 1927
- D'Aunoy, R., Antirabic vaccination, 1131; Wassermann and Sachs-Georgi tests, 1766
- Dautrebande, L., Incubation of tuberculosis, 737
- David, L. H., Source of diastases of blood, 66
- David, H., Virus of encephalitis in spinal fluid, 1613
- Davidsohn, H., Hutchinson teeth, 1775
- Davidson, A. H., Rotunda Hospital, 493
- Davidson, E. C., Terminal cardiac arrhythmias, 1918
- Davidson, F. C., Rapid growth of abnormally small child, 1210
- Davidson, M., Arrhythmia with myocardial degeneration, 406
- Davidson, S. C., Carcinoma in gastrointestinal diverticulosis, 734
- Davies, C., Sodium morrhuate and sodium linolate in tuberculosis, 1286; Trauma of liver, 1287
- Davies, I. J., Hair ball, 1525
- Davis, B. F., Blastomycosis, 965
- Davis, D. J., Pfeiffer's bacillus, *683; Streptococci in normal throats, 1919
- Davis, E., "Mellon issues beer regulations," 1673
- Davis, E. P., Hemorrhage in induction of labor, 488
- Davis, J. S., Rupture of heart, 1524
- Davis, M. M., Jr., Group practice, 1987
- Davis, N. C., Effect of cyanids on chloroform liver injury, 488
- Davison, C., Bone transplants, *916
- Davison, W. C., Faecal flora, 1599; Serotherapy of bacillary dysentery, *1863
- Dean, A. L., Jr., Teratoma, *1237
- Dean, C. H., Congenital ichthyosis, *465
- Dearing, B. F., Blood studies in newborn, 225
- Deaver, J. B., Pancreatic infection, *194
- Debray, Influence of dyspepsia on nervous system, 1607
- Debré, R., Incubation of tuberculosis, 737; Diabetes following mumps, 1770
- De Castro, A. B., Iodin injections for septic conditions, 2003
- Decourt, F., Fees for treatment of industrial accidents, 738
- Decref, J., Scoliosis, 497, 977
- DeDecker, G., Physiologic cost of muscular work, 1686
- Deelman, H. T., Metastatic cancer in bone, 1778
- Deglos, E., Suppuration in both suprarenals, 495
- Deguignand, Experimental syphilis, 2151; Negative Wassermann, 2151
- Deis, K., Pulsion diverticulum of esophagus, 2097
- Deist, H., Adhesion of layers of pleura, 656
- Delatour, H. B., Traumatic pancreatitis, 1683
- Delbet, Fracture of neck of femur, 1772; Coxalgia, 1848; Torsion of pedicle of tumor, 1848
- Delfino, E. A., Immunization against pneumonia, 654
- Delmege, J. A., Drooped shoulder sign of tuberculosis, 1769
- Deloch, E., Gastro-intestinal symptoms with diabetes insipidus, 1932
- Delore, X., Enterostomy in peritonitis, 235
- Delorme, E., Surgical treatment of aneurysm of aorta, 157
- Delprat, G. D., Benzoate and liver function, 2147
- Demaria, E. B., Training specialists, 1140
- Demel, R., Exstrophy of bladder, 1294
- Demetre, P. E., Acute chorea, 1770
- Demmer, F., Wounds of brain, 328
- Dencker, H., Fate of cesarean section children, 2009
- Denk, W., Peptic ulcer, 1214; Trachea after goiter operation, 1214
- Dennis, W. S., Sporotrichosis, 886
- Denoyelle, Mediastinal lymphocytoma, 1526
- Denyer, S. E., Delayed tetanus, 322
- Denzer, B. S., Absorption of fluid from peritoneal cavity, 65; Size of infantile palate, 1762
- Derauf, B. I., Suspension and traction in fractures of extremities, 965
- Desclaux, L., Syphilitic cranial osteitis, 1526
- Desfosses, P., Sympathetic nervous system, 235, 820
- Desnos, E., Osteofibroma of kidney, 652
- Despiu, Treatment of dental fistula, 974
- Dice, W. G., Heart disease in pregnancy, 1202
- Dick, G. F., Scarlet fever, *782
- Dickson, E. C., Pathology of botulism, 483
- Dickson, F. D., Posture, *760
- Didier, Fever in pregnancy, 325
- Diebschlag, E., Glycuronic acid in blood, 77
- Diemer, T., Lymphosarcoleukemia, 499
- Dietl, K., Allergy to tuberculin, 240; Tuberculin diagnosis, 1609
- Dieuaide, F. R., Terminal arrhythmias, 1918
- Dijonneau, Rehabilitation of wounded, 323
- Dios, R., Invisible phases of protozoa, 822, 1608; Trypanosomas, 1608
- von Dittrich, K., Mall joints, 1058
- Djurberg, V., Physician's fees in Hammurabi code, 1692
- Doane, J. C., General hospital and its necropsy percentage, 1193
- Dobrovolskaia, N., Pulse sign of aneurysm, 652
- Dobrovolskaya, N. A., New method of exposing clavicular regions, 577
- Dock, G., Psychology of everyday life, 142; Group practice, 1835
- Dodds, E. C., Investigating gastrointestinal secretion, 1287
- Dodgson, H., Rupture of diaphragm, 1135
- Dodson, J. M., Full-time clinical teachers, 142
- Doedje, K. W., Resection of pylorus for gastric ulcer, 316; Internal secretions of skin, 1133
- d'Oelsnitz, Tourniquet in treatment of vascular disorders, 157; Changes in circulation below constricting band, 408; Autovaccines in typhoid, 1526
- Doenicke, A., Hermaphroditism, 1292
- Doerr, R., Idiosyncrasies, 1772
- Dold, H., Simplified test for syphilis, 1533
- Donati, M., Chronic empyema, 1290
- Donnelly, L. C., Diphtheria carriers, 1132
- Donovan, R. E., Technic for colectomy, 1530
- Dopter, C., Infectious diseases in 1921, 324
- Dorman, F. A., Mastitis, *509
- Dorrance, G. M., Abduction of fractured head of femur, 150; Cysts of jaws, *1883
- Dorsett, E. L., Secondary operations, 149
- Douarre, Pneumoperitoneum, 1372
- Douay, E., Metritis of uterine cervix, 1136
- Douglas, H. R., Blastomycetoid bodies in sarcoma-like tumor of leg, 150
- Douglas, M., Bronchitis resembling tuberculosis, 320
- Douglas, S. R., Antigenic properties of acetone extracted bacteria, 404
- Doumer, E., Paraffined starch in diarrhea, 578; Tuberculous infiltration of lung, 579; Miliary tuberculosis, 650; Surface tension of urine, 1210
- Dowd, C. N., Megacolon, 1683
- Dowd, J. H., Gonorrhea from bath tub, 1920
- Dowden, C. W., Biliary colic, *1890
- Downs, A. W., Secretin in anemia, 2147
- Doxiades, L., Heart in children, 1532
- Doyon, Internal secretion of nuclei, 1527
- Dragotti, G., Cocain and cocaineism, 1054
- Dreyer, G., Counting cells, *1166
- Drinker, C. K., Useful heart method, 152
- Drügg, W., Glandular tuberculosis, 898
- Drummond, J. C., Nutrition and growth on fat free diets, 1450
- Drüner, L., Laparotomies, 1215
- Drury, A. N., Quinidin sulphate in auricular fibrillation, 1448, 1449
- Dry, D. M., Congenital aneurysmal dilation of ductus botalli, 729
- Dubin, H. E., Vitamin requirements of yeasts and bacteria, 1765
- Dublin, L. I., Albumin and casts in urine, 228
- Du Bois, E. F., Basal metabolism in fever, *352
- Dubost, Infant welfare work, 495
- Duboucher, H., Anastomosis between large and small intestine, 2005
- Dubs, J., So called epicondylitis, 238; Gastro-enterostomy, 239; Meniscus operation, 496; Golter operations, 655

- Ducosté, M., Epilepsy, 1769
Dudgeon, L. S., Disseminated sclerosis, 1133
Dufour, H., Serotherapy for hemorrhage, 1053; Syphilitic origin of deforming rheumatism, 1526; Vaccine therapy of bronchitis, 1770
Dufourmentel, L., Facial surgery, 2152
Dufourt, A., Anemia in infants, 233
Duhem, P., Partial sclerosis of lung, 2004
Dujarier, C., Fracture of femur, 234, 2152
Duke, H. L., Human anthrax, 891
Duke, W. W., Food allergy cause of abdominal pain, 885, 1996
Dumarest, F., Pleural effusion with pneumothorax, 896
Dumoutet, Respiratory insufficiency, 1688
Duncan, E. A., Smoking in tuberculosis, and smoking, *526
Duncan, R., Mediastinal sarcoma, 491; Uterine cancer, *604
Dunet, C., Multiple vaginal cysts, 1136
Dunger, R., Colorimeter as hemoglobinometer, 1378
Dunn, A. D., Hepatoduodenostomy, *1093; Group practice, 2080
Dunn, L., Syringe, *2055
Dupouy, R., Epilepsy, 1687
Durand, H., Salivary glands in encephalitis, 72
Durand, M., Adhesive pericolicitis, 2094
Dutcher, R. A., Antiscorbutic vitamin, 969
Düttmann, G., Water test for gastric ulcer and cancer, 899; Swine erysipelas, 1455; Urochromogen elimination, 1455
Duval, H., Phthiriasis with melanoderma, 737
Duval, P., Chronic stenosis of duodenum, 650
Dyas, F., Control of chronic pain, 734
Dye, M., Basal metabolism of normal women, 152
Dyke, S. C., Typhoid abscess of breast, 891
Dykes, H. B., Rib pressure and brachial plexus, 817
- E**
- Eagleton, W. P., Fracture of skull, 316
Earl, R., Cystocele and prolapse, 965
Eastwood, E. H., Tumor of pleura, 650
Ebeling, A. H., Homotransplantation of cornea, 1842
Ebersson, F., Spirochetidal properties of blood in syphilis, 1281
Ebert, M., Prevention of acidosis in diabetes, 64
Eberts, E. M., Basal metabolism guide in goiter, 1521
Eccles, W. McA., Enlargement of splenic following splenectomy, 1449
Ecker, E. E., Thyroidectomy and immune body production, 1130; Formol and Wassermann reactions, 1369
Eckstein, A., Action of hypnotics on infants, 1609; Tests of narcotics, 2007
Eddy, N. B., Internal secretion of spleen, 813; Secretin in anemia, 2147
Edelstein, F., Adulteration of breast milk, 2099
Eden, T. W., Mortality of premature infants, 577
Edens, E., Sino-auricular block, 414; Conduction of impulse, 1141
Ederer, P., Demonstration of integrity of placenta, 1143
Edhem, Tertiary syphilitic fever, 1526
Edington, G. H., Intussusception, 1208; Malformations of hind end of body, 1845
Edmondson, R. B., Bacillus botulinus, *1250
Edmunds, C. W., Effects of vasomotor depressants on volume of liver, 1131
Eduque, J., Postoperative fistulas in vesical lithiasis, 491
Edwards, D. J., Vital capacity of lungs, 1762
Egerer-Seham, G., Chemistry of spinal fluid, 1918
Egger, O., Bladder tumors, 2099
Eggstein, A. A., Alkali reserve of blood during shock, 230
Ehrenfest, H., Intracranial lesions, *103
Eichenlaub, F. J., Eczema, 1367
Einhorn, M., Action of salts on liver, 1048; Peptic ulcer, *1471; Gallbladder lesions, 2148
Eisendrath, B., Malaria, 2100
Eisenstädter, D., Cancerous ovarian dermoid cysts, 499
Eitner, E., Operations to reduce size of nose, 1215
Ekstein, Conservative treatment of chronic ulcer eruris, 163
Ekvall, S., Immunity to diphtheria and Schick reaction, 502
Elias, H., Tetany, 742
Elias, L. W., Open air treatment of infants, 1370
Eliason, E. L., Fracture of femur, 969; Nonunion of fractures, 1922; Hernia, *2049
Elizalde, P. I., Fatty degeneration in fetus, 326
Ellis, A. G., Betelnut chewing and its effects, 1204
Ellis, A. W. M., Quinidin in auricular fibrillation, 1768
Ellis, E. G., Pathology of bronchial asthma, 643
Ellis, H. A., Administration of hydrochloric acid, 890
Ellison, E. M., Unusual case of malignancy, 491
Ellison, R. T., Fractional method of gastric analysis, 1048
Eloesser, L., Nasopharyngeal endothelioma, 70; Sign occurring in tabes with Charcot joints, *604
Elzas, M., Chronic arsenic poisoning, 241
Embree, E. R., Peking Union Medical College, 1680
Embrey, H., Chinese foods, 2093
Emerson, C. P., Nephropathies, *745
Emerson, H., Prevention of heart disease, 67
Emerson, P. W., Acrodynia, *285
Emerson, W. R. P., Overweight in children, 1520
Emge, L. A., Effect of benzyl benzoate on leukocytes, 153
Emile-Weil, P., Cure of familial hemophilia, 737
Emrys-Roberts, E., Erythema nodosum, 1605
Enfield, C. D., Biliary colic, *1890
Engel, S., Nutritional disturbances in infants, 2099
Engelen, P., Pulse pressure after ingestion of alcohol, 1060
Engelsen, H., Disease in Sudan, 826
English, J. S., Rotunda Hospital, 493
Enriquez, Stomach-gallbladder crises, 820; Linitis, 650
Eppinger, H., Cardiac dyspnea, 743
Eppler, H. H., Intestinal obstruction, 1841
Epstein, B., Antigens in milk of tuberculous cows, 740; Biologic reactions of protein therapy, 740; Protein therapy in infants, 1058
Epstein, E., Serology of syphilis, 1215; Meinicke test, 1777
Erdmann, J. P., Cystic disease of ovary, 1523
Erlacher, P., Phototherapy in rachitis, 328
Ernberg, H., Erythema nodosum, 740
Espinola, R., Deep roentgenotherapy, 1057, 1531
Essen-Möller, E., Eclampsia, 1933
Esser, J. F. S., Operation on nose, 898
Etehepary, B., Encephalitis, 1055
Etehepary Boneo, F., Dystocia from fecal tumor, 2096
Eusterman, G. B., Gastric surgery, *1246
Evans, C. L., Blood reaction in secondary anemia, 404
Ewald, C., What fractures can be treated at home? 1776
Ewart, G. A., Hour-glass stomach, 648
Ewing, J., Radium in brain tumors, 1367
Eyster, J. A. E., Reactions to hemorrhage, 65
Eyzaguirre, R., Infant mortality, 2007
- F**
- Faltin, R., Cancer of stomach, 1380
Falzl, O., Sequelae of encephalitis, 1452
Farago, G., Urine test for tuberculosis, 1455
Farah, N., Bronchial monilliasis, 1373
Farbach, H. J., Neurosyphilis, 1128
Farbarg-Vall, P., Blood pressure in tuberculosis, 1289
Farmachidis, C. B., Physiology of tonsils, 1849
Farr, R. E., Gynecologic operations under local anesthesia, 1203
Farrar, L. K. P., Pulmonary embolism in myoma uteri, 1366
Faure, J. L., Uterine fibromas, 2004
Fearnside, C. F., Subcutaneous smallpox inoculation, 735
Feer, E., Mountain climate for sick children, 73
Feil, A., Congenital torticollis, 653; Malformation of cervical vertebrae, 653
Feldmann, H., Size of heart in infants, 1531
Fenton, R. A., Bilateral thrombosis of lateral sinuses, 154
Feringa, K. J., Volume of blood, 1852
Fernández, Martínez F., Abdominal arteriosclerosis, 1847
Fernet, P., Inherited syphilis, 408
Ferrannini, A., Extrarenal factors in picture of nephritis, 1529; Metabolism in tuberculous, 1608
Ferreira, C., Infant welfare work in Public Health Service, 1453; Infant welfare work in S. Paulo, 2095
Ferrell, J. A., Health officers, *513
Ferreiro, V., Traumatic pulsating exophthalmos, 654
Ferro, P., Hydatid cysts in lungs, 1689
Ferron, J., Impalement injuries of perineum, 408
de Feyfer, F. M. G., History of osmosis, 1534
Fiebigler, J., Mange in rats, 1294
Fieschi, D., Bone grafting of shafts and joints, 1373
Fiessinger, N., Tuberculosis with liver disease, 1847
Finck, C., Arthritis deformans, 323
Finday, G. M., Experimental scurvy, 1605
Findlay, L., Metabolism of rickets, 1051
von Fink, F., Foreign bodies in esophagus, 80
Finkenheim, F. F., Gallstone operations without draining, 1378
Finks, A. J., Adzuki bean, 66; Lima bean, 66; Tomato seed press cake, 812
Finley, F. G., Spinal deformity cause of heart disease, 1764
Finnerud, C. W., Multiple benign sarcoma, 1129
Finney, J. M. T., Pylorospasm, 1682; Sir William Osler, *2013
Finochietto, R., Pneumoradiography for exploring kidney, 1140
Finsterer, H., Acute gastric and intestinal hemorrhage, 1777
Flori, P., Substitution of fibula for tibia, 411
Firth, D., Belladonna poisoning, 1768
Fischel, K., Failure of tuberculin therapy, 1371
Fischer, A. W., Voelcker's ischio-rectal prostatectomy, 974; Decortication in empyema, 979
Fischer, C., Intradermal tuberculin reaction, 2094
Fischer, L., Transfusion and malnutrition, 1601
Fischl, R., Congenital syphilis, 580
Fisher, C. F., Pirquet method of feeding, 2148
Fisher, H. N., Xanthoma, *1557
Fisher, L., Pulmonary abscess, *1313
Fisher, W. A., Internal nose model, *1183
Fitz, R., Nitrobenzol poisoning, 643; Blood sugar in diabetes, 1765
Flack, M., Respiratory efficiency in health and disease, 1287; Exercise for establishing respiratory efficiency, 1524
Flagg, P. J., Danger in similarity of ether and chloroform containers, 1121
Flanary, D. L., Tonsil instrument, *201
Flandin, C., Desensitizing autoplasmotherapy, 1605; Arsenical-treated blood for transfusion, 1925
Flario Niño, Colloidal reactions in spinal fluid, 1929
Flatau, E., Reaction of meninges to tuberculosis, 1288
Flater, A., Blood findings in pernicious anemia, 1692
Fleischer, R., Schirt abdominal aorta clamp, 78
Fleischmann, O., Physiologic significance of adenoid tissue, 1456
Fleischner, E. C., Diphtheria outbreak, *1714
Fleming, A., Antigenic properties of acetone extracted bacteria, 404
Flesch-Thebesius, M., Fatal factors in ileus, 161
Fletcher, H. M., Encephalitis, 492
Fletcher, W. M., Aims of physiology, 1209
Florand, A., Cerebro-meningeal syphilis, 892; Gastrohepatic syphiloma, 1847
Flu, P. C., Public health service in Dutch East Indies, 1456
Fohr, O., Artificial vagina, 2154
Foley, F. E. B., Injection of salt solution in intracranial tension, 733
Follet, Total stenosis of thoracic aorta, 407
Folmer, H. C., High frequency current, 80
Fonio, A., Antethoracic esophagus, 1452
Fontaine, B. W., Fragility of red corpuscles, *1022
Fontes, A., Prophylaxis of tuberculosis, 897, 1291, 1689
Forbes, R. D., Fracture of atlas, 1602
Fordyce, J. A., Laboratory findings in syphilis, *1696; Therapeutic action of silver arsphenamin, 1997
Forestier, To ward off arsphenamin reaction, 323; Migraine, 1052; Dyspepsia and nervous system, 1607; Gastric cancer, 1846
Formicella, J., Amniotic hernia, *464
Forsner, H., Dysmenorrhea, 1458
Forsyth, J. A. C., Sugar content of blood, 1604
Foster, H. E., Protein in spinal fluid, *365
Fouarge, L., Chronic intestinal stasis, 1135
Foucar, H. O., Effect of treatment for syphilis, 1917
Fowler, C. C., Gastric equilibrium zone, *2118
Fowler, H. A., Impacted pelvic calculus in tuberculous kidney, 402
Fowler, R. H., Surgery of cysts of spleen, 573
Fowler, W. F., Carcinoma in gastrointestinal diverticulosis, 734
Fox, E. A., Genital prolapse, 1056
Fox, E. C. R., Formol-gel test in kala-azar, 2003
Fox, H., Medical photography, 315; Ringworm, *1302
Fox, L., Lymphadenoma and tuberculosis, 407
Fox, J. T., Luminal sodium in epilepsy, 1209
Foyer, A., Tests for sugar in blood, 2011
Fracassi, T., Encephalitis, 1374
Fraenkel, M., Connective tissue in cure of cancer, 413
Franceschelli, D., Action of digestive ferments on tuberculin, 1849
Franchère, F. E., Mastoiditis, 64
Francis, L. M., Scleral wounds, *1099
Francois, Infant welfare work, 495
Frank, L., Retropharyngeal abscess, *517
Frank, L., Gastric and duodenal ulcer, 971; Uterine malignancy, 1127; Cancer of uterus, 2086
Frank, M., Artificial vagina, 1215
Frank, P., Use of hollow tube following submucous resection, 1514
Franke, E., Blood volume determination, 1047
Franke, F., Resection of parasitic monster, 238
Fränkel, J., Bone pegs in stumps, 1932
Frankenthal, L., Colloid cancer of ovary, 2097
Frankl, O., Premature separation of normal placenta, 413
Fraser, J., Limbs in children, 232; Pituitary gland, 1286
Fraser, J. F., Visceral changes in congenital syphilis, *1623
Frassi, L., Vaccine and serotherapy in gonorrhea, 1290; Gonococcus infection, 1928
Frazler, C. H., Basal metabolism in goiter, 812; Trigeminal tract, *1387; Brain tumors, 1841
Fredet, P., Stenosis of pylorus, 2152
Freedlander, S. O., Tetanus, 730
Freeman, A. W., Public health, *1639

- Freer, G. D., Enlargement of splen-
culus following splenectomy,
1449
- Frei, M., Pseudohemophilia, 239
- Frenkel, H., Spontaneous gangrene of
feet, 501
- Frenkel-Tissot, Hemolytic jaundice
aggravated by altitude, 410
- Frenzel, H., Epinephrin in cardiac
failure during narcosis, 741
- Frets, G. P., Heredity and selection,
1778
- Freudenberg, E., Fermentation in in-
testines, 1532, 1850; Tetauy,
1850
- Freundlich, E., Gallstones, 1851
- Frey, W., Quinidin in auricular fibril-
lation, 77
- Freymann, W., Arsphenamin eruptions,
1215
- Fried, B., Serologic tests for tuber-
culosis, 235
- Friedenwald, J., Nonsurgical biliary
drainage, 1048; Analysis of du-
odenal contents, *1469; Pyloro-
spasm, 1682
- Friedjung, Effect of environment on
disease, 1531
- Friedländer, F., Senile hysteria, 1215
- Friedman, E. D., Unusual hypo-
physial syndrome, 733
- v. Friedrich, L., Ulcer and aéro-
phagia, 1851; Mastication and
gastric secretion, 1931
- Frisch, A., Pluriglandular insuffi-
ciency, 1376; Erythrocytes and
tuberculosis, 1932
- Fritzsch, E., Goiter operations, 2152
- Froment, J., Reeducation in ataxic
aphasia, 1771
- Fromme, A., Looser's disintegration
zones, 1774
- Frontali, G., Laryngospasm and tet-
any, 896
- Frontz, W. A., Contracted bladder,
1446; Chronic urinary obstruc-
tion, 1996
- Fruhsholz, A., Thyroid function
and pregnancy, 1770
- Fuchs, E., Manifestations of arterio-
sclerosis in the eye, 236
- Fuchs, H., Autoplastic peritoneal
grafts, 241
- Fuhrmann, Genital tuberculosis, 1293
- Fujii, I., Hyperglycemia and glyco-
suria, 237; Ether glycemia and
glycosuria, 1612
- Fujiwara, K., Precipitin reaction,
655
- Full, H., Ulcer and aerophagia, 1851;
Spontaneous rhythm of arteries,
1934
- Fullerton, A., Hematuria, 405
- Fülöp, A., Puncture of fetal mem-
branes plus quinin for induction
of labor, 1456
- Funk, C., Percutaneous protein ther-
apy, 1610; Vitamin require-
ments of yeasts, 1765
- Furniss, H. D., Method to retain ra-
dium in cervix, *623; Rubin
test, 1922
- Fürstenau, E., Occult hemorrhage,
2099
- Furuhata, T., Isolation of immune
hemagglutinin, 1845
- G**
- Gaarenstroom, G. F., X-ray treat-
ment of goiters, 1060
- Gaenslen, F. J., Chronic lesions of
hip, 399; Sacro-iliac joint arth-
rodesis, 404; Tuberculosis of
ankle, *1168
- de Gaetano, L., Kinking of colon by
membrane, 1453; Embryology of
Jackson's membrane, 2006
- Galfami, P., Cesarean section, 158;
Fixation of uterus, 1667
- Gaing, E., Buttermilk in infant feed-
ing, 1055, 1140, 1453, 2095
- Gaither, E. H., Digestive symptom-
atology, *1407; Rationale of di-
gestive therapy, 1996
- Gains, J. F., Value of anthelmintics
in hookworm, 232
- Galan, J. C., Effect of pituitary
treatment on stomach, 326
- Galbraith, J. B. D., Acute pellagra,
1845
- Galíndez, A., Duodenal diverticula,
1929
- Gallavardin, L., Nonrheumatismal
aortic insufficiency, 820; Pul-
monary edema with valvular
disease, 891
- Gallo, A. G., Perforation of gall-
bladder, 1929
- Galloway, H. P. H., Fracture of
neck of femur, 2001
- Gant, S. G., Diverticula, *1415
- Ganter, G., Temperature sense of
stomach, 1142
- Garban, H., Physiologic urobilinuria,
738
- García, A., Appendix in Filipinos,
1685
- García del Diestro, J., Ipecac in
constipation, 2007
- García Medina, P., Pan-American
Sanitary Conference, 1139
- Gardin, C., Parkinsonian syndrome
with encephalitis, 71; Pregnancy
in Parkinsonism, 2151
- Gardner, L. U., Relufection in tuber-
culosis, 1046
- Gardner, W. C., Nondescent of cecum
and appendix, *1652
- Gareizo, A., Acute polio-encephalo-
myelitis, 75
- Garnier, M., Epinephrin thyroid test,
892
- Gask, G. E., Surgery of thorax, 321
- Gaskell, J. F., Pathology of pneumo-
coccal of lung infections, 1604
- Gastinel, P., Plague bacillus acute
endocarditis, 1770
- Gaston-Durand, Spontaneous retro-
gression of linitis, 650; Stomach-
gallbladder crises, 820
- Gatellier, J., Chronic stenosis of
duodenum, 650
- Gates, F. L., New bacterium in in-
fluenza, 152; Experimental in-
fluenza, 230; Agglutination
method, *2054
- Gaudissart, F., Hypercholesterinemia
and albuminuric retinitis, 2005
- Gaujoux, E., Encephalitis in preg-
nant, 73
- Gaultier, R., Gastrotonometer, 818;
School lunches, 1451
- Gauss, H., Carbon dioxid and resis-
tance to tuberculosis, 1368;
Action of morphin in tubercu-
losis, 1600; Estimation of mor-
phin, 1843
- Gautier, E. L., Chronic gonorrhea of
posterior urethra, 409
- Gautrelet, J., Progress in general
biology in 1921, 1526
- Gauvain, H., Bone tuberculosis, 2149
- Gay, F. P., Experimental streptococ-
cus pneumonia and empyema,
1131
- Gay, J. N., Lipovaccines, 1369
- Gayler, Disturbances of growth with
diabetes insipidus, 2009
- Geers, J., Coagulation time of blood,
658
- Geist, E. S., Circulatory disturbances
of feet, 964; Osteomyelitis,
*1939
- Gellhorn, G., Trend in gynecologic
therapy, 1203
- Gelma, E., Medicolegal aspect of
encephalitis, 974
- Gelston, C. F., Hemorrhagic disease
of new-born, 1444
- Gemmell, J. E., Ventrifixation, 321
- Georgi, F., Serologic tests for syph-
ilis, 1690
- Geraghty, J. T., Calculi, *901
- Gerhartz, H., Tuberculosis of bronch-
ial and cervical glands, 978
- Gericke, A. J., Mercurial inunctions,
*2022
- Gerstenberger, H. J., Position of
diaphragm and enlarged thymus,
65
- Gerstl, P., Rachitic dwarf growth,
327
- Gerty, Febrile tuberculosis, 825
- Geschwind, W., Tests for reducing
substances in dead tissues, 1458
- Gesell, A., Hemihypertrophy, 1281
- Gessner, W., Eclampsia and uremia,
2154
- Gettler, A. O., Death by drowning,
*1650
- Giannini, B. E., Pellagra, 1128
- Gibson, A., Facial paralysis, 1922
- Gibson, H. K., Toxic albuminuria of
pregnancy, 69
- Gibson, R. B., Alkaptonuria, 1918
- Gibson, T. E., Squamous cell carci-
noma of bladder, 1999
- Giddings, E., Postoperative diaphrag-
matic paralysis, *590
- Gies, W. J., Effect of tobacco, 154
- Giese, C. O., Sudden death following
pneumothorax, 732; Lung abscess,
2087
- Gilbert, G. B., Suprarenals and
thyroid in experimental tuber-
culosis, 67
- Gilbert, W., Meningitis with tuber-
culous choroiditis, 1141
- Gilberti, P., Indications in abdominal
pathology, 158; Peritonitis, 411
- Gilchrist, H. L., Effects of war gases,
482
- Gill, C. A., Rôle of meteorology in
malaria, 1209
- Gill, J. M., Tumor of spinal cord,
1686
- Gill, S. G., Administering arsphen-
amin, *464
- Gillies, S., Voluntary arrest of pulse
and heart, 1135
- Gilliland, A. R., Voluntary movement,
1357
- Gilman, P. K., Branchial cysts, *26
- Gilmore, W. M., Hypertrophic osteo-
arthropathy in tuberculosis, 813
- Giltner, L. T., Bacillus botulinus,
*1250
- Giménez Zapiola, J., Puerperal
psychoses, 823
- Giorgi, E., Osteospathyrosis and en-
docrine glands, 895
- Giorgi, G., Suture of portal vein,
1773
- Girard, J., Diabetic gangrene, 71
- Giraud, G., Traumatic hematomyelia,
324; Hemoclastic crisis during
X-ray treatment, 1688
- Giraud, M., Hemoclastic crisis during
X-ray treatment, 1688
- Girault, A. L., Gastrohepatic syphi-
loma, 1847
- Girotti, G. B., Syringomyelia, 1849
- Girou, J., Hypotensive action of
epinephrin, 1926
- Giroux, R., Traffic in cocaine, 494
- Giu-Ching Ting, Response of excised
bronchi to drugs, 1131
- Giuliani, A., Dilatation of lower end
of ureter, 1373
- Giuliani, S., Calymmatobacterium
granulomatis, 1448
- Giusti, L., Hypophysectomy in frogs,
1140
- Glaser, F., Rousing malaria by ar-
sphenamin, 1142; Ectasia of
portal vein, 1690
- Glatard, Colloidal metals in typhoid,
819
- Glénard, R., Enteroptosis of liver
origin, 495
- Glenn, E., Transfusion of blood, 644
- Glock, R., Helminthiasis, 1533
- Glogau, O., Use of hollow tube fol-
lowing submucous resection,
1674
- Glover, S. G., Pyloric stenosis, 2149
- Gloyne, L. B., Physical examination
of food handlers, 1997
- Gloyne, S. R., Vitamin deficiency and
tuberculosis, 1769
- Godeau, Diagnosis of syphilis, 1135
- Godlewski, H., Prescurvy, 1137
- Goebel, F., Hirschsprung's disease,
1531
- Goeckerman, W. H., Lupus erythema-
toides discoides, 150
- Goiffon, R., Soaps in feces, 1847
- Goldblatt, H., Thyroid excretion in
blood in goiter, 815; Thyroidec-
tomy and immune body produc-
tion, 1130
- Goldenberg, L., Fluorids check
growth, 1930
- Goldman, A., Mucous membranes and
chilling, 230
- Goldschmidt, W., Abscess with car-
cinoma of intestine, 1531; In-
vagination, 1851
- Goldstein, H. I., Primary sarcoma
of appendix, 730; Argyria, 1514
- Golla, F., Luminal and bromids in
epilepsy, 1050
- Gomez, Calvo, A., Fixation abscess
in puerperal mania, 76
- González, H. D., Jaundice in heart
disease, 1530
- González, J. B., Teaching of obstet-
rics, 1530
- González, T. J., Cesarean section,
823; Puerperal infection, 1774
- González Campo, J., Hyperchlorhy-
dria-peptic ulcer, 824
- González Ureña, J., Lupus, 897
- Goodpasture, E. W., Influence of
thyroid secretion on myocardium,
1369
- Goodwin, W. H., Surgery of gallblad-
der, 2086
- Goodyear, H. M., Tonsil instrument,
*201; Hollow tube following
submucous resection, *1103
- Gordon, J. E., Gram-negative cocci
in "colds," 1919; Pneumococcus
and colds, 1919
- Gordon, J. Y., Venipuncture, *1721
- Goré, S. N., Goré's indol test, 735;
Detection of indol, 735; Modifi-
cation of Widal test, 735
- Gorke, H., Splenectomy with aplastic
anemia, 413; Gastro-intestinal
symptoms with diabetes insipidus,
1932
- Gosset, A., White bile, 235
- von Gottberg, J., Increase of helmin-
thiasis, 237
- Gottfried, S., Nocturnal enuresis, 979
- Gottlieb, M. J., Bronchial asthma,
1207; Streptococci in tonsils,
1602
- Gottschalk, Acute ileus, 1293
- Gougerot, Arsenical erythroderma,
1925; Syphiloid lypochromia,
1925
- Gourdon, Rehabilitation, 323
- Goyena, J. R., Induced pain as sign
of kidney calculus, 327
- Grabfield, G. P., Relationship of
pulmonary tuberculosis to apical
pleuritis, 229
- Gradle, H. S., Blind spot, *1483;
Compensation for eye injuries,
*1654
- Graebke, H., Renal tuberculosis in
pregnant, 1215
- Gräff, S., Tuberculosis, 329
- Graham, S. G., Bacteriology of in-
fectious diarrhea, 1282
- Graham, V. A., Dinitrosacrylic acid
for estimation of sugar in urine,
152
- Grahn, E., Pneumoconiosis, 1372
- Gram, H. C., Microcytosis with hemo-
lytic jaundice, 242; Crusta
phlogistica in blood, 1205
- Grandineau, Anuria from calculus
after nephrectomy, 652; Ureter
reflex, 974
- Grant, A. G. M., Blood pressure in
tuberculosis, 71
- Grant, G. B., New stains of blood
smears, 645
- Grant, J. W. G., Four genito-urinary
cases, 1525
- Grant, S. B., Mucous membranes and
chilling, 230
- Grant, W. W., Exstrophy of bladder,
2086
- Grassi, B., Biology of anopheles,
1213
- Grauhan, M., Hard tumors of male
urethra, 1214; Chyle cysts, 1531
- Graves, R. C., Combined tumors of
kidney, 1446
- Graves, S., Complete traumatic rup-
ture of kidney, 231
- Gray, H., Priority in cell counting,
1682
- Gray, H. T., Hyperadrenalism cause
of pyloric stenosis, 2150
- Green, A. S., Squint, *1003
- Green, E. K., Treatment of frac-
tures, 965
- Green, F. R., Cooperation in legis-
lation, 1825
- Green, L. D., Squint, *1003
- Greene, J. B., Retractor, *39
- Greene, J. S., Speech disorders,
*1726
- Greenfield, J. G., Frohn's syndrome,
890
- Greenough, R. B., Cancer and its
nonsurgical treatment, 1674;
Bone sarcoma, 1920
- Greenthal, R. M., Nonspecific protein
in horse serum and soluble
toxin, 318; Fragility of red blood
cells in infections, 729
- Greenwood, A. M., Epidermophytosis,
*1297
- Gregg, J. B., Tuberculosis of larynx,
64
- Gregory, L. T., Tonsillectomy and
scarlet fever, 1445
- Greig, D. M., Adenoma of bile ducts,
1286
- Greig, E. D. W., Bacteriology of
influenza, 1134
- Gribbon, M. R., Nutrition, 1524
- Griffith, J. P. C., Butter-flour mix-
ture, 227, 888
- Griffith, T. W., Heart block, 155
- Grigaut, A., Blood during spa treat-
ment, 235
- Grindley, H. S., Amino-acid con-
tent of feeds, 1765
- Gröbly, W., Importance of nucleo-
proteids for organism, 160; Phos-
phorus content of blood, 160
- Groedel, F. M., Heart in growing
body, 327
- Grönberg, J., Defensive ferments
under anesthetics, etc., 2011
- Grönning, W., Pylephlebitis, 1777
- Gross, H., Gastric ulcer, 824
- Grosse, A., Fibroma in pregnant
uterus, 1289
- Grossmann, E., Spinal serous
meningitis, 162
- Grote, L. R., Pancreatitis, 1931
- Grove, W. R., Calcium chlorid in-
jection in hemorrhage, 493;
Varicose ulcers, 1767
- Gruber, G. B., Malformations of
kidneys, 1611; Swelling of mam-
mary glands in new-born, 2099

- Grulce, C. G., Furunculosis, *37;
Inanition temperature, 401
- Grumbach, A., Deviation of comple-
ment test for tuberculosis,
1373
- Grunenberg, K., Vegetative nervous
system in goiter, 498
- Guedel, A. E., Ethyl chlorid, *427
- Guenaux, C., Dilatation of esoph-
agus, 325
- Guerrero, M. A., Ichthyosis, 1453
- Guerricchio, A., Sequelae of
encephalitis, 1452
- Guggenheim, R., Skin cancer, 1373
- Guggenheimer, H., Ambard index
with contracted kidney, 1292
- Guggisberg, H., Placenta in thera-
peutics, 414
- Guglielmotti, J., Action of emetin
on heart, 1140; Action of quini-
din on heart, 1530
- Guillain, G., Parkinsonian syndrome
with encephalitis, 71; Boveris
test, 233; Lumbar puncture in
Pott's disease, 324; Ataxia, 578;
Tendon reflexes after lumbar
puncture, 651; Colloidal benzoin
reaction, 1528; Pregnancy in
Parkinsonism, 2151
- Guillaume, A. C., Topography of
small intestine, 325; Ileus, 1772
- Gulnon, L., Bubonic plague, 2004
- Guisez, J., Dilatation of esophagus,
1137
- Gulino, M., Adaptability of bacteria
to opsonins, 976
- Gunderman, W., Air embolism, 239;
Water test of gastric ulcer, 899
- Gundrun, F. F., Skin rashes in
goiter, 886
- Gunnar, H., Volume changes of
spinal fluid, 149
- Gurd, F. B., Ambulatory treatment
of chronic ulcers of leg, 2089
- Guthmann, H., Direct injection in
cardiac paralysis, 741
- Guthrie, J. B., Classification of rales,
1365
- Gutiérrez, A., Hydatid cysts of gall-
bladder, 977; Pott's disease,
1057; Gastro-enterostomy func-
tioning, 1929
- Gutmann, R. A., Unilateral melano-
dermia, 737
- Guy, R. A., Lowered alkali reserve
in diarrhea, 1768; Blood sugar
in atrophic children, 1769
- Guy, W. H., Valuable method of
treatment in selected cases of
syphilis, 968
- Guyot, J., Traumatic shock, 73, 1288
- Guzman, M., Jr., Roentgenoscopy in
lung disease, 1448
- Gwathmey, J. T., Anesthesia, *421
- Gwyn, M. K., Canine paraplegia,
1120
- Gye, W. E., Disseminated sclerosis,
1133
- H**
- de Haan, L. B., Protein therapy,
1934; Enuresis, 2154
- Haas, S. V., Pericarditis, *1969
- Haberer, H., Stomach resection by
Billroth I method, 582; Post-
operative peptic ulcer, 823
- Haberlandt, L., Vagus of heart beat,
1293
- Habich-Veenhuijzen, S. D., Infant
mortality in Java, 826
- Hadda, S., Disinfection of catheters,
825
- Hagelstam, J., Syphilis of nervous
system, 900
- Hagemann, J. A., Foreign body, *2053
- Hagenbuch, M., Strumitis, 162
- Haggard, H. W., Acapnia theory,
*424; Carbon monoxid asphyxia,
575, *1065
- Hägström, P., Impalement injuries,
502; Structure of ovaries, 1458
- Haguenau, J., Anaphylaxis to eggs,
737; General paresis, 737; Idio-
synersy to antipyrin, 1451;
Nasal hydrops, 1526; Horse
asthma, 1526
- Hahn, G., Stone formation in uterus,
826
- Hahn, L., Cardiovascular distur-
bances in congenital syphilis,
1295
- Haigh, A. V. R., Sachs-Georgi test,
315
- Halban, J., Gonads and development
of sex, 413
- Hall, I. W., Culture medium and
agglutination of meningococcus,
1134
- Hall, J. S., Effect of heat and
oxidation on antiscorbutic vita-
min, 969
- Hall, M. C., Carbon tetrachlorid for
removal of hookworms, *1641
- Hallez, G. L., Hirschsprung's disease,
1136; Adenoids, 1211; Oxy-
uriasis, 1212; Erythrodermia,
1451
- Hallopeau, P., Circular constriction,
408
- Halsey, R. H., Heart disease, *672
- Halsted, W. S., Elephantiasis chir-
urgia, 1446
- Hamburger, R., Heart in children,
1532
- Hamburger, W. W., Auricular fibril-
lation, *1797
- Hamilton, A., Trinitrotoluene poison-
ing, 1130
- Hamilton, A. S., Sensory changes in
pernicious anemia, 229; Grad-
uate training in nervous diseases,
*659
- Hamilton, J. A., Crime and drug
habit, 1207
- Hamilton, T. S., Amino-acid contents
of feeds, 1765
- Hamman, R., Breast-fed infants
since the war, 825
- Hammer, K., Striae distensae in skin
of consumptives, 71
- Hammerschlag, Manual separation of
placenta, 78
- Hammes, E. M., Intracranial telang-
iectasis, 1129
- Hammesfahr, C., Atrophying testis,
1379
- Handley, W. S., Lupus, 2150
- Haneborg, A. O., Alcohol and diges-
tion, 2100
- Hanes, G. S., Rectal affections, 1128
- Hannah, B., Schick reaction, 575
- Hannah, L., Postinfluenzal epilepsy,
*40; Poliomyelitis, 971
- Hannak, F., Genital prolapse during
delivery, 2009
- Hannes, W., Difficult birth and
mental disease, 1216
- Hannum, E., Resistance of antibody
to tryptic digestion, 880
- Hansel, F. K., Melano-epithelioma,
*19
- Hansen, A., Fatal bee sting, 1613
- Hansen, S., Contagious diseases, 658
- Hanssen, T. S., Fracture of patella,
1457
- Hanzlik, P. J., Liberation of free
salicylic acid from salicylates,
153; Effect of morphin on heart
muscle, 815
- Haour, J., Periarterial sympathec-
tomy, 1927
- Hara, M., Influence on nephritis of
alkaline reaction of urine, 740
- Harada, T., Cancer, 1778
- Harbison, H., Subacute vulvulus, 1924
- Harbitz, F., Arteritis of unknown
origin, 1457
- Harding, V. J., Vomiting of preg-
nancy, 891
- Haristoy, A., Soaps in feces, 1846
- Harman, N. B., Blindness, 1923
- Harmer, T. R., Bone sarcoma, 1920
- Harrass, P., Surgical tuberculosis,
499
- Harris, S., Gastroptosis, 2086
- Harris, T. J., Sinus operations, *1147
- Harris, W., Psychalgia, 2150
- Harrison, A. P., Control of typhoid
in rural communities, 1996
- Harrison, G. A., Glycosuria, 1686;
Proteinuria, 1924
- Harshaw, H. M., Effect of heat and
oxidation on antiscorbutic vita-
min, 969
- Hart, A. P., Ammoniacal diaper,
1764
- Hart, E. B., Home-grown rations,
1765; Fat soluble vitamin poor
diet, 2088
- Hartert, W., Protecting apron, 1378
- Hartman, H. R., Blood changes in
gastrostomized patient, 1045
- Hartmann, C., Velocity of pulse
wave, 1141
- Hartmann, H., Uterine cancer, 2004
- Hartmann, H. U., Diphtheroid bacilli,
895
- Hartwell, G. A., Evil effects of excess
of protein on milk secretions, 156
- Hartwell, J. A., Suspension traction
in fractures, 1841
- Hartwig, M., Foreign body in
rectum, *1654
- Harvier, P., Filtrable neurotropic
viruses, 495
- Hassin, G. B., Myelitis and myelo-
malacia, 229; Calcification of
cerebral vessels, 1281
- Hasty, F. E., Dilation of pharynx,
2149
- Hasui, N., Urine during fasting, 160
- Hatlehol, R., Retained nitrogenous
products and uremia, 1769
- Hatton, E. H., Root canals, *1805;
Skull fracture and alcohol, *2109
- Hattori, S., Determination of reduc-
ing substance in spinal fluid,
729
- Haughwout, F. G., Cocciidiosis, *940
- Haumann, W., Dislocation of pelvis,
1455
- Haumeder, H., Jaundice, 742
- Haupt, P., Early references to cancer,
1440
- Hausknecht, R., Potassium chlorid
in dropsy, 1526
- Havens, L. C., Culture medium for
streptococci, 228
- Havlicek, H., Gastropepy, 501
- Hawes, J. B., Gassing and tuber-
culosis, 316; Broncho-esophageal
fistula, 729
- Hawk, P. B., Nutritive value of
yeast in bread, 66; Gastric equi-
librium zone, *2118
- Haxthausen, H., Blue sclerotics with
fragile bones, 1934
- Hay, J., Rapid heart action, 1524
- Hayes, M. R. J., Bullet in heart,
1449
- Hays, H. M., Deafness, *263
- Haythorn, S. R., Viability of
spirochaeta, 968
- Head, C. B., Acute arteritis compli-
cating pneumonia, 1045; Caroti-
nemia, 1204
- Heald, G. H., Why shun short words,
958
- Healy, W. P., Postoperative tetany,
967
- Heberer, H., Febrile abortion, 744
- Hecht, P., Action of atropin on
stomach, 656
- Hedblom, C. A., Tumors, of chest
wall, 315; Pericarditis, 965
- Hegner, R. W., Intestinal protozoa
in Porto Rico, 1439
- Heidenhain, L., Gallstones, 2153
- Heiman, H., Pneumococcus peritonitis
in infancy and childhood, 226
- Heimann, F., Myoma and pregnancy,
415
- Heimreich, E., Concentrated foods,
2099
- Heist, G. D., Distinguishing organ-
isms in blood, 1603
- Heitz, J., Arteries in legs in diabetes,
72; Heart disease, 819
- Heitz-Boyer, High frequency cur-
rent, 409, 975
- Hektocn, L., Lens reaction, *33;
Antimeningococcus serum, 1919;
Immunity, *1935
- Hellendall, H., Treatment of infected
wounds, 239; Extra-uterine hem-
orrhage, 826
- Heller, J., Verumontanum, 1611
- Heller, O., Fermentation in intes-
tines, 1532, 1850
- Hellman, T. J., Genesis of tongue
papillae in man, 1458
- Hellmuth, K., Bilirubinemia, 499
- Helm, F., Tuberculosis, 329
- Helmholz, H. F., Parenteral infec-
tions in infancy, 399; Drugs in
childhood, *1157
- Helmreich, I. E., Concentrated food,
1377
- Hempel, E., Incarceration of Intes-
tine, 499
- Hempelmann, T. C., Febrile exan-
them, 313, *1787
- Henderson, E. L., Hydatiform mole,
231
- Henderson, L. S., Balance between
bases and acids of organism,
1527
- Henderson, M. S., Bone graft, 64;
*165; Dislocation of shoulder,
319; Restoration of tendon, *1572
- Henderson, Y., Acapnia theory, *424;
Carbon monoxid poisoning, 575,
*1065
- Hendon, G. A., Intestinal obstruction,
2086
- Hendricks, A., Frequency of venereal
disease, cancer and tuberculosis,
1216
- Hendry, J., Fröhlich's syndrome, 1449
- Henke, F., Hemorrhagic diathesis,
1933
- Henrotay, J., Abdominal cesarean
section, 2004
- Hensel, C. N., Heart disease, 966
- Henze, L., Tardy rachitis, 1378
- Heppner, E., Kidney tumors, 2099
- Herbert, A. S., Jaw-neck syndrome in
rheumatic diseases, 2150
- d'Herelle, F., Bacteriophagum, 324
- Heringa, G. C., Technique for frozen
sections, 1216
- Hermans, J. A. H., Large kidney
stones, 1534
- Hermstein, A., Turpentine in puer-
peral sepsis, 241
- Herraman-Johnson, Treatment of
goiter, 576
- Herrera Vegas, A., Tuberculosis,
1374
- Herrmann, J. B., Antipyretic drug
action, 1684
- Herschmann, H., Paresis, 2097
- Hertz, Spinal anesthesia, 653
- Herz, L. F., "Mellon Issues beer
regulations," 1594
- Herzfeld, A. A., Prevention of cocaine
intoxication by ethyl alcohol,
1594
- Herzog, F., Arrhythmia, 655
- Hess, A. F., Infantile rickets, *39;
Fat soluble vitamin in rickets,
313; Experimental rickets, 575;
Seasonal variations in rickets,
729
- Hess, E. O., Arterial, capillary and
venous blood, 1292
- Hess, L., Dyspnea, 742
- Hesse, E., Thrombosis of abdominal
aorta, 581
- Hesselberg, T., Hemorrhage on sep-
aration of placenta, 1613
- Hesser, C., Localization in cerebel-
lum, 1458
- Hesser, S., Agglutination of plague
bacilli, 2012
- d'Hucqueville, R., Respiratory ex-
ercise, 1136
- Heuser, C., Deep roentgenotherapy
of cancer, 1454
- Hewlett, A. W., Auricular fibrilla-
tion, *1793
- Heyd, C. G., Cholecystogastrostomy,
*339
- Heyman, J., Frontal presentation, 78
- Hlless, V., Premature separation of
normally located placenta, 413
- Higgins, J. A., Pharmacology of
benzyl compounds, 2090
- Higgins, W. H., Typhoid relapse,
1208
- Highman, W. J., Syphilis, *583
- Hightower, C. C., Complete severance
of cervical cord, *623
- Hildebrand, O., Neuropathic joint
disease, 237
- Hilgenberg, F. C., Arrest of hemor-
rhage by muscle flap, 161
- Hilgermann, Chronic eczemas, 741
- Hill, H. W., Prenatal care of women,
1521
- Hill, L., Capillary pressure and cir-
culation in shock, 493; Capil-
lary pressure and glomerular
filtration theory, 1845
- Hill, R., Laminectomy for meningi-
tis, 1285
- Hinman, F., Squamous cell carcinoma
of bladder, 1999
- Hinselmann, H., Blood pressure and
pregnancy, 979; Hydatidiform
mole, 1215; Effect of labor pains
on angiotensin, 1456
- Hiraishi, S., Measles, 1846
- Hirose, K., Nucleus in human resti-
form body, 1446
- Hirsch, E. F., Blood in experimental
infections, 317
- Hirsch, I. S., Method of estimating
morphologic changes in heart,
576
- Hirsch, R., Prophylaxis of ophthalmia
neonatorum, 2098
- Hirschfelder, A. D., Saligenin, 154
- Hirschman, L. J., Gastro-enterology,
*981
- Hirst, B. C., Obstetric deaths, *1406
- Hittmair, A., Foot-and-mouth dis-
ease, 1776
- Hitzenberger, K., Blood pressure in
diabetes, 742
- Hjort, A. M., Toxic effects of chlorin
antiseptic, 1684
- Hoag, L. A., Blood fat, *1493
- Hoagland, C. C., Direct laryngoscopy,
bronchoscopy and esophagoscopy,
64
- Hoagland, H. W., Tuberculous sol-
diers, *506
- Hobbs, R., Infection of endometrium,
492
- Hobmaier, M., Foot-and-mouth dis-
ease, 414
- Hobo, T., Osteomyelitis, 159
- Hodges, J. A., Migrainous and pit-
uitary headaches, 734
- Hodges, R. S., Ringworm of nails,
315
- Hodson, V. S., Intestinal worms,
1371
- Hoffmann, E., Improved darkfield
microscopy, 1142
- Hoffmann, V., Mammary cancer, 161
- Hoffmann, W., Intradermal vaccina-
tion, 1212
- Hoffmann, W. H., Varicella, 1920
- Hofmann, M., Mal perforant, 1292

- Hogan, J. F., Laryngeal diphtheria, *662
- Högler, F., Puncture of artery, 743
- Hogue, M. J., Waskia intestinalis, *112
- Hohlbaum, J., Luxation of patella, 77
- Hohlfeld, M., Intubation experiences, 740
- Hohman, L. B., Encephalitis, 1129
- Holcomb, B., Coma, *2112
- Holker, J., Standardization of vaccines, 1604
- Hollander, L., Syphilis and tuberculosis, 730; Colon bacillus onychia, 1129
- Holm, E., Defective vision, 900
- Holm, G., Convulsions from nerve blocking in neck, 1379
- Holmes, H. F., Primary carcinoma, 814
- Holmes, R. W., Fads and fancies of obstetrics, 314
- Holst, J., Glycosuria and diabetes in goiter, 744; Glycosuria of mixed nature, 1144
- Holt, L. E., Protein requirements for children, 312; Food requirements of children, 1444
- Holth, S., Glaucoma, 1457, 1613; Apparatus to detect color blindness, 2012
- Holzappel, K., Signs of pregnancy, 980
- Holzberg, H. L., Dislocation of ulna, *2056
- Homan, G., Pan-pemmican, 1685
- Hoobler, H. R., Blood studies in new-born, 225
- Hoogveld, W. P. J., Snapping finger, 416
- Hopkins, F. S., Submaxillary calculus, 1282
- Horder, T., Medical aspects of some urinary diseases, 1924
- Horsley, J. S., Suturing blood vessels, *117
- Horwitt, S., Pirquet system of nutrition, *1756
- Hoskins, R. G., Endocrinology, *1459; Epinephrin by rectum, 1684
- Höst, H. F., Acute psychosis with valvular disease, 1457; Scrofulous meningitis, 1457; Uremia, 1769
- Hoston, K., Thrombosis of sinus cavernosus, 980
- Hotz, Radium in cancer, 236
- Houda, E. O., Myelencephalitis, 646
- Houdmont, H., Intestinal stasis, 1135
- Houssay, B. A., Influence of thyroid on antibody formation, 1530; Pituitary extract, 326; Hypophysectomy in frogs, 1140; Thyroidectomized animals, 1530
- Howard, C. P., Pneumonia, 1764; Alkaptonuria, 1918
- Howard, H. A. H., Sugar in blood, 1604
- Howe, H. S., Dystonia musculorum deformans, 1285
- Howe, L., Hereditary blindness, 2059
- Howell, K. M., Cholesterol in cerebrospinal fluid, 644
- Hoves, W. B., Blastomycosis, 1129
- Howland, J., Intolerance to carbohydrates, 225; Rachitis, 729; Tetany, 1762; Value of cod liver oil, 1919
- Hubbard, R. S., Fat feeding in arthritis, 2000
- Huber, E., Median paralysis, 78
- Huber, O., Fate of prematurely born, 2098
- Hucker, G. J., Gram stain, 645
- Hudson, B., Mountain climate in tuberculosis, 1923
- Huerta, A., Protein therapy of hypopyon, 327
- Hug, E., Pituitary treatment of polyuria, 1530
- Hug, T., Foreign bodies in air or food passages, 498
- Hugel, Eclampsia, 1143
- Huggins, R. R., Spinal anesthesia, 1204
- Hughes, W. N., Luminal in epilepsy, 2149
- Hughson, W., Headaches, *1859
- Huizinga, J., Public health service in Dutch East Indies, 1456
- Hulshoff, A. A., Public health service in Dutch East Indies, 1456
- Hulst, J. P. L., Electric accidents, 1852
- Hultén, O., Development of falx cerebri and tentorium, 1458
- Hultkrantz, J. V., Agnesia of corpus callosum, 1458
- Hume, D. W., Iliotibial band grafts in herniotomy, 2093
- Humphrey, G. C., Home grown rations, 1765
- Hunt, E. L., Bad effects of bromid in nervous diseases, 491; Hospital as diagnostic center, 1205
- Hunt, J. R., Encephalitis, 1682
- Hunt, V. C., Myoma of rectum, 969
- Hunter, J. I., Twin tubal pregnancy, 322; Ovarian pregnancy, 1686
- Hunter, O. B., Perforation, *2111
- Huntoon, F. M., Resistance of antl-body to tryptic digestion, 880
- Hurst, A. F., Asthma, 156
- Hurwitz, S. H., Pernicious anemia, 573
- Hürzeler, O., Agnesia of both kidneys, 330
- Hussey, L. D. A., Prevention of scurvy, 890
- Hussey, R. G., X-ray therapy of tonsils, 153
- Hüssy, P., Kidney disease in pregnant, 1848
- Husten, C., Congenital syphilis, 327
- Hustin, A., Protein therapy, 1052; Serum shock, 1689
- Huth, A., State of nourishment and body measurements, 1143
- Hutinel, J., Acidosis in pregnant, 234
- Hutinel, V., Relapse of scarlet fever, 1136; Tuberculous meningitis and inherited syphilis, 1372; Glandular dystrophy, 1525, 2004
- v. d. Hutten, F., Coagulation after irradiation of spleen, 979; Roentgen irradiation of goiter, 1376
- Hyde, R. R., Natural hemolysins, 228
- Hyman, A., Renal tuberculosis, *1013
- Ickert, F., Tuberculosis in young, 240; Protection against tuberculosis, 979
- Ide, A. W., Suspension and traction in fractures, 965
- Igersheimer, J., Tuberculosis, 161
- Ilescu, C. C., Quinidin sulphate in auricular fibrillation, 1448, 1449
- Ilvento, A., Revaccination, 496
- Imbert, L., Serum treatment of pseudarthrosis, 73
- Imboden, H. M., Ossification of meninges, 1841
- Immelmann, K., Peculiar pain in flat-foot, 499
- Inchley, O., Coagulation time of blood, 1920
- Inda, F. F., Ether in whooping cough, 2096
- Ingraham, C. B., Vaginal cysts, *1487
- Ingram, A., Bronchomoniliasis complicating tuberculosis, 155
- Inlow, W. DeP., Spleen in digestion, 1365; Technic for making pancreatic fistula, 2090
- Ino, I., Sugar in spinal fluid, 76
- Irvine, A., Circumcision prevents syphilis, 734
- Irvine, H. G., Syphilis after five years, *1620
- Iseke, C., Creatin metabolism and thyroid gland, 2009
- Ishiwari, N., Action of toxins on respiration center, 76
- Isono, S., Initial exanthem of smallpox, 490
- Ito, M., Phagocytic action of calcium chlorid on tuberculosis, 740
- Ivens, P., Coryza, 825
- Iversen, T., Megacolon in adults, 242
- Iyengar, K. R. K., Wassermann in malaria, 232
- Iyengar, M. O. T., Malaria survey of Calcutta, 735
- Izquierdo, J. J., Physiologic glycemias, 897
- Jackson, A., Relation of hepatitis to cholecystitis, 154
- Jackson, C., Lye poisoning, *22; Foreign body, 1178
- Jacobeaus, H. C., Cauterization of adhesions in pneumothorax treatment of tuberculosis, 69, 163; Thoracoscopy, 657; Visceral syphilis, 900
- Jacobi, W., Endolumbar treatment of syphilis, 1059
- Jacobs, P. A., Calculus in urethra, *852
- Jacobs, W. F., Hypernephroma of sternum, 209
- Jacobson, A. S., Anesthesia for tonsillectomy, 80
- Jacobson, E., Psychology, *342
- Jacono, I., Bacillus colombensis, 1452
- Jacquelln, A., Gastric ulcer, 894; Autovaccine therapy, 1289; Gastric ulcer with uncontrollable vomiting, 1846
- Jacquelin, C., Hour-glass stomach, 325; Blocked aerophagia, 494; Gastric spasm, 1136; Minor signs of gallstones, 2151
- Jacques, Fracture of nose, 1289
- Jaeger, C., Surgical treatment of tuberculosis, 822
- Jaeger, H., Fatality from ethyl chlorid, 1378
- Jaenicke, C., Tuberculosis, 79
- Jaenicke, K., Syphilitic nose infection, *1889
- Jägerroos, B. H., Hydrosalpinx, 413
- Jagues, L., Sacralization of lumbar vertebra, 1848
- James, C. A., Blood pressure in normal children, 401
- Janet, P., Alcoholism, *1462; Delusion of sleep, 1841
- Janowski, W., Nomenclature of heart sounds and murmurs, 891; Dysentery, 1136; Fixation abscess, 1452
- Jansen, J. L. M., Fluidity of menstrual discharge, 2006
- Jansen, M., Dysostosis cleidocranialis, 1370; Contracture in arthritis, 2149
- Janson, G., Progressive lipodystrophy, 502
- Janzen, E., Inherited diabetes insipidus, 330
- Japiot, P., Painful sacralization of lumbar vertebra, 1606
- Jaquero, M., Artificial pneumothorax, 2094
- Jastram, M., Genesis of sound in scapula, 1531; Goiter operations, 1531
- Jatrou, S., Gastric ulcer, 743
- Jayle, F., Vitiligo in women, 653
- Jean, G., Accessory urethral passages, 72; Gastric crisis, 652; Rupture of intestine, 1137
- Jeanbrau, E., Anesthesia and acidosis, 652
- Jeanneney, G., Traumatic shock, 73, 1288; Neuralgia, 158
- Jeans, P. C., Hereditary syphilis, 1444
- Jeanselme, E., Medicinal shock, 974; Cancer statistics, 1210
- Jehn, W., Projectiles left in thorax, 239
- Jemma, G., Malignant lymphogranuloma, 1452; Vaccine therapy, 1528
- Jenkins, C. E., Residual vaccines, 232
- Jennings, G., Anesthesia, 59
- Jensen, J. P., Effect of benzylozoate on leukocytes, 153
- Jersild, O., Registration of syphilis, 330
- Jervell, F., Transfusion in anemia, 242; Atony of uterus, 980; Transfusion for neonatorum, 2012; Transfusion of citrated blood, 2012
- Jervell, O., Splenectomy in hemolytic jaundice, 242
- Jiménez, R., Recurring malaria after splenectomy, 896
- Jiménez de Asúa, F., Phagocytosis in pathologic processes, 822
- Job, E., Bacillary dysentery, 818
- Johansen, E. W., Iso-Agglutinins in human blood, 980
- Johansson, R., Chronic rheumatic disease, 744
- Johansson, S., Reaction of calcaneum, 242
- Johns, C. O., Nutritive value of adzuki bean, 66; Nutritive value of lima bean, 66; Nutritive value of tomato seed press cake, 812
- Johnson, J. M., Chaulmoogra oil, *1017
- Johnson, J. P., Production of immunity, 1845; Saline vs. lipovaccines, 1845
- Johnson, R. A., Carotinemias, 1204
- Johuston, J. I., Streptococcus hemolyticus empyema, 1045
- Jokl, A., Embryology of optic nerve, 1614
- Jones, A., Cesarean section, 577
- Jones, C. L., Chiropractic, 220
- Jones, C. M., Removal of bile and blood from urine, *462
- Jones, D. B., Relative digestibility of proteins, 574
- Jones, E. G., Ligation of superior thyroids, 404
- Jones, H. O., Radium in gynecology, 1523
- Jones, M. R., Blood content of calcium and phosphoric acid, 575; Calcium in blood, 2147
- Jones, S. F., Osteomyelitis, *986
- de Jong, S. I., Asthma, 234
- Jonnesco, T., Angina pectoris, 892, 2094
- Jordan, H. E., Giant cells in bone marrow, 811
- Jorge, J. M., Decompressive operation, 1453; Model sanatorium, 1773
- Jorge, R., Encephalitis in pregnant, 324
- Jorgensen, S., Melena neonatorum, 164
- Josephs, H. W., Serotherapy of bacillary dysentery, *1863
- Josephson, C. D., Obstetrics, 1458
- Joslin, E. P., Diabetes, 1996
- Judd, E. S., Cholecystitis, *197; Surgery of ureter, 399; Jejunal ulcer, 733; Primary carcinoma of ureter, 2148
- Judet, H., Fractures, 1772
- Jullien, M., Statistic nosology, 894
- Jüngling, O., Radium applicator, 979; Postoperative irradiation, 1774
- Justin-Besançon, Glycemia in goiter, 1770
- K
- Kagawa, T., Action of actinic rays, 820
- Kahn, M., Duodenal contents, *41; Tobacco, 154; Acute yellow atrophy, 885
- Kahu, M. H., Quantitative test for vagotonia, *1573
- Kahn, R. L., Rate of fixation complement, 1130
- Kaiser, F. J., Perirenal urine cysts, 743
- Kalb, G. B., Tuberculous empyema, 229
- Kaltenbach, J., Acute leukemia, 71
- Kamhorn, N., Bronchial asthma, 643
- v. Kapff, W., Cardiography of exposed heart, 77
- Kappis, M., Arthrodesis in hip disease, 1059; Fractures, 1531
- Karger, P., Chorea, 1531
- Karlefors, J., Access to pons and cerebellum, 1458
- Karo, W., Hypertrophy of prostate, 2010
- Karshner, C. F., Biliary drainage, *2036
- Karström, G., Tuberculosis or interlobar empyema, 1296
- Kasahara, M., Determination of reducing substance in spinal fluid, 729
- Kasak, M., Epilepsy, 151
- Kassowitz, K., Influencing growth by feeding, 2098
- Kastner, H., X-ray exposures after mamnectomy, 161
- Kauffmann, F., Latent edema, 1141
- Kaufmann, C., Suture of tendon, 653
- Kaufmanu, F., Aneurysm, 1378; Pain sensations in hyperalgesic areas, 2009
- Kawamura, R., Pulmonary distomiasis, 1209
- Kay, W. E., White adrenal line, 644
- Kazama, Y., Intestinal cancer, 1748
- Kazanjan, V. H., Plastic surgery, *1959
- Keefe, J. W., Plea for routine examination on operating table, 1204
- Keene, F. E., Interpretation of vesical symptoms, 400; Irradiation in cancer, *613
- Kehl, Fracture of orbit, 1292
- Kehrer, E., Rectal examination in obstetric practice, 2098
- Keidel, A., Familial neurosyphilis, *1; Reactions following arsenical treatment of syphilis, 151; Arspnenamin stomatitis, 731; Colloidal tests, 731; Modification of Wassermann, 1283
- Keilty, R. A., Tonsils as foci of infection, 1766
- Keiper, G. F., Postgraduate course, 1593
- Kelling, G., Cholelithiasis and duodenal ulcer, 824
- Kellner, F., Valvular defects and tuberculosis, 1852
- Kennan, R. H., Multiple aneurysms, 1686

- Kennedy, W. T., Endocervicitis, 149
Kennon, R., Salivary gland tumors, 648
Keppeler, E., Hematuria, 1292
Kerbrat, B., Posttraumatic headache, 821
Kerley, C. G., Malnutrition in well-to-do, 226
Kerr, W. J., Congenital heart block, 1599
Kesmodel, K. F., Sarcoma of vertebrae, 1763
Ketron, L. W., Larva migrans, 1129
Key, G. J., Juvenile general paralysis, 1687
Keyser, L. D., Massive hypertrophy of breast, 2001
Kharina-Marinucci, R., Serologic diagnosis of tuberculosis, 654; Test agglutination in tuberculosis, 821
Kibler, C. S., Hay-fever palliation, 1273
Kieffer, J., Demonstrating granules in tubercle bacillus, 1600
Kielluthener, Stones in ureter, 741
Kilduffe, R. A., Gonococcus complement fixation test, 644; Iodine-phosphoric acid reaction, 887; Flocculo inhibition reaction, 1767
Kilgore, A. R., Cancer, *454; Paget's disease, 1047
Kilker, C. H., Pyrethrum dermatitis, *448
Killian, J. A., Pregnancy, 488; Arthritis, *1230; Effect of phenylcinchoninic acid on kidney, 1684
Kimball, O. P., Simple goiter, *1068
Kimura, O., Giant cells in gliomas, 823; Lung fluke in brain, 823
Kindberg, L., Aphasia in encephalitis, 2151
Kindred, J. J., Maternity bill, 723
King, J. E., Atresia of vagina, 1203
King, J. L., Anticoagulating substances in uterine mucosa, 1763
King, J. T., Jr., Determination of basal metabolism, 1282
Kingsbury, F. B., Hippuric acid in nephritis, 885; Determination of hippuric acid, 1283
Kjølstad, S., Goiter, 1613
Klapp, R., Retrogression of lower ribs, 1774
Klauder, J. V., Syphilitic backache, 150; Neurosyphilis, *1701
Klee, F., Asphyxia neonatorum, 1932
Kleeberg, L., Syphilis and marriage, 1293
Klein, E., Occlusion of superior mesenteric vessels, 1253
Klein, W., Basal metabolism of energy, 2007
Kleinberg, S., Traumatic spondylolisthesis, 316; Loop operation, *1390
Kleinschmidt, L., Perforating ulcer of foot, 328
Kline, B. S., Pulmonary gangrene, *1874
Kling, C., Virus of encephalitis in spinal fluid, 1613; Agglutination of plague bacilli, 2012
Klippel, M., Gastric ulcer simulating crises of tabes, 973
Klose, H., Regeneration of heart muscle, 77
v. Klot, B., Fibromas, 1292
Kniskern, E. L., "Dr. Pepys' dairy," 1674
Knoll, W., Rare form of anemia, 414
Knowles, F. C., Xanthoma, *1557
Knüsel, O., Vital stain for human eye, 1212
Koch, Bretschneider's alternating respiration procedure, 1533
Koch, E., Alternating heart action, 1292
Koch, J., Routes of infection with tuberculosis, 162
Kocher, A., Gastric ulcer, 160
Kocher, R. A., Metabolism in pulmonary tuberculosis, 1842
Koenig, M., Hemorrhagic metritis, 2004
Koenigsfeld, H., Metabolism and blood under heliotherapy, 1933
Koennecke, W., Fascia-fat flaps for brain-dura defects, 239
Kofferath, W., Paralysis after forceps delivery, 1215
Köfler, T., Tuberculous infection in family, 2009
Kohn, L. W., Abdominal contraction method of diagnosis, 1207; Influenza bacilli producing meningitis, 1842
Kolb, G., Occultism and familial insanity, 657
Kolb, L., Hospital for speech disorders, 2082
Koller-Aeby, H., Varicose veins, 2006
Kolmer, J. A., Ethylhydrocupreine in pneumococcus pleuritis, 152; Wassermann, *776; Toxicity of drugs and route of administration, 814
Kolodziej, H., Trigeminal neuralgia, 1143
Komoda, H., Gastro-intestinal mucosa under chloroform, 160; Osteomyelitis, 160.
Kondo, M., Polynuclear ganglion cells, 823
König, F., Surgical tuberculosis, 415, 2008; Plastic operation on lips, 656
Konikow, M. J., Hypertension reduced by "salt-free" diet, 1129
Koning, J. W., Glycolytic property of blood, 1534
Konjetzny, G. E., Dislocation of jaw, 1774
Koopmans, R. A., Joint disturbances in syringomyelia, 2011
Korbsch, R., Biologic tests for tuberculosis, 978
Korenchevsky, V., Rickets, 1524
Korns, H. M., Eventration of diaphragm, 885
Kortzeborn, To correct shortening of femur, 1455
Koser, S. A., Bacillus botulinus, *1250
Kossmann, F., Anal fissures in women, 2100
Kothny, K., Reaction to tuberculin in nephritis, 742
Kotzulla, O. H., Urine test for tuberculosis, 163
Kouindjy, P., Pseudotabetics, 1207
Kovács, F., Subphrenic abscess, 1059
Kraft, A., Morphin in septicemia, 153
Kraft, S., Sarcoma-carcinoma of bladder, 825
Krahula, G., Fetus with hydramnion, 2009
Kramer, B., Calcium and phosphorus in rickets, 729; Inorganic elements in blood, 1284; Infantile tetany, 1762
Krasa, F. C., Trigon of bladder, 501
Krasemann, E., Puncture of longitudinal sinus, 978; Butter-flour mixture, 1850
Kraus, A., Cystic lymphangioma, 1928
Kraus, R., Invisible phases of protozoa, 822, 1608; Typhus, 1608; Biologic reactions in typhus, 1608; Bovine antitoxins, 1608; Anthrax, 1608; Bovine instead of horse antiserums, 2153
Krause, A., Incarcerated hernia in infants, 161
Kress, G. H., Graduate education in Europe, 569; Postgraduate work in Paris, 1357
Kretschmer, H. L., Pyelitis, 2001
Krieg, Examination of standing subject, 1143
Kristensen, M., Meningitis from influenza bacillus, 80
Kristenson, A., Encephalitis, 1458
Kroh, F., Hiccup, 1456
Krohn, H., Unilateral syringomyelia, 1457
Krüger, W., Duration of stay of food in infant's stomach, 1376
Kühl, W., Paralysis agitans, 1692
Kuhn, J. F., Varicose ulcers, 2082
Kühnelt, P., Local eosinophilia, 242
Kulcke, Fracture of skull, 1776
Kummer, E., Internal hernia, 1372
Kummer, H., Kidney functioning, 894
Kummer, R. H., Giant bladder calculi, 1926
Kundrat, R., Genital tuberculosis, 327
Kundratitz, K., Intracutaneous vaccination, 1377; Stomatitis in dysentery, 2009
Kurlander, J. J., Fracture of spine of tibia, *855
Kurtzahn, Irradiation of spleen, 239
Kurzak, H., Tuberculosis of sphenoid bone, 1059
Kusama, S., Inoculation against typhoid, 406
Kusuda, S., Ovarian vesicular cystoma, 655; Ulcer of vulva, 655
Kutter, P., Measles, 1144
Kylin, E., Daily variations of blood pressure, 582; Hypertonia and kidney disease, 1296; Arterial pressure before nephritis, 2100
Labbé, M., Fasting in diabetes, 71, 1210; Acidosis in pregnancy, 234; Acidosis of fasting, 893; Idiosyncrasy to antipyrin, 1526; Diabetes following mumps, 1770
Labbé, R., Diphtheric paralysis, 1605
Laborde, Blocking splanchnic nerves, 2152
Laborde, A., Radium therapy, 1136
Laborde, S., Nevi, 409
Lacy, G. R., Viability of spirochaeta pallida, 968; Infection with low grade tetanus spores, 2090
Ladd, M., Compressed yeast, 312
Ladd, W. E., Empyema in children, 65
Ladd, W. S., Pernicious anemia, 814
Laederich, Syphilitic myositis, 578
Lafferty, R. H., X-ray examinations of gastro-intestinal tract, 730
Lafforgue, Tardy serum sickness, 72
Lafon, C., Nystagmus, 819
Lafora, G. R., Tabetic ataxia, 76; Neurosyphilis, 1375
Lafrenals, H. M., Unnamed organism in urine, 1449
Lahmann, A., Roentgen and heliotherapy in granuloma, 2153
Laignel-Lavastine, Exhibitionism of sentiment, 820; Abscess of lung, 1052; Bearded women, 1926
Lalley, W. W., Gonorrhea complement fixation test, 1523
Lambert, S. W., Drugs in arthritis, 2000
Lampe, R., Ernst von Bergmann as army surgeon, 1775
Lancashire, G. H., Association of skin and visceral tuberculosis, 1524
Landgraf, T., Tuberculous pleuritis, 1852
Landis, H. R. M., Sanatorium treatment, 815
Landivar, R., Suture of larynx, 412
Landsberg, M., Chemistry of pleural effusions, 742
Lane, A., Total colectomy, 975
Lane, J. E., Mercuric cyanid intravenously, 1525
Lane, W. A., Ankle fractures, 1450
Lang, E., Conjunctivitis of new-born and periperal mastitis, 416
Langdon, H. M., Report of committee on local anesthetics, *1730
Lange, B., Acid-fast saprophytes resembling tubercle bacilli, 161
Lange, C., Spinal fluid in brain tumors, 1294
de Lange, C., Endocarditis, 1532; Lymphosarcoma, 2011
Lange, R., Size of heart in infants, 1531
de Langen, C. D., Public health work in East Indies, 658, 1456; Medical impression of Brazil, 1534; Cancer in the tropics, 1534
Lange-Nielsen, C., Bandl's ring, 826
Langer, J., Congenital bromoderma, 1850; Parkinsonism after encephalitis, 1850
Langley, R. W., Hernia of appendix, *706
Lankhout, J., Pathology of blood, 1144; Hilar tuberculosis, 1612
Lanman, T. H., Surgical mortality, 1600
Lannois, M., Larynx in tabes, 72
Lanz, O., In dubiis age, 1060
Lanz, W., Alcohol test breakfast, 160
Lapenta, V. A., Aspergillosis of lungs, 2148
Lardunois, G., Exostoses, 818
Laroche, G., Dangers of lumbar puncture, 324; Colloidal benzoin reaction, 1528
Larsson, W., Typhoid, 2009
Lasala, M. A., Anthrax, 1055
Laslett, E. E., Paroxysmal tachycardia, 1769
Lasnier, E. P., Pernicious anemia, 1453
Lassabliere, P., Diarrhea in the tuberculous, 234; Recent progress in pediatrics, 1211
Latzko, W., Febrile abortion, 1056
Laubry, C., High blood pressure, 157; Heart block, 1925
Lavenant, A., Phlegmon 15 months after contusion, 1373
de Laverigne, Infection with Morgan's bacillus, 324
Laverigne, M., Superposed infections in tuberculosis, 739
Läwen, A., Suppuration in knee, 328
Lawes, C. H. E., A broth of a boy, 233
Lawrence, H., Pathogenesis of demodex, 1135
Lebert, M., Dieting in diabetes, 892
Le Calvé, J., Blood and extravascular circulation, 894; Experimental hemoclastic crisis, 2150
Lechelle, P., Colloidal benzoin reaction, 1528
Leconte, High blood pressure, 820
Lédé, F., Mortality of infant wards of state, 1687
Le Dentu, R., Meningitis, 1053
Ledoux, E., Symptoms from pressure on sinus cavernosus, 408
Leendertz, G., Speed of sedimentation of blood corpuscles, 1293
Leenhardt, Amyotrophy or myatonia? 322
Lefebvre, Spinal anesthesia, 892
Legrand, R., Cardiac form of typhoid sepsis, 157; Typhoid heart, 1688
Legueux, F., Postoperative renal hemorrhage, 157, 651
Le Hello, Y., Serotherapy of hemorrhage, 1053
Leicester, J. C. H., Unusual gynecologic cases, 1525
Leichtentritt, B., Acute dyspepsia, 824
Leighton, W. E., Rupture of malarial spleen, 573; Cord lesions, 1285
Leiner, C., Intracutaneous vaccination, 1377
Leist, M., Relations between blood and gastric ulcer, 742
Leitch, N. M., Morphin in septicemia, 153
Leiter, L., Relation of urea to uremia, 1205
Lejars, Arthritis deformans, 323
Lellis, A., Toxicity of chenopodium, 1291
Lelong, M., Esophagoscopy, 158; Aphasia in encephalitis, 2151
Lemaire, H., Scabies, 495
Lemann, I. L., Diabetes in negroes, 403; Diabetes and syphilis in negroes, 1045
Lemierre, A., Syphilis of calf muscles, 578; Tabetic arthropathy, 1052
Lenhartz, H., Streptothrichosis of lung, 413
Lenk, R., Irradiation following gastro-enterostomy, 1933
Lenne, Diabetes, 1214
Lenoble, E., Old syphilitic myocarditis, 494, 1525
Le Noir, P., Liver and kidney disease with gastric ulcer, 233; Operative treatment in gastric ulcer, 894; Skin tests, 1770; Gastric ulcer with uncontrollable vomiting, 1846
Lenormant, C., Tuberculosis of glands in cheek, 234; Bilateral ligation of carotid arteries, 410
Leon, N., Urethral myiasis, 575
Leone, R., Syncopal pernicious malaria, 896
Léon-Meunier, Postoperative peptic ulcer, 738
Lepehne, G., Bilirubin in duodenal juice, 1141
Leprince, J. A., Fish as antimosquito agency, 1996
Lereboullet, P., Heart disease in 1921, 819; Scleroderma, 1052; Schick reaction in measles, 1526; Pediatrics in 1921, 2005
Léri, A., Familial pleonosteosis, 1526; Sacralization of lumbar vertebra, 1526
Leriche, R., Obliteration of artery, 820; Epilepsy, 1606; Periarterial sympathetics, 1683; Periarterial sympathectomy, 1927
Lermoyez, J., Spasmodic coryza, 1052; Hemoclastic crisis in hay fever, 1052
Leroux, L. H., Angina and intestinal spirillosis, 1689
Leroux, R., Experimental pneumonia, 737
Leroy, A., Physical-chemical factors in spasmodic phenomena, 1688
Lesi, A., Hydatid cyst in tibia, 1928
Letulle, M., Necrotic pneumonia, 892
Leven, G., Strangulated hemorrhoids, 894
Leveuf, J., Occlusion of duodenum 235
Levick, G. M., Electrical treatment of foot musculature, 575
Levin, A. L., Hepatic extract, 2087
Levin, I., Radium and lymphoid tissue, *930
Levin, J. J., Abscess attached to liver, 1051
Levin, O. L., Recklinghausen's disease, 1129
Levine, S. A., Anemia, 814
Levinson, A., Cholesterol in spinal fluid, 644
Levinson, P., Tetanoid neurosis, 1613
Levy, A., Simple ulcer in colon, 1531

- Levy, D. J., Eruptive fever, *1785
 Levy, G., Abortive encephalitis, 737
 Levy, J., "Anesthesia in nose and throat work," 1753
 Lévy, P. P., Vaccine therapy in septicemia, 578; Isolated culture of typhoid group bacteria, 1289; Sterilization of needles, 1528
 Lévy, R., Potassium chlorid as a diuretic, 650; Immunization against diphtheria, 1605
 Lévy-Solal, E., Protein therapy in puerperal septicemia, 1053; Syphilis and hypertrophy of placenta, 1136
 Lévy-Weissmann, Gonorrhea, 1373
 Lewis, D. S., Standardization of digitalis preparations, 1764
 Lewis, N. D. C., Influenza in insane, 645; Tumors from primitive notochord, 1520
 Lewis, R. M., Cancer of ampulla of Vater, 70
 Lewis, T., Quinidin in fibrillation, 1449
 Lewis, W. H., Lung abscess after tonsillectomy, 1990
 Lewisohn, R., Gastrojejunal ulcers, *442
 Lewkowicz, K., Meningitis, 891, 1372
 Leyton, A. S., Reducing substances in blood and tumors, 232
 Leyton, H. G., Reducing substances in blood and tumors, 232
 Lhermitte, J., Radiotherapy in syringomyelia, 1771; Decerebrate rigidity, 2004
 Liao, C., Apex beat, 73; Kidney chromosome gage, 737; High blood pressure, 1688
 Libert, E., Boveri's test of spinal fluid, 233; Tubercle bacilli in duodenum, 892
 Licht, L. F., Monster delivered by cesarean section, *622
 v. Lichtenberg, A., Incontinence from spina bifida, 743; Anastomosis between ureter and pelvis, 743; Removal of broken catheter, 743; Temporary exclusion of urethra, 743; Ureteral fistula, 826; Cystoscopy, 1379
 Lichtenstern, R., Transplantation of testicle, 743
 Liébault, G., Foreign bodies in ear, 72
 Liebhardt, E., Urine test for tuberculosis, 240
 Liegner, B., Chancre of uterus, 415
 Liek, E., Exophthalmic goiter, 1776; Gallstone operation, 1776
 Lichhardt, B., Ether in peritonitis, 976
 Lietz, F. H., Diphtheria in newborn, 79
 Lilienthal, H., Carcinoma of esophagus, 1368
 Liljenquist, F., Virus of encephalitis in spinal fluid, 1613
 Limerick, O. V., Tobacco, 154
 Link, Abscess in brain, 1775
 Lindahl, C., Embryology of optic nerve, 1614
 Lindemann, E., Cirrhosis of liver, 825
 Lindhagen, E., Care of tuberculous, 1692
 Lindstedt, F., Lumbago, 744
 Lindstroem, G., Leukolytic serotherapy, 71
 v. Lingen, L., War amenorrhea, 2010
 Linthicum, F. H., Ozena and tuberculosis, 1045
 Linthicum, G. M., Foreign bodies in rectum and sigmoid, *941
 Linzenmeier, G., Gonorrheal cystitis, 1379
 Lippmann, W., Diabetic cataract, 1777
 Littell, J. J., Veronal poisoning, *1333
 Little, K. F., Enlarged thymus, 313
 Livermore, G. R., Prolapse of urethra, 70
 Lobo-Onell, C., Dieting in diabetes, 892
 Locke, C. E., Jr., Intracranial tumors, 1841
 Lockemann, G., Biology of tubercle bacillus, 162
 Lockwood, C. D., Tumors of pancreas, *1554
 Loeb, C., Hereditary blindness, 2059
 Loeb, L., Undernourishment and sexual cycle, *1646
 Loeb, R. F., Acute nitrobenzol poisoning, 643
 Loeper, M., Anemia with gastric cancer, 579; Oxalic acid gout, 893; Dyspepsia, 1052; Administration of pepsin, 975; Spread to medulla of toxins in stomach, 1528; Dyspepsia and nervous system, 1607; Nerve lesions with gastric cancer, 1846
 Loewe, L., Typhus, *1967
 Loewy, C., White bile, 235
 Löffler, W., Internal secretion and nervous system, 821
 Lohnes, H. R., Inanition fever, *1720
 Löhr, W., Varices, 1214
 Longcope, W. T., Hypersensitiveness, *1535
 Loop, R. G., Vascular occlusion, *369
 Lopex, J. A., Malaria and tuberculosis, 412
 López, Albo, W., Pituitary and adiposis dolorosa, 76
 Lorand, A., Steinach's operation, 1057
 Lorenzini, A., Recurring fever with lymphogranulomatosis, 896
 Lörincz, B., Aorta clamp, 1059
 Lortat-Jacob, L., Vaccine therapy in meningitis, 73; Senile arc in cornea, 737; Nutritional diseases, 892; Tuberculous meningitis, 1528
 Lossius, Inversion of Plantar reflex, 2012
 Lotmar, F., Wassermann reaction with brain tumor, 2152
 Loughnan, W. F. M., Unclassified fevers in Jamaica, 973
 Lovett, R. W., Infantile paralysis, *1941
 Löwenhjelm, C., Râles after healing of lung, 1295
 Lower, W. E., Diverticula of bladder, 315
 Löwy, J., Residual nitrogen, 78; Influence of one disease on another, 2008, 2097
 Lozano, A. R., Meningococcus infection, 75
 Lubbers, H. A., Migraine and anaphylaxis, 1778
 de Luca, P., Immunity to tuberculosis, 736
 Lucas, W. P., Blood studies in newborn, 225; Physiology of blood, *332; Blood volume, 1842
 Lucke, B., Fatal nephritis following scarlet fever, 150; Aneurysm, *935
 Luckhardt, A. B., Vagus control of esophagus, 1131
 Lueg, W., Asthma and tuberculosis, 1934
 Luhn, O. G. F., Tinea imbricata, 973
 Lukin, N., Public health and private practice, 1038; Pay clinics, 1673
 Lumsden, L. L., Public health, *779
 Lundblad, O., Artificial esophagus, 1379
 Lundborg, H., Factors predisposing to tuberculosis, 330; Racial intermarriages, 1614
 Lundsgaard, C., Respiration, 1380
 Lupo, M., Sacralization of fifth lumbar vertebra, 2152
 Luseua, G., Tuberculous granuloma obstructing pylorus, 1927
 Lusk, G., Basal metabolism, *250
 Lutembacher, R., Masked dissociation of auricle-ventricle beat, 407; Clinical polygraph, 974; Endocarditis, 1212; Articular rheumatism, 2005
 Lutz, K., Occult blood in gastric ulcer, 581
 Lyle, W. C., Blood chemistry in pregnancy, 488
 Lynah, H. L., Pulmonary abscess, *1548
 Lynch, J. M., Cancer of rectum, *998
 Lynch, K. M., Granuloma inguinale, *925
 Lyon, A. B., Pneumonia in children, 886
 Lyon, B. B. V., Gastric analysis, 1048
 Lyon, D. M., Blood viscosity and blood pressure, 1051
 Lyon, G., Digestive disturbances of endocrine-sympathetic origin, 974; Recent progress in medicine, 1136; Asthma, 1606
 Lyon, M. W., Jr., Corynebacterium trichodiphtherioide causes meningitis, 1682
 Lyonnet, B., Prescription writing, 1211
 Lyons, R., Pulsus alternans, 2087
- M**
- Maal, P. H., Belladonna preparations, 744
 Maass, H., Rachitic disturbance in growth, 825
 MacAuley, C. J., Acute intussusception, 320
 MacAusland, W. R., Free fascia transplants in elbow arthroplasty, 1285
 McBrayer, R. A., Basal metabolism, *861
 McCaun, G. F., Experimental rickets, 575; Rickets and experimental tetany, 970
 McCarty, A. C., Effect of hydrochloric acid ingestion on urine, 575
 MacCarty, W. C., Hepatitis and cholecystitis, 154
 McCay, D., Enteroptosis, 817
 McClure, C. W., Duodenal contents, *1468
 McClure, J. C., Administration of hydrochloric acid, 890
 McCollum, E. V., Experimental rickets, 970, 1681
 McCord, C. P., Pyrrhum dermatitis, *448
 McCornack, P. D., Wood-tick paralysis, *260
 McCoy, J., Cerebellar abscess, *1333
 McCulloch, H., Dosage of digitalis, 1045; Tolerance of children for digitalis, 2087
 McDonagh, J. E. R., Leukocytozoön syphilidis, 649
 McEachern, J. D., Uretero-ureteral anatomosis, 573
 Macera, J. M., Lymphosarcomas, 1055
 MacFarlane, A., Oxygen injection in recurrent pleurisy, 2092, 2148
 Macfie, J. W. S., Bronchomoni-lia and tuberculosis, 155
 McGlannan, A., Blood pressure, *107
 McGlasson, I. L., Familial onychogryposis, 1448
 McGuigan, H., Effect of hemorrhage on sympathetic nerves, 967
 McGuire, S., Dyspepsia, 1128
 Macht, D. I., Response of excised bronchi to drugs, 1131; Effect of antispasmodic drugs on bronchus, 2091; Sedative properties of aromatics, 2090
 McIver, J., Posterolateral sclerosis, 2092
 McKinnin, F. A., Tuberculin hypersensitiveness, 153
 McKay, W. J. S., Sacral proctectomy, 2003
 MacKechie, H. N., Diverticula of jejunum, 573
 McKee, C. M., Antipneumococcus protective substances, 228
 McKee, G. M., Synovial lesions of skin, 730; Irradiation, *1489; Premature loss of hair, 1522
 McKeudrce, C. A., Ossification of meninges, 1841
 MacKenzie, D. W., Renal infections, 1763
 Mackenzie, J., Medical research, 153; Heart disease and pregnancy, 156, 321; Irregular heart action, 321
 McKesson, E. I., Anesthesia, *430
 Mackie, F. P., Formol-gel test in kala-azar, 2003
 McKindlay, C. A., Paratyphoid, 966
 McKinnon, A. I., Jejunostomy, *273
 Macklin, A. H., Prevention of scurvy, 890
 McKnight, H. A., Varicose ulcers of leg, *1890
 Maclachlan, W. W. G., Pericarditis, 1917
 MacLaren, A., Aneurysm of femoral artery, 1368
 McLaughlin, A. J., Communicable diseases, *594, *1693
 Maclean, H., Renal efficiency tests, 1286
 McLean, J. D., Medical profession and health authorities, *827
 MacLennan, A., Femoral hernia, 1287
 MacLeod, J. A., Hypernephroma of sternum, 2091
 McLester, J. S., Nephritis, *88; Radiotherapy in diagnosis of tuberculosis, 403; Group practice, 1836
 McMaster, P. D., Biliary obstruction in jaundice, 153; Stasis bile, 230
 MacMillan, J. W., Common cold, 394
 McNally, W. D., Nicotin poisoning, *377
 McNeil, A., Syphilis, *1970
 Macomber, D., Sterility, *169, 314
 McQueen, J., Capillary pressure and circulation in shock, 493; Capillary blood pressure and glomerular filtration theory, 1845
 McQuire, S., Dyspepsia, 734
 MacRae, J. D., X-rays in diagnosis of tuberculosis, 2086
 McWhorter, G. L., Nonperforative appendicitis causing peritonitis, 887
 McWhorter, W. B., Removal of bread crumbs from trachea by suction, *2121
 McWilliams, C. A., Bone grafting, 1368
 Madier, Restoration of parenchyma of organs, 2150
 Madlener, M., Antethoracal artificial esophagus, 656
 Maeda, M., Ergot and hemoptysis, 237
 Magath, T. B., Early renal insufficiency, 68; Actinomycosis, 956
 Maggesi, B., Polyserositis, 895; Syphilitic fever, 1213
 Maggiore, S., Encephalitis, 1213; Measles, 1773
 Magnus, V., Trigeminal neuralgia, 242; Surgery of brain, 1457; Disseminated sclerosis, 2012
 Mahle, A. E., Adenomyoma of fallopian tube, 319
 Maillard, G., Epilepsy, 1687
 Maillet, M., Glandular dystrophy, 1525, 2004
 Major, R. H., Empyema, 1365
 Malan, G., Lesions of optic thalamus, 580
 Malerba, G. L., Cholesterol in blood, 654
 Malet, C., Vaccine therapy in septicemia, 578
 Mallardi, M., Antimony metabolism in internal leishmaniasis, 1773; Cyst in spleen in leishmaniasis, 1928
 Malmivirta, F., Glycosuria, 1380
 Malone, C., Group practice, 1987
 Malone, J. Y., Early degeneration of nerve fibers, 1841
 Malone, R. H., Detection of indol, 735
 Manchot, Prophylaxis of measles with convalescents' serum, 2093
 Mandl, F., Postoperative lung complications, 79; Hernia on linea alba, 238; Postoperative peptic ulcer, 655; Postoperative complications in lungs, 1142
 Manges, M., Periarthritis nodosa, 1045
 Mann, F. C., Technic for making biliary fistula, 2090
 Mann, H., Right ventricle in tuberculosis, 489; Auricular fibrillation, *1800
 Mann, L. T., Renal tuberculosis, *1913
 Mantovani, Rat-bite disease in woman, 739
 Manwaring, W., Anaphylaxis, *489
 Maragliano, D., Discoloration of diseased hip, 74
 Maragliano, E., Clinical medicine in 1920, 1138
 Marañón, G., Hypogenital hand, 1057; Dwarfism, 1929
 Marburg, O., Brain tumors, 1214
 Marchal, R., Pain in arms, 157
 Marchand, L., Paresis, 1137
 Marchand, O., Typhoid spine, 407
 Marcora, F., Cytotoxic serums, 1529
 Marfan, A. B., Scrofula, 409; Pathogenesis of athrepsia, 495; Denutrition, 1450; Digestive disturbances, 2005
 Marie, Schick reaction in measles, 1526
 Marie, P., Abortive encephalitis, 737; Progressive myasthenia, 2004
 Marin Amat, M., Protein therapy in optic neuritis, 1057; 1375; Ocular manifestations of diabetes insipidus, 1849; Ophthalmoplegic migraine, 2096
 Marine, D., Effect on metabolism of removing suprarenals, 967; Goiter, *1068
 Marinesco, M. G., Myoclonic encephalomyelitis of malarial origin, 1133
 Marion, G., Suprapubic prostatectomy, 652; Calculus in ureter, 975
 Mariscal, N., Medicine in Spain, 1849
 Marogna, P., Pynephrosis with calculi and no symptoms, 1607
 Marquezy, R., Paroxysm of intense uremia, 578
 Marrassini, A., Blood pressure, 1452
 Marsan, F., Prostatectomy, 975
 Marsh, P. L., High fat diet in diabetes mellitus, 150; Renal glycosuria, 489; Tuberculosis with Mikulicz's syndrome, 644
 Marshall, C. F., Syphilis with persistent Wassermann, 321
 Marshall, C. H., Trypanosomiasis, 1768
 Marshall, H. W., Restaurant treatment in industrial accident cases, 1273
 Marshall, M., Spontaneous evolution in transverse presentation, 967
 Marsiglia, G., Wiring for pseudarthrosis of humerus, 580

- de Martel, T., Stump after resection of intestine, 1137
Martelli, N., Surgery of spleen, 1291
Martens, M., Ligation in thrombophlebitic pyemia, 1774
Martin, C. L., Roentgen ray studies of heart, 730
Martin, E. G., Smoking vs. chewing, 59
Martin, J. P., Primary tumor of pleura, 650
Martin, T. H., Care of tuberculous cripples, 649
Martínez, G. N., Asthenias, 822
Martínez, W., Juvenile general paresis, 1056
Martínez Barrios, R., Protein therapy, 1375
Martínez Vargas, A., Syncope and apparent death in whooping cough, 976; Diphtheria, 1057
Martini, G., Special epileptic equivalent, 1453
Martinotti, L., Cutaneous manifestations of leukemia, 412; Cutaneous manifestations of hemoblastosis, 1139
Marvin, H. M., Apocynum and convallaria, *1865; Quinidin sulphate in heart disease, 2089
Marx, A. M., Changes in uterus due to gas bacilli, 502
Marx, E., Sensitiveness of cornea, 980
Masclangioli, L., Carbon sulphid in pneumonia, 1055
Masmonteil, F., Congenital dislocation of wrist, 652
Mason, E. H., Absorption of calcium salts in man, 152
v. Massari, C., Foreign body in esophagus, 1378
de Massary, E., Diabetic gangrene, 71
Massey, A. Y., Cancer of liver, 1051
Masson, P., Neuroma in obliterated appendix, 652
Mastrosimone, F., Hypertrophy of prostate, 236
Masucci, J., Resistance of antibody to tryptic digestion, 880
Mathias, E., Carcinoma, 2097
Mathieu, P., Surgery in 1921, 2151
Mathieu, R., Sodium thiosulphate in therapeutics, 1526
Matsui, T., Injury of hearing by congestion in head, 655
Mattel, C., Influence of thyroid on hemorrhage, 1770
Matthews, H. B., Pregnancy after nephrectomy, *1634
Mau, C., Gastric cancer, 1214
Maurer, Terminals of abdominal aorta, 651
Mauriac, P., Variations in leukocyte count, 72; Leukocyte, 1527
Maver, M. E., Appendiceal concretions, 1047
Mavrogordato, A., Influence of dust on growth of bacteria, 1687
Maxwell, G. M., Common cold, 394
May, E., Phonendoscopy of lungs, 407
May, J., Ecthyma simulating syphilid, 1930
Mayeda, T., Hypertrophy of pylorus with pernicious anemia, 1053
Mayer, A., Phantom tumor of bladder, 79
Mayer, E., Local anesthesia in nose and throat work, *1336, 1836
Mayer, K., Cocain poisoning, 1920
Mayer, Karl, Projectiles left in thorax, 239
Mayer, L., Tendon transplantation, 1922
Maynard, E. F., Pernicious anemia with gastro-intestinal pathology, 1767
Mayo, C. H., Carcinoma, *177; Thyroid, 646
Mayo, W. J., Splenectomy, *34; In time of Henry Jacob Bigelow, *597; Diverticulitis, 1922; Hepatic incompetency, 1922
Mazza, S., Colloidal reactions in spinal fluid, 1929
Mazzocco, P., Calcium in blood of different species, 1929; Calcium in blood of pregnant, 1929
Mazzone, F., Morbidity among wage-earners, 739
Mazzoni, Epinephrin test in leishmaniasis, 74
Means, J. H., Calorimetry in clinic, *347; Basal metabolism in liver disease, 885; Pneumonia, *1217
Medes, G., Effect of heating antiscorbutic vitamin, 1765
Meek, W. J., Reactions to hemorrhage, 65
Megaw, J. W. D., Typhus-like fever, 2003
Meissner, J. G., Pyelonephritis, *1475
Meland, O. N., Inflammatory diseases of gallbladder, 966
Meldolesi, G., Influence of pressure on ferment action, 1529
Mellon, R. R., Carcinoma in gastrointestinal diverticulosis, 734
Memme, F. R., Acute dilatation of heart, 972
Mendel, L. B., Physiology of vitamins, 2088; Adequate and inadequate diet, 2147
Mendelson, R. W., Bronchopulmonary mycosis, *110; Public health problems of far East, 1361
Mendeisohn, A., Butter-flour mixture in infant feeding, 2099
Mendl, R., Residual nitrogen in blood, 78
Menetrier, P., Lesions in air passages of gassed, 737
Mensl, E., Albumin in blood serum, 895; Encephalitis, 1213
Mériel, Spinal anesthesia, 892
Merk, L., Plant nature of neurofibromas, 1294
Merklen, P., Vaccine therapy in septicemia, 578; Endocrine glands and functional syphilis, 893; Tuberculous meningitis and syphilis, 1372; Syphilitic cranial osteitis, 1526
Merlo Gómez, J. F., Hydatid cysts of bones, 1140
Merrall, H., Adenoids and rickets, 1924
Mertens, V. E., Lanz point in appendicitis, 1294
Méry, H., Tuberculous tracheobronchial glands, 1925
Mesa, J. M., Bacteriologic tests of drinking water, 1930
Mesnil, F., Nature of spirochetes, 1527
de Mestral, V., Konrich stain for tubercle bacilli, 1452
Mestre, R., Chlorids in eclampsia, 897
Mestrezat, W., White bile, 235; Amino-acids in urine, 1527; Physiopathology of spinal fluid, 1527
Meulengracht, E., Jaundice, 77; Bilirubin colorimeter, 164, 1141; Intestinal stricture and pernicious anemia, 242, 1931
Mey, C., Colloidal reactions in spinal fluid, 1929
Meyer, A. W., Contractures, 78
Meyer, E., Diabetes insipidus, 1293
Meyer, J., Pneumococci, hemolytic streptococci and influenza bacilli in nasopharynx, 317
Meyer, K., Gastric ulcer following perforation, 1445
Meyer, Karl, menstruation and chronic uterine disease, 2006
Meyer, L. F., Idiopathic hemorrhages in skin, 239
Meyer, W., Cancer and its nonsurgical treatment, 1674
Meyer, W. C. B., Cyst of rib causes lower arm paralysis, 1674
Meyer-Bisch, R., Diabetes insipidus, 1293
Meyerstein, A., Hot baths as test of constitution, 2007
von Meysenbug, L., Diffusible calcium of blood serum, 970; Rickets and experimental tetany, 970
Mhaskar, K. S., Therapeutic values of anthelmintics, 232, 1209
Michaelsson, E., Hypernephroma, 238; Peritoneal pseudomyxoma, 242
Micheleau, E., Streptococcus gastritis, 894
Michels, G., Tuberculous articular rheumatism, 79
Michelson, H. E., Antisyphilitic drugs, 399; Sodium arsphenamin (diarsenol), 731; Sarcoma of upper lip, *1563
Michon, E., Cystoscope findings with bowel tumor, 652
Miel, G. W., Arthritis due to overstrain, 732
Miescher, G., Skin cancer, 1373
Mikkonen, H., Glycosuria, 1380
Milano, A., Tests for aviation candidates, 1056
Millan, G., Experimental gangrene, 737; Arsphenamin injection, 1053; Arsenical conjunctivitis, 1847
Milio, G., Protein therapy, 895
Miller, A. H., Anesthetic units, *433
Miller, C. W., Testing for Bence-Jones protein, 1283
Miller, M. D., Whooping cough, 1445
Miller, M. K., Corynebacterium trichodiphtherolae causes meningitis, 1682
Miller, W. S., Musculature of bronchi, 2088
Milligan, W., Diathermy in malignant tumors of pharynx, 818
Mills, C. K., Psychanalysis waning, 1998
Mills, G. P., Prognosis of carcinoma mammae, 648
Mills, N., Malformations of vertebrae, 151
Mills, R. G., Postoperative catheterization, 1050
Minet, J., Cardiac form of typhoid sepsis, 157; Typhoid heart, 1688; Syphilis, 2096
Mingazzini, G., Spastic spinal paralysis on heredosyphilitic basis, 151; Amusia and acalcolia, 1138
Minkowski, E., Schizophrenia, 495, 1288
Minnig, A., Vaccines in tuberculosis, 813
Minor, J., Hyperplasia of parathyroids in rickets, 1766
Minster, D. K., Pyrethrum dermatitis, *448
Minton, H. M., Syphilis of lung, 154
Mira López, E., Vocational orientation, 76
Mishulow, L., Hemolytic streptococci in respiratory tract, 1999
Mitchell, A., Bone resection in osteomyelitis, 156
Mitchell, A. G., Diet in infancy, Czerney and Kleinschmidt butter-flour mixture, 227; Butter-flour mixture for infants, 888; Convulsions in infants, 1603
Mitchell, H. S., Adequate and inadequate diet, 2147
Mitchell, J. W., Diabetes, 1284
Mixsell, H. R., Paralysis, *590
Mixer, C. G., Intra-abdominal tuberculosis, 1841
Mocquot, P., Fracture of lower radius, 1136
Modigliani, E., Whooping cough, 74
Modinos, P., Spondylitis and spondylitis, 234
Moffatt, C. F., Digitalis preparations, 1764
Mohr, M., Pure pylorospasm, 500
Moir, P. J., Self-inflicted rupture of intestine, 1524
Mola, A., Teaching puericulture, 2095
Moldenhauer, A., Breast nursing by sick mother, 162
Molina, A. G., Suppuration in floating kidney, 1375
Molinié, J., Reconstruction of face, 1053
Moller, F., Intracranial aneurysm of carotid, 164
Møller, H., Prolapse of rectum, 502
Møller, P., Sarcoma from injury of eye, 1613
Möllers, B., Routes of infection with tuberculosis, 162
Molnár, B., Arsphenamin in gangrene of lung, 415
Moltved, G., Turgidization of placenta, 1613
Momburg, F., Intravenous ether narcosis, 2153
v. Monakow, C., Spinal fluid, 821
v. Monakow, P., Pituitary, 821
Monberg, A., Hallux valgus, 1380
de Monchy, S. J. R., Convergence spasm of eyes, 980
Mongini, S., Encephalitis, 1213
Monjars, J. E., Serotherapy of typhus, 1139
Monjardino, J., Empyema, 1454
Monrad-Krohn, Inversion of Plantar reflex, 2012
Montgomery, D. W., Multiple eplithomas, 1447; Herpes zoster a primary ascending neuritis, 1998
Montoya y Florez, Artificial deformation of the skull, 1849
Moody, A. M., New blood counting pipet holder, *941
Moore, C. U., Lethargic encephalitis, 646
Moore, E. C., Abdominal pregnancy, 320
Moore, J. E., Familial neurosyphilis, *1; Arsenical treatment of syphilis, 151; Genesis of neurosyphilis, 315; Arsphenamin stomatitis and aplastic anemia due to neoarsphenamin, 731; Colloidal tests, 731; Icebox modification of Wassermann, 1283
Moore, M., Spleen as index of tuberculous involvement, 1367
Moorehead, F. B., Cleft palate, *1951
Moorhead, J. J., Fracture of skull, 573
Moorman, L. J., Exposure to tuberculosis in infancy, 2087
Moppert, G. G., Spontaneous reflux of bile into stomach, 158
Mördre, S. K., Diabetic coma with renal insufficiency, 2100
Moren, J. J., Paralysis agitans, 231; Occupational palu: tuberculosis, 971
Morénas, L., Rupture of varix on fibroma, 651
Morengo, J. T., Uncinari nephritis, 1918
Morgan, H. J., Atypical paratyphosus B infection, 67; Meningococcus septicemia, 814
Morishima, K. I., Typhoid bacilli, 68
Morley, J., Congenital occlusion of ileum, 649
Mörner, C. T., Cystin calculus in bladder, 1614
Morquio, L., Vaccination against typhoid, 2095
Morris, R. C., Procain dermatitis, 1357
Morris, R. S., Apparatus for diagnostic or therapeutic punctures, *286
Morrison, J. R., Blood transfusion, 1128
Morrison, L. B., Osteosarcoma of femur, 1763
Morrison, T. H., Nonsurgical biliary drainage, 1048
Morrow, J. E., Aneurysm, 1920
Morse, A., Study of pelvic outlet, 967
Morse, J. H., Instantaneous brilliant illuminator, *1182
Morse, J. L., Calcification of skin, 1444
Morse, P. F., Blood nitrogen in prostatic obstruction, 1047; Blastomycosis, 1129; Glandular fever, *1403
Mory, E., Artificial pneumothorax, 79
Moschowitz, E., Hypertension, *1075
Moser, E., Hirschsprung's disease, 978; Prevention of trismus with tetanus, 1691
Moser, H. M., "Mellon issues beer regulations," 1755
Mosler, E., Vagotonia, 1933
Moss, M. K., Resuscitation after anesthesia, 1210
Mossman, J. K., Mastitis, *509
Mosti, R., Hypernephroma, 580
Mouchet, A., Deforming osteochondritis, 2152
Mougeot, A., Benzyl benzoate in high blood pressure, 157
Mount, L. B., Bowen type of epithelioma, 1998
Mouquin, Negative Wassermann, 2151
Moire, E. J., Total laryngectomy, 738
Mourgue, R., Static activity of muscle, 819
Mouriquand, G., Axilla in pulmonary disease, 72
Mouzon, J., Hemorrhagic purpuras, 1607
Mozer, M., Serologic tests for tuberculosis, 235
Mudd, S., Mucous membranes and chilling, 230
Mueller, T., Hodgkin's disease and sarcoma, 1766
Mugniéry, E., Exstrophy of bladder, 1606
Mühlhaus, F. R., Flail knee joint, 1142
Müller, A., Fracture of vertebrae, 1058
Müller, C., Transfusion in pernicious anemia, 242; Blood pressure during sleep, 1296, 2100
Müller, E. F., Bone marrow in acute infections, 2098
Müller, Erich, Basal metabolism of energy, 2007
Müller, Erik, Nervous system of intestines, 1614
Muller, G. P., Graduate instruction in surgery, *503; Perforated gastric ulcer, 969
Müller, H., Melena in new-born, 1377
Müller, H., Jr., Urine test for bile-acids, 1373
Müller, P. F., Peptic ulcer, 1292
Müller, W., Puncture of gallbladder, 78
Müller-Deham, A., Reaction to tuberculin in nephritis, 742
Mulsow, F. W., Schick test, *1254; Blanching of skin in scarlet fever, 1919
Mulzer, P., Spinal fluid in rabbits, 978
Muñoz Urra, F., Device to induce vacuum, 1930
Murard, J., Traumatic separation of skull sutures, 235
Murayama, K., Tar sarcoma, 823
Murdoch, C., Infection with low grade tetanus spores, 2090

- Murphy, E. C., Abduction treatment of fractured head of femur, 150
- Murphy, J. B., Roentgen-ray in diseased tonsils, 153; Cancer and its nonsurgical treatment, 1674
- Murray, M. F., Diffusible calcium of blood serum, 970
- Murrell, U. G., "Chiropractic in Ohio," 723
- Murtagh, J. J., Nervous factor in water diuresis, 326
- Musser, J. H., Jr., Leukocytes after hemorrhage, 812; Inorganic iron in hemorrhagic anemia, 1918
- Mustard, H. S., Phocomelia, *1964
- Myers, C. N., Chemotherapy of arsenicals, 1684
- Myers, J. L., Radical antrum operations, 2081
- Myers, M. M., Cardiac diagnosis, *1414
- Myers, V. C., Arthritis, *1230; Potassium in blood, 1284; Phenylcinchoninic acid and kidney, 1684
- Myerson, A., Acaraphobia, 151
- N**
- Nadal, M. L., Scarlet fever, 1136
- Nadolny, G., Blood in mongoloid idiocy, 163
- Naegeli, T., Abdominal adhesions, 824
- Nagal, S., Calcium chlorid and phagocytosis, 740
- Nagayo, M., Transplantation of cancer, 1777
- Nager, F., Endemic deafness, 2152
- Nakagawa, K., Intravenous alcohol anesthesia, 237
- Nakagawa, S., Tissue proteases, 740
- Nanagas, J. C., Kidneys among Filipinos, 1685
- Narath, A., Potassium iodid test for kidneys, 1851
- Nario, C., Angioneurotic edema, 1930
- Narr, F. C., Syphilis and tuberculosis, 730
- Nash, T. F., Jr., Ammonia in blood, 1765
- Naslund, C., Agglutination test in typhus, 502
- Nassau, E., Idiopathic hemorrhages in skin, 239; Monosymptomatic hematuria in children, 500
- Nassetti, F., Primary sarcomas in scar tissue, 412
- Nasso, I., Biologic tests for tuberculosis, 1213
- Natali, G., Parenteral protein therapy in typhoid, 1689
- Nathan, Nephritis in digestive disorder, 72; Restoration of parenchyma of organs, 2150
- Nathan, M., Pathogenesis of exostoses, 818; Herz' phrenocardia, 1451
- Nathanson, M. H., Lungs in cardiac disease, 966, 2091
- Nather, K., Tuberculosis of thyroid, 898; Tubercle bacillus septicemia, 979
- Naumann, H., Osteomalacia and fibrous osteitis, 897
- Naunyn, B., Gallstones, 162; Origin of human speech, 1141
- Navarro, J. C., Hutinel's cardiocirrhosis, 233; North American aid to children in Austria, 1056
- Neal, J. B., Encephalitis, *121
- Neave, S., Nature and systematic position of *B. paratyphus* C, 889
- Necker, F., Factitious pyelitis, 501
- Neff, F. C., Diseases of Children, *331
- Neff, J. H., Diverticulum of ureter, 404
- Nehring, Influence of food on tuberculosis mortality, 240
- Neill, A. J., Diffusion of fats and fatty acids, 1763
- Neilson, A. L., Bursitis, *463
- Neilson, C. H., Resistance of blood cells, 231
- Nejrotti, G. M., Fracture of jaw, 1689
- Nelken, A., Chronic infection of prostate, 1996
- Nellans, C. T., Parathyroidectomy and blood sugar, 1766
- Nelson, A., Basal metabolism of underweight children, 2147
- Nelson, E. M., Fat soluble vitamin poor diet, 2088
- Nepveux, F., Acidosis in pregnant, 234; Tests of glycemia, 892
- Nessa, M. J., Roentgen-ray diagnosis of gastro-intestinal diseases, 399
- Netter, Salivary glands in encephalitis, 72
- Neubauer, K., Diet and premature children, 978
- Neuber, E., Bile peritonitis, 1690
- Neuberger, H., Dislocation of lower radio-ulnar articulation, 824
- Neufeld, F., Immunity to tuberculosis, 329, 1852
- Neugebauer, G., Angina pectoris, 1376
- Neukirch, P., Action of quinidin, 413
- Neuland, W., Poisoning with anilin and naphthalin, 1215; Winckel's disease, 1215
- Neumann, W., Outline of heart in diagnosis, 1292
- Neurath, R., Whooping cough, 2008
- Nevens, W. B., Amino-acid content of feeds, 1765
- Nevermann, H., Narcolepsy during pregnancy, 1931
- Neveu-Lemaire, Congenital helminthiasis, 323
- Nevin, M., Experimental measles, 1369
- New, G. B., Melano-epithelioma, *19
- Newburgh, L. H., High fat diet in diabetes, 150; Renal irritation from high protein diet, 488
- Newell, E. T., Operative obstetric complications, 1133
- Newell, R. R., Pelvimetry by roentgen ray, 66
- Newton, M. H., Lateral sinus thrombosis without usual ear and mastoid signs, *2121
- Ney, K. W., Tendon transplantation for hand paralysis, 1523
- Nicaud, P., Cerebromeningeal syphilis, 892
- Niccolai, N., Epilepsy plus polyclonia, 1929
- Nicholls, L., Malaria, 2002
- Nichols, A. G., Partial absence of corpus callosum, 1206
- Nicholson, D., Woody thyroiditis, 1764
- Nieloux, M., Carbon monoxid poisoning, 1289
- Nicolini, R., Otitis media and interna, 1140
- von Niederhäusern, Artificial pneumothorax, 1848
- Niedlich, Appendix in hernial sac, 77; Herniotomies, 1142
- Nielsen, C., Pharmacology of benzyl compounds, 2090
- Nieuwenhuys, A., Neo-arsphenamin in malaria, 980
- Nigro, T., Indicanuria, 1928
- Nijhoff, G. C., Obstetric version, 416
- Niles, G. M., Nonsurgical drainage of gallbladder, 2149
- Niles, W. L., Serum therapy of pneumonia, 154; Cornell pay clinic, 1755
- Nin Posadas, J., No morphin in kidney colic, 1454
- Ninni, C., Action of bile on tetanus toxin, 158
- Niosi, F., Fibroma of mesentery, 1290
- Nixon, C. E., Sensory changes in pernicious anemia, 229; Meningo-encephalitis, 730; Chemistry of spinal fluid, 1918
- Noack, F. K., Fats in infant feeding, 581
- Nobécourt, P., Overlapping infections of air passages, 652; Rheumatismal endocarditis, 820; Aortic insufficiency, 1051; Typhoid, 1211; Aortic lesions, 1373; Fat in infant feeding, 2005
- Nobel, E., Prognosis of pleuritis, 1852
- Noble, T. B., Transperitoneal nephropexy, 1204
- Noguchi, H., Etiology of yellow fever, 152; Prophylaxis and serum therapy of yellow fever, *181; Spirochetosis of rabbits, *2052
- Nogués, P., False cystitis, 652
- Nonnenburch, Edema of extrarenal origin, 413
- Norden, A., Sarcoma of mamma, 980
- Nordenson, J. W., Hydrogen ions of vitreous humor in fetus, 1614
- Nordmann, E., Perforating ulcer of foot, 328
- Nordmann, O., Acute cholecystitis, 2008
- Norsworthy, O. L., Debutante slouch, 647
- Novak, E., Dilatation of stomach, *81
- Novaro, R., Duodenal diverticula, 1929
- Novoa Santos, R., Electric conductivity of body fluids, 977
- Nuzum, F. R., Efficiency in hospital, 1991
- Nuzum, J. W., Transplantable carcinoma, 734
- Nuzzi, O., Access to foot through Achilles tendon, 976
- Nye, L. L., Blood content of calcium and phosphoric acid, 575
- O**
- O'Brien, H. R., Phocomelia, *1964
- O'Brien, T. J., Cardiac failure, 316
- Ocaranza, F., Physiology of testicle, 1055; Brownian movement, 1139
- Ochoterena, I., Comparative neurology, 1055; Mexican protozoa, 1055
- Ochsenius, K., Influence of calcium on tetany, 1932
- Ochsner, A. J., Drainage of pancreas abscess, 1683
- O'Connor, V. J., Lavage of renal pelvis, *1088
- Oddo, C., Influence of thyroid on hemorrhage, 1770
- Odén, C. L. A., Soft rubber tip for bell type of stethoscope, *223; Einhorn intestinal tube, *1889
- O'Donnell, W. S., Red blood corpuscles in infectious diseases, 729
- Odriozola, E., Carrion's disease, 159
- Oehlecker, F., Vein-to-vein transfusion, 1531
- Oertel, H., Review of Horst Oertel's "General Pathology," 1040
- O'Ferrall, J. T., Joint tuberculosis, 1995
- Offermann, W., Septic abortion, 193
- Offrem, A., Tuberculin treatment, 240
- Oftedal, S., Multiple myeloma, *1547
- Ogata, M., Cytotoxic serums and vital staining, 76
- Okabayashi, H., Abdominal hysterectomy for cervix cancer, 1523
- Okamoto, K., Prophylactic inoculation against measles, 1846
- O'Keffe, E. S., Eczema in breast fed babies, 886
- Oldenburg, T., Tuberculosis, 164
- Oleson, H. C., Basal metabolism of underweight children, 2147
- Oleson, R. B., Biliary drainage, *2036
- Olin, R. M., Typhoid, *1717
- Olitsky, P. K., New bacterium in influenza, 152; Experimental influenza, 230; Typhus, 1369
- Oliva, C., Loose body in hernial sac, 1607
- Olivecrona, H., Hallux valgus, 164; Death after acacia infusion, 1852
- Oliver, W. W., Typing of pneumococci, 1919
- Olivier, R., Gastrectomy for cancer, 1137
- Olsho, S. L., Effective dark room, *1183
- Ombredanne, L., Facial paralysis, 1053
- O'Neil, R. F., Carcinoma of urethra, 402; Urologic lesions, *417
- Onohara, K., Physicochemical state of sugar in blood, 889
- Opitz, H., Pseudohemophilia, 239; Paradoxical reaction to diphtheria vaccine, 825; Diphtheria immunization, 1850
- Oppenheimer, B. S., Auricular fibrillation, *1800
- Oraison, J., Anteversion of uterus, 975
- Orbaan, C., Radiotherapy for cancer, 1534
- O'Reilly, A., Lumbosacral region, *1394; Roentgen-ray study of lumbo sacral spine, 1995
- Ornstein, G. C., Humoral antibodies in tuberculosis, 889
- Orr-Ewing, H. J., Multiple serositis, 1845
- Orth, O., Surgery of bones, 161; Ischiorectal prostatectomy, 826, 974
- Orthmann, E. G., Malignant suprarrenal tumors, 413
- Orton, H. B., Open safety pin removed from esophagus by peroral endoscopy, *1422
- Orton, W. A., Vegetable problem in diabetic diets, 1682
- Osborne, T. B., Anaphylaxis from milk proteins, 490
- Osterberg, E., Sugar in normal urine, 1283
- Ott, W. O., Selaticia, 399, 2091
- Ottenberg, R., Blood grouping, *682; Hereditary blood qualities, 1999
- Otvös, E., Reaction of pylorus to atropin, 77
- Oudard, Accessory urethral passages, 72
- Oyarzábal, J., Invisible phases of protozoa, 822, 1608; Trypanosomes, 1608
- Oyenard, A., Sarcoma of conjunctiva, 326
- Ozorio de Almeida, M., Muscular reflexes, 897; Associated movements, 1374
- P**
- Pacchioni, D., Measurement of respiration, 739
- Packard, H., Calculus of appendix, 2089
- Pacreau, Anomalies of radial artery, 819
- Page, D. S., Vitamin deficiency and tuberculosis, 1769
- Pagnello, R., Malaria, 1849
- Pagniez, P., Sedimentation of erythrocytes, 73; Anaphylaxis to eggs, 737; Digestion hemoclasia, 819; Epilepsy, 894
- Paine, S. G., Staining bacterial flagellae, 649
- Painter, C. F., Traumatic myositis ossification, 489
- Paisseau, G., Acute aplastic leukemia, 2151
- Paiva Ries, Atypical amebiasis, 1454
- Palier, E., Peritonitis, 1921
- Pallin, G., Cancer of bile ducts, 77; Course of biliary passages, 77; Banti's disease and jaundice, 1614
- Palmer, G. T., Sanatorium care of tuberculous soldiers, *506; Ventilation, weather, and common cold, 1047; Temperature in tuberculosis, 1445
- Palthe, P. M. W., Aviation accidents, 744
- Palugyay, J., Sensitization in roentgen-ray therapy, 1142
- Pannet, C. A., Imperfectly descended testis, 1050
- Panzer, P., Appetite curve, 163
- Papastratigakis, Sympatheticotonia, 897
- Papin, Urology in 1920-1921, 975
- Pappenheimer, A. M., Experimental rickets, 575, 732; Diffusible calcium of blood serum, 970; Hyperplasia of parathyroids in rickets, 1766
- Paraf, J., Reaction to arsphenamin, 323; Incubation of tuberculosis, 737; Migraine, 1052; Pneumococcus infections, 1525
- Paranhos, U., Atypical amebiasis, 1454
- Pardere, R., Syphilitic pleurisy, 1530
- Parès, G., Hemoclastic crisis during roentgen-ray treatment, 1688
- Parisot, J., Thyroid and pregnancy, 1770
- Park, E. A., Experimental rickets, 970, 1681; Value of cod liver oil, 1919
- Park, W. H., Schick test, 401
- Parker, F., Sachs-Georgi test, 315
- Parker, W. R., Senile cataract, *1171
- Parkhurst, H. J., Suppurating and cicatrizing disease of scalp, 1998
- Parlavacchio, G., Visceral ptosis, 159, 1928
- Parodi, F., Pleural effusion with artificial pneumothorax, 896
- Parounagian, M. B., Silver arsphenamin, *1706
- Parsons, J. P., Blood sugar studies in dementia praecox, 151
- Parturier, G., Duodenal ulcer, 2005
- Pascalis, G., Resection of knee, 1137
- Pasch, C., Undernutrition and fat content of human milk, 416
- Paschkis, R., Trigon of bladder in mammals, 501
- Pastine, C., Radius extensor reflex, 580
- Pastore, R., Rumination in infants, 1452
- Patek, R., Hypertrophic arthritis, 575
- Patel, M., Retrograde strangulation of intestine, 1606
- Paterni, L., Nitrobenzol poisoning, 1054
- Paterson, D., After-effects of encephalitis, 1134
- Paton, D. N., Metabolism of rickets, 1051; Nutrition, 1524
- Paton, J. H. P., Case taking at St. Andrews' Institute, 1287
- Patzschke, W., Anhidrosis, 1933

- Pauchet, V., Blocking splanchnic nerves, 2152
Paul, F., Serology of syphilis, 1215; Mehncke test, 1777
Paul, L. G., Fracture of humerus, 813
Paullan, D. E., Compression of spinal cord, 494
Paullin, J. E., Glucose test in obese, 1996
Paulus, D. D., Cardiac anginal pains, 2086
Pautrier, L. M., Sulphur in dermatology, 73
Pavy, H. K., Antimony tartrate intravenously in bilharziasis, 1288
Payne, G. C., Hookworm larvae, *2035
Payne, R. L., Chorlo-epithelioma following hydatid degeneration, 969
Payr, E., Trigeminal neuralgia, 1610
Peabody, F. W., Epinephrin hypersensitivity and hyperthyroidism, 643; Report of Harvard Infantile Paralysis Commission, 886; Physical weakness and vital capacity, 1918
Peacock, W. L., Human anthrax, 891
Pearce, L., Experimental syphilis of eye, 732; Syphilitic reactions, *1619; Trypsinamide in typanosomiasis, 1998
Pearl, R., Encephalitis, 574; Basal metabolism and carbon dioxide eliminations, 1282
Pearlman, S. J., Hemolytic streptococci of adenoids, 317; Pneumococci and non-hemolytic streptococci of adenoids and tonsils, 317; Pneumococci hemolytic streptococci and influenza bacilli in nasopharynx, 317; Influenza bacilli of adenoids and tonsils, 317
Peck, A. W., The deafened, *267
Peck, C. H., Hemangioma of liver, 1285
Pedrazzini, F., Mechanics of skull, 896
Péhu, M., Pyloric disease, 1450
Peiper, A., Abdominal pain, 581; Children of elderly parents, 1851
Peiper, H., Occult gastro-intestinal hemorrhage, 162
Peiser, J., Index of state nourishment, 825
Pellecchia, E., Tumors of urethra and bladder, 579
Pellini, F., Diphtheria bacillus, 896
Peltason, F., Perforations of esophagus into air passages, 657
Pemberton, R., Diet in arthritis, 643
Peña, I., Rupture of uterus, 1774
Pennington, J. R., Potassium nitrite in osteomyelitis, 2091
Pentimalli, F., Protein intoxication, 412; Nystagmus in anaphylaxis, 580; Parenteral injection of milk, 654
Pepper, O. H. P., Fatal nephritis after scarlet fever, 150
Percy, J. F., Cautery knife in breast cancer operation, 1523
Pérez, M. L., Pituitary during pregnancy, 412, 497
Pérez Canto, Typhus, 1608
Pergola, M., Diphtheria bacilli, 1773; Arbutin in bacteriology, 1927
Perin, Experimental gangrene, 737
Perkins, R. G., Throat bacteria, 1919
Perreau, E. H., Medical secrecy in courts, 738
Perret, J. M., Cancer of appendix, 1132
Perry, E. E., Smoking vs. chewing, 59
Perthes, G., Radium applicator for mouth, 979; Radiotherapy of cancer, 1291
Péry, J., Hysterectomy in puerperal fever, 1451
Pescher, J., Deep breathing in toxic vomiting, 819; Restoring function to collapsed lung, 2150
Pestalozza, C., Meningitis, 2006
Péterfi, T., Mechanism of inheritance of sex, 581
Petersen, W. F., Focal reaction, 66
Peterson, R., Pneumoperitoneum as aid to obstetric and gynecologic diagnosis, 400
Petrén, G., Accessory renal vessels, 1614
Pétrén, K., Acute nephritis, 737; Rheumatic disease of joints, 744
Petroff, S. A., Humoral antibodies in tuberculosis, 889; Needle for collecting blood for serologic tests, *1495; Flavine compounds in tuberculosis, 1600
Petruschky, Tuberculosis and pregnancy, 2010
Pettit, J. A., Mandibular tumors, *1881
Peutz, J. L. A., Malaria, 2011
Peyrer, K., Hospital contagion with tuberculosis, 581
Peyrot, J., Index for infant feeding, 578
Peytel, A., Medico-social and medico-legal matters, 738
Pfanner, W., Hernia of omental bursa, 161
Pfaundler, M., Digestion of milk, 1143; Associated diseases, 1144; Articular rheumatism and chorea, 1378
de Pfeffel, Bubonic plague, 2004
Pflaumer, E., Reflex anuria, 656
Phélip, L., "Ultra-Rapid" treatment of gonorrhea, 1211
Philibert, A., Examination of sputum, 234
Philippe, Liver in pregnancy, 325
Phillips, J. M., Rabies, 318
Picard, M. S., Acute ileocolitis, 1132
Pichler, K., Occupational deformity of hand, 239
Pickett, A. N., Immediate repair of lacerations vs. delay, 1128
Pico, O. M., Nervous factor in water diuresis, 326
Pieri, G., Cineplastic amputations, 2153
Pierre-Kahn, Necropsy in epidemic hiccup, 324
Pietravalle, N., Preparing colloidal gold, 1927
Pignatti, A., Torsion of testicle in pseudohermaphrodite, 654
Pillado Matheu, C., Biochemical and clinical research on vitamins, 1140; Clinical research on vitamins, 1140
Pilot, L., Diphtheria bacilli and diphtheroids of adenoids and tonsils, 317; Hemolytic streptococci of adenoids, 317; Influenza bacilli of adenoids and tonsils, 317; Pneumococci and non-hemolytic streptococci of adenoids and tonsils, 317; Pneumococci hemolytic streptococci and influenza bacilli in nasopharynx, 317
Pinard, M., Experimental syphilis, 2151; Negative Wassermann, 2151
Pinesohn, G., Pneumonic paratyphoid, 1141
Pinel, X., Pyloric disease, 1450
Piney, A., Decerebrate rigidity, 2150
Pinheiro Chagas, C., Cancer in nail matrix, 326
Pinkhof, J., After-contraction of muscles, 1216
Pino-Pou, R., Relapsing fever, 1454
Piotrowski, G., Encephalitis, 821; Liver in mercuric chlorid poisoning, 2094
Pirazzoli, A., Fracture of tarsalia, 1374
Pirie, J. H. H., Mycetoma, 1288
Pirondini, E., Fulminating urine fever, 496
Pirquet, C., Acquum, 1377
Pisani, S., Umbilicus sign, 1055
Pittaluga, G., Malaria after splenectomy, 896
Pittarelli, E., Test for lactic acid and sugar, 75; Tests of urobilin, 159
Pitts, H. H., Intestinal tuberculosis, 1764
Pizzetti, D., Unilateral hematuria, 1138
Planès, J., Pregnancies after cesarean section, 235
Platau, E., Volitional control of artificial hands, 980
Plaut, F., Spinal fluid in rabbits, 978
Plaut, R., Protein-poor diet, 1292; Anhidrosis, 1933
Plenz, Prolapse of rectum, 330
Plichet, A., Digestion hemoclasia, 819
Plummer, G. R., Pyrethrum, 805
Plummer, H. S., Thyroxin, *243
Poggio, G., Acidosis and acidemia, 896; Blood with kidney disease, 1928
Pol, J. H., Rabies, 80
Polak, J. O., Forced labor, 400; Bleeding in ectopic pregnancy, 1203; Ectopic pregnancy, 1366
Poletti, B., Connective tissue implants, 411
Poliakoff, S., Bovine tubercle bacilli in surgical tuberculosis, 1060
Policard, A., Obliteration of artery, 820; Structure of cell, 1847
Poliet, Mediastinal lymphocytoma, 1526
Pollak, G., Vaccination during epidemic smallpox, 1054
Pollak, L., Sugar in blood, 1532
Pollitzer, H., Hemolytic jaundice, 742
Pollitzer, R., Tuberculosis and Chrostek's sign, 976
Pólya, Retention of urine after operations, 416; Fixation of spine in spondylitis, 658
Pomaret, M., Medicinal shock, 974; Arsenoxid in arsenicals, 1606
Pommereau, Perforation of palate from false teeth, 1926
Ponce de León, M., Acetone coma, 1453
Pontano, T., Hiccup, 1138
del Ponte, E., Triatomas, 1608
Pontoppidan, B., Calcium phosphate deposits, 1296; Acetylene poisoning, 1778
Poole, A. K., Influenza bacillus, 67
Pope, B. A., Colon bacillus septicemia, 70
Pophal, R., Encephalitis and influenza, 1142
Popper, M., Liver in pregnancy, 234
Poppert, P., Cholangiolitis in relation to operations for gallstones, 2010
Poppi, A., Pathology of nasopharyngeal cavity, 737
Porru, C., Arsenicals in spastic conditions, 1173
Port, F., Diphtheria bacilli in sputum, 1294
Porter, F. J. W., Erysipelas, 817
Porter, L., Anaerobic bacteria in infant's intestine, 312
Porter, M. F., Teratomas of ovary, 1203
Porter, W. B., Gitter, 1762
Portes, Terminals of abdominal aorta, 651
Portmann, G., Total laryngectomy, 738
Posey, W. C., Myasthenia gravis, *1007
Post, L., Aqueous humor, *1323
Potel, G., Suprarenal tumor in abdominal wall, 651
Potocki, Hydatidiform mole and lutein cysts in ovary, 1687
Pottenger, F. M., Laboratory vs. clinical diagnosis, 1365
Potts, H. A., Chancroid—encephalitis, *1885
Potvin, Hysterectomy in puerperal infection, 1770
Pouey, E., Fibromas and pregnancy, 1930
Pouey, H., Radium in uterine hemorrhages, 1052
Poulard, Diphtheria paralysis of accommodation, 894
Pousson, Nephritis, 651; Hypertrophy of prostate, 892
Power, D., Colles' fracture, 648; Coit's apparatus for aneurysm, 648
Poynton, F. J., Pericarditis, 1603; Apparatus for drainage in empyema, 2150
Pozzo, M. V., Roentgen-rays in diagnosis, 1375
Prat, D., Hydatid cysts of lung, 408
Prest, E. E., Temperature in tuberculosis, 736
Prewitt, V., Electrocardiograph light, *465; Early reactions in spinal cats, 1131
Price, G. E., Auditory hallucinations, 646
Prikul, A., Actinomycosis, 1932
Prince, M., Psychoanalysis, 1998
Pringle, J. H., Digestion of esophagus cause of hematemesis, 1604
Pritchard, J. S., Sarcoma of lung, 1763
Provinciali, U., Pneumococcus peritonitis, 236
Pryer, R. W., Scarlet fever, 645
Puccio, L., Spirochetal bronchitis, 1774
Puente, J. J., Fatty degeneration in fetus, 326
Pulay, E., Itching skin diseases, 2008
Puls, A. J., Silver foil as preventive of peritoneal adhesions, 734
Pulvirenti, S., Bromoderma, 1928
Punch, A. L., Complement fixation test in tuberculosis, 1134
Pusey, W. A., Where is this country, anyway? 219
Putnam, T. J., Absorption from ventricles in hydrocephalus, 1599
Puttl, V., Lengthening of femur, *934; Arthroplasty, 1369
Putzu, F., Callus and nerve injuries, 1374
Pybus, F. C., Spina bifida, 1287
- Q**
Quensel, U., Cancer cells in blood stream, 1614
de Quervain, F., Gastric and duodenal ulcers, 579
Quick, D., Carcinoma of tongue, 150; Intra-oral carcinoma, *436
Quinby, W. C., Transperitoneal approach to kidney, 2148
Quinke, H., Therapeutic revulsion, 1294
Quinland, W. S., Carcinoma of kidney, 1282
Quintin, J., Bilharziasis, 326
de Quirós, J. B., Importance of anamnesis, 580
- R**
Rabe, F., Protein-poor diet, 1292
Rabinovici, L., Gastric ulcer, 1772
Rabinowitch, I. M., Metabolism in diabetes insipidus, 1205
Rabut, R., Eruption on children's hands, 1926
Rafin, Calculus in ureter, 651
Ragot, A., Phrenic sign in tuberculosis, 158
Rahmann, H., Dislocation of femur, 1455
Railliet, Hiccup with erysipelas, 1925
Rakestraw, N. W., Chemical factors in fatigue, 970
Ramadier, J., Ear test for inherited syphilis, 975
Ramirez, M. A., Foreign protein in arthritis, 489; Protein sensitization in asthma, 1207
Ramond, F., Hour-glass stomach, 325; Blocked aerophagia, 494; Dyspepsia or gallstones? 893; Gastric spasm, 1136; Gases in colon at splenic flexure, 1846; Minor signs of gallstones, 2151
Ramond, L., Tuberculous meningitis, 410
Ramstad, N. O., Negative pressure in empyema, 64
Ramström, M., Java pithecanthropus, 1614
Rancken, D., Gymnastic exercise and metabolism, 900
Randall, A., Tropical inguinal granuloma, 1447
Randolph, B. M., Convulsions in brain tuberculoma, 1600; Perforation, *2111
Randt, P., Urine test for tuberculosis, 1455
Ranson, J. R., Prevention of typhus in hospital personnel, 1120
Ranzi, E., Brain tumors, 1214
Raphael, T., Blood sugar studies in dementia praecox, 151
Rasch, C., Match box dermatitis, 1296
Rasor, H., Lactose and peristalsis, 1850
Rassieur, L., Fractures, 1844
Ratera, J., Roentgen ray in metrorrhagia, 497
Rathery, F., Protracted encephalitis, 737; Quinin amaurosis, 892; Blood sugar in nephritis, 1053; Jacksonian epilepsy in diabetes, 1770
Ratner, B., Cardiac anomaly, 1762
Ravant, P., Inguinal lymphogranulomatosis, 494
Ravdin, I. S., Transfusion of blood, 644; Perforated gastric ulcer, 969
Ravenel, M. P., Narcotic addict, 1199
Ravina, A., Syphilitic origin of deforming rheumatism, 1526; Vaccine therapy in bronchitis, 1770
Ray, H. M., Pedunculated tuberculosis of peritoneum, 1046
Ray, L. A., Relationship of growth and carcinoma, 814
Rayle, A. A., "Mellon issues beer regulations," 1594
Rea, M. H., Aneurysm, *935
Read, J. M., Nasopharyngeal endothelioma, 70
Reaves, W. P., Electric headlight, *1653
Reboul-Lachaud, L., Geniculate ganglion syndrome, 1771
Reder, F., Kraurosis vulvae, 1922
Reed, W. A., Granuloma inguinale, 403
Regan, J. C., Anthrax, 1366, *1944; Tuberculous meningitis, 1762
Regard, G. L., Orientation of surgical science, 1847
Regnault, F., Malaria, 578

- Reh, T., D'Espine bronchophony sign, 653; Detubation, 1051; Insomnia after encephalitis, 2094
- Rehfish, Derangement of heart impulse, 329
- Rehfuß, M. E., Gastric equilibrium zone, *2118
- Rehn, E., Electrophysiology of diseased muscles, 78
- Reiche, Prophylaxis of measles with convalescents' serum, 209
- Reicher, E., Osmotic hemolysis, 325
- Reid, W. D., Visceroptosis and "stomach trouble," 151; Pre-systolic murmur, *1648
- Reilly, J., Endocarditis from plague, 1770
- Rembe, Gastric crises in tabes, 1294
- Remlinger, P., Typhoid delirium suggesting rabies, 1053
- Rémond, Nitrogen and cholesterol in blood in migraine, 325
- Renard, Skin tests for sensitization, 1770
- Renard, J., Residual nitrogen with uremia, 72
- Renaud, M., Protein therapy in pneumonia, 578; Otitis, 1847, 1925
- Rendu, H., Hexamethylenamin in encephalitis, 1771
- Renella, F., Colloidal reactions in spinal fluid, 1929
- Rénon, L., Tuberculosis, 234; Ulceration with rectal cancer, 494
- Rensch, O. B., Spleen as index of tuberculous involvement, 1367; Carbon dioxide and resistance to tuberculosis, 1368; Morphin in tuberculosis, 1690
- Repond, A., Schizophrenia, 821
- Reschke, K., Hypertonic solutions and absorption by peritoneum, 2008
- Retrouvey, Mastoiditis, 1210
- Reverchon, L., Traumatic lesions of pituitary, 1688
- Reverter, J. M., Transvesical prostatectomy, 822
- Reymond, H., Scarlet fever, 1054
- Reynders, R., Puncture of elbow, 1135
- Reynolds, E., Sterility, *169, 314
- Reynolds, F. N., Apparatus for drainage in empyema, 2150; Hyperadrenalism cause of pyloric stenosis, 2150
- Reynolds, L., Duodenal contents, *1468
- Reynolds, R. L., Relation of liver and pancreas to infection of gallbladder, 483
- Reys, L., Encephalitis, 1771
- Rhodes, B., Streptococcus pneumonia and empyema, 1130
- Ribas G., Tamponing with placenta praevia, 1690
- Riberio da Silva, Rheumatism after chorea, 1454
- Ribeyrolles, A. B., Hemolysis in ileus, 1056
- Ribón, V., Meningitis diagnosed by eye, 159; Disease in music centers, 1056
- Richard, Radium puncture, 495
- Richard, G., "Deleveling test" of smaller arteries, 973
- Richard, G. H., Antigonococcus vaccine therapy, 652
- Richard, P., Pre-tuberculous state, 233
- Richards, C. M., Familial lymphosarcoma, 1367
- Richards, L. G., Necropsy percentage, 1754
- Richet, C., Jr., Gastric ulcer, 894, 1846; Skin tests for sensitization, 1770
- Richter, J., Typhoid peritonitis, 415
- Rico, G., Extraction of calculus in kidney pelvis, 76
- Ridlon, J., Femur fracture, *1815
- Rieger, H., Loose bodies in joints, 2008
- Riese, H., Gallstones and surgery of bile ducts, 1850
- Rietschel, Convalescents' serum in prophylaxis of measles, 500
- Rieux, Gage of disability, 738
- Righetti, C., Autoplastic closure of gap in skull, 580
- Rising, J., Actinomycosis, 658
- Riley, T. J., Cosmopolitan Cancer Research Society, 2081
- Rimbaud, L., Traumatic hematomyelia, 324
- Ring, A. H., Factors in suicide, 2088
- Rinker, F. C., Syphilis of stomach, 889
- del Rio-Hortega, P., Phagocytosis in pathologic processes, 822
- Riosalido, Tendon transplantation for radial paralysis, 497
- Riser, Tuberculous meningitis, 1210
- Risquez, F. A., Autointoxication of gastro-intestinal origin, 1374
- Rist, E., Board of revision, 72; Fever, 407; Statistic nosology, 409; Transient hyperthyroidism from tracheobronchoscopy, 2094
- Ritter, J., Polymorphism among bacteria, 1514
- Ritter, S., Typhus fever, *1967
- Rivers, T. M., Culturing influenza bacillus, 67; Reactions of influenza bacilli producing meningitis, 1842
- Rizzi, W., Carcinoma of male urethra, 825
- Robert, Micrococcus catarrhalis meningitis, 1926
- Roberti, Arsenical-treated blood for transfusion, 1925
- Roberts, C., Ectopia vesicae, 156
- Roberts, P. W., Valgus feet, 1571
- Robertson, A., Charcot-Leyden crystals in stool in amebic dysentery, 2093
- Robertson, B., Blood transfusion, 1447
- Robertson, T. B., Relationship of growth and carcinoma, 814
- Robin, A., Photographic record of physical signs, *1023
- Robineau, M., Technic for suturing intestine, 1606
- Robinski, S., Bone disease, 329
- Robinson, A. L., Ventrifixation, 321
- Robinson, E. L., Sole print identification, 1766
- Robinson, S., Mechanical obstruction of intestine, 1600
- Robinson, W. H., Cigaret drain, *2121
- Robinson, W. L., New slide staining rack, *707
- Robitschek, W., Pressure of bile, 500
- Roca, J., Depressor and bronchoconstrictor substances in pituitary, 971
- Roch, G., Congenital luxation of hip, 1934
- Roch, M., Asthma from idiosyncrasy to potato, 495; Artificial pneumothorax, 579
- Rochet, Cancer of bladder, 652; Cystitis, 1606
- Rockey, A. E., Cancer of esophagus, *30
- Rodenacker, Thyroid insufficiency, 1775
- Rodi, G., Blocking the splanchnic nerves, 1928
- Rodríguez Arias, B., Coagulation of spinal fluid, 76; Spinal fluid in encephalitis, 1374
- Rodríguez Castro, A., Typhoid hip disease, 75
- Rodríguez Gómez, F., Osteomyelitis and syphilis, 822
- Roedelius, E., Evacuation of stomach before operating, 657
- Roeder, C. A., Gastro-enterostomy, *1565; Gastrojejunal ulcers, 1841
- Roessingh, M. J., Functional activity of bone marrow, 2154
- Roger, H., Functions of lungs, 1688; Obesity after encephalitis, 1770; Geniculate ganglion syndrome, 1771
- Rogers, F. T., Brain stem, 1131
- Rogers, J. B., Gases and tuberculosis, 1600
- Rogers, L., Vaccine therapy of asthma, 576; Chaulmoogra oil in leprosy and tuberculosis, 736; Chaulmoogra oil and sodium morrhuate in tuberculosis, 972
- Rogoff, J. M., Thyroid excretion in blood in exophthalmic goiter, 815
- Rohde, C., Stomach behavior in cholelithiasis, 238
- Rohmer, P., Stenosis of pylorus, 495; Immunization against diphtheria, 1605
- Rohonyi, Elimination of acid by kidneys, 1378
- Rohrer, F., Indexes of nutrition, 979; Localization of currents of air in lungs, 1138; Localization of elastic properties in lungs, 1138; Mechanism of coughing, 1290; Action of drugs on respiration center, 1373
- Rojas, F., Uncinariid nephritis, 1918
- Rolder, J. W., Reaction time in arm and fingers, 80
- Rolly, F., Modern protein therapy, 978
- Romanelli, E., Smallpox and chickenpox, 895
- Romano, G., Alleged botryomycosis in man, 1139
- Romano, N., Syphilitic pleurisy, 1530
- Romberg, E., Leukocytes in tuberculosis, 329
- Rominger, E., Action of hypnotics on infants, 1609; Tests of narcotics, 2007
- Ronchi, A., Syphilis, 496
- Rongy, A. J., Transuterine insufflation, 1204
- Roos, E. C., Hernia of diaphragm, 887
- Roque, G., Tuberculous elrrhosis, 893
- Roques, Tuberculous meningitis, 1210
- Rosamond, E., Intracranial hemorrhage, 2087
- Roscher, H., Placental tumor, 79
- Rose, C. B., Furunculosis, *37
- Rose, W. H., Gastrogastrostomy for hour-glass stomach, 1842
- Rosen, I., Laboratory findings in syphilis, *1696
- Rosenau, M. J., Food infections, *1948
- Rosenbaum, H. A., Device for steady-ing needle during intravenous work, *40
- Rosenbaum, S., Acute dyspepsia, 824
- Rosenblatt, J., Pneumothorax, *12
- Rosenblatt, S., Removal of tooth from nares, 887
- Rosenow, E. C., Focal infection and appendicitis, etc., 319; Poliomyelitis, *588; Myositis, 1204
- Rosenthal, B., Alveolar pyorrhea, 1294
- Rosenthal, G., Intercricoid-thyroid general anesthesia, 1212
- Rosenthal, L. V., Fecal flora, 1599
- Rosing-Schow, O., Paratyphoid, 242
- Ross, E. L., Diastases of blood, 66
- Ross, J. W., Biliary fistulas, 1841
- Ross, S. G., Nutritional keratomalacia, 1599
- Rosso, N. D., Perforation in typhoid, 1454
- Rost, F., Fever with arthritis, 78
- Rostedt, R., Wood alcohol blindness, 164
- Rothman-Manheim, I., Cytology of duodenal tube findings, 899
- Roubinovich, J., Oculocardiac reflex, 323; Epilepsy, 1687
- Rouget, Perforation of palate from false teeth, 1926
- Rouquet, J., Phonendoscopy of lungs, 407
- Rouquier, Traumatic lesions of pituitary, 1688
- Rous, P., Biliary obstruction in jaundice, 153; Concentrating activity of gallbladder, 230; Stasis bile, 230
- Roussel, J. N., Leprosy cured by anthrax vaccine, 1602
- Rousse, G., Pneumonia, 737
- Roux-Berger, J. L., Detaching adherent pleura, 2152
- Rouzaud, Nitrogen and cholesterol in blood in migraine, 325; Enteroptosis of liver origin, 495
- Rovsing, T., Surgical nephritis, 1456
- Rowand, A., Percentage of error in diagnosis, 1209
- Rowe, A. H., Basal metabolism in thyroid diseases, 1045
- Rowntree, L. G., Drug therapy, *1061
- Rows, R. G., "Pseudotumors" of brain, *1643
- Royer, D. J., Incarceration of transverse colon in hernial sac, 1445
- Rubeli, H., Lingual goiter and pregnancy, 78; Fracture of neck of femur, 160
- Ruben, M., Lipoma in umbilical hernia, 164
- Rubinstein, D., Parabiosis for study of factors affecting growth, 236
- Rubritius, H., Prostatectomy at 2 sittings, 979; Surgical treatment of neuritis, 2099
- Rübsamen, W., Rectovaginal fistula, 500; Incontinence in women, 1849
- Rucker, M. P., Hemoglobin after childbirth, 149; Commoner ecobolics in first stage of labor, 1202; Outlet pelvimeter, *1255
- Ruge, C., Jr., Duration of pregnancy, 327; Sexual intercourse during pregnancy, 1692
- Rugh, J. T., Surgery of infantile paralysis, 573; Ankylosing operations of spine, 1521
- Rumpel, O., Cystic disease of kidney, 1291
- Rumpf, E., Tubercle bacilli in blood, 162
- Runeberg, B., Aseptic renal pyuria, 1852; Acute infectious nephritis, 2012
- Rupe, W. A., Dosage of digitalis, 1045; Tolerance of children for digitalis, 2087
- Rupp, A., Localization of pulmonary embolism, 238; Postoperative thrombosis and pulmonary embolism, 238
- Rüppel, W., Hilus gland disease, 1142
- Rush, J. E., Peculiar pustular condition, 1921
- Russ, W. B., Pseudocyst of pancreas, *620
- Ruth, C. E., Fracture of femur, *1811
- Rüttemeyer, W., Blood in influenza, 1212
- Ryder, C. T., Suprarenals and thyroid in tuberculosis, 67
- Ryder, G. H., Pituitary extract in labor, 488
- Rydgaard, F., Cholelithiasis and achylia, 238; Polycythemia, 582
- Ryerson, E. W., Fractures, 1995
- Ryser, H., Sudden thymic death, 411; Impending perforation of gastric ulcer, 1927

S

- Sabatucci, F., Trophic disturbance of fingers, 580
- Sabouraud, R., Alopecia and syphilis, 894
- Sabrazés, J., Leukemia, 891
- Sacco, R., Tuberculosis of knee, 74
- Sachs, E., Anatomy of eighth nerve, 731
- Sachs, H., Serologic tests for syphilis, 1690
- Sachs, O., Dermatitis among workers in phenol resins, 1216
- Sacquépée, E., Serotherapy in pneumonia, 324
- Safford, W. E., Peyote, narcotic mesal button of Indians, 1278
- Sahlgren, E., Skin lesions with lymphatic leukemia, 502
- Sai, R. H. P., Ray's test for kala-azar, 2093
- St. George, A. V., Malignant tricuspid endocarditis, 1682
- Saint Girons, F., Pleural effusions, 1605
- St. John, V., Tuberculosis of skull, 2002
- Sainton, P., Encephalitis, 72; Meningococcus meningitis, 323; Glycemia in goiter, 1373, 1770; Quin test for goiter, 1770
- Salazaar, M., Fragility of kidneys, 646
- Salén, E., Paroxysmal hemoglobinuria, 1296
- Salge, B., Rate of development, 1143
- Salleras Pagés, J., Urine fistulas, 580; Renal tuberculosis, 1773
- Salmony, L., Conditions influencing tuberculin tests, 581
- Salomon, Physical findings in one sound lung, 892
- Salomon, H., Diabetes, 1929
- Salomon, R., Endogenous infection in gynecology, 327
- Salomonson, J. K. A. W., Foot clonus, 1288
- Saloz, C., Artificial pneumothorax, 579
- Samaja, N., Calcification in mediastinum, 159
- Samovici, M., Arsphenaminized serum in neurosyphilis, 1375
- Sampson, H. L., Intestinal tuberculosis, 491
- Sampson, J. A., Perforating hemorrhagic (chocolate) cysts of ovary, 400, 1046
- Sanarelli, G., Pathogenesis of cholera, 158, 821
- Sanchis Banús, J., Paraphrenia, 76
- Sandes, T. L., Dislocation of shoulder, 1050
- Sandiford, R. B., Gasometer in metabolism calculation, 1205
- Sándor, S., Extirpation of suprarenal gland in epilepsy, 657
- Sands, J. R., Ethylhydrocupreine in pneumococcus pleuritis, 152
- Saner, F. D., Acute suppuration, 1768
- Sanes, K. L., Ureteral obstruction, 1204
- Sanfilippo, E., Alcohol test meal, 976
- Sanford, A. H., Actinomycosis, 966
- de Sanson, R. D., Braun's flap grafts, 977
- Sante, L. R., Pneumoperitoneum, *982

- Santos Fernández, J., Trachoma in tropics, 897
Sappington, S. W., Tuberculous kidney, *525
Sargent, P., Lesions of brachial plexus and rudimentary ribs, 1133
Sarmiento, M., Soaps in feces, 1846
Satenstein, D. L., Tuberculosis of skin, 1918
Saudek, I., Pessary in prophylaxis of gonorrhea, 1143
Sauer, H., Tardy rachitis, 239
Sauer, L. W., Pyloric stenosis, 729
Sauerbruch, F., Surgery in pulmonary tuberculosis, 329, 2010; Present status of surgery, 656
Saugman, C., Pneumothorax in tuberculosis, 1059
Savelli, G. B., Steeple skull, 2006
Savin, C., Femoral hernia, 1522
Savolin, M., Arspenamin in putrid lung disease, 1380
Sawyer, C. F., Acute partial enterocoele, 319
Saxtorph, S. M., Pneumothorax treatment, 330
Seal, J. C., Otitis externa, *1102
Scala, A., Water in colloids, 895; Behavior of salts with gelatin, 1927
Schablin, S., Jaundice, 742
Schaeffer, J. P., Aberrant vessels, *14
Schäfer, Ovarian cysts, 2010
Schanz, R. F., Calculi, *901
Scharf, R., Acetone test, 1691
Scheltens, M. W., Nervous appendicitis, 502
Scherb, R., Hip disease, 498; Pott's disease, 1290
Scherer, C. A., Spasmophilic diathesis, 966
Schlasi, B., Skeletal malformations, 739
Schick, B., Concentrated food for infants, 1377, 2099; Edema, 1377
Schierbeck, K., Respiration, 1380
Schiff, E., Creatin and creatinin, 581; Sensitizing action on pulse from thyroid and pituitary extract, 740; Hemoclastic crisis, 1532
Schiff, P., Asthma from idiosyncrasy to potato, 495
Schiller, W., Cardiac dyspnea, 743
Schilling, V., Clinical blood picture, 977
Schilsky, B., Blood platelets, 1933
Schippers, J. C., Endocarditis, 1532
Schisler, E., Splanchnoptosis, 1843
Schlagintweit, E., Percussion records, 656
Schlöpfer, K., Fatal hemorrhage after tracheotomy, 498
Schleissner, F., Hemolysins in spinal fluid in meningitis, 2008
Schlesinger, A., Paronychia, 241
Schlesinger, E., Hyperchlorhydria and duodenal ulcer, 1378
Schlesinger, H., Sciatica, 1294
Schlesinger, W., Malaria, 742
Schloessmann, Disturbances induced by ascarids, 1851
Schlosser, H., Cancer of breast, 1934
Schlossberger, H., Tuberculosis, 161
Schmid, R., Auto-urine reaction, 2095
Schmidt, A., Danzig hospital, 1775; Duodenal ulcers, 1776
Schmidt, E., Swine erysipelas in man, 1455
Schmidt, E. O., Goiter, 899
Schmidt, H., Mechanical artificial respiration, 1932
Schmidt, H. R., Rectovesical plus rectovaginal fistula, 241
Schmitz, A., Striated muscle, 1143
Schmitz, H., Cancer of uterus, *608
Schneider, C. C., Tuberculosis of ankle, *1168
Schneider, H. C., Tetrachlor test, *1631
Schneider, J. P., Pernicious anemia, 69
Schnyder, K., Aplasia of suprarenal, 895
Schoening, F., Pancreatitis, 1851
Schoenstein, E., Spontaneous pneumothorax, 822
Scholl, A. J., Jr., Probable paraffin oil tumor, 315; Carcinoma of bladder, 1047
Schönbauer, L., Surgical tuberculosis, 898
Schoo, H. J., Fatal hemorrhage from varices, 1060
Schottmüller, H., Management of infected abortions, 500; Pneumothorax from perforated gastric ulcer, 1293
Schram, T., Children in tuberculous homes, 1613
Schreiber, G., Home for nursing mothers, 974; Pediatrics in 1921, 2005
Schröder, G. E., Spondylitis vs. spondylitis, 1060
Schröder, P., Encephalitis and influenza, 1142
Schrumpf-Pierron, Deep roentgen-ray therapy, 894
Schübel, K., Digestion of milk, 1143
Schuldt, F. C., Marginal and jejunal ulcers after gastro-enterostomy, 965
Schüller, L., Benign stomach lesions, 823
Schulmann, E., Meningococcus meningitis, 323; Pituitary polyuria, 893; Glycemia in exophthalmic goiter, 1373, 1770; Quinin test for goiter, 1770
Schultz, H. H., "Expensive 'poor man's medicine,'" 958
Schulz, A., Detubation and hypoglossal laryngitis, 1775
Schulze, W., Foreign body in gallbladder, 1215
Schumacher, J., Antivenereal prophylactics, 414
Schumann, E. A., Hemorrhages of ovarian and tubal origin, *692
Schüppel, A., Tuberculous stricture of intestine, 1932
Schurmeier, H. L., Fracture at wrist, *2119
Schuster, D., Bone cysts, 1292
Schwabe, E., Skin tube to close artificial anus, 328
Schwartz, A., Radium puncture, 495; Rectal cancer, 2152
Schwartz, P., Birth hemorrhages in newly born, 163
Schwarz, E., Racemose arterial angioma, 1058
Schwarz, O., Tests of functional capacity of kidneys, 979
de Schweinitz, G. E., Pituitary disorders treated nonsurgically, 734; Peking Union Medical College, 1679
Schweitzer, B., Death rate of cancer operations, 413; Blood reinfusion in extra-uterine pregnancy, 741
Scott, H. H., Portals of entry of tuberculosis, 1685
Sear, H. R., Voluntary arrest of pulse and heart, 1135
Secher, K., Clinical research on capillaries, 900
Sedziak, F. A., Effect on growth of feeding thyroid, 2088
Segagni, S., Neck sign of meningitis, 2007
Segura, G., Spirochetal bronchitis, 1774
v. Seht, L., Associated diseases, 1144
Seitz, E., Local temperature in differential diagnosis, 239
Seitz, L., Gynecology and obstetrics, 1058
Sekiguchi, S., Paget's disease of nipple, 823
Sell, M. T., Fat soluble vitamin and yellow pigmentation in animal fats, 152; Pigmentation and fat-soluble vitamin of peas, 575
Sellards, A. W., Virus of measles, 318
Selter, H., Food and tuberculosis mortality, 240
Semerak, C. B., Central nervous system in botulism, 490
Semken, G. H., "Cancer and its non-surgical treatment," 1357
Senge, Myomas and metropathies, 1776
Sentis, Amyotrophy or myatonia, 322
Serés, M., Trauma of urethra, 1690
Sergent, E., Suprarenal insufficiency, 1772; Radiography of tuberculosis, 1925
Settelen, M. E., Hyperplasia of fourth thymus metastasis, 1528
Severance, R., Evacuating attachment for cystoscope, *706
Sevi, J., Tuberculosis, 410
Sewall, H., Rest and exercise in tuberculosis, 66; Respiratory excursions in tuberculosis, 1367
Seymour, R. J., "Is catalase a measure of metabolic activity?" 1673
Sézary, A., Gonococcus vaccine therapy, 73; Spinal puncture in syphilis, 1771
Sgalitzer, M., Disease in esophagus, 1214
Shaffer, P. A., Excretion of acetone from lungs, 1765
Shambaugh, G. E., Outpatient department, 1275
Shannon, W. R., Anaphylaxis of food proteins, 964; Food proteins in breast milk, 1599
Sharp, E. A., Artificial pneumothorax, 1998
Sharpe, J. S., Metabolism of rickets, 1051
Shattuck, H. F., Peptic ulcer, *1311
Shaw, E. B., Diphtheria, 1714
Shelden, W. D., Tumors involving gasserian ganglion, *700
Shepherd, G. A., Leg sign of pyramidal disease, 1689
Shera, A. C., Syphilis with persistent Wassermann, 321
Sherk, H. H., Epidermoid cysts, 1922
Sherman, DeW. H., Inanition fever, *1720
Sherman, H. C., Producing rickets by diet, 732
Sherrill, J. G., Hydatidiform mole, 231; Paralysis agitans, 231; Cancer of breast, 1127
Sherrill, J. W., Diabetes, *1779
Sherwin, C. P., Chemical studies in pregnancy, 488
Sherwood, C. E., Suppurative appendicitis, 64
Shimoda, M., Abortive cerebral sclerosis, 823; Polynuclear ganglion cells, 823
Shinkai, K., Biliary-pulmonary fistula, 735
Shipley, P. G., Experimental rickets, 970, 1681
Short, J. J., Potassium content of blood, 1284
Short, J. T., Renal calculi, *901
Shuman, J. W., Acetanilid addiction, *526
Shurlock, A. G., Pulmonary tuberculosis, 1923
Sicard, J. A., To ward off reaction to arspenamin, 323; Migraine, 1052
Siegler, E., Volvulus of stomach, 80
Siegund, H., Growing old, 2008
Siegrist, Workmen's compensation for loss of eye, 1528
Sierra, A. M., Experimental emotion, 1530
Sievers, R., Local anesthesia between 2 tourniquets, 581
Sigerist, H. E., Syphilis, 2154
Siguet, C., Kidney chromosome gage, 737
Silhol, J., Streptothricosis simulating Pott's disease, 818
Silva, M., Endocarditis consecutive to abortion, 326
Silverman, S. L., Trigeminal neuralgia, *1802
Silverton, R. J., Renal efficiency, 322
Silvestri, T., Renal factor in paroxysmal hemoglobinuria, 1291
Simmonds, N., Experimental rickets, 970, 1681
Simmons, C. C., Bone sarcoma, 1920
Simon, C., Traumatic syphilis, 407
Simon, G., Primary tuberculous foci, 979; Tuberculosis at recent medical congresses, 1059
Simon, S., Effect of artificial pneumothorax on collapsed lung, 1600
Simon, S. K., Hemorrhage into digestive tract, 403; Lambliia intestinalis, 2087
Simonelli, G., Cerebellar disease, 1291
Simpson, R., Blood transfusion, 1447
Sinclair, J. F., Drugs in summer diarrhea, 888
Sindler, J., Fractional analysis of duodenal contents, *1469
Sindoni, M. B., Encephalitis, 1213
Singer, G., Duodenal ulcer, 1931
Siperstein, D. M., Sodium arspenamin (diarsenol), 731
Sirlin, G., Protein therapy for corneal ulcer, 1849
Sironi, L., Jacksonian epilepsy from ascaridiasis, 236
Sistrunk, W. E., Surgical treatment of goiter, 1523
Sjöblom, J. C., Gangrene of lung, 1380
Sjövall, E., Wilson's disease, 1379
Skeel, R. E., Cancer of cervix, 1203
Skillern, R. H., Otolaryngology, *1145; Local anesthesia, *1336
Skinner, M., Surgery of bones and joints, 404
Slater, S. A., Child's place in tuberculosis campaign, 399
Sloan, H. G., Suture of carotid artery, 319
Sluder, G., Borderland of rhinology, neurology and ophthalmology, *689
Slye, M., Primary carcinoma, 814
Small, J. C., Tropical inguinal granuloma, 1447
Small, V. R., Luminal in epilepsy, 1524
Smith, C. A., Nutritive value of yeast in bread, 66
Smith, C. H., Tuberculosis, 314
Smith, C. M., Syphilis, 1997
Smith, D. C., Gonorrheal endocarditis, 730
Smith, E., Effect of heating antiscorbutic vitamin, 1765
Smith, E. O., Urology, *833
Smith, E. P., Ether and respiration, 1999
Smith, F. C., Retained sponge, *1653
Smith, F. M., Electrocardiograms from complete bundle branch block, 1520
Smith, G. G., Bladder cancer, 1922, 2148
Smith, H., Night blindness, *1001
Smith, H. L., Lipodystrophia progressiva, 1919
Smith, H. P., Three blood volume methods compared, 149
Smith, H. W., Intramuscular administration of arspenamin and neo-arsphenamin, 153
Smith, J., Gaertner meningitis complicating enteritis, 1450
Smith, J. H., Spina bifida with diverticulum of bladder and pyonephrosis, 1996
Smith, M., Hypertension reduced by "salt-free" diet, 1129
Smith, M. L., Chaulmoogra oil, *1017
Smith, R. R., Torsion of uterine adnexa occurring before puberty, 400
Smith, S. C., Heart in diphtheria, *765; Sino-auricular block, 1682
Smithies, F., Cardiospasm with dilatation of esophagus, 1365; Biliary drainage, *2036
Smith-Peterson, M. N., Arthrodesis of sacroiliac joint, 970
Snapper, I., Elimination of hippuric acid, 658, 1295; Hematin or porphyrin in stools, 1609
Snell, A. C., Compensation for eye injuries, *1654
Snodgrass, T. J., Cardiospasm with dilatation of esophagus, 230
Snook, J. H., Rabies, 318
Snowden, R. R., Kidney function, 1918
Snyder, R. G., Foreign protein in arthritis, 489
Soble, N. W., Carcinoma of gastrointestinal diverticulosis, 733
Soda, T., Blood in dementia praecox catatonica, 491
Söderbergh, G., Abdominal reflexes in multiple sclerosis, 744; Wilson's disease, 1379
Söderlund, G., Typhoid cholecystitis, 1614
Sohn, A., Spontaneous hemorrhage in bed of kidney, 897; Ileus from heart disease, 1215
Solland, A., Irradiation, *1560
Solani, J., Pituitary origin of dwarfism, 1929
Soler, F. L., Suprarenal insufficiency, 1930
Solieri, S., Osgood-Schlatter disease, 739
Solis-Cohen, M., Distinguishing organisms in blood, 1603
Solmann, T., Mercurial injections, *2022
Solloza, J., Vermiform appendix, 1685
Solomon, H. C., Neurosyphilis, *1701
Solomons, B., Herpes and vicarious menstruation, 70
Sömjen, E., Hemoclastic crisis and liver functioning, 2008
Sommerschein, R., Local anesthesia, *1336
Sonntag, E., Köhler's disease of scaphoid bone, 655; Resection of semilunar bone, 1932
Sordelli, A., Thyroid and antibody formation, 1529; Susceptibility of thyroidectomized animals, 1530; Bovine antitoxins, 1608; Colloidal reactions in spinal fluid, 1929
Soresi, A. L., Automatic gravity anesthetizer, 318
Soule, R. E., Flat foot, *1871
Southam, A. H., Pyogenic infection of knee, 576
Souther, C. T., Ruptured gastric ulcer, 1049
Southworth, T. S., Four hour nursing and feeding interval, 312
Spangenberg, J. J., Subacute venous septicemia, 1530
Sparman, R., Syphilitic disease of stomach, 898

- Sparmann, R., Open pneumothorax, 2008
 Spät, W., Encephallitis, 1534
 Spaulding, H. V., Cystic disease of ovary, 1523
 Speares, J., Plasmocytoma and Bence-Jones protein, 70
 Specht, O., Formation of gallbladder after cystectomy, 2097
 Speed, K., Fracture of femoral diaphysis, 70
 Speidel, E., Newer fads of obstetrics, 1128; Potter version, 1203
 Spence, J. C., Sugar tolerance, 1050; After-effects of encephalitis, 1134
 Spencer, W. H., Gastric equilibrium zone, *2118
 Sperling, Diathermia in gynecology, 415
 Speroni, D., Herxheimer reaction, 1056
 Spiegel, E. A., Tetany, 742
 Spiegel, N., Contractures, 78
 Spieth, H., Gibbus from tetanus, 161
 Spiller, W. G., Brain tumors, 1841
 Spillhart, P., Bile pigments in intestines, 407
 Spolverini, L. M., Vaccine therapy in enteritis, 739
 Spreng, D. S., Throat bacteria, 1919
 Sprinz, O., Verumontanum, 1611
 Sprod, M. W., Prenatal crying, 1135
 Squier, T. L., Renal irritation from high protein diet, 488; High protein in nephritis, 1601
 Stacy, W. C., Dangers of phosphorus in fireworks, 1514
 Stadler, E., Rebellious bile fistula, 2006
 Stammer, M., Neurosyphilis, 655
 Staffel, E., Parasacral anesthesia, 415
 Stafford, F. B., Heliotherapy in laryngeal tuberculosis, 889
 Stäheli, E., Reflex anuria, 1292
 Stansfield, O. H., Bronchial asthma due to sporothrix, 2089
 Stargardt, J., Pyknolepsy, 825
 Stark, H. H., Retrobulbar neuritis, *678
 Starlinger, W., Suspension stability of erythrocytes in tuberculosis, 1932
 Staub, I. H., Test for sugar metabolism, 1378
 Staub-Oetiker, H., Roentgenography of tuberculosis, 2006
 Steen, P. H., Bolanthidium colitis, 164
 Steenbock, H., Fat soluble vitamin and yellow pigmentation in animal fats, 152; Pigmentation of fat-soluble vitamin of peas, 575; Fat soluble vitamin poor diet, 2088
 de Stefano, S., Craniotabes, 976
 Steffen, G. I., Pneumococcus immunity, 1130
 Stegman, L. V., Ocular findings and basal metabolic rate, 1132
 Stehle, R. L., Gasometric determination of urea in urine, 152; Effect of hydrochloric acid ingestion on urine, 575
 Stein, R. O., Roentgen irradiation of pointed condylomas, 899
 Steindl, H., Gas cysts on intestines, 499
 Steiner, L., Scrofulous eye disease, 2006
 Steinhert, E., Congenital syphilis, 580, 1609
 Steinhart, L. A., Medical jurisprudence, *98
 Steinthal, C., Removal of suprarenal gland in epilepsy, 657
 Stekhoven, W. S., Publications of the American Medical Association, 2100
 Stenström, T., Intestinal fermentation dyspepsia, 1931
 Stephan, S., Radiotherapy of peritoneal and genital tuberculosis, 415
 Stephan, W., Tuberculosis in aged, 240
 Stephens, G. A., Pericardial factor in heart disease, 156
 Stepp, W., Glycuronic acid in blood, 77; Peptone test of gallbladder function, 328
 Stern, G., Pertussis serum, 238; Coryza, 825
 Stern, L., Spinal fluid, 821
 Stern, S., Roentgen ray in prostate hypertrophy, 730
 Sternberg, C., Status thymicolymphaticus, 581
 Stettner, E., Injury of fetus from roentgen rays, 740
 Steuber, M., Basal metabolism of energy, 2007
 Stevens, W. E., Urologic methods, *1081
 Stevenson, A. C., Histopathology of typhus, 649
 Stewart, G. C., Hemophilia, 972
 Stewart, J. W., Fractures of the skull, *2030
 Stewart, L. T., Digestion of esophagus cause of hematemesis, 1604
 Stiles, H., Cecostomy in disease of colon, 648
 Stillians, A. W., Sarcoid and syphilis, *1615
 Stimson, P. M., Syphilis of trachea and bronchi, 644
 Stincer, E., Cholecystitis and appendicitis, 2096
 Stivelman, B. P., Pneumothorax, *12
 Stobic, W., Syphilis of heart, 1769
 Stockman, R., Arsenic poisoning, 816
 Stoker, F., Recurrent colds, 2003
 Stokes, A. C., Osteomyelitis, 64
 Stokes, J. H., Probable paraffin oil tumor, 315; Syphilis, 1917, 1998
 Stoll, H. F., Heredosyphilis, *919
 Stoltenberg, L., Subcutaneous injection of salt, 1377
 Stopford, J. S. B., Anomalous response to direct faradic stimulation of nerve, 493
 Stort, G. van G., Public Health service in Netherlands Indies, 1144
 Stransky, E., Kidney functioning, 239; Hemoclasia crisis, 1532
 Stratton, M. R., Tuberculosis of gums, 1600
 Sträuli, A., Perforated gastric ulcer, 74; Retrogression of goiter, 498
 Straus, D. C., Fracture of os calcis, *176
 Strauss, H., Residual nitrogen in tissues, 80; Chronic pancreatitis, 1931
 Strauss, M., Diffuse suppurative peritonitis, 656; Minor surgery on hand or foot, 1375
 Strebel, J., Cataract, 1053
 Stretti, Rat-bite disease, 739
 Strickler, A., Influence of arsenical preparations on cutaneous tests, 731; Dermatitis venenata, *910
 Strohl, A., Neuromuscular electric excitability, 325, 1136
 Stromeyer, K., Surgical tuberculosis and roentgen rays, 162
 Strominger, L., Prostatic hypertrophy, 1372
 Strong, L. W., Adenomyometritis, 149
 Strong, O. S., Decerebrate rigidity, 318
 Strum, E., Roentgen ray in diseased tonsils, 153
 Struthers, J. E., Primary carcinoma of ureter, 2148
 Struthers, J. W., Mesenteric lymphadenitis simulating appendicitis, 817
 Sturgis, C. C., Epinephrin hypersensitivity and hyperthyroidism, 643; Physical weakness and vital capacity, 1918
 Sturton, S. D., Pernicious anemia with gastro-intestinal pathology, 1767
 Stuteville, O. R., Tuberculosis, 68
 Sudeck, P., Goiter, 1774
 Suermont, W. F., Resection of stomach by Billroth II., 238
 Suffer, C., Formalin test for syphilis, 2150
 Sumner, J. B., Dinitrosalicylic acid for estimation of sugar in urine, 152
 Sundberg, C. G., Friedreich's disease, 1614
 Suñé y Medan, L., Frontal sinusitis with orbital abscess, 1374
 Supplee, G. C., Citric acid in milk, 1765
 Sussig, L., Tuberculosis of male genital organs, 1142; Fatality under arsphenamin, 1691
 Suter, F., Colon bacillus prostatitis, 1137
 Sutton, I. C., Demonstrating spirochetes by lymph gland puncture, *1889
 Sutton, R. L., Carcinoma of nose, *1561; Psoriasis, 1918
 Suzuki, N., Urine during fasting, 160
 Suzuki, S., Tar sarcoma, 823
 Suzuki, T., Toxic nephritis, 823
 Svensson, J., Effect of epinephrin on healthy persons, 1458
 Swanson, W. W., Hippuric acid in nephritis, 885; Hippuric acid in urine, 1283
 Swartz, E. O., Mercurochrome, *93; Mercurochrome as general germicide, 402
 Swayne, W. C., Syphilis, 1448
 Sweeney, J. P., Auricular fibrillation, *1793
 Sweet, J. E., Pancreatic infection, *194; Testing for Bence-Jones protein, 1283
 Sweetser, H. B., Splenectomy in Banti's disease, 1523
 Sweetser, T. H., Epidemic presenting picture of meningococcalitis, 730
 Sweitzer, S. E., Sarcoma of upper lip, *1563
 Swezey, S., Respiratory excursions in tuberculosis, 1367
 Swiecicki, H., Goiter and suprarenals, 1137
 Syme, W. S., Bronchoscopy in asthma, 1371
 Symes, J. O., Erythema nodosum, 1923
 Symmers, D., Epitheliomas of thymic origin, 1204; Hemangiolymphoma of hemal nodes, 1520; Splenomegaly, *2019; Anthrax, *2120
 Szenes, A., Calcium in blood, 1294; Spontaneous fractures, 1294; Centripetal massage of scars, 2008
 Sztark, C. H., Anaphylaxis to breast milk, 1372
- T**
- Taddei, D., Eversion of hernial sac, 159; Stump of omentum, 654; Inflammation around bladder, 896
 Taddei, G., Transitional forms of hereditary ataxia, 497
 Taillens, Congenital heart disease, 1605
 Takahashi, I., Inoculation against scarlet fever, 406, 1371
 Takata, M., Dosage of pepsin, 1612; Gastric juice, 1612
 Talbot, F. B., Metabolism in malnutrition, 1444
 Tallqvist, T. W., Tertiary syphilis of liver, 900; Small-sized heart, 1380
 Taniguchi, T., Sachs-Georgi and Wassermann, 972
 Tanner, C. O., Urinary lithiasis, 964
 Tanner, F. W., Bacteria on coins and currency, 1682
 Tansini, I., Nephrectomy for polycystic kidney, 580
 Targowla, R., Paregoric test for spinal fluid, 1770
 de Tarnowsky, G., Pseudoscience, *859
 Taschenberg, E. W., Electrocardiography, 1141
 Tassin, Syphilitic myositis, 578
 Tate, M. A., Delivery in normal cases, 1203
 Tatum, I. A. L., Epinephrin hyperglycemia, 153
 Taussig, F. J., Uterine fibroids, *357; Development of vagina, 1997
 Taylor, H. M., Removal of sand spurs, *685
 Taylor, J. A., Lingual application of iodine as prophylactic in spinal meningitis and influenza, 155; Improvised antiseptic adhesive dressing, 321
 Taylor, K. P. A., Polariscopy of urine of syphilitics, 812
 Taylor, M. L., Special culture medium for hemolytic streptococci, 228
 Taylor, N. B., Tidal irrigation, *1393
 Taylor, S. P., Polariscopy of urine of syphilitics, 812
 Taylor, W. H., Tidal irrigation, *1393
 Taylor, W. M., Direct exposure to tuberculosis in infancy, 2087
 Teacher, J. H., Digestion of esophagus cause of hematemesis, 1604
 Teh, W. L., Effect of sun's rays on hats in summer, 1768
 Teissier, P., Endocarditis from plague, 1770
 Telford, E. D., Institutional treatment in surgical tuberculosis, 492
 Templeton, E. R., Tumors of kidney, 1446
 Tenani, O., Jacksonian epilepsy, 75
 ten Horn, C., Fracture of ribs, 1295
 Tennant, C. E., Sporotrichosis, 886
 Tenner, A. S., Staphylococci, *1724
 Terrien, F., Uremic retinitis, 1137; Posthemorrhagic amaurosis, 1527; Ocular signs of diabetes, 1926
 Terson, A., Visual disturbance from abuse of alcohol or tobacco, 73
 Tervaert, D. G. C., Tests for sugar, 2011
 Thannhauser, J. S., Bilirubin in blood serum, 1292
 Thaysen, T. E. H., Active, latent-active and inactive syphilis, 658; Spontaneous variations in Wassermann, 744; Habitual constipation, 1692
 Theilhaber, A., Predisposition to disease, 1533
 Theis, R. C., Uric acid in blood, 1843
 Thélin, C., Catarrhal jaundice during lactation, 1607
 Theodor, P., Nephrectomy and pregnancy, 1611
 Thibaudeau, Rehabilitation of wounded, 323
 Thibierge, G., Eruption on children's hands, 1926
 Thieling, F., Cardiospasm, atony and dilation of esophagus, 161
 Thiers, J., Diabetes of bearded women, 891
 Thoenes, F., Muscles in new-born, 1850
 Thomas, E., Vaccine against thrush, 1851
 Thomas, G. J., Chronic acetanilidism, 723; Urinary lithiasis, 964
 Thomas, W. S., Pneumonia, *2101
 Thompson, J. E., Cleft palate and harelip, 1683
 Thomson, A. N., Syphilis and industry, 1130
 Thomson, A. P., Decerebrate rigidity, 2150
 Thomson, E. S., Report of committee on local anesthetics of ophthalmic work, *1730
 Thomson, F. H., Diphtheria, 493
 Thomson, J., Convulsions, 1767; Pyloric stenosis, 2149
 Thomson, J. G., Charcot-Leyden crystals in stool in amebic dysentery, 2093
 Thomson, St. C., Intrinsic cancer of larynx, 405
 Thomson, T., Bronchitis resembling tuberculosis, 320
 Thorling, I., Cresote poisoning, 1614; Duodenum shares in pylorospasm, 1614
 Thorning, W. B., Uterine prolapse, *101
 Thorpe, E., Gangrene following measles, 1525
 von Thun, Pneumothorax, 1296
 Thursfield, J. H., Blood diseases, 2149
 Tiesenhausen, K., Suture of esophagus, 1292
 Tigerstedt, R., Early work on anatomy in Finland, 164
 Tilmann, Encephalitis, 1774
 Tilsley, G. E., Culture medium and agglutination of meningococcus, 1134
 Timmer, H., Shortening of leg with hip disease, 330
 Ting, G. C., Effect of antispasmodic drugs on bronchus, 2091; Sedative properties of aromatics, 2090
 Tiscornia, A., Hydatid cyst of orbit, 326; Bilateral cataract from lightning stroke, 1930
 Tisdall, F. F., Inorganic elements in blood, 1284; Infantile tetany, 1762
 Tixier, L., Phthiriasis with melanoderma, 737
 Tobeltz, A., Etiology of infectious diseases, 237
 Todd, A. H., Fracture of carpal scaphoid, 648
 Tokuda, K., Refractometry in syphilis, 1281
 Tokumitsu, Y., Suprarenal cortex, 823
 Tominaga, T., Arneth's leukocyte count and Döhle's inclusion bodies in tuberculosis, 1845
 de Tommasi, P., Multiple sclerosis after encephalitis, 1055
 Tompkins, E. M., Epinephrin hypersensitivity and hyperthyroidism, 643
 Tongs, M. S., Diphtheria toxin and blood, 1369
 de Toni, G., Aortic lesions, 1373
 Tonina, T. A., Stool sign of foreign body, 1214
 Topley, W. W. C., Streptococcal lesions, 649
 v. Torday, F., Convalescents' serum in prophylaxis of measles, 501
 del Toro, J., Surgery in Porto Rico, 646
 Torracca, L., Heliotherapy of wounds, 654; Mesentery plastic operations, 1138; Ether in pleural cavity, 1608
 Torregrosa, A., Differential diagnosis of tropical pyrexias, 646; Common pyrexias, 1447
 Torres, C. M., Acute leukemia, 1213
 Torres Martínez, A., Gastroenterostomy, 76

- Totta, M., Fibroma in pregnant uterus, 1689
- Toulouse, Mental hygiene, 1210
- Tourneix, J., Invagination, 650
- Tozer, F. M., Deprivation of vitamin A., 649
- Tracy, S. E., Fibromyoma uteri, 1921
- Trask, J. D., Jr., Measles, *192
- Travassos, L., Cladorchinae parasites, 1291
- Trenti, E., Epidemic hiccup, 1138
- Tresling, J. H. A. T., Glaucoma, 502
- Troell, A., Localization of cerebellum, 1458; Tendovaginitis, 1852
- Troisler, J., Surface tension of urine, 2094
- Tronconi, S., Shoulder sign of tuberculous meningitis, 1529
- Trossarello, M., Protein therapy in venereal disease, 1452
- Trudeau, F. B., Tuberculosis, *1326
- Truesdale, P. E., Diaphragmatic hernia, *993
- Tsuji, K., Diet and thyroid functioning, 77
- Tsurumi, M., Smallpox, 490
- Tuffier, T., Dangers of radium, 323; Uterus after radium exposures, 323; Grafts of ovaries, 974
- Tufts, A. H., Prescribing of alcohol, 638
- Tunnicliff, R., Hemolytic streptococci in scarlet fever, 317; Opsonic reaction of antimeningococcus serum, 1919
- Tupas, A. V., Scurvy in breast fed infants, 69; Infantile beriberi, 1603
- Turnbull, F. M., Angioneurotic edema, *858
- Turner, A. L., Paralysis of vocal cords secondary to breast cancer, 818
- Turolt, M., Pressure of bile, 500
- Turpin, R., Senile arc in cornea in tuberculosis, 737; Tuberculous meningitis, 1528
- Turrettini, G., Liver in mercuric chlorid poisoning, 2094
- Tweddell, F., Vitamins in infant feeding, 1920
- Twort, F. W., Cultivation of spirochetes, 1525
- Tyau, E. S., Fibroma molluscum, 405
- Tzafco, A., Reconstruction of lower lip, 1606
- Tzanck, A., Desensitizing autoplasmotherapy, 1605; Arsenical-treated blood for transfusion, 1925
- U**
- Uddgren, G., Protein therapy, 1380
- Uhlrich, P., Gastro-enterostomy for perforation, 973
- Ulrich, H. L., Lungs in cardiac disease, 966, 2091
- Underhill, F. P., Parathyroidectomy and blood sugar, 1766
- Underhill, S. W. F., Circulation through lungs, 1923
- Unger, E., Skin tube to close artificial anus, 328; Leukocytes in inflammation, 414
- Unger, L. J., Infantile rickets, *39; Seasonal variation of rickets, 729; Sodium citrate, *2107
- Uthelm, K., Metabolism studies, 1444
- Uyematsu, S., Blood in dementia praecox catatonia, 491; Cortical olfactory center, 731
- V**
- Vaccarezza, R. F., Ether in whooping cough, 2096
- Vacehelli, S., Tuberculosis of hip, 74
- Valabrega, L., Cerebellar tuberculoma, 1055
- Valentin, I. E., Infantile gonorrhea, 414
- Valentine, E., Hemolytic streptococci in respiratory tract, 1999
- Valero, Leukemia, 159
- del Valle, D., Colectomy, 1530
- del Valle y Aldabalde, R., Epinephrin in muscular dystrophy, 1455; Spinal rheumatism, 2153
- Vallery-Radot, P., Anaphylaxis to eggs, 737; Anaphylactic origin of nasal hydrorrhea, 1451; Horse asthma, 1526
- Valtancoll, G., Tuberculosis of vertebrae, 74
- van Amstel, P. J. del B. P., Scarlatinal arthritis, 825; Hemorrhagic colitis, 899
- Vance, B. M., Epitheliomas of thymic origin, 1204
- van Creveld, S., Sugar in blood, 1612; Volume of blood, 1852
- van de Velde, T. H., Temporary sterilization of women, 582
- van den Bergh, A. A. H., Bilirubin in blood serum, 235
- van der Hoeven, J., Verbrugge's thesis, 1534
- van der Kleij, J. J., Van Swieten's diary, 1534
- van der Starp, J. A., Subcutaneous injection of oxygen, 2154
- van Gils, J. B. F., Medical subjects in art, 330
- Van Goor, W. T., Lymphosarcoma, 2011
- van Herwerden, M. A., Coagulation of blood, 1852
- van Leersum, E. C., Vitamins, 241; Pirquet's new system in dietetics, 1060
- van Leeuwen, W. S., Belladonna preparations, 744; Asthma, 1778
- van Lier, E. H. B., Gastric cancer, 2011
- van Loon, F. H., Insanity, 1456
- van Mesdag, S., Hunger strike in prisons, 416
- van Meter, L. M., Subcuticular suture, *789
- van Paassen, P., Calcium in spasmodophilia, 1778
- van Raamsdonk, W., Extension of cancer into vessels, 980
- van Tilburg, J., Quinidin in auricular fibrillation, 2100
- van Trotsenberg, J. A., Tabes dorsalis, dementia paralytica and praecox, 1295
- Vanverts, J., Ruptured tubal pregnancy, 1289
- van Worden, J., Gastro-intestinal fibromas, 1144
- Van Zwaluwenburg, J. G., Tuberculosis and apical pleuritis, 229
- Vaquez, H., High blood pressure, 820; Deep roentgen-ray therapy, 894
- Varekamp, H., Asthma, 1778
- Variot, G., Teratoma in infant's kidney, 578
- de Vasconcellos, A., Anaphylaxis, 497
- Vásquez Lefort, M., Tuberculous peritonitis, 1929, 2007
- Vasselle, P., Duodenal ulcer, 2005
- Vaudremer, A., Acid-resisting bacteria, 234
- Vaughan, G. T., Partial ligation of abdominal aorta for aneurysm, 1368
- Vaughan, J. W., Blood nitrogen in prostatic obstruction, 1047
- Vecki, V. G., Effect of ligation of vas deferens on testes, 880
- Veeder, B. S., Febrile exanthema, 313; Fatigue in malnutrition, *758; Exanthema, *1787
- Velasco, F. L., Hydatidiform mole, 1844
- Venzmer, G., Congenital absence of kidney, 2099
- Vernory, M., Strangulation of intestine, 1606
- Vernon, H. M., Fatigue and health, 1130
- Veronese, L. D., Dyspepsia in artificially fed infants, 1928; Facial sign, 2006
- Vetlesen, H. J., Erythema nodosum, 1613
- Vetri, A., Atresia of anus, 1291
- Victor, M., Suprarenal insufficiency, 1143
- Vidal, G., Physical training, 409
- Vignard, Phototherapy, 409
- Vignes, H., Cancer of uterine cervix in gestation, 653
- Vignolo, Q., Reconstruction of face, 1290
- Villa, L., Diabetes insipidus and pituitary, 1848
- de Villa, S., Whooping cough, 74; Serodiagnosis of syphilis, 496
- Villar, R., Anomalies of radial artery, 819
- de Villaverde, J. M., Pains in posterior roots, 1140; Syringomyelia, 1608
- Villegas Ruiz, J. de D., Mumps, 326
- Villela, E., Leukemia, 1213
- Villinger, W., Predisposition to encephalitis, 1143
- Vincent, M., Encephalitis in pregnant, 73
- Vines, H. W. C., Calcium chlorid injection in hemorrhage, 493; Varicose ulcers, 1767
- Violle, P. L., Hippuric-acid test of kidney functioning, 156, 407
- Vischer, A., Acute cholecystitis, 410
- Vischer, A. L., Joint anomalies, 1053
- Viton, J. J., Tuberculin test, 236
- Voegtlin, C., Intramuscular administration of arsphenamin and neoarsphenamin, 153; Chaulmoogra oil, *1017
- Vogt, A., Cataract with myotonia atrophica, 976
- Vogt, E., Intracardiac injections for resuscitation, 741; Irradiation of spleen in hemorrhage, 1690
- Vogt, H., Importance of vitamins for children, 1690
- Voigt, O., Encephalitis, 1059
- Vollhardt, W., Enterostomy in postoperative ileus, 1058
- Voncken, J., Jacksonian epilepsy, 1605
- Vonderlehr, R. A., Goiter, 1762
- Vonwiller, P., Vital stain for human eye, 1212
- Vorderbrügge, Surgery of thorax, 1775
- Vorschütz, Vertebral tuberculosis, 1932
- Voss, J. A., Progressive gangrene, syphilis and diphtheria, 2012
- W**
- Waag, A., Injections of blood in pernicious anemia, 500
- Waardenburg, P. J., Optic nerve in encephalitis, 1216
- Wachendorf, K., Cerebral paralysis, 1851
- Wade, H., Pleural empyema, 1208
- Wade, H. W., Iso-agglutination group percentages of Filipino bloods, 1603; Hematopoietic splenomegaly with marrow sclerosis, 1844
- Wadsworth, A. B., Laboratory cooperation, *512
- Wagoner, C. W., Protein therapy in arthritis, 1049
- Wagner, F., Spontaneous fracture of patella, 655
- Wagner, R., Edema from undernourishment, 1377
- Wago, H., Transplantation of cancer, 1777, 1778; Effect of antipneumatic ferment serum on blood sugar, 1846
- Wagoner, G. W., Adjustable, multiple cover glass and slide holder, *1423
- Wahlberg, J., Diazo vs. urochromogen reaction, 1380
- Wahler, F., Poliomyelitis, 327
- Waldrop, C. P., Syphilis of kidneys, 412, 977; Action of quinidin on heart, 1530
- Walker, G., Bladder paralysis, *286
- Walker, J. W. T., Open prostatectomy, 1050
- Walker, R. R., Kaolin in cholera, 890
- Waller, A. D., Physiologic cost of muscular work, 1686
- Waller, C. E., Lagging of chest in respiration, 416
- Wallgren, A., Spinal cord tumors, 658; Resistance to tuberculosis, 1051; Tuberculous bronchial glands, 1614
- Walter, A. L., Mesothelioma of pleura, 888
- Walter, O., Parametric exudates, 1850
- Walters, W., Nephritis with Bence-Jones proteinuria, 1843; Obstructive jaundice, 2001
- Walther, H. W. E., Postoperative care in surgical conditions of kidney, 1996
- Ward, C. B., Bacteria on coins and currency, 1682
- Ward, G., Schick reactions, 405
- Ward, H. C., Luetic, 968
- Warden, C. C., Alcoholic fermentation, 1763
- Waring, J. J., Tuberculoma of spinal cord, 2090
- Warner, F., Puncture wound of left ventricle, *1572
- Warren, L. P., Tonsil forceps, *285
- Warthin, A. S., Syphilis of prostate, 968
- v. Wassermann, A., Immunity with tuberculosis, 1852
- Wassermann, S., Cheyne-Stokes psychosis, 978
- Wassink, W. F., Arthritis deformans, 502
- Watanabe, S., Arteriosclerosis of vessels in skin, 1212
- Watelet, A., Anaphylactic origin of nasal hydrorrhea, 1451
- Waterman, N., Serodiagnosis of carcinoma, 1060, 1144
- Wathen, J. R., Goiter, 1128
- Watkins, S. S., Scleroma of larynx, 319
- Watkins, T. J., Ovulation and menstruation and postoperative considerations, 400; Abdominal wounds, *676
- Watson, S. H., Hay-fever palliation, 1273
- Watterman, H. C., Digestibility of various proteins, 574
- Wearn, J. T., Epinephrin hypersensitivity and hyperthyroidism, 643
- Weaver, G. H., Scarlet fever, *1420
- Webb, G. B., Suprarenals and thyroid in tuberculosis, 67
- Webb, R. C., Gastro-enterostomy stomata, 2001
- Weber, E., Sacral anterior meningeocoele, 1451
- Weber, F. P., Fatal emaciation, 492
- Weber, H., Exophthalmic goiter and fibrinous bronchitis, 1932
- Wechsler, I. S., Epilepsy, 1521; Central myelitis, *1728
- Wedd, A. M., Quinidin sulphate in auricular fibrillation, 1449
- Weiner, E., Callus production, 2097
- Weidman, F. D., Blastomycetoid bodies in sarcoma-like tumor of leg, 150
- Weigeldt, W., Composition of spinal fluid, 978
- Weil, M. P., Gastric ulcer simulating crisis of tabes, 973
- Well, S., Arm paralysis in newborn, 1934
- Weill, E., Anemia, 233; Whooping cough, 1211
- Weill, G., Autoserotherapy in gonococcus epididymitis, 820
- Weinberg, M., Blood picture with mongoloid idiocy, 163; Intraperitoneal infusion, 163; Leukocyte count in cancer and achylia gastrica, 1141
- Weinberger, M., Osteo-arthropathy with cancer of lung, 742
- Weir, H. B., Streptococcal lesions, 649
- Weiser, E., Conduction of impulse modified by atropin, 1141
- Weisfelt, W. A., Syphilitic disease of kidneys, 658; Transient detachment of retina in nephritis, 1295
- Weiss, E., Aneurysm of hepatic artery, 730
- Weiss, H., Outbreak of infectious diarrhea, 489; Thermal death point of *B. botulinus* spores, 1639; Food infections, *1948
- Weiss, M., Transient hyperthyroidism from tracheobronchoscopy, 2094
- Weissenbach, R. J., Syphilis of calf muscles, 578
- Weisz, M., Auto-urine test, 1532
- Weitz, W., Velocity of pulse wave, 1141
- Welch, S. W., Successful leadership for public work on county basis, 1995
- Welchman, W., Mycetoma, 1288
- Weller, C. V., Tuberculosis of tonsils, 150
- Weller, W., Fracture of skull, 573
- Wells, H. G., Anaphylaxis from milk proteins, 490; Primary carcinoma, 814; Appendiceal concretions, 1047; Non-surgical treatment of cancer, 1674
- Wells, M., Botulism, 1601
- Welti, Jacksonian epilepsy in diabetes, 1770
- Welton, T. S., Bleeding in ectopic pregnancy, 1203
- Wengraf, F., Elimination of ingested water, 1144
- Wenker, R. J., Follicular cyst, *1877
- Werley, G., Care of hypodermic needles, 1674
- Werlich, G., Vagotonia, 1933
- Wernicke, O., Origin of keratoconus, 1056; Glaucoma and multiple sclerosis, 1057; Intra-ocular sclerosis, 1213; Chronic rheumatism, 2096
- Wernicke, R., Disinfecting apparatus, 1608
- Wertheimer, P., Jacksonian epilepsy, 1606
- Wesson, M. B., Anatomy and surgery of trigon, 315
- Westcott, T. S., Pseudo-rubella, 1365
- Westergren, A., Suspension stability in tuberculosis, 1379
- Wetmore, A. S., Duodenal contents, *1468
- Weymouth, F. W., Pirquet system of nutrition, 2080
- Wheat, S. D., Brain stem, 1131
- Wheeler, E. G., Bacteriology of umbilical infections, 1282
- Wheeler, J. M., Cicatricial ectropion, *1628
- Wheeler, H., Resistance of blood cells, 231; Duodenal obstruction, *1404

Whipple, G. H., Three blood volume methods, 149; Effect of benzoate on liver function, 2147

Whitaker, J., Report of committee on local anesthetics in ophthalmic work, *1730

White, C. J., Epidermophytosis, *1297; Crude coal tar in skin diseases, 1998

White, C. P., Copper in tumors and normal tissues, 1450

White, C. Y., Hysterectomy, *1494

White, E. C., Mercurochrome, *93, 402

White, P. D., Bigeminal pulse in atrioventricular rhythm, 885; Cardiac diagnosis, *1414; Congenital heart block, 1599; Apocynum and convallaria, *1865; Quinidin sulphate in heart disease, 2089

White, S. M., Myocardial damage, 965

Whiteside, G. S., Dermatitis exfoliativa following arsenic injections, 154

Whitman, A., Fracture of femur, *913

Whitman, R., Abduction method, *1808

Wickett, E. D., Vaccine treatment of asthma, 971

Wickware, M. M., Chiropractic in Ohio, 569

Widerøe, S., Splenectomy in hemolytic jaundice, 242; Spinal cord tumors, 826

Widowitz, P., Diphtheria, 1609

Wiechers, A., Edema and intestinal tuberculosis, 581

Wiedhopf, Freezing of nerve to arrest pain, 1292

Wiegand, A., Extra-uterine pregnancy, 79

Wiel, H. I., Heart failure, *749

Wiener, A., Hemianopsia following migraine, 1843

Wiesmann, E., Mammary cancer, 498

Wieting, Ligation of artery, 898

Wildegans, Surgical complications of influenza, 899

Wildenskov, H. O., Fracture of cricoid cartilage, 1060

Wilensky, A. O., Surgical solution of chlorinated soda ineffectual in empyema, 573

Wilhelm, L. F. X., Lyon-Meltzer method of diagnosis of gallbladder disease, 403

Wilkie, D. P. D., Chronic duodenal ileus, 1924, 2002

Wilkinson, J. F., Absence of hydrochloric acid in stomach, 1210

Wilkinson, W., Roentgen ray in tuberculosis, 66

Willcox, W. H., Infective arthritis and allied conditions, 155

Williams, E. G., Public health and school, 1922

Williams, J. L., Nonprotein nitrogen of blood in arterial hypertension, 151; Nonprotein blood nitrogen in nephritis, 1520

Williams, J. R., Allen treatment of diabetes, 812

Williams, J. W., Cesarean section, 67

Williams, T. A., Diagnosis, *185

Williams, W. C., Cholesterinemia and Wassermann, 968

Williamson, C. S., Pericarditis, *2050

Williamson, R. T., Blood test in diabetes, 1135

Willis, A. M., Irrigation treatment of peritonitis, 1523

Willis, H. H., Detection of hookworm ova, 2003

Willmore, J. G., Glycosuria of malarial origin, 1049

Wilmer, W. H., Drugs in ophthalmology, *1223

Wilson, E. R., New stains for blood smears, 645

Wilson, G., Posterolateral sclerosis, 2092

Wilson, L. B., Malignant tumors of thyroid, 968

Wilson, M. G., Vital capacity of lungs, 1762

Wilson, P. P., Hysterical dysphagia, 966

Wiltshire, M. O. P., Basal metabolism in menstruation, 1050

Wimmer, A., Pseudosclerosis without liver disease, 1612; Syphilitic hemisyndromes, 1612

Windmueller, E., Poisoning from potassium nitrate and sulphur, *858

Winkelbauer, A., Trachea after goiter, 1214

Winkler, C., Anatomy of arcuate fibers, 819

Winnen, P., Ilead intestine, 1292

Winter, G., Sterility in women, 977, 1057

Wirth, E., Rapid recovery after suture of divided nerve, 2150

Wise, F., Tuberculosis of skin, 1918; Suppurating and cicatrizing disease of scalp, 1998

Wisloeki, G. B., Absorption from ventricles in hydrocephalus, 1599

Wisotski, A., Leukocytes in inflammation, 414

Wissing, O., Motor functioning of stomach after contrast meal, 1778

Wittherbee, W. D., Roentgen ray in diseased tonsils, 153; Skin tolerance to roentgen rays, 153

Woelz, E., Goiters, 821

Woerdeman, M. W., Puberty gland, 1144

Woglom, W. H., Cancer and its non-surgical treatment, 1674

Wohlgemuth, Fatal hemorrhage after puncture of spleen, 240

Wolf, M., Granuloma inguinale, 403

Wolff, A., Renal tuberculosis, 744

Wolff, E., Albumosemia, 2004

Wolff, G., Malignant goiter, 77

Wolfring, O., Vaginal secretion in differential diagnosis, 1777

Wolkowitsch, N., Muscle symptom with appendicitis, 240

Wollenberg, H. W., Arneth count, 1933

Wood, E. A., Mesothelioma of pleura, 888

Wood, F. C., Cancer and its nonsurgical treatment, 1674

Woods, A. C., Immune reactions, *1317

Woods, R., Malignant granuloma of nose, 576

Woodwell, M. N., Oxygen in cardiac insufficiency, 1519; Oxygen in pneumonia, 1519; Oxygen in encephalitis, 1520

Woody, M., Crimped paper cups for embedding, *1255

Woodyatt, R. T., Diet in diabetes, 885

Woringer, P., Meningococcus meningitis, 322

Worms, G., Traumatic lesions of pituitary, 1688

Worster-Drought, C., Lesions of posterior tibial nerve, 320

Wortmann, W., Enterostomy in ileus and peritonitis, 1533; Intussusception, 1691

Wossidlo, E., Tuberculosis of kidney, 1611

Wright, F. R., Fat feeding in arthritis, 2000

Wyeth, G. A., Endothermy for malignant disease, 1767

Yorke, W., Leprosy, 1686

Yoshinare, N., Sachs-Georgl and Wassermann tests, 972

Youmans, J. B., Perforation of intraventricular septum, 1520

Young, H. B., Trachoma, 1121

Young, H. H., Mercurochrome, *93; Anatomy and surgery of trigon, 315; Mercurochrome as general germicide, 402; Drugs in urology, *1327

Young, J., Micro-organism in cancer, 1449

Young, W. J., Malignant conditions treated with radium, 1127

Zaaljer, J. H., Parosteogenetic juvenile osteochondropathy, 655

Zak, E., Vascular spasm in intermittent claudication, 742; Urine in elderly, 2008

Zamorani, V., Paratyphoid infection, 158

Zeehandelaar, I., Occultism, 1295

Zeeman, W. P. C., Practitioners' blunders in treating the eye, 582

Zentmayer, W., Report of committee on local anesthetics in ophthalmic work, *1730

Zerbino, V., Measles, 822; Genital tuberculosis, 1453

Zibordi, F., Hemocoelias, 821

Ziegler, J., Roentgenography of large intestine, 162

Ziegler, S. L., Complete dissection of lens, *1100; Wood alcohol poisoning, *1160

Zilberlast-Zand, N., Reaction of meninges to tuberculosis, 1288

Zimmerman, G., Acute glandular fever, 64

Zinger, A., Diphtheria preventive work, *835

Zinner, A., Septum in bladder, 501

Zininger, P., No Indol production by staphylococci, 1283

Zinsser, H., Hypersensitiveness in bacterial infections, 1842

Zoepffel, H., Necrosis of pancreas, 499; Gastric and duodenal ulcer operations, 1058; Retrocecal hernia, 1215

Zondek, H., Cystic kidneys, 1532

Zorraquin, G., Hydatid cysts of bones, 1140

Zuccola, P. F., Polyeythemla, 158; Myasthenia gravis, 1773

Zucker, T. F., Diffusible calcium of blood serum, 970

Zuelzer, G., Accidental murmurs and hypotonia, 1777

Zweifel, P., Carcinoma of uterus, 1611

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 77, JULY-DECEMBER, 1921

Pages	No.	Date	Pages	No.	Date	Pages	No.	Date	Pages	No.	Date
1-80	1	July 2	583-658	8	Aug. 20	1145-1216	15	Oct. 8	1693-1778	22	Nov. 26
81-164	2	July 9	659-744	9	Aug. 27	1217-1296	16	Oct. 15	1779-1852	23	Dec. 3
165-242	3	July 16	745-826	10	Sept. 3	1297-1380	17	Oct. 22	1853-1934	24	Dec. 10
243-330	4	July 23	827-900	11	Sept. 10	1381-1458	18	Oct. 29	1935-2012	25	Dec. 17
331-416	5	July 30	901-980	12	Sept. 17	1459-1534	19	Nov. 5	2013-2100	26	Dec. 24
417-502	6	Aug. 6	981-1060	13	Sept. 24	1535-1614	20	Nov. 12	2101-2210	27	Dec. 31
503-582	7	Aug. 13	1061-1144	14	Oct. 1	1615-1692	21	Nov. 19			

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DECEMBER 31, 1921

CONTENTS AND DIGEST

Type I Pneumonia and Its Serum Treatment. William S. Thomas, M.D., New York2101

Findings from a study of cases, bringing up to date statistics and other information concerning clinical features of acute lobar pneumonia.

The Mode of Production of the So-Called Vesicular Murmur of Respiration. George E. Bushnell, M.D., Bedford, Mass.2104

Importance of selective action of resonators in determining characteristics of respiratory sounds. Imitation of vesicular inspiration. Experiments with reciprocal breathing. Origin of sounds of inspiration and expiration.

The Deleterious Effect of Sodium Citrate Employed in Blood Transfusion. Lester J. Unger, M.D., New York2107

Effect of addition of sodium citrate in rendering red cells more fragile, diminishing complement, reducing function of opsonins, and destroying phagocytic power of white cells.

Ratio Between Deaths from Traumatic Fracture of Cranial Bones and from

Alcohol. Edward H. Hatton, M.D., Chicago2109

Investigations extending from February, 1914, to September, 1921.

Spontaneous Closure of Intestinal Perforation: Report of Case of Double Infection with Typhoid and Paratyphoid B. B. M. Randolph, M.D., and Oscar B. Hunter, M.D., Washington, D. C.2111

Factors of unusual pathologic interest in a fatal case.

The Causes and Diagnosis of the Various Forms of Coma: A Further Consideration. Blair Holcomb, M.D., Portland, Ore.2112

Effort to determine whether there has been improvement in diagnosis and whether frequency of various causes of coma offer noteworthy differences; a third analysis.

Dissecting Aneurysms of the Aorta: Report of Cases and Review of the Literature. P. D. Crowell, Chicago2114

Conditions in the reported cases. Necropsy findings in four recent cases.

Gastric Analysis. IV. The Gastric Equilibrium Zone. Chester C. Fowler, Ph.D.; William H. Spencer, M.D.; Martin E. Rehfuess, M.D., and Philip B. Hawk, Ph.D., Philadelphia....2118

Mechanics of Fractures at the Wrist. Harry L. Schurmeier, M.D., Santa Barbara, Calif.2119

(Continued on next page)

REFERENDUM ON THE USE OF ALCOHOL.....2136

INDEX

List of Journals Indexed.....2155

Semiannual Index to the Reading Matter in The Journal and to the Current Medical Literature.....2157

Index to Authors.....2193

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed. Copyright, 1922, by the American Medical Association NEXT ANNUAL SESSION, ST. LOUIS, MO., MAY 22-26, 1922

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See Page 3

CONTENTS AND DIGEST—Concluded

Responsibility of differences in mechanical force and lines of stress for predominance of intra-articular fractures in the chauffeur type of trauma.

Occurrence of Virulent Anthrax Bacilli in Cheap Shaving Brushes. Douglas Symmers, M.D., and D. W. Cady, M.D., New York.....2120

Necessity of more careful sterilization of bristles before their incorporation into brushes.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Report of a Case of Lateral Sinus Thrombosis Without the Usual Ear and Mastoid Signs. Morris H. Newton, M.D., Little Falls, N. Y.....2121

Removal of Bread Crumbs from Trachea by Suction: Report of Case. William B. McWhorter, M.D., Anderson, S. C.....2121

A Cigaret Drain. Wilton H. Robinson, M.D., Pittsburgh2121

EDITORIALS

More About Cod Liver Oil in Therapy2122

Röntgenographic demonstration of its value in rickets.

The Significance of Albuminuria...2122

Seriousness of all grades as a factor in mortality.

Lung Cancer as an Occupational Disease.....2123

A hazard that may be controlled by proper precautions.

CURRENT COMMENT

The Basal Metabolism of Man in the Tropics.....2124

Greater elimination, rather than suppression of heat production.

Potential Diabetes.....2124

Detection of latent cases by sugar tolerance tests.

Salt, Gastric Juice and Health....2125

Harmful effect of chlorin depletion when gastric juice is withdrawn.

Phagocytosis in Terminal Infections.....2125

Loss of some other immunity factor, in view of the unfailing effectiveness of phagocytic activity.

MEDICAL NEWS 2126

GOVERNMENT SERVICES 2130

FOREIGN LETTERS 2131

London—Mexico—Vienna—Budapest.

MARRIAGES 2141

DEATHS 2141

CORRESPONDENCE 2142

Tuberculosis in the Negro of the Southern States: A Suggested Means of Control—Vienna as a Graduate Medical Center—"Dr." and "M.D."

QUERIES AND MINOR NOTES 2143

Oxalating Blood—Distinction Between Current Expenses and Investments.

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE 2144

Coming Examinations—Rhode Island April Examination—Wisconsin June Examination—Massachusetts September Examination—Utah October Examination.

BOOK NOTICES 2145

MEDICOLEGAL 2146

No Liability Without Evidence of Malpractice—Law Relating to "The Practice of Medicine" Upheld—Pregnancy Diagnosed as Tumor After Ovariectomy.....2146

CURRENT MEDICAL LITERATURE2147

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

WASSERMANN and
All Other Laboratory Tests

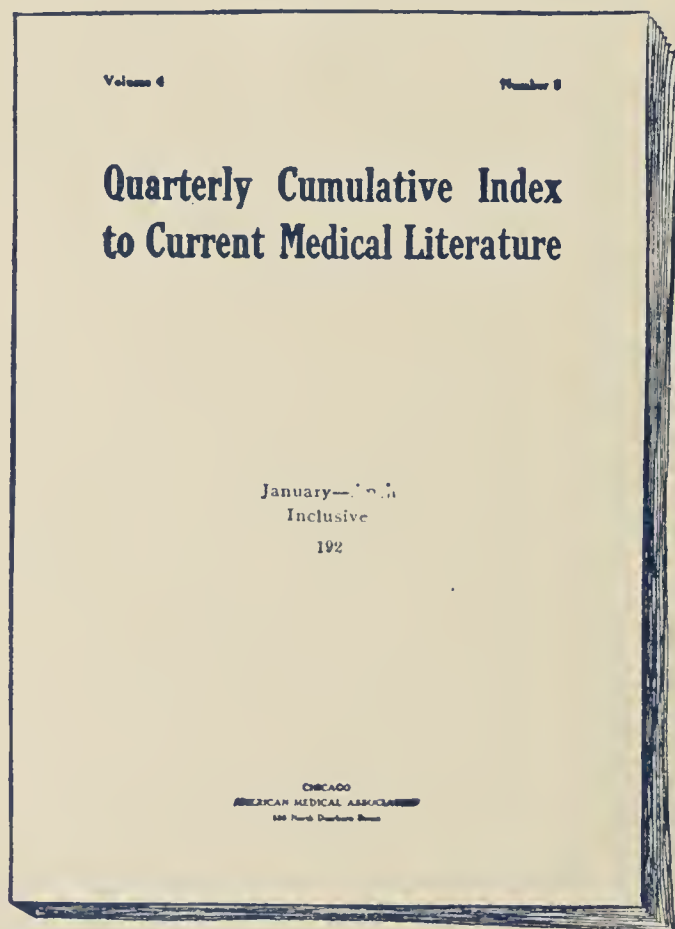
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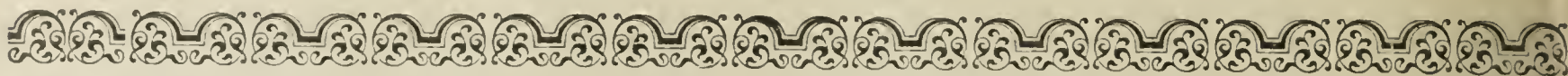
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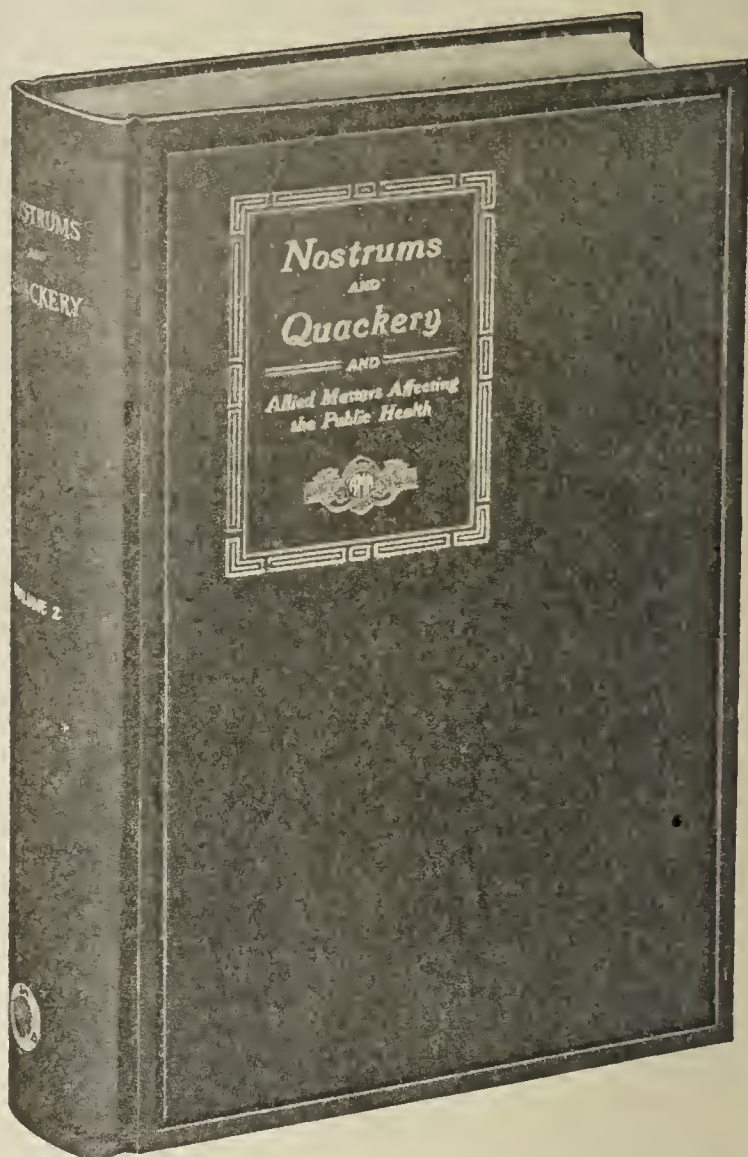
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SOCIETY	PRESIDENT	SECRETARY	ANNUAL MEETING
Alabama, Med. Assn. of the State of	Dyer F. Talley, Birmingham.....	H. G. Perry, State Bd. of Health, Montgomery	Birmingham, Apr. 20-23, '22
Alaska Territorial Medical Assn....	L. P. Dawes, Juneau.....	H. C. DeVighe, Juneau.....	Priscott, 1922
Arizona Medical Association.....	A. M. Tuthill, Phoenix.....	D. F. Harbridge, Goodrich Bldg., Phoenix.....	Little Rock, May, 1922
Arkansas Medical Society.....	Charles H. Cargile, Bentonville...	Wm. R. Bathurst, 810 Boyle Bldg., Little Rock	Yosemite, May 15-18, 1922
California, Med. Soc. of the State of	John H. Graves, San Francisco...	W. E. Musgrave, Butler Bldg., San Francisco..	Colorado Springs, 1922
Colorado State Medical Society.....	Harry A. Smith, Delta.....	F. B. Stephenson, Metropolitan Bldg., Denver.	Bridgeport, May 17-18, 1922
Connecticut State Medical Society..	Charles C. Godfrey, Bridgeport...	C. W. Comfort, Jr., 27 Elm Street, N. Haven.	Dover, Oct. 10, 1922
Delaware State Medical Society....	J. W. James, Dover.....	W. O. La Motte, Indust. Tr. Bldg., Wilmington	
District of Columbia, Med. Soc. of..	H. C. Macatee, Washington.....	L. M. Hynson, 1335 N St., N.W., Washington	
Florida Medical Association.....	S. R. M. Kennedy, Pensacola....	Graham E. Henson, Jacksonville.....	Columbus, May 3-5, 1922
Georgia, Medical Association of.....	E. C. Thrash, Atlanta.....	Allen H. Bunce, Healey Bldg., Atlanta.....	Wallace, July, 1922
Hawaii, Medical Society of.....	F. L. Putnam, Honolulu.....	J. E. Strode, 1041 Alakea Street, Honolulu....	Chicago, May 16-18, 1922
Idaho State Medical Association....	Max T. Smith, Wallace.....	E. E. Laubaugh, Overland Bldg., Boise.....	Muncie, Sept. 27-29, 1922
Illinois State Medical Society.....	Charles E. Humiston, Chicago....	W. H. Gilmore, Mt. Vernon.....	Des Moines, May 10-12, '22
Indiana State Medical Association..	W. R. Davidson, Evansville.....	Chas. N. Combs, Terre Haute.....	
Iowa State Medical Society.....	Alanson M. Pond, Dubuque.....	T. B. Throckmorton, Bk. Tr. Bl., Des Moines.	
Isthmian Canal Zone, Med. Assn. of	Troy W. Earhart.....	N. B. Kupfer, Ancon.....	Topeka, May, 1922
Kansas Medical Society.....	C. S. Kenney, Norton.....	J. F. Hassig, 800 Minnesota Ave., Kansas City	Paducah, 1922
Kentucky State Medical Association.	J. A. Stucky, Lexington.....	A. T. McCormack, 532 W. Main St., Louisville	Alexandria, Apr. 11-13, 1922
Louisiana State Medical Society....	J. E. Knighton, Shreveport.....	P. T. Talbot, 1551 Canal St., New Orleans....	Portland, June, 1922
Maine Medical Association.....	Addison S. Thayer, Portland....	B. L. Bryant, 265 Hammond St., Bangor.....	Baltimore, Apr. 25-27, 1922
Maryland, Med. and Chir. Faculty of	W. S. Gardner, Baltimore.....	J. A. Chatard, 1211 Cathedral St., Baltimore..	Boston, June 13-14, 1922
Massachusetts Medical Society.....	John W. Bartol, Boston.....	W. L. Burrage, 42 Eliot St., Jamaica Plain, Boston	Flint, 1922
Michigan State Medical Society....	William J. Kay, Lapeer.....	F. C. Warnshuis, 410 Powers Bldg., Gr. Rapids	Minneapolis, Oct. 3-5, 1922
Minnesota State Medical Assn.....	James Frank Corbett, Minneapolis.	Carl B. Drake, Central Bank Bldg., St. Paul..	Hazlehurst, May 9-10, 1922
Mississippi State Medical Assn....	Henry Boswell, Sanatorium.....	T. M. Dye, Clarksdale.....	Ex'lsior Spgs., May 16-18, '22
Missouri State Medical Association.	A. H. Hamel, St. Louis.....	E. J. Goodwin, 3529 Pine St., St. Louis.....	Great Falls, July 12-13, 1922
Montana, Medical Association of....	W. W. Andrus, Miles City.....	E. G. Balsam, 222 Hart-Albin Bldg., Billings..	Omaha, May 1-4, 1922
Nebraska State Medical Association.	M. S. Moore, Gothenburg.....	R. B. Adams, 1013 Terminal Bldg., Lincoln...	Reno, September, 1922
Nevada State Medical Association..	R. A. Bowdle, East Ely.....	Horace J. Brown, Goldfield.....	Concord, May 17-18, 1922
New Hampshire Medical Society...	Charles S. Walker, Keene.....	D. E. Sullivan, 7 N. State St., Concord.....	
New Jersey, Medical Society of....	Henry B. Costill, Trenton.....	William J. Chandler, South Orange.....	Gallup, 1922
New Mexico Medical Society.....	Chester Russell, Artesia.....	F. E. Tull, Albuquerque.....	Albany, April 18, 1922
New York, Med. Soc. of the State of	James F. Rooney, Albany.....	Edward L. Hunt, 17 W. 43d St., New York..	Wins'n-Salecm, Apr. 25-27, '22
N. Carolina, Med. Soc. of the State of	Hubert A. Royster, Raleigh.....	L. B. McBrayer, Sanatorium.....	Jamestown, 1922
North Dakota State Med. Assn.....	Harley E. French, University....	H. J. Rowe, Lisbon.....	Cincinnati, May 2-4, 1922
Ohio State Medical Association....	Wells Teachnor, Columbus.....	Mr. D. K. Martin, Ex. Sec., 131 E. State St., Columbus.	Oklaoma City, May 16-18, '22
Oklahoma State Medical Assn.....	G. A. Boyle, Enid.....	C. A. Thompson, 508 Barnes Bldg., Muskogee.	Portland, June, 1922
Oregon State Medical Association..	Clarence J. McCusker, Portland..	T. Homer Coffen, Journal Bldg., Portland....	Scranton, Oct. 2-5, 1922
Pennsylvania, Med. Soc. of State of	Frank G. Hartman, Lancaster....	W. F. Donaldson, Jenkins Arcade, Pittsburgh.	
Philippine Islands Medical Assn....	Baldomero Roxas, Manila.....	I. Concepcion, Coll. of Med. & Surg., Manila..	San Juan, Dec. 10-11, 1921
Porto Rico, Med. Assn. of.....	I. Gonzales Martinez, San Juan..	Augustin R. Laugier, San Juan.....	Providence, June 1, 1922
Rhode Island Medical Society.....	George S. Mathews, Providence...	I. W. Leech, 111 Broad St., Providence.....	Rock Hill, Apr. 18-19, 1922
South Carolina Medical Association.	H. L. Shaw, Sumter.....	Edgar A. Hines, Seneca.....	Huron, May 16-18, 1922
South Dakota State Med. Assn.....	George S. Adams, Yankton.....	Frederick A. Spafford, Flandreau.....	Memphis, April 11-13, 1922
Tennessee State Medical Assn.....	William Britt Burns, Memphis...	Olin West, 327 Seventh Ave., N., Nashville...	El Paso, May, 1922
Texas, State Medical Association of.	T. J. Bennett, Austin.....	H. Taylor, Texas State Bk. Bldg., Fort Worth.	Salt L'e C'y, Aug. 31-Sept. 2, '22
Utah State Medical Association....	Augustus C. Behle, Salt Lake City	Wm. L. Rich, Boston Bldg., Salt Lake City...	
Vermont State Medical Society....	F. W. Sears, Burlington.....	W. G. Ricker, St. Johnsbury.....	Norfolk, Oct., 1922
Virginia, Medical Society of.....	Edward C. S. Taliaferro, Norfolk.	Mr. G. H. Winfrey, 104 1/2 W. Grace St., Richmond	
Washington State Medical Assn....	A. E. Burns, Seattle.....	C. H. Thomson, 508 Cobb Bldg., Seattle.....	Huntington, May, 1922
West Virginia State Med. Assn....	J. Howard Anderson, Marytown..	Robert A. Ashworth, Moundsville.....	
Wisconsin, State Med. Society of...	Sidney S. Hall, Ripon.....	Rock Sleyster, Wauwatosa.....	Sheridan, June 20-22, 1922
Wyoming State Medical Society....	H. R. Lathrop, Casper.....	Earl Whedon, Sheridan.....	

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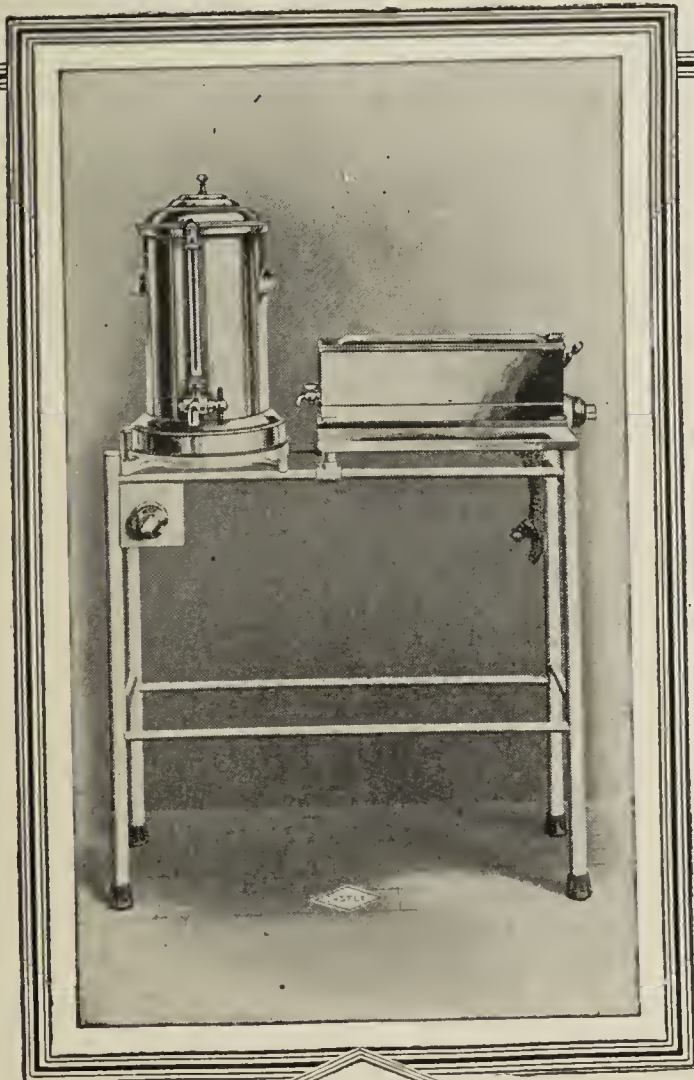
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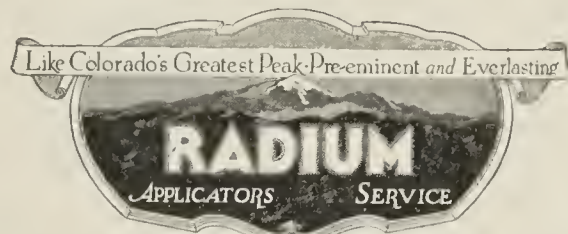
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Chronic recurring papillomas and pigmented hairy naevi can be removed by RADIUM before irritation ushers in malignancy.

RADIUM IS WORTH ITS COST

We can explain more intelligently this Company's complete service, which commences when the purchase of radium is made, if when writing us the physician states in what field of work he is specializing. Write our nearest office.



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PEOPLES GAS BLDG.

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WHOOPING-COUGH
(PERTUSSIS)

Causes more deaths under one year of age than any other infectious disease.

In America more than 10,000 children die each year.

Glycerol-Vaccine

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is shown by numerous reports, to be of value in the prevention of whooping-cough.

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535 N. Dearborn St. Chicago, Ill.
Phone, Superior 884, Cable Address "Medic, Chicago"

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Importer of
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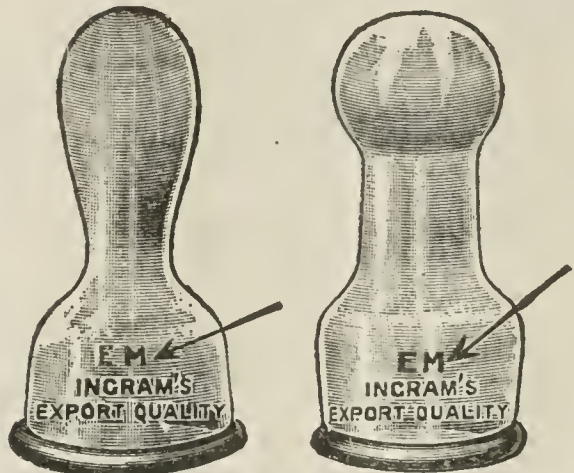


Fig. 225

Fig. H

Avoid Imitations—INGRAM'S are the Original Transparent Nipples. The Vulcanizing Processes Insure Great Durability.

In the INGRAM NIPPLES a high degree of transparency has been achieved without loss of quality in the rubber. Any trace of foreign matter or stale milk can at once be seen by mother or nurse. The transparency is a constant incentive to scrupulous cleanliness.

INGRAM NIPPLES are made of a pure, high-grade rubber that can be sterilized perfectly. The mother need not fear ruining Ingram Nipples by giving them the regular boilings required for safe and cleanly infant feeding.

For new-born or very weak infants, INGRAM NIPPLES are particularly helpful. Their fine resiliency assists the child in its nursing. By telling the nurse or mother to order Ingram Nipples, you may obviate difficulty and delay in getting the baby started on bottle feeding.

If your druggist cannot supply the genuine Ingram Nipples bearing the initials "EM", one dozen will be sent upon receipt of \$1.00



Fig. H. B.

Fig. 225B

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Sole U. S. Agent

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Advertisements under the following headings, \$3.00 for 35 words or less, additional words 8c each. This rate applies for each insertion.

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SPECIAL NOTE—A fee of 25c is charged those advertisers who have answers sent care of A.M.A. Letters sent in our care are forwarded promptly.

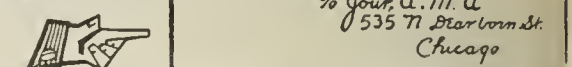
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Classified Ads. are Payable in advance. To avoid delay in publishing, remit with order.

For current issue, ad. must reach us by 4:00 p. m. Monday
Journal A.M.A. 535 N. Dearborn St., CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation. The right is reserved to reject or modify all advertising copy in conformity with the rules of the advertising committee.

APPOINTMENTS

THE FOLLOWING POSITIONS ARE VACANT at the New Jersey Sanatorium for Tuberculosis, Glen Gardner, N. J.: (1) Physician having had previous experience in clinical pulmonary tuberculosis work in institutions; salary \$2,000 with maintenance; (2) physician having had some experience in same work for juvenile department and laboratory work; salary \$1,800, with maintenance; (3) laboratory technician, may or may not be graduate physician, capable of doing routine and special laboratory work, including blood chemistry, vaccines, etc.; salary, \$1,500, with maintenance. Applicant will send photo, give age, previous experience, school of graduation and advise when he could report for duty in their first letter.

MICHAEL REESE HOSPITAL, CHICAGO, Ill. Competitive examinations for appointments to the house staff will be held at the hospital and at Deans' offices of selected Class A Medical Schools on January 18, 1922. Appointments will be made in accordance with grades acquired in the examinations. The following appointments are available:

Six two-year services and one one-year service beginning July 1, 1922.
Six two-year services beginning January 1, 1923.
For further information and application blanks apply to the Superintendent, 29th St. and Ellis Avenue, Chicago, Ill.★

VACANCY JAN. 1, 1922. ON THE INTERN staff of the Neurological Institute; general hospital experience required. For particulars apply to Secretary of Medical Board, 149 E. 67th St., New York City.* A

EXAMINATIONS WILL BE HELD AT the Woman's Hospital, New York City, Jan. 26, 1922, for two appointments on the house staff, the successful candidates to report for duty Feb. 1, 1922. Candidates must be graduates of medicine, preferably with hospital experience, and must present satisfactory credentials. Term of service one year, divided as follows: four months Junior Assistant House Surgeon, four months Senior Assistant House Surgeon, four months House Surgeon. The Junior Assistant House Surgeons serve two months in the Obstetrical Department. For further information apply to Dr. Douglas Bissell, Secretary of Surgical Board, Woman's Hospital, 141 West 109th St., New York City.* A

ASSISTANTS WANTED

WANTED—AN ASSISTANT PHYSICIAN for hospital for the insane; Eastern Pennsylvania; single man with good references only need apply; send photo and all information with application; salary \$1,500 per annum and maintenance. Add. 2765 B, % AMA.

WANTED — ASSISTANT PHYSICIAN IN state hospital in middle west, single man with administrative ability, psychiatric training, thorough medical equipment and highest references; salary \$2,000, with full maintenance. Add. 2700 B, % AMA.

PHYSICIANS WANTED

PHYSICIANS WANTED — DOCTORS wanted immediately for salaried appointments in hospitals, sanatoriums, industrial plants, railroad companies, mining and contract practice. Apply "The Medical Echo," Lynn, Mass.

WANTED — YOUNG GRADUATE FROM Class A school who has had thorough training in internal medicine, is offered an opportunity to join group on Pacific Coast; write fully about yourself, your education, your professional training and experience; no investment required; an opportunity for a progressive and able internist who has training, personality and backbone to put it across. Add. 2717 C, % AMA.

WANTED—CLASS A PHYSICIANS FOR salaried appointments, hospitals, sanatoriums, industrial, insurance, mining companies, etc. Excellent opportunities for recent graduates. Register with us; do it now. Write Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago. C

WANTED — PATHOLOGIST AT BANGOR State Hospital; single man or single woman; trained in pathology and bacteriology; experienced in routine laboratory work, including stomach analysis, Wassermann, malaria, vaccine and general bacteriology; salary \$2,000 per year, with full maintenance; furnish complete information and references in first letter. Add. Dr. Carl J. Hedin, Superintendent, Bangor, Maine. C

WANTED—RESIDENT PHYSICIAN, SINGLE, for 125-bed tuberculosis sanatorium; salary \$1,800 and maintenance; physician with experience in TB work preferred, or one who has had tuberculosis and whose disease is arrested will be considered; position permanent to right party. Add. Superintendent Battle Hill Sanatorium, Atlanta, Ga. C

WANTED—TWO CHIEFS OF MEDICAL service (single men) in tuberculosis sanatorium; \$2,500 and maintenance for each; men who have worn the uniform preferred, and who have had executive and clinical experience; the type desired is the man who believes tuberculosis can be arrested or cured; who will make his patients believe this; who had rather help these people to health than do anything else; and who knows that in addition to pure air, sunshine, good food and shelter, they need careful individual supervision regarding diet, exercise, occupation, amusement, physiotherapy and hydrotherapy, and other measures which directly and indirectly influence both the body and the morale; also two assistants (single men) of similar type, beginning with \$1,400 and maintenance per year. Apply by letter, in own handwriting, to The Commissioner of Health, Harrisburg, Pa. C

(Continued on next page)

Tonics and Sedatives

CONVERSAZIONE

"Well" said Mr. Dooley, "they do say the docters be votin' on the quistion 'Is liquor nicissary in the prachise of midicine?'"

"Necessary oder useful is something else again" said Abe Potash. "The word 'necessary' y' understan', Dooley, means y' gotta have it, but 'useful' means—"

"It manes" said Dooley interrupting, "that it comes in down handy at the times when we wuz used to havin' it and New Year's Eve is one o' thim times. Ye remimber New Year's Eve in the old days: Bills ringin', horns blowin', whistles screechin', all the hotels filled wid people drownin' their worries about the Christmas bills in the dipths of intoxication, an' a wonderful headache New Year's mornin'. Ah! thim were the days, Potash."

"'Bills ringin' is right" said Potash. "Rosie kin ring in more bills on January 1 than I could pay by March 30 with ninety days discount. But I was reading in the papers that the doctors are voting some necessary and some not necessary, Dooley. How do you explain it?"

"Thanks be to Hivin, Potash, I don't have to explain it. Afther all it is a free country an' one can have his own opinion even if he cant have iv'ry thing ilse he wants. A Happy New Year to ye, Potash, an' hi'p yerself to a glass of ginger ale an' a cigar."

"Gott sei dank" said Potash, "I do not suffer necessarily with general debility. Take a sip from this half-pint which Dr. Rosenzweig just wrote for me, and may it bring you a Prosperous New Year, Dooley."

"Prosperous or not, Potash," said Dooley, "here's lookin' at ye. 'Twill look prosperous in a few minnuts."

We All Have More or Less

New York Times

It was at first thought that Blair had been drugged, but four physicians who worked over him decided that unconsciousness was entirely due to high blood pressure. Blair's family admitted that he had suffered from blood pressure since he was 18 years old.

INEVITABLE

Post—Do you always advise your neurasthenic patients to have a constant companion?

Alienist—Always. The companion immediately becomes another neurasthenic patient. —Judge.

A Rare Obstruction

Anderson (Ind.) Herald

COLUMBIA CITY, Ind., Dec. 17.—Oscar Aker, 25 years old, died today from an operation for a rare obstruction of the bowels termed meeles diverticulum. He was a world war veteran.

THE DOUGHBOY'S REPLY

"Now, gentlemen," began the professor in the dental school that had been opened in the vocational training area, "what class of persons habitually suffer from acid mouth?"

And the class answered as one man:

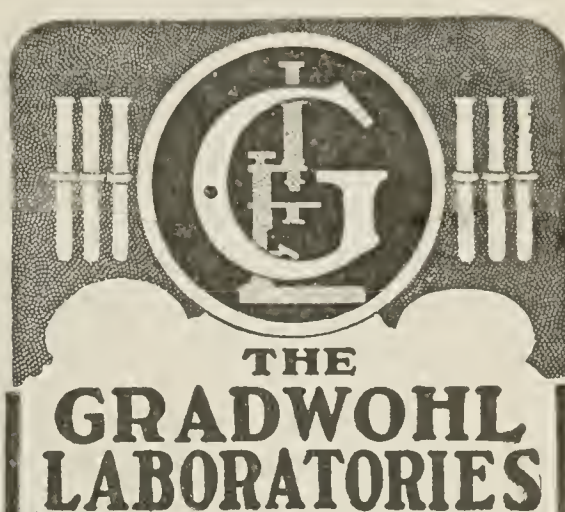
"First sergeants, sir."—Amer. Legion Weekly.

Cause and Effect

Lancaster (Texas) Herald

Morris, son of Mr. and Mrs. Will Worley, is recovering from a serious attack of indigestion which almost resulted in pneumonia.

(Continued on next page)



ST. LOUIS, MO.

3514 Lucas Ave.

CHICAGO, ILL.

4750 Sheridan Road

THE HECHT-GRADWOHL

Test yields a very high percentage of correct Positives in syphilis. We make this test, as well as **THE WASSERMANN**, on all bloods submitted, without extra charge. Thus, we render material assistance to our consultants.

Fill out the attached coupon for reprint and container. Try us out on some case that needs serological proof. A daily experience of over ten years with this test covering over 75,000 comparative tests, shows Positives with the Hecht-Gradwohl in 20% more cases than does the Wassermann.

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Individual Instruction in Nerve Blocking and Infiltration, Latest Technique in all Operations, Review of Surgical Anatomy.

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THE LABORATORY OF SURGICAL TECHNIQUE OF CHICAGO

For over seven years this Laboratory has been instructing and benefiting doctors from all over the United States and Canada. We have followed an original plan of teaching the technique of surgery that not only gives the doctor the instruction, but allows him time to do the operations over and over until he is satisfied that he knows the technique. We have taken care of the busy surgeon as well as the practitioner whose experience has been more or less limited. The Laboratory is open daily from 9:00 a. m. to 5:00 p. m., which enables the man whose time away from his practice is limited, to get the work in the shortest possible time.

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(Blood and Spinal Fluid) \$5.00

Collection of blood for the Wassermann test is a simple procedure with our sterile containers. Every specimen painstakingly cared for by us until report goes out to you. All tests performed by specialists. Containers with complete instructions sent on request.

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920 P. Smith Bldg., Detroit; University Club Bldg.,
St. Louis; 302 S. Jefferson St., Saginaw, Mich.

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Dr. Leo Michel and staff will continue their classes and courses of individual instruction in these subjects at the N. Y. School of Clinical Medicine. Apply to

Dr. Leo Michel

15 Central Park West, New York City, N. Y.

Operative Surgery

Special course in general surgery, operative technique and gynecologic surgery given to physicians. Enrolment limited to THREE.

First assistantship. No cadaver or dog-work

For particulars address,

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Prepares physicians for State Board, Army, Navy, Civil Service Examinations. Write for Free Booklet and Mail quiz particulars.

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REAGENTS FOR SALE

Alcoholic luetic liver extract, Acetone insoluble Antigen, etc. Amboceptors. Wassermann Tests our Specialty.

GUINEA PIGS FOR SALE

Free instruction "How to do the Wassermann Test."

"Where Can I Buy It?" Try the Journal Ad. pages.

(Tonics and Sedatives Continued)

THE OLD ONES ARE THE BEST

The lawyer for the prosecution began.

"Now, Laszky, what do you do?"

"Vat do I do ven?"

"When you work, of course."

"Vy, work."

"I know, but what at?"

"At a bench."

"I know—I know, but where do you work at a bench?"

"In a factory."

"What kind of a factory?"

"Brick."

"Ah, now we're getting there. The factory makes bricks?"

"No, de factory is made of bricks."

"Oh, Lord! Laszky, what do you make in that factory?"

"Eight dollars a week."

"No, no! What does the factory make?"

"I dunno. A lot of money, I tink."

"No, listen. What kind of goods does the factory produce?"

"Oh, good goods."

"But what kind of good goods?"

"The best dere is."

"Of what?"

"Of dose goods."

"That will do," said the lawyer.—Pickup.



The Final Blow

Casper (Wyo.) Herald

A suggestion for a sentimental ballad: Little girl, in ragged clothes, standing on the threshold of a doctor's office and pitifully saying to the doctor, "Please do not sell my father a prescription!"



A Matter of Terminology

Pittsburgh Press

New York, Dec. 7.—A "bloodless operation" was performed by Dr. Lorenz on Marian Leroy, daughter of Dr. M. H. Leroy of Pittsburgh. The girl, who is aged 15, had been suffering from a deformity of the knees known as extra-articular redressment.



ENDOCRINOLOGY

Mary had a little goat,

The doctor got his glands;

He sewed 'em up in Tommy Jones,

Now Tommy eats tin cans.

—Exchange.



Cleaning Up

Ad in Salina (Kan.) Union

Fire destroyed another beautiful Salina home. Happened while husband was away caused from soot in the chimney. Why take the chance, think of your wife and babies at home. Have them inspected, repaired and cleaned.



In the Matter of Squabs

Chillicothe (Ohio) Scioto Valley Gazette

In cases of diphtheria, the speaker said, it was particularly important to have an early diagnosis, and in this the laboratory is of great saving the delay of sending the squabs to Columbus or to Cincinnati, a delay that might prove fatal. Here, if a squab is brought to the laboratory in the morning, a diagnosis can be secured by evening.



A DEFINITION

Elijah Johnson, sage of a small Alabama town, was trying to make clear in the mind of a friend just what constitutes oratory.

"It's jest like dis," he elucidated. "Ef you says black am white, dat's foolish. But ef you says black AM white, and bellers like a bull and pounds de table with bofe yo' fisteses, dat am oratory!"—Amer. Legion Weekly.

(Continued on page 24)

(Continued from preceding page)

WANTED — CHEROKEE STATE HOSPITAL, graduate physician with laboratory experience or technician for laboratory; modern equipment. Address Dr. George Donohue, Superintendent, Cherokee State Hospital, Cherokee, Iowa.★ C

WANTED — SINGLE MALE PHYSICIAN, graduate of accredited school, experienced in psychiatry; permanent position with chance of promotion in large modern state hospital. Add. 2691, % AMA.★ C

INTERNS WANTED

Hospitals marked with a star (★) are on the list of those approved for intern training by the Council on Med. Ed. & Hosp. of the A. M. A.

WANTED—JAN. 1, 1922, INTERN FOR TUBERCULOSIS hospital, 100 beds; salary \$50. Add. Dr. Ethan A. Gray, 2451 Howard St., Chicago, Ill. D

WANTED — INTERN AT ONCE; A RECENT graduate as intern; service 6 months in general hospital of 81 beds; good service, maintenance and salary; send qualifications with application. Address President of Staff, The Paxton Hospital, Utica, N. Y. D

NURSES WANTED

WANTED — SURGICAL SUPERVISOR, capable of assisting in operating room; wanted by modern 50-bed hospital; salary \$100 per month with maintenance; also nurse for general duty at same salary; 8-hour duty. Add. Manager, West Frankfort Union Hospital, West Frankfort, Ill. T

SUPERINTENDENTS OF NURSES. ASSISTANT superintendents, surgical, general duty nurses, supervisors, dietitians, etc., send for free book if interested in a hospital position anywhere. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago. T

PARTNERS WANTED

WANTED—ON ACCOUNT OF DESIRING to specialize will take recent Class A graduate, single, internship, capable, practical, no habits; as partner in large general practice; Illinois town 3,000; must be excellent character, pleasing personality, cultured, willing to do country work and obstetrics, able to do minor surgery; terms, \$500 cash, contract of three years equal partnership and own your own car; advertisement appears but once; send full details and arrange for personal interview. Midwest graduate preferred. Add. 2800 G, % AMA.

LOCATIONS WANTED

WANTED — LOCATION WITHIN FIFTY miles of Cleveland, Ohio; small town with opening for refracting preferred; would buy real estate if house and office combined. Add. 2791 E, % AMA.

WANTED — MAN, WELL TRAINED IN otolaryngology and surgery of the head and neck, desires location, alone, in group or partnership in established city practice. Add. 2702 E, % AMA.

WANTED—TO ACQUIRE PART OR ENTIRE interest in an old and well established eye and ear, nose and throat practice in a large city; also have a good \$12,000 practice for sale. Add. 2754 E, % AMA.

WANTED — SOUTHERN CALIFORNIA—Established practice with cash income \$4,000 or over, with or without property; prefer office in residence; not over 40 miles from coast; describe fully with price and terms in first letter; answers held in confidence. Add. 2788 E, % AMA.

WANTED—A GOOD LOCATION OR ASSOCIATION with group of doctors by eye, ear, nose and throat man with competent training; prefer Oklahoma, Texas, Kansas, Missouri or Arkansas; available at once. Add. 2687 E, % AMA.

WANTED — LOCATION, ASSOCIATION or position; class A university; experienced private practice; finishing four years' training in large hospital; chiefly surgical and obstetrical; competent surgeon; excellent recommendations; prefer central states, city 25,000 or more. Add. 2695 E, % AMA.

(Continued on page 24)

*To be used only
under direction
of a physician*

A Food to Keep Babies Well

Adapted to Mother's Milk

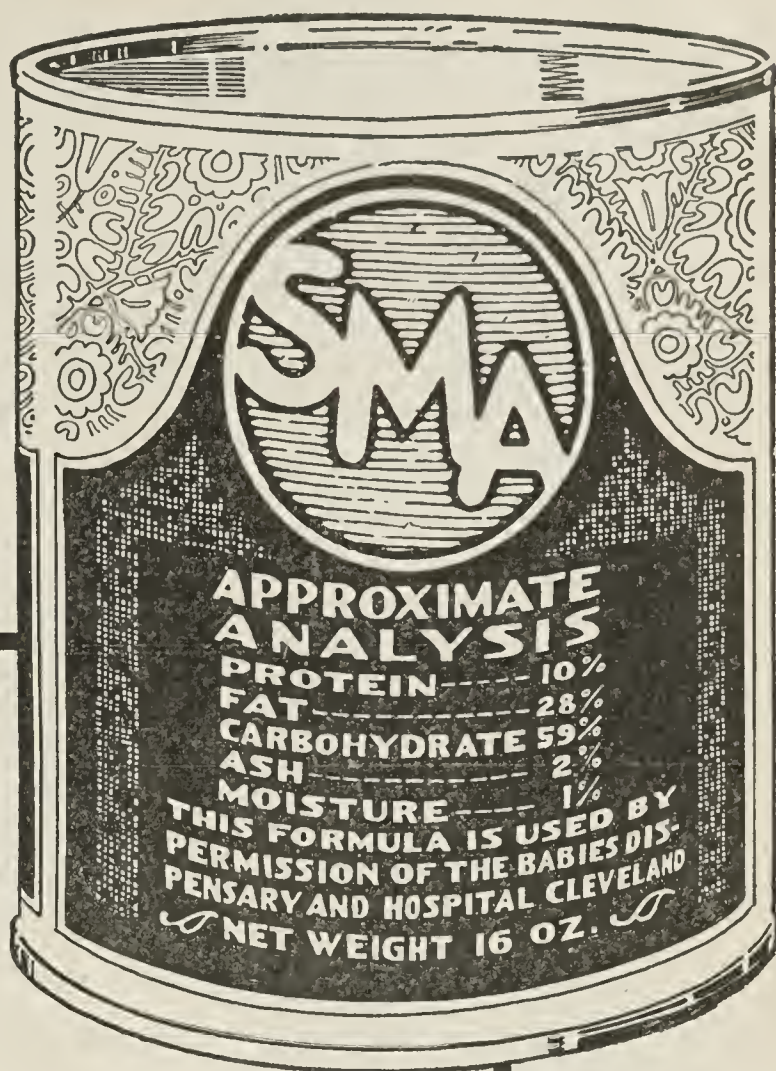
S. M. A. is a finished product which may be used by the physician with every assurance of success. In prescribing S. M. A. he is not conducting an experiment in baby feeding, but is using a food which has been fed constantly in the dispensary for six years, and by scores of physicians in general practice for two years.

S. M. A. is a food to keep babies well. It is recommended to family physicians because it is a simple and satisfactory food for babies who are deprived of Mother's milk or who require food in addition to what the mother can supply; because it contains the required food elements;

because it needs only the addition of warm boiled water to prepare it whether for the month-old baby or for the baby a year old; because clinical records of S. M. A. feeding indicate absence of spasmophilia and because it makes happy, solid, breast-fed-looking infants.

It is easy to understand how S. M. A. rouses the parents' enthusiasm, and adds to the prestige of the physician.

Please write for the S. M. A. bulletin for physicians. It gives the history of S. M. A., and contains complete directions for its use.



*H. J. Gerstenberger et al. I. Studies in the Adaptation of an Artificial Food to Human Milk.
Am. J. Dis. Child. Vol. X, Pg. 249-265.

H. J. Gerstenberger et al. II. Studies in the Adaptation of an Artificial Food to Human Milk.
(A Report of Three Years' Clinical Experience with the Feeding of S. M. A.)
Am. J. Dis. Child. Vol. XVII, Pg. 1.

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Randolph 7689

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SCARLET R. SALVE

Samples Free

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GREAT DANE PUPS

When Doctor is making that night visit,
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(Tonics and Sedatives Continued)

PSYCHOANALYSIS

Los Angeles Times

A vamp is a young woman who acts
the way an old maid thinks.

The Ossified Appendix

Chester (Pa.) Republican

The condition of Joseph A. Senior was reported last evening to be serious by attaches of the Jefferson Hospital, where he was admitted Wednesday night, following an automobile accident at Egg Harbor, N. J. His injuries consisted of a fractured pelvis, punctured bladder and broken bones of the appendix, necessitating the removal of the appendix by surgeons.

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SOME POMS

Written by a sick man in Burlington, Vt.
TO MY WIFE

This hospital life is certainly hell.
I don't like the girls and I don't like the smell.
And I think as I lie on this damnable bed,
And I ache from my feet to the top of my head,
If I ever get back to my own little home,
Where I don't have to hear them all holler
and groan,
I'll settle right down for the rest of my life,
And stay in ev'ry ev'ning with the kids and
my wife.

TO MY FRIEND

This hospital life is certainly fine,
The nurses are great and their faces all shine.
There's one looks to me like a million or more.
And I try to buck up, but my "tummy's" so
sore.
I lie here and rest on the nice downy bed,
And I feel the sweet warmth of her hand on
my head.
And I think that I soon will be back to the life,
And be bossed as before by the kids and my
wife.

Books Received

Books received are acknowledged in this
column, and such acknowledgment must be
regarded as a sufficient return for the courtesy
of the sender. Selections will be made for
review in the interests of our readers and as
space permits.

THE OXFORD MEDICINE. Edited by Henry
A. Christian, A.M., M.D., Hersey Professor of
the Theory and Practice of Physic, Harvard
University, and Sir James Mackenzie, M.D.,
F.R.C.P., LL.D., Consulting Physician to the
London Hospital. In six volumes. Volume V:
Infectious Diseases (Cont'd) and Diseases Due
to Animal Parasites. Volume VI: Diseases of
the Central Nervous System. Under the Edi-
torial Supervision of Sir James Purves Stewart,
K.C.M.G., C.B., M.D., Senior Physician to the
Westminster Hospital. Cloth. Price, \$72 per
set. New York: Oxford University Press,
1921.

THE SPHYGMOMETER: ITS VALUE IN PRAC-
TICAL MEDICINE. By William Russell, M.D.,
LL.D., Consulting Physician, Royal Infirmary,
Edinburgh. Cloth. Price, \$2.50. Pp. 145.
New York: William Wood & Company, 1921.

(Continued on page 26)

(Continued from page 22)

WANTED—LOCATION—IN SMALL TOWN
for surgical practice; must be town of 5,000
or more; 6 years' surgical experience. Add.
2795 E, % AMA.

NURSES LOCATIONS WANTED

WANTED — NURSE WITH TEN YEARS'
experience, five as first assistant in surgery
and obstetrical work and office routine, includ-
ing x-ray work, desires position with a sur-
geon or general duty in hospital. Alice Hoff,
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istry for Nurses, 30 N. Michigan Ave., Chi-
cago. W

SITUATIONS WANTED

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physician, available immediately; physically
perfect; American, speaks foreign languages;
Texas, New Mexico, Arizona or foreign country
preferred; contract or part contract and prac-
tice mines, industrial health, railway insurance
or anything; references furnished; lucrative
position wanted. Add. 2801 I, % AMA.

WANTED — POSITION AS TECHNICIAN
by college graduate with master's degree
(chemistry); course clinical pathology at Col-
umbia University; prefer position in Southern
city laboratory where there will be opportunity
to advance. Add. 2802 I, % AMA.

WANTED — ASSISTANTSHIP WITH
busy surgeon, with view to partnership, by
gynecologist with years of hospital and sur-
gical experience; would take charge of radio-
graphic department in conjunction; not averse
to assuming assistantship, senior intern or
any hospital position leading to advancement,
in large or small community; prefer Califor-
nia or western states reciprocating with New
Jersey; no other relation than honest, ethical
dealings expected and returned; graduate of
Class A school; married; wife has hospital
experience as superintendent or matron if
needed. A. H. Staples San Mateo, Calif. I

WANTED—POSITION AS SUPERINTEN-
dent, assistant superintendent or house
surgeon of hospital as alternative contract or
general practice or assistant to doctor doing
surgery; 29 years old, single, Protestant,
Shriner; graduate of Class A school; 2 years'
practice, 1 year army overseas; 2½ years' gen-
eral hospital; references furnished; available
immediately. Add. 2584 I, % AMA.

WANTED — BOSTON—B.S., M.D., 1918,
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7 months' children's, 12 months' TB as as-
sistant medical director; not tuberculous; aged
27, single; good appearance and personality.
Add. 2574 I, % AMA.

SITUATION WANTED — EXPERIENCED
technician in general radiographic work and
treatment; male, 27 years; open for position
on short notice; middle west preferred. Add.
2804 I, % AMA.

WANTED — POSITION BY GRADUATE
nurse as superintendent of small hospital or
work in doctor's office; can do good surgical
nursing and x-ray technician work. Add. 2798
I, % AMA.

WANTED — ASSISTANTSHIP TO SUR-
geon of repute, or location by Northwestern
graduate; B.S. degree; Chicago Lying-in in-
ternship; 24 month rotating service in Kings
County Hospital, New York; religion, Luth-
eran; speak German; aged 27 years; single.
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15 years' experience, desires to relieve or
assist general practitioner or surgeon in south-
ern California city after January 15; mod-
erate salary, if advancement possible; Cali-
fornia licentiate; good health; personal inter-
view required. Add. 2775 I, % AMA.

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southern California; several years' general
practice and surgery; licensed California; good
health; prefer interview. Add. 2776 I, %
AMA.

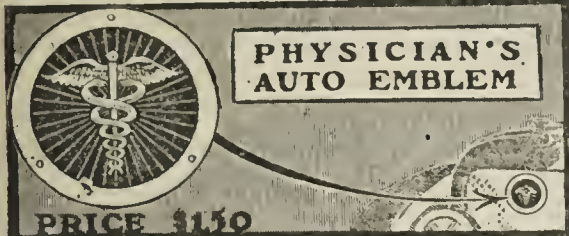
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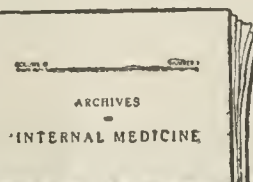
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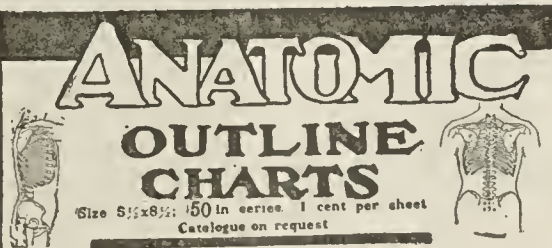
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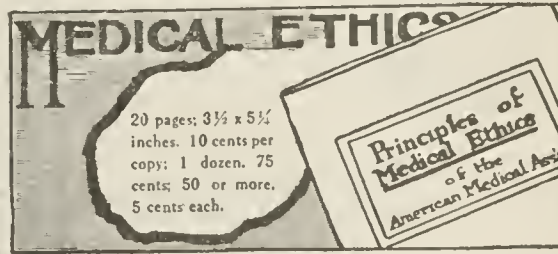
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(Books Received continued)

CONTRIBUTION À L'ÉTUDE DE CERTAINES RÉACTIONS MOTRICES DE LA CAGE THORACIQUE EN RAPPORT AVEC LE DIAGNOSTIC PRÉCOCE DE LA TUBERCULOSE PULMONAIRE CHRONIQUE (MÉTHODE STÉTHOGRAPHIQUE). Par le Docteur C.-M. Desvernine, Docteur en Médecine des Facultés de Paris, de New York et de Madrid. Paper. Price, 5 francs. Pp. 55, with 17 illustrations. Paris: "L'Expansion Scientifique Française."

ESSENTIALS OF VETERINARY PHYSIOLOGY. By D. Noël Paton, M.D., B.Sc., LL.D., Professor of Physiology, University, Glasgow, and John Boyd Orr, D.S.O., M.C., M.A., Director, Rowett Institute for Research in Animal Nutrition, Aberdeen. Third edition. Cloth. Price, \$6.50. Pp. 674, with 245 illustrations. New York: William Wood & Company, 1921.

ELEMENTOS DE FÍSICA. Por Walter Guttman, Subinspector de Primera Clase de la Reserva en la Academia de Medicina Militar del Kaiser Guillermo. Traducido de la Vigésima Edición Alemana por Julio Palacios Martinez. Catedrático de Termodinámica de la Universidad Central. Paper. Price, 12 pesetas. Pp. 243, with 185 illustrations. Madrid: Calpe, 1921.

PUBLIC HEALTH PROBLEMS IN MEXICO AND THEIR SOLUTION DURING THE LAST FIFTY YEARS. Contribution of the Mexican Department of Public Health to the Semi-Centennial Celebration of the American Public Health Association. By Dr. J. J. Izquierdo. Paper. Pp. 34, with 17 illustrations. Mexico, D. F.: Imprenta Victoria, 1921.

JACK O'HEALTH AND PEG O'JOY. A Fairytale. By Beatrice Slayton Herben, M.D. With jingles by school children of Public School No. 15 of New York City. Illustrated by Frederick Richardson. Cloth. Price, 60 cents, net. Pp. 39, with 12 illustrations. New York: Charles Scribner's Sons, 1921.

TEXT-BOOK OF EMBRYOLOGY. By Frederick Randolph Bailey, A.M., M.D., and Adam Marion Miller, A.M., Professor of Anatomy, The Long Island College Hospital. Fourth edition. Cloth. Price, \$6. Pp. 663, with 503 illustrations. New York: William Wood & Company, 1921.

THE CARE OF EYE CASES. A Manual for the Nurse, Practitioner and Student. By Robert Henry Elliot, M.D., B.S., Sc.D., Lecturer in Ophthalmology, London School of Tropical Medicine. Cloth. Price, \$4.50. Pp. 172, with 135 illustrations. New York: Oxford University Press, 1921.

A POCKET SURGERY. By Duncan C. L. Fitzwilliams, C.M.G., M.D., Ch.M., Surgeon in Charge of Out-Patients and Lecturer in Clinical and Operative Surgery, St. Mary's Hospital, London. Cloth. Price, \$3.75, net. Pp. 348. New York: Longmans, Green & Co., 1921.

THE ANATOMY OF THE HUMAN ORBIT AND ACCESSORY ORGANS OF VISION. By S. Ernest Whitnall, M.A., M.D., B.Ch., Professor of Anatomy, McGill University, Montreal. Cloth. Price, \$12. Pp. 428, with 195 illustrations. New York: Oxford University Press, 1921.

THE BELOVED EGO. Foundations of the New Study of The Psyche. By Wilhelm Stekel, M.D., Neurologist and Psycho-Therapist, Vienna. Authorized translation by Rosalie Gabler. Cloth. Price, \$2.50. Pp. 237. New York: Moffat, Yard & Co., 1921.

THE STOMACH AND ABDOMEN FROM THE PHYSICIAN'S STANDPOINT. By William Russell, M.D., LL.D., Consulting Physician, Royal Infirmary, Edinburgh. Cloth. Price, \$4. Pp. 329, with 35 illustrations. New York: William Wood & Company, 1921.

EXPERIMENTAL RICKETS. By Edward Melanby, M.A., M.D. Medical Research Council. Special Report Series, No. 61. Paper. Price, 4 shillings, net. Pp. 78, with 129 illustrations. London: His Majesty's Stationery Office, 1921.

HEART DISEASE AND PREGNANCY. By Sir James Mackenzie, M.D., F.R.C.P., LL.D., Director of the Institute for Clinical Research, St. Andrews. Cloth. Price, \$3.50. Pp. 138. New York: Oxford University Press, 1921.

(Continued from page 24)

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PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. With chapters upon Sewage and Garbage, by George C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General, U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene, etc. Fourth edition. Cloth. Price, \$10. Pp. 1567, with 194 illustrations. New York: D. Appleton & Company, 1921.

HEALTH EDUCATION AND THE NUTRITION CLASS. A Report of the Bureau of Educational Experiments. Descriptive and Educational Sections by Jean Lec Hunt. Studies of Height and Weight and Mental Measurements by Buford J. Johnson, Ph.D. Report on Physical Examinations 1919-20 by Edith M. Lincoln, M.D. Cloth. Price, \$3.50. Pp. 281, with illustrations. New York: E. P. Dutton & Company, 1921.

DIE ELEKTRIZITÄT IM DIENSTE DES PRAKTISCHEN ARZTES. Kurze Anleitung zum rationellen Gebrauch elektromedizinischer Apparate und zur Zusammenstellung elektrischer Einrichtungen zum ärztlichen Gebrauch. Von Dr. W. Zuelchaur. Paper. Price, 24 marks. Pp. 164, with 56 illustrations. Berlin: S. Karger, 1922.

STUDIEN ÜBER VERERBUNG UND ENTSTEHUNG GEISTIGER STÖRUNGEN. Herausgegeben von Ernst Rüdin. III: Zur Klinik und Vererbung der Huntingtonschen Chorea. Von Dr. Josef Lothar Entres, Oberarzt an der Heil- und Pflegeanstalt Eglfing. Paper. Price, 88 marks. Pp. 149. Berlin: Julius Springer, 1921.

PATHOLOGISCHE PHYSIOLOGIE. Ein Lehrbuch für Studierende und Ärzte. I. Abteilung: Die Funktionsstörungen des Herzens, der Gefäße und des Blutes. Von Dr. H. E. Hering, Professor der Pathologischen Physiologie in Köln. Paper. Price, 39 marks. Pp. 120. Leipzig: Georg Thieme, 1921.

VICE AND HEALTH: PROBLEMS: SOLUTIONS. By John Clarence Funk, M.A., LL.B., Director, Bureau of Protective Social Measures, Pennsylvania State Health Department. Cloth. Price, \$1.50. Pp. 174. Philadelphia: J. B. Lippincott Company, 1921.

PUBLIC HEALTH PROBLEMS IN MEXICO AND THEIR SOLUTION DURING THE LAST FIFTY YEARS. Contribution of the Mexican Department of Public Health to the Semi-Centennial Celebration of the American Public Health Association. Paper, 1921.

ÉTUDE SUR LE TRAITEMENT DE LA TUBERCULOSE PULMONAIRE. Par le Docteur C.-M. Desvernine, Docteur en Médecine des Facultés de Paris, de New York et de Madrid. Paper. Price, 5 francs. Pp. 78. Paris: "L'Expansion Scientifique Française."

A DIETARY STUDY OF SOME KANSAS INSTITUTIONS UNDER THE CONTROL OF THE STATE BOARD OF ADMINISTRATION. By E. H. S. Bailey, Professor of Chemistry, University of Kansas. Paper. Pp. 70. Lawrence: State Printing Plant, 1921.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By Zachary Cope, B.A., M.D., M.S., Surgeon to Out-Patients, St. Mary's Hospital, Paddington. Cloth. Price, \$4. Pp. 223, with 28 illustrations. New York: Oxford University Press, 1921.

OBSTETRICS AND GYNAECOLOGY. Edited by John S. Fairbairn, M.A., B.M., B.Ch., Obstetric Physician, St. Thomas's Hospital. Cloth. Price, \$20. Pp. 950, with 175 illustrations. New York: Oxford University Press, 1921.

INDUSTRIAL FATIGUE AND EFFICIENCY. By H. M. Vernon, M.A., M.D., Investigator for the Industrial Fatigue Research Board. Cloth. Price, \$5. Pp. 264. New York: E. P. Dutton & Company, 1921.

L'INFECTION MÉNINGOCOCCIQUE. Par le Dr. Ch. Dopter, Professeur à l'École du Val-de-Grace. Paper. Price, 48 francs. Pp. 536, with 99 illustrations. Paris: Librairie J.-B. Baillière & Fils, 1921.

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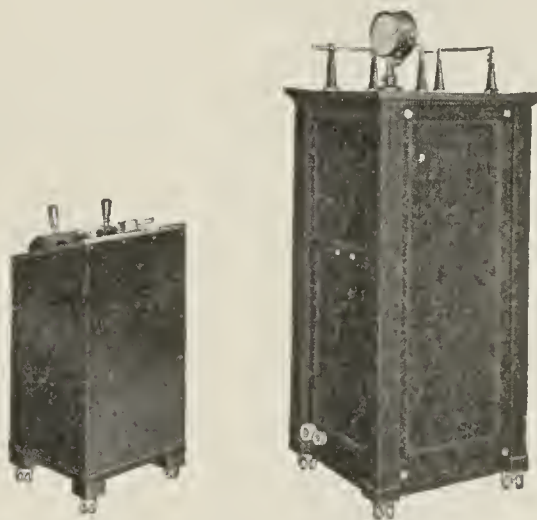
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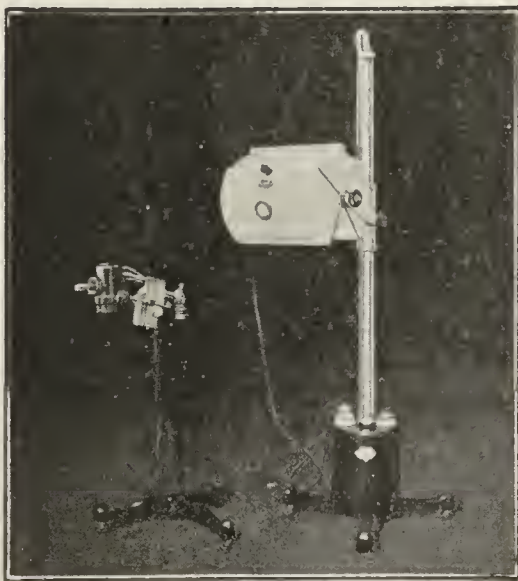
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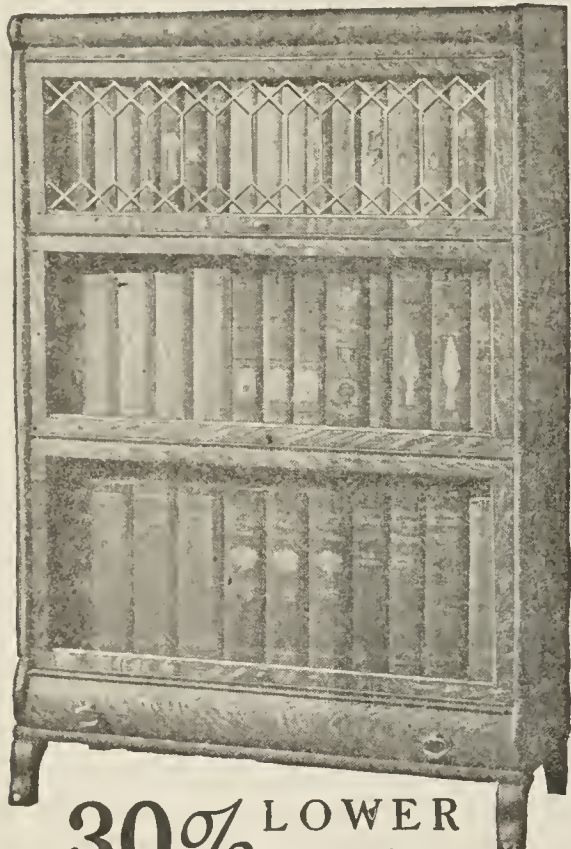
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(Continued from page 26)

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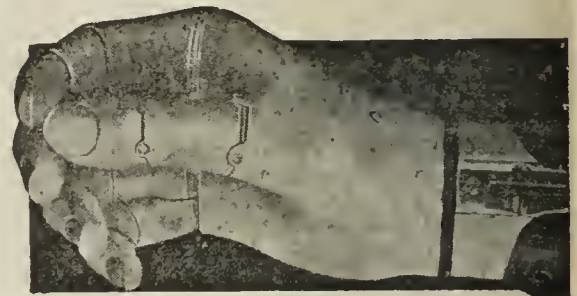
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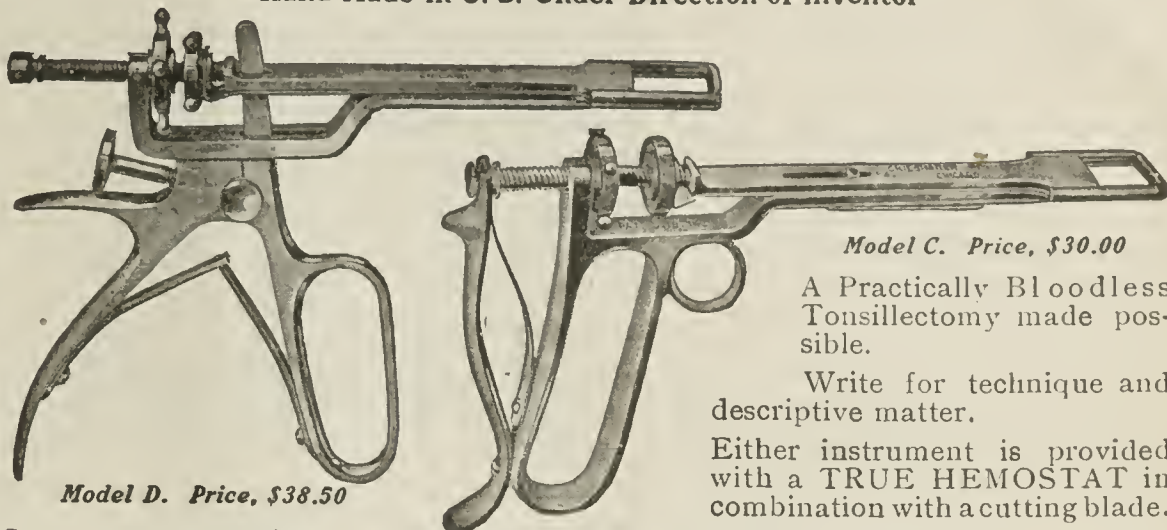
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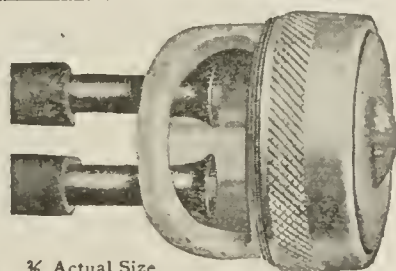
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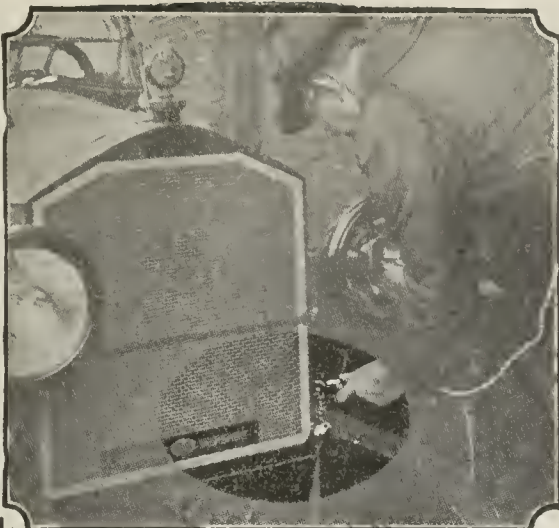
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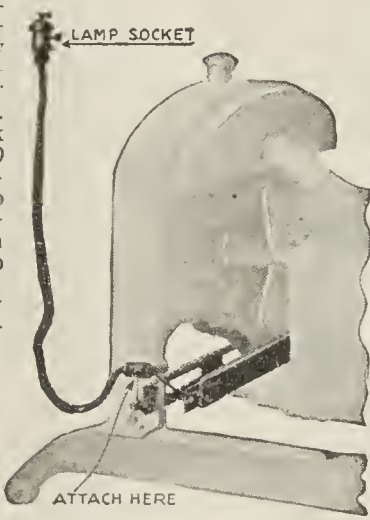
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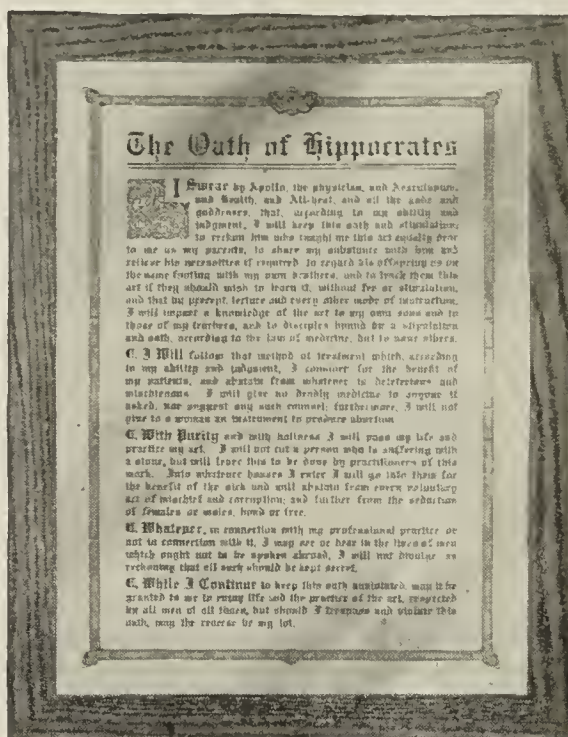
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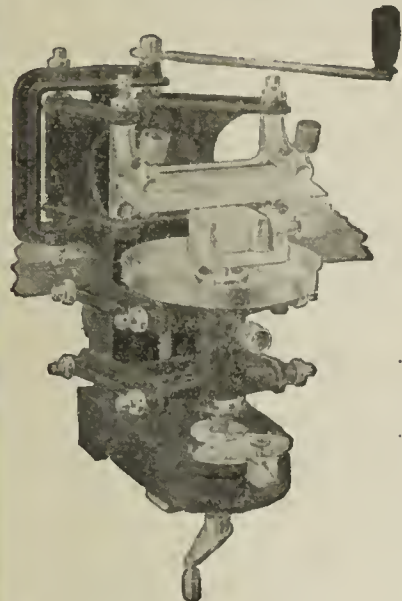
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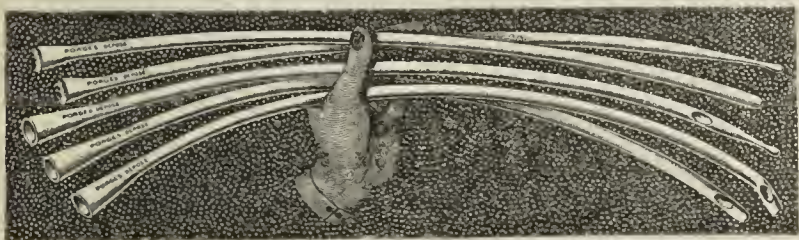
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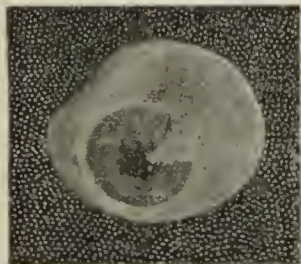
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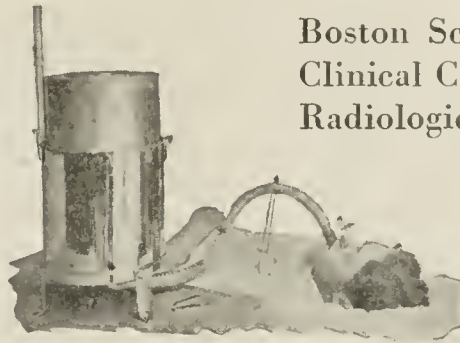
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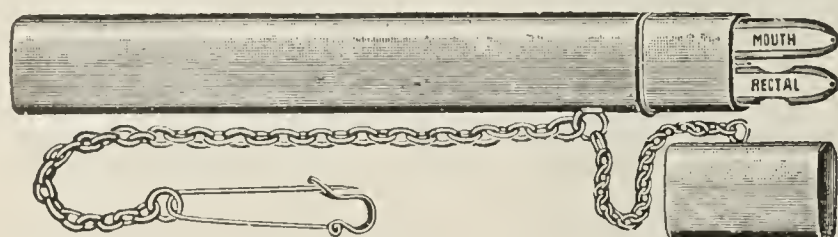
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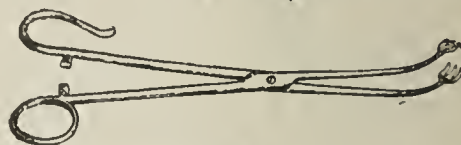
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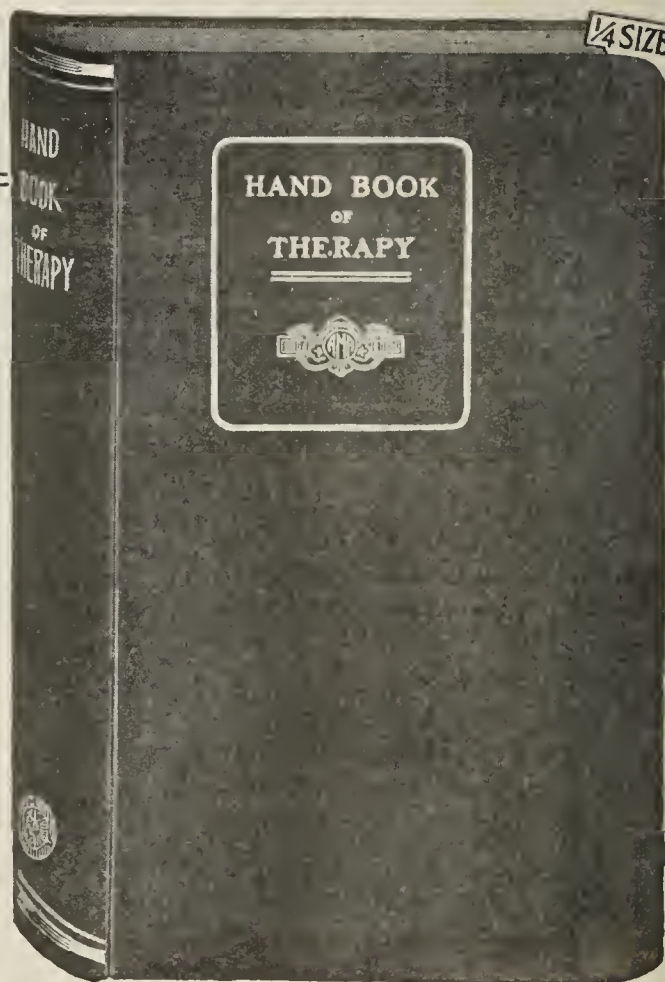
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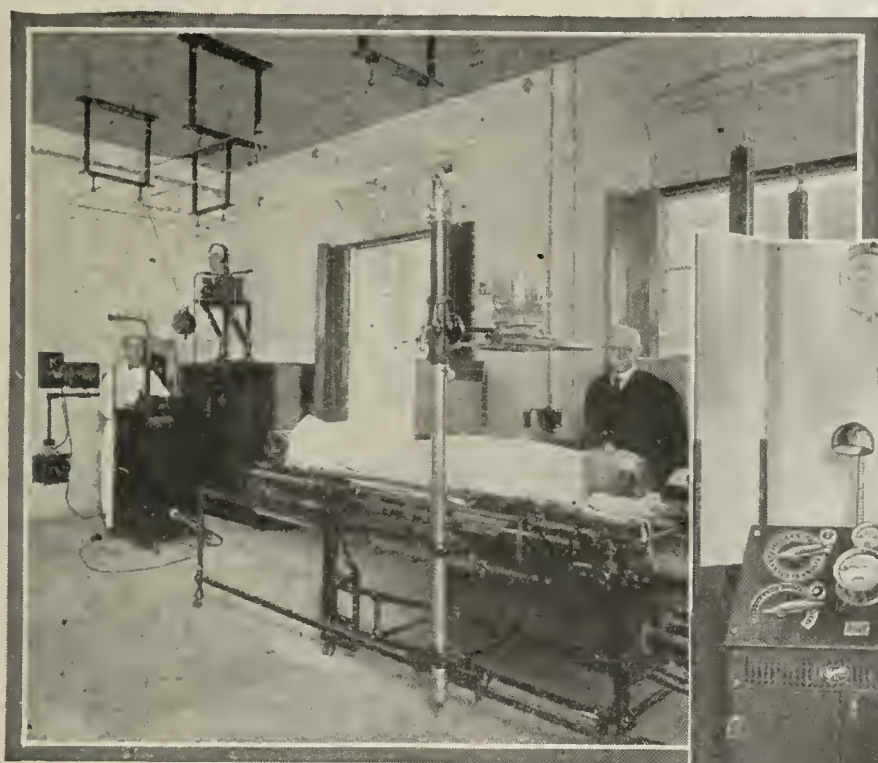


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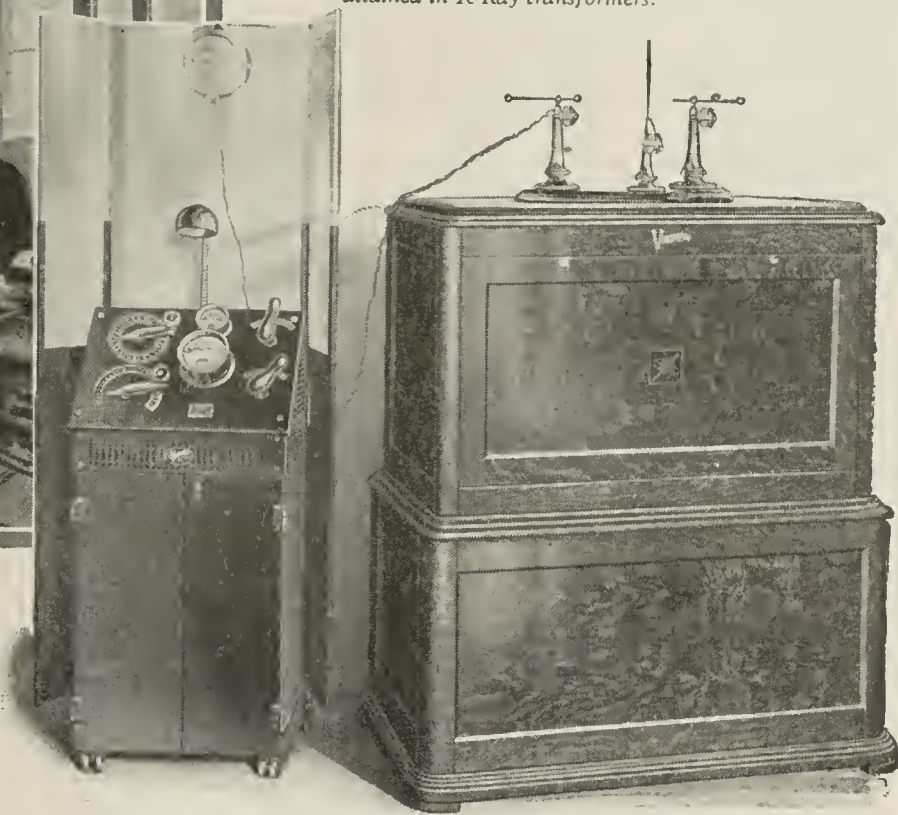
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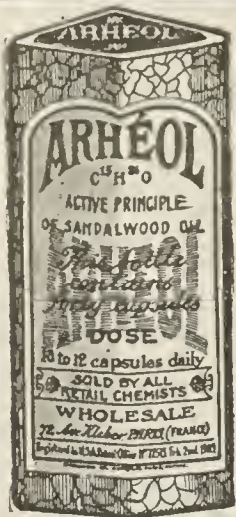
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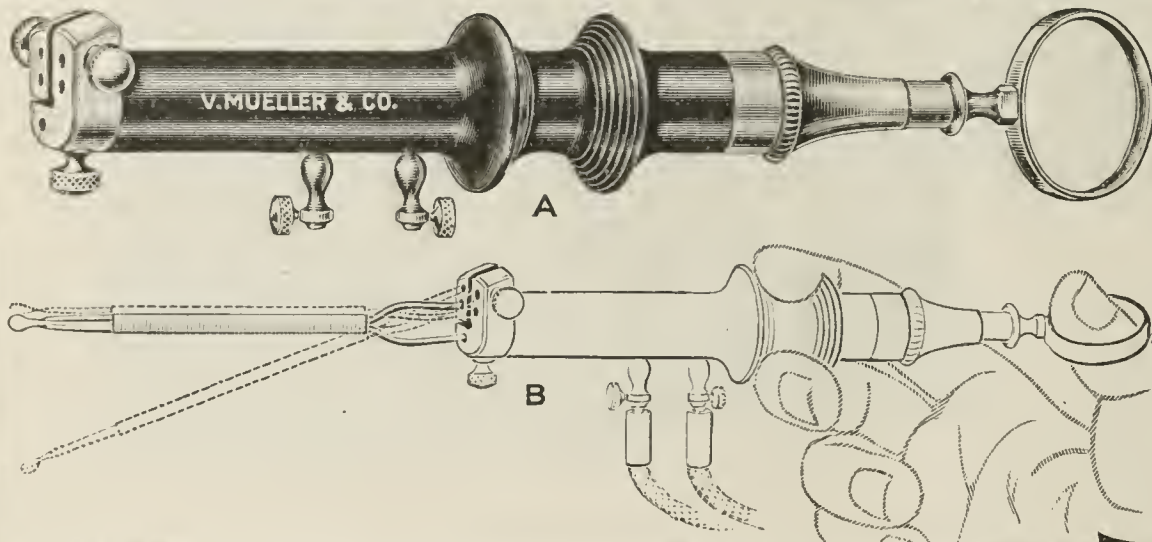
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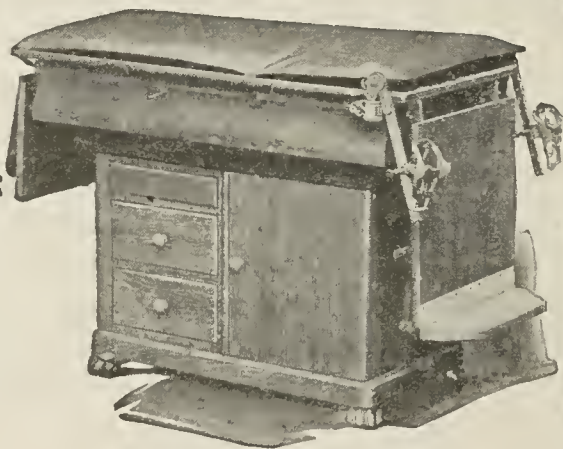
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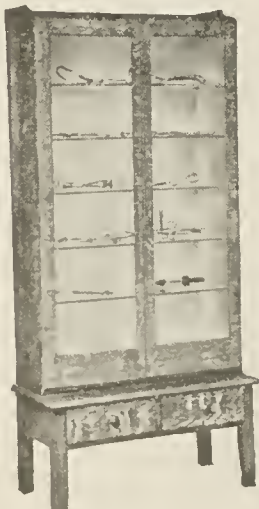
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10-11	Scrum and Vaccine Therapy (Lab.)	Operative Clinic	Instruction in the Fitting and Manufacture of Artificial Limbs; Vocational Education	Operative Clinic	Physio-Therapy Industrial Surgery Compensation Adjustments	Practical Brace Work in the Orthopedic Appliance Shop
11-12	Traumatic Surgery Incl. Fractures (C)					Mechanics of Bone and Joint Treatment
12-1	Neurological Lesions in Relation to Orthopedic Conditions Endocrinology (Second Monday) (D)	X-Ray	Diet in Its Relations to Orthopedic Conditions (First Wednesday)	X-Ray	Radium Therapy (D)	Plaster of Paris Technique
2-3:30 in First Month	Bone Pathology Neoplasms of Bones	Anatomy	Bone Pathology Tuberculosis	Anatomy	Bone Pathology	Anatomy
2-3:30 in Second Month	Bone and Joint Operations on the Cadaver (Six Lessons)	Tendon and Allied Operations on the Cadaver		Bone and Joint Operations on the Cadaver	Bone and Joint Operations on the Cadaver	Tendon and Allied Operations on the Cadaver
3:30-4:30	Clinic Poliomyelitis and Resulting Deformities (C)	Clinic Rickets, Scorbutus Congenital Dislocations	Clinic Congenital Syphilis and Arthritis Deformans Flat Foot, Club Foot and Hallux Valgus (C)	Clinic Bone and Joint Tuberculosis, General Consideration (C)	Clinic Torticollis Constitutional Affections Producing General and Local Distortions (C)	Clinic Scoliosis and Plaster Technique (C)
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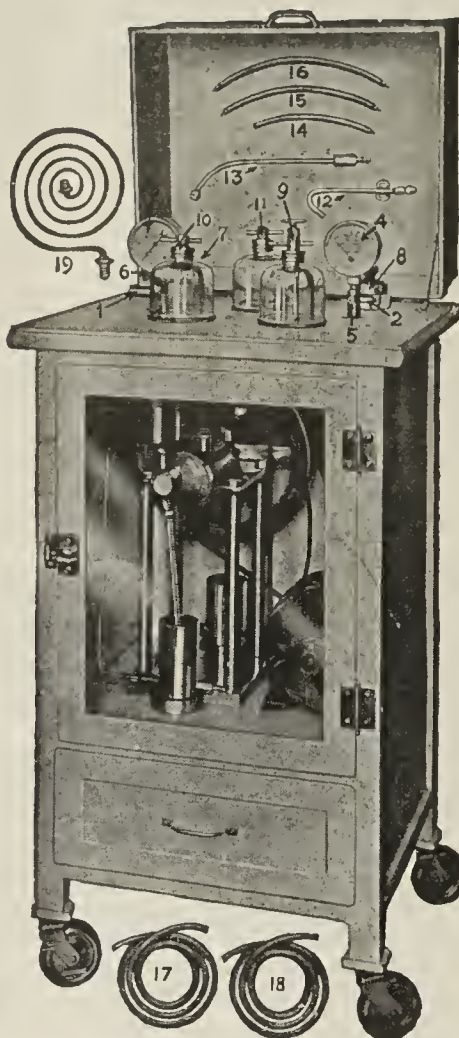
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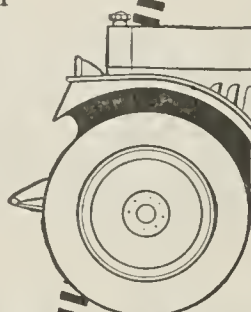
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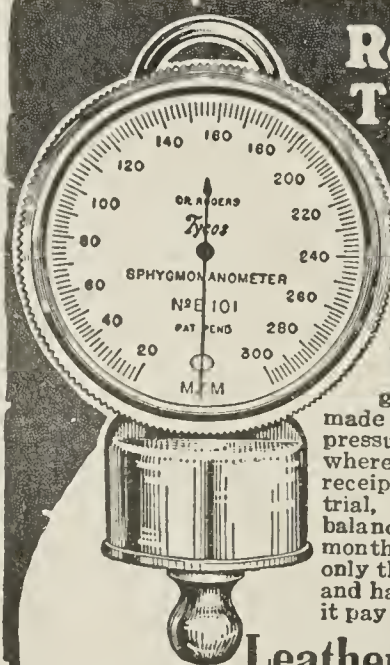
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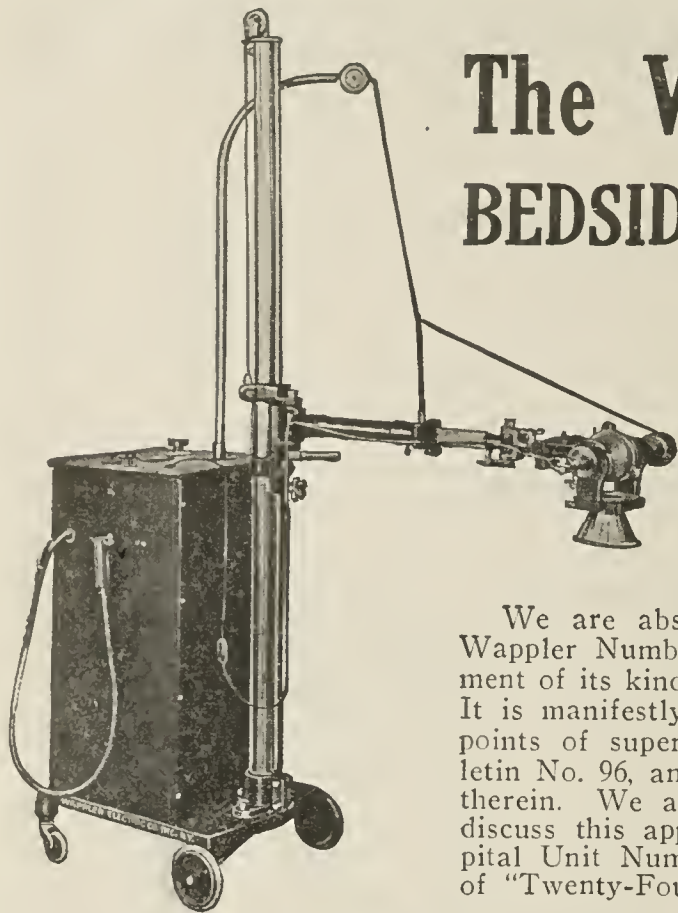
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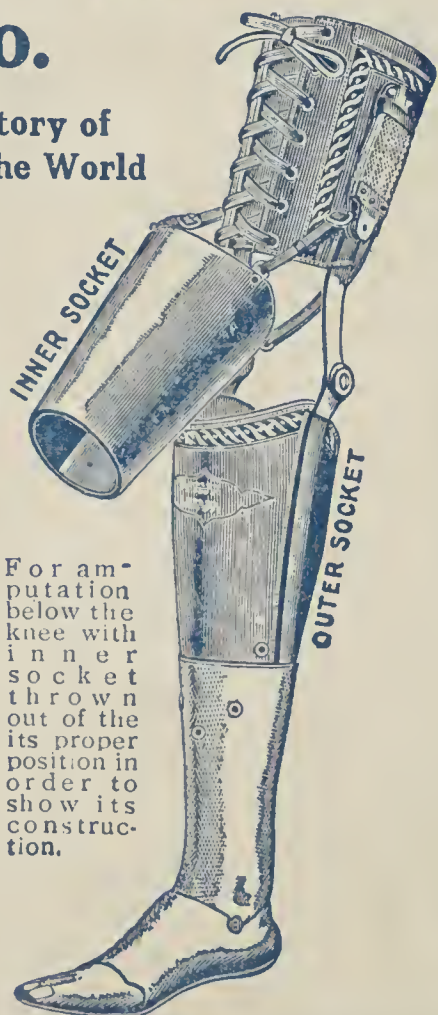
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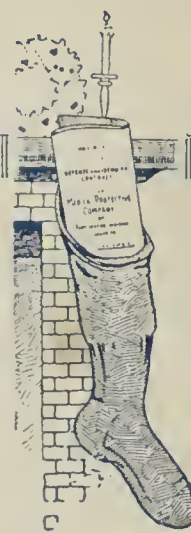
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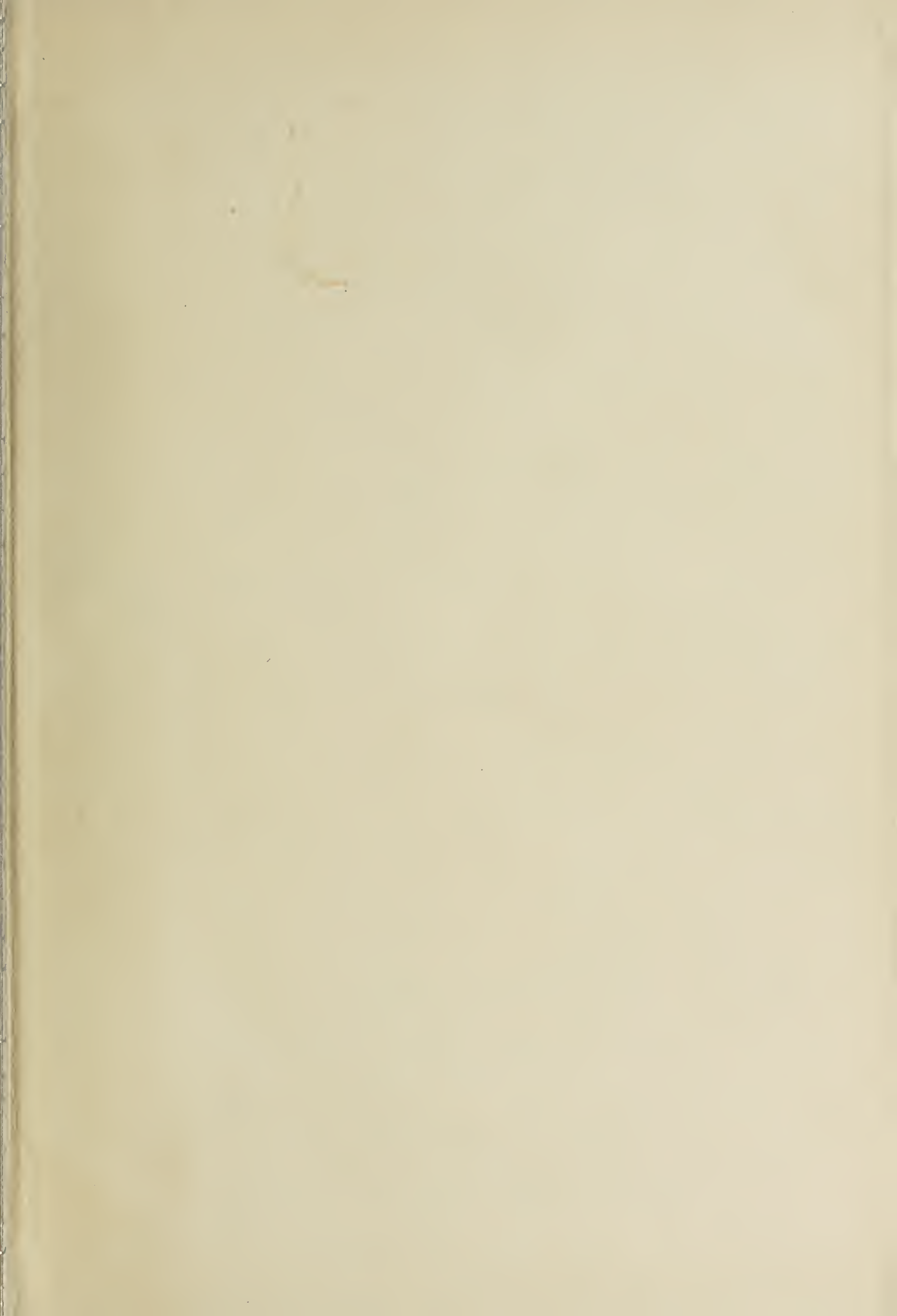
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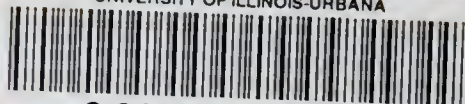
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